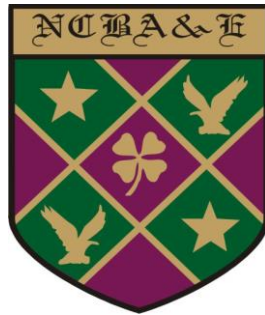


*National College of Business
Administration & Economics
Lahore*



**EFFECTS OF CURRENT
ACCOUNT DEFICIT ON INFLATION:
AN EVIDENCE FROM PAKISTAN**

BY

IQBAL ISHAQ

**MASTER OF PHILOSOPHY
IN
ECONOMICS**

APRIL, 2024

NATIONAL COLLEGE OF BUSINESS ADMINISTRATION & ECONOMICS

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BY

Iqbal Ishaq

**A dissertation submitted to
Faculty of Social Sciences**

**In Partial Fulfillment of the
Requirements for the Degree of**

**MASTER OF PHILOSOPHY
IN
ECONOMICS**

April, 2024



*In the name of ALLAH,
The Most Beneficial,
The Most Merciful,*

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Dissertation Committee:

Chairman

Member

Member

DECLARATION

It is to declare that this research work has not been submitted for obtaining similar degree from any other university/college.

IQBAL ISHAQ
April, 2024

DEDICATION

In the name of Allah, the Most Gracious, the Most Merciful.

I dedicate this thesis to the Almighty Allah, who has blessed me with the knowledge, strength, and perseverance to embark on this academic journey. His guidance has been my light in times of uncertainty, and His grace has fueled my determination to pursue excellence. I would like to offer my humblest thanks to the Holy Prophet Hazrat Muhammad (S.A.W.W) who is a source of guidance and knowledge for humanity.

To my beloved parents whose affectionate love, encouragement and prayers of day and night make me able to get such success, along with my hard working and respected supervisor Prof. Dr. Amatul R Chaudhary.

This thesis is a reflection of the collective efforts, sacrifices, and blessings bestowed upon me by Allah Almighty and my dear ones. May Allah continue to guide me on the path of knowledge and wisdom, and may His blessings be upon all those who have contributed to my academic journey.

ACKNOWLEDGEMENT

All praises and thanks to Allah Who blessed me with enough ability and competency to complete this dissertation. All praises to LORD ALMIGHTY, the most merciful compassionate and gracious, WHO made the man and gave the power of speech and thoughts, guide us in the ocean of darkness and enables us to overcome all the obstacles and difficulties. Also, to His Holy Prophet, "MUHAMMAD" (peace be upon him) the real source of knowledge and torch of guidance for the entire world forever.

I feel the deepest and heartiest gratitude for different personalities who have been very cooperative and helpful during the writing of this thesis. I owe a debt of gratitude to my kind supervisor Prof. Dr. Amatul R Chaudhary for his sympathetic attitude and knowledge suggestions during my entire research work.

I would like to acknowledge the role of valuable efforts of my supervisor throughout the duration of my research work as I always got the knowledge, guidance, and support required at each stage of my work. Moreover, the cooperation of the Head of the Department, Dr. Mussarrat Khadija Khan and Dr. Zahid Pervaiz is also appreciated as they were always available for assistance. I acknowledge the selfless support of my teacher and colleagues throughout the duration of my course work and research work as they were always contributing and supportive in my hour of need.

RESEARCH COMPLETION CERTIFICATE

Certified that the research work contained in this thesis entitled “**Effects of Current Account Deficit on Inflation: An Evidence from Pakistan**” has been carried out and completed by **Mr. Iqbal Ishaq** under my supervision during his **M.Phil. Economics** Programme.

(Prof. Dr. Amatul R Chaudhary)
Supervisor

SUMMARY

Objective: The objective of this study is to demonstrate how the current account deficit influence the rate of inflation in the economy of Pakistan. The economy of Pakistan has seen significant rates of inflation in the recent years as well as current account balance remained negative throughout its history, due to this Pakistan economy analyzed in this research work. The key objective of this effort is to support policymakers in developing measures that will lessen any negative impact on Pakistan's economy.

Methodology: Various econometric approaches are used in order to evaluate the correlation between variables over a period of time. The autoregressive distributed lag (ARDL) model is utilized to verify the long-term relationship between the variables, while the error correction model (ECM) is employed to investigate the short-term association between the variables. The data collection covers the years from 1971 to 2022.

Results: The research findings indicate a long term relationship of the variables to each other. The inflation and current account are related to each other over a longer as well as shorter duration while the association coefficient themselves are statistically insignificant and negative. . In the long and short term, a rise in the current account deficit leads to decline in inflation (CPI). The current account deficit has grown along with the rise in imports. A sizable portion of the country excess demand is being impacted by this rise in the current account deficit, it ultimately results in a both short- and long-term drops in inflation. The statistical significance and positive impact of the currency rate of exchange on inflation supports the significance of the pass through effect. Inflation is positively correlated with the growth of money supply both in the short or long run. A statistically significant positive correlation exists between inflation and growth of money supply.

Furthermore, inflation is statistically insignificant and positively impacted by increases in fiscal deficit (FD), and gross domestic product growth (GDP), while negatively impacted by the oil prices. The study findings showed that inflation is negatively impacted by global oil prices while shocks to the price of oil that are negative have no significant impact. Inflation has been a trend facing Pakistan's economy in recent years. Therefore, it is essential to identify the significant and relevant causative factors causing inflation. However, Granger causality test verified that there is a unidirectional causal relationship from money supply to inflation (CPI), and there is a bidirectional causal relationship between the fiscal deficit and inflation.

Suggestions: In order to stabilize inflation, officials should take the required steps to manage the currency rate. It is best to refrain from taking any action that encourages using foreign money instead of local currency. It should implement suitable monetary policies and protect the value of Pakistani currency. The study suggests that the state bank of Pakistan should implement a reserve holding policy while issuing new currency. It is suggested that government should be cautious in order to fund its fiscal deficit. Economic strategies must be implemented in order to promote exports and broaden the range of export of goods. The deficit in the current account would be reduced by the increase in exports, even in a scenario of rise in imports. The Government of Pakistan should stimulate the domestic industry and give incentives to local industries to manufacture real value-added goods. A combination of these approaches frequently promotes sustainable growth.

KEYWORDS

Inflation, Current account Deficit, ARDL, Pakistan.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The economic performance of a country is reflected by many macro-economic parameters like Gross Domestic Product (GDP), price stability, balance of payment (BOP), unemployment and debts (domestic and foreign). The primary goals of macroeconomic policy are to control inflation and maintain stable prices, to keep low unemployment, to ensure a sustainable balance of payments, and to achieve long term economic growth. The macroeconomic variables are influenced by each section of the balance of payments. The economy will be impacted by any adjustments made to the balance of payments sections. An essential section of the balance of payments is the current account balance, which includes the balance of primary and secondary revenue, the balance of commodities, and the balance of services. The balance of the current account consists of balance of trade and income flow such as tourism, banking services and insurance (Zaidi, 2015). The balance of the current account comprises exchange of services and products, primary and secondary income with the rest of the globe. While the trade accounts records a country's transactions for services and products with the rest of the globe.

An open economy is in fact a type of economic activity that involves not only national organizations but also organizations from other countries to trade products. A vast variety of products and services such as supply of labour, technological transfers, and inventions or innovations can be included in trade. In an open economy, apart from domestic markets, international markets also influence price levels. International markets performance is gauged through the trade balances and current account balances. Pakistan's trading pattern has undergone substantial transformation since 1947. The five main goods that Pakistan exported in 1948-49 were raw cotton, tea, raw jute and wool, hides and skins, and tea. In 1951-52, the only two products that made up 51 percent of Pakistan's exports were tea and raw jute. Pakistan's overall exports accounted for more than 47 percent in 1969-70, connected to raw jute and jute related manufactured goods came from East Pakistan. The pattern of trade in Pakistan experienced a major shift in 1971 with the creation of East Pakistan. East Pakistan contribution to trade and foreign exchange had been remarkable. Pakistan trade at current prices has expanded from 759 million US dollars in 1950-51 to 68 billion US dollars in 2011-12 an increase of about 90 percent. However due to inflationary trend at the constant prices trade rising from 2.9

billion rupees in 1950-51 to 17.11 billion rupees in 1994-95 a less than six-fold increase. (Zaidi, 2015). As reported by Finance Division (2023), the current account deficit and trade deficit from July to March 2023 were 3.4 and 20.4 billion dollars, respectively.

The Pakistan terms of trade has been unstable over the years like emerging countries, whose exports are dominated by primary goods with price swings. This may significantly affect the growth of these countries output (Broda and Tille, 2003). Other important causes for the terms of trade volatility include fluctuating global demand for domestically produced goods, political unrest, localized floods and drought (Baxter and Kouparitsas, 2000; Fatima, 2010). In an open economy quantity of commodities and services exported and imported all affects the inflation rate. When demand exceeds supply in an economy, inflationary pressures are created. Therefore, in order to respond to such high demand, the country is pursuing an import policy. Commonly, an increase in imports, the currency exchange rate can be reduced; therefore, increasing prices of imports might help to alleviate this inflationary pressure. Similarly, the imports of raw commodities by a nation, the local currency starts to depreciate and this then makes import prices more expensive. Hence, the cost of final product production is increasing due to an increase in input costs; higher imports are therefore leading to increased inflation. If domestic demand is not sufficient for the country to meet its own production, inflation could be reduced and surplus output exported to foreign countries in order to cope with this scenario. Thus, as a consequence of a rise in exports, the local currency appreciation also increases and thus slows down inflation (Ahmed et al., 2018).

Pakistan principal exports are agricultural products with fluctuating prices that are generally low over time. In addition, the country is heavily reliant on imported equipment, its cost has increased over time. Pakistan relies heavily on imported oil to cover its energy demands. As a result, any rise in prices of oil will raise the production cost, raising inflation. There are many studies showings that local inflation is positively influenced by oil prices (Khan and Ahmed, 2011; O'Brien and Weymes, 2010; Kiani, 2008). Exports can impact inflation due to the supply mechanism of domestic services and goods to home consumers. The prices of imported items directly influence inflation and in addition to having an indirect influence due to the competitiveness of local goods and services verses imported ones. Therefore, international trade acts as a free door and the pressure in the economy can migrate because of services and goods outflows and inflows (Dexter et al., 2005). Because of the influence of foreign inflation on national prices, high trade imbalances can lead to a higher inflationary pressure on domestic prices.

The components of current account balance such as, primary income and secondary income, current transfer particularly remittances from migrant workers are boosting development projects and meet the consumer demand that leads to the economic growth. Therefore, current account with all of its components affects the national economy. The Pakistan is an open economy country. Because of this, the foreign shocks are having an impact on the country economy. The economy of Pakistan depends mostly on imports to promote exports and economic expansion. Pakistan has begun to carry out a new strategy that maintains the current account balance in order to reduce inflation. Therefore, this study goal study is to ascertain how the current account deficit affects inflation.

1.2 PROBLEM STATEMENT

Pakistan inflation rate has reached an all-time high in recent years. The consumer price index (CPI) remained at 35.4% year on year in March 2023. The average CPI remained at 27.3% from July to March 2023, compared to 10.8% over the same period previous year (Finance Division, 2023). The growing inflation is a major threat to stability of the economy. Increase in commodity prices has directly affected the living standard of the peoples having lower income. The rise in prices is to blame for the declining real earnings and wages (Cecchetti, 2000).

Pakistan's negative current account balance indicates that capital inflows into the country have been less than capital outflows to abroad. During the period July to March 2023, the current account deficit is 3.4 billion dollars, while the trade deficit is 20.4 billion dollars (Finance Division, 2023). The economy of Pakistan is still in the process of growing and it is largely dependent on imports to speed up that progress, its exports are restricted and cannot compete in the international market. Pakistan major exports are agricultural and primary goods with volatile prices that are consistently low. Moreover, the country is extremely dependent on imported oil and equipment, and their costs have risen over time. Therefore, the economy of Pakistan faces the problem of current account deficit, trade deficit, imports are expensive, less costly exports and other factor such as money supply, depreciation of rupee, oil prices which have severe effects on the general price level. In our study the effects on inflation of the current account deficit from the period 1971 to 2022 will be quantified.

1.3 RESEARCH QUESTIONS

The investigation is focused on providing answers to the following questions.

- What is the influence of current account deficit on inflation?
- What effect does the exchange rate have on inflation?
- What connection exists between inflation and the money supply?
- How the fiscal deficit and inflation are connected?
- What effect does the gross domestic product have on inflation?
- What effect does the oil prices have on inflation?

1.4 STUDY GOALS

This inquiry goal is to ascertain the causes behind the lack of price stability in Pakistan. The study aims to achieve the following objectives.

- To find out how inflation is effected by current account deficit.
- To analyze how exchange rate, have an impact on inflation.
- Analyzing how the money supply affects inflation.
- To analyze how fiscal deficit impacts inflation.
- To analyze the gross domestic product impact on inflation.
- To analyze the impact of oil prices on the rate of inflation.

1.5 NULL HYPOTHESIS

The following hypothesis is formed, using the problem statement as a basis.

- Ho1:** There is no relationship between current account deficit and inflation.
- Ho2:** The relationship of inflation and exchange rate does not exist.
- Ho3:** The relationship of money supply and inflation does not exist.
- Ho4:** The relationship of fiscal deficit and inflation does not exist.
- Ho5:** The relationship of gross domestic product and inflation does not exist.
- Ho6:** The relationship of oil prices and inflation does not exist.

1.6 NOVELTY

There have been number of research studies conducted to investigate the causes of inflation. Inflation and balance of payments components are usually analyzed separately by the majority of studies. However literature based on estimate the current account deficit effects on inflation using econometric tools is not common in Pakistan. The autoregressive distributed lag model (ARDL) is utilized in our study to analyze long-term relationships, while the (ECM) model of error correction is utilized to analyze short-term correlations between the variables of the study throughout the period of 1971–2022.

1.7 JUSTIFICATION OF THE STUDY

This inquiry aim to evaluate the Pakistan’s current account deficit effects on inflation. As far as I am aware, there are not many studies in Pakistan that showing the effects of current account deficit on inflation. We really expect that our research study will assist decision-makers in controlling the current account deficit, boosting exports and maintain stable prices. It is possible that this study could be beneficial to the authorities to develop strategies that will lessen the impact of any adverse effects on the economy.

1.8 STRUCTURE OF THE DISSERTATION

This dissertation is organized in the following order: A research introduction is given in chapter 1. A summary of the pertinent literature is given in chapter 2. In chapter 3, the study theoretical foundation is given. The methodologies and sources of data are presented in chapter 4. The empirical findings of the investigation, which employed an econometric model to assess the influence of deficit in current account on inflation are provided in chapter 5. The research work major outcomes and policy recommendations are outlined in Chapter 6. At the end of this dissertation, references are provided.

CHAPTER 2

AN OVERVIEW OF INFLATION AND CURRENT ACCOUNT DEFICIT

2.1 INFLATION

A continuous rise in product prices over a specific period of time is referred to as inflation. This is because there is a lot of money in circulation, which fuels the current pattern of price increases. In general, considerable amounts of consumers buying power are linked to inflation. Therefore, a growth in buying power is a sign that the per capita income of the population is rising. Mild inflation (below 10% annually), moderate annual inflation (10-30%), severe annual inflation (30-100%) and hyperinflation (more than 100% annually) are four categories or tiers of inflation. The main idea about inflation that is still widely used as a guideline and benchmark by stakeholders is that stable inflation is a desirable situation. That is to say, excessive or insufficient inflation would be harmful to the economy (Djalo and Pudjowati, 2023). A lot of researchers both domestically and globally have investigated the factors that contribute to inflation. According to research by (Kremer et al., 2013; Ghosh and Phillips, 1998; Fischer, 1993) economic growth will be negatively impacted by high double-digit inflation rates. They have used all panel and cross-sectional data regressions for industrialized and developing nations in their research.

An extensive academic research is available on the causes of inflation showing ranging from foreign and domestic sectors to fiscal and monetary parameters (Friedman and Schwartz 2008; Keynes, 1936; Ahmed et al., 2014). After the great depression in 1930, majority of the economists were convinced that government intervention and fiscal policy play a significant role to control inflation. It was believed that market forces influence prices through cost push and demand pull factors. The Phillips Curve model presented by Phillips (1954) shows tradeoff between unemployment level and inflation. This model has been further modified by Lipsey (1960), Samuelson and Solow (1960) and found that level of unemployment is negatively connected with inflation. Inflation, in the opinion of monetarists, is a monetary phenomenon. In 1911, Irving Fisher developed a Quantity Theory of Money (QTM), which established direct and positive relationships between the money supply and increasing prices (Fisher, 2006).

Prior to the Russia-Ukraine war the world was concentrated on serious economic issues arising from COVID-19. In February 2022, Russia attacks

Ukraine causing a major economic crisis. The global inflation reached an all-time high above 6% in February 2022, its highest level since 2008. Prices have risen sharply for Russia and Ukraine supplied products for example energy, wheat, fertilizers, and various metals. The surge in food and energy prices resulting from Ukraine invaded by Russia has further fueled inflation (Guenette et al., 2022). Riazuddin (2023) mentioned that the causes of rising inflation are more multifaceted than the previous spell. Market based exchange rate, distribution of available foreign currency to importers and an upward trend in rates of hawala hundi reduce the flow of remittances via banking channels are leading to higher import prices. The political instability is another important cause of high inflation. According to the 2022 fragile state index, Pakistan is ranked 30th out of 179 countries in terms of fragility, with an index of (89.7). Consumer price index is more than 30% (YOY), while weekly inflation has been reported by more than 40% according to Sensitive Price Index (SPI). During the month of April, 2023, it was the 11th month in a row in which inflation was recorded more than 20%. In the 1970s, Pakistan was hit by a prolonged period of high rate of inflation because of international oil price shocks. In the early 1980s, a much smaller spell took place. The period of high inflation in 1990s was likewise quite long. It consisted up to 48 months. During this time, inflation was increased by more than 10%. A period of high inflation in 2007-2008, when oil prices rose from 87\$ per barrel in January 2007 to 194\$ in June 2008, then fell rapidly to 64\$ in June 2009 before stabilizing at 120\$. In August 2008, the Consumer Price Index reached to 26.1%. Throughout all of these time periods, the main reason of increased inflation was rapid growth in the money supply.

Price stability is an essential component of the economy for taking all types of economic decisions. When prices of products are stable in a country this stability would lead to a long-term economic growth and improves the social welfare of lower income peoples. Price stability is compulsory to enhance the investment and savings. The price stability is achieved, according to Qayyum (2006), when individuals decide not to take inflation while making decision. As Stated by Blinder, the price stability is attained when individuals in their business operation stop discussing about inflation. Fischer and Modigliani (1978) stated that Inflation is a significant economic issue compared to unemployment. Inflation is the tax on money holdings especially on the monetary base. Increase in prices is responsible for declining the real income and real wage. The adverse effect from supply shortage like rising prices of oil is also attributed to inflation that reduce the level of GNP (Cecchetti, 2000). Inflation is an unfair tax which badly harms the poor. They are normally asset poor and have limited option to safe themselves against inflation. Inflation erodes the financial savings of poor while protecting the wealthy who own real assets (Haque and Qayyum, 2006).

During the financial year 2022, CPI inflation remained at 12.2% relative to 8.9% during the financial period 2021. CPI inflation during quarter four of the financial year 2022 reaching 16.1%, against 10.6% in the same period 2021. In June 2022 core inflation reached to a 14-year high level. The global demand rises after post pandemic and Russia-Ukraine war. The main factors were responsible for increase in inflation was the ongoing increase in global commodity prices (food, energy and metal group). The supply shocks of commodities like edible oil, wheat and 23.1% depreciation of currency were also responsible for upsurge in inflation more during the period 2022 (State Bank of Pakistan, 2022).

According to Finance Division (2023) the consumer price index (CPI) remained at 35.4% (Year-on-year) in March 2023. The average CPI during the period from July to March 2023 stayed at 27.3% compared to 10.8% during the same duration last year. State Bank raised interest rate to 21% in order to curb the continuously rising inflationary pressure. During the period from July to March 2023, current account deficit was 3.4 billion dollars and similarly trade deficit was 20.4 billion dollars.

Over the past ten years, Pakistan has seen a higher inflation rate. As shown in table 2.1 below, the inflation rate of Pakistan dropped from 12.4% to 9.5% between 2010 and 2021. In 2022, inflation rate rose to 19.87% in Pakistan (WDI, n.d.).

Table 2.1
Annual Percentage Consumer Prices

Years	Inflation
2010	12.94
2011	11.92
2012	9.68
2013	7.69
2014	7.19
2015	2.53
2016	3.77
2017	4.09
2018	5.08
2019	10.58
2020	9.74
2021	9.50
2022	19.87

Source: World Development Indicator, n.d.

Figure (2.1), is the graphical presentation of annual figures given in (Table 2.1). The graphs show the consumer prices of Pakistan fluctuates with the passage of time.

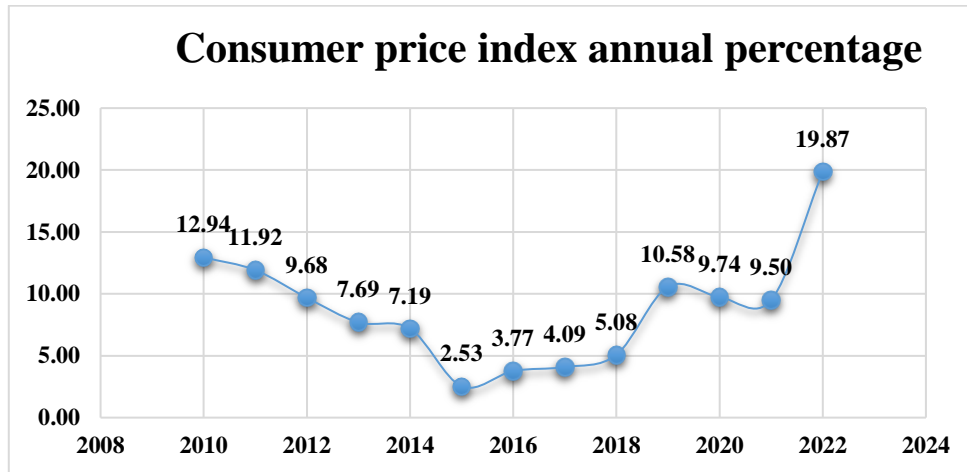


Figure 2.1: Annual Percentage Consumer Prices

2.2 CURRENT ACCOUNT DEFICIT

The Pakistan economy is dealing with a vast current account deficit, and the country current account balance has historically been remains negative. The statistics given by Finance Division (2023) show that the average current account deficit in the 1980's period was 3.9% of GDP, 4.5 % of GDP in 1990's and in 2000's it was 3.9 % of GDP. In accordance with Keynesian absorption theory, budget shortfalls exacerbate trade deficit (Keynes, 1936). The absorption theory of Keynes states that, a continuous increase in budget deficit would lead to a rise in domestic absorption, especially in domestic earnings. An increase in national income would probably result in an increase in imports, thus leading to a trade deficit (Aworinde, 2013). Mundell (1962) and Fleming (1963) models in open economy, an expansion of the money supply unambiguously leads to a weakening of the currency. However, there are two counter-effects on the current account balance. In one sense, the currency depreciation increases net exports: the opposite hand, imports tend to rise as the domestic economy grow. The policy tests on such models appear to imply that these impacts virtually cancel each other out. The increase in the budgetary deficit raises interest rate, which leads to rise in capital inflows and currency appreciation. Ultimately local currency appreciation will widen the deficit of current account.

Table 2.2 below depicts how Pakistan's balance of current account changed from 2010 to 2022, going from -3946 to -17481 million US dollars (SBP, n.d.).

Table 2.2
Current Account Balance in Million US\$

Years	Q1	Q2	Q3	Q4	Annual
FY10	-981	-1589	-536	-840	-3946
FY11	-542	564	-32	224	214
FY12	-1,367	-1,032	-639	-1,620	-4,658
FY13	439	-522	-1,172	-1,241	-2,496
FY14	-1,315	-688	-689	-438	-3,130
FY15	-1,651	-838	518	-738	-2,709
FY16	-540	-1362	-449	-1043	-3394
FY17	-1660	-3063	-3267	-4631	-12621
FY18	-4469	-4560	-4560	-6308	-19897
FY19	-4112	-4211	-1961	-3150	-13434
FY20	-1719	-1728	-700	-302	-4449
FY21	797	-446	-626	-2545	-2820
FY22	-3560	-5552	-3902	-4467	-17481

Source: State Bank of Pakistan, n.d.

Figure (2.2), is the graphical presentation of quarterly and annual figures given in (Table 2.2). The graphs demonstrate that Pakistan's current account balance remains negative over time. The deficit in the current account quickly increased after the financial year 2015.

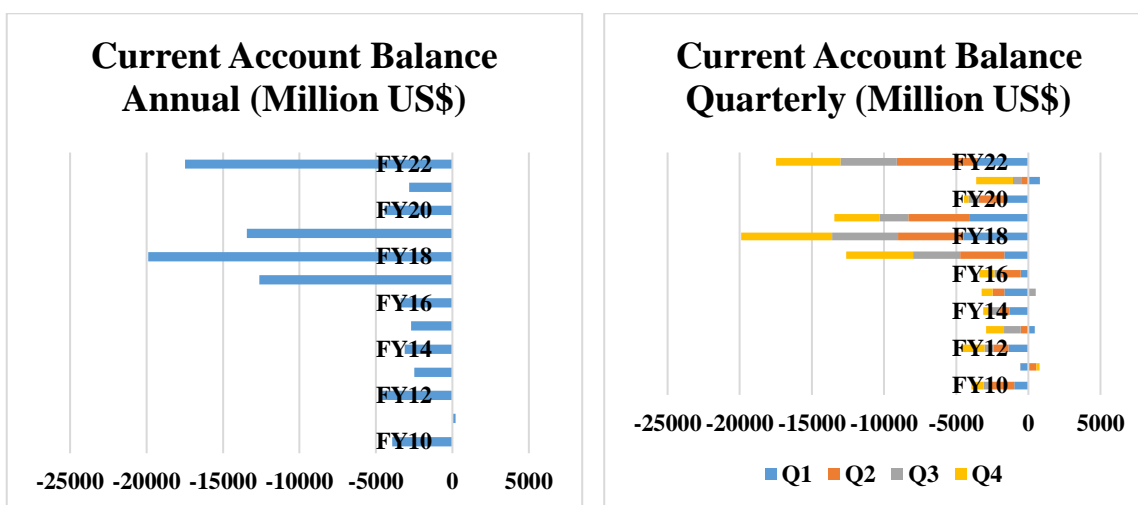


Figure 2.2: Current Account Balance in Million US\$

Table 2.3 depicts how Pakistan's trade balance changed from 2010 to 2022, going from -13,226 to -44,890 million US dollars (SBP, n.d.).

Table 2.3
Trade Balance in Million US\$

Years	EXPORTS			IMPORTS			TRADE BALANCE		
	Goods	Services	Total	Goods	Services	Total	Goods	Services	Total
FY10	19673	5229	24902	31,209	6,919	38,128	-11,536	-1,690	-13,226
FY11	25355	5768	31124	35,872	7,708	43,580	-10,517	-1,940	-12,456
FY12	24,696	5,035	29,731	40,461	8,227	48,688	-15,765	-3,192	-18,957
FY13	24,795	6,733	31,528	40,226	8,205	48,431	-15,431	-1,472	-16,903
FY14	25,078	5,345	30,423	41,668	7,995	49,663	-16,590	-2,650	-19,240
FY15	24,089	5,880	29,969	41,280	8,843	50,124	-17,191	-2,963	-20,155
FY16	21,972	5,459	27,431	41,255	8,865	50,120	-19,283	-3,406	-22,689
FY17	22,003	5,555	27,558	48,683	9,894	58,577	-26,680	-4,339	-31,019
FY18	24,768	5,288	30,056	56,592	11,356	67,948	-31,824	-6,068	-37,892
FY19	24,257	5,966	30,223	51,869	10,936	62,805	-27,612	-4,970	-32,582
FY20	22,536	5,437	27,973	43,645	8,753	52,398	-21,109	-3,316	-24,425
FY21	25,639	5,945	31,584	54,273	8,461	62,734	-28,634	-2,516	-31,150
FY22	32,493	7,102	39,595	71,543	12,942	84,485	-39,050	-5,840	-44,890

Source: State Bank of Pakistan, n.d.

Figure (2.3), is the graphical presentation of annual figures given in (Table 2.3). The graphs show the trade deficit in goods and services remain negative with the passage of time and there is a quick increase in trade deficit.

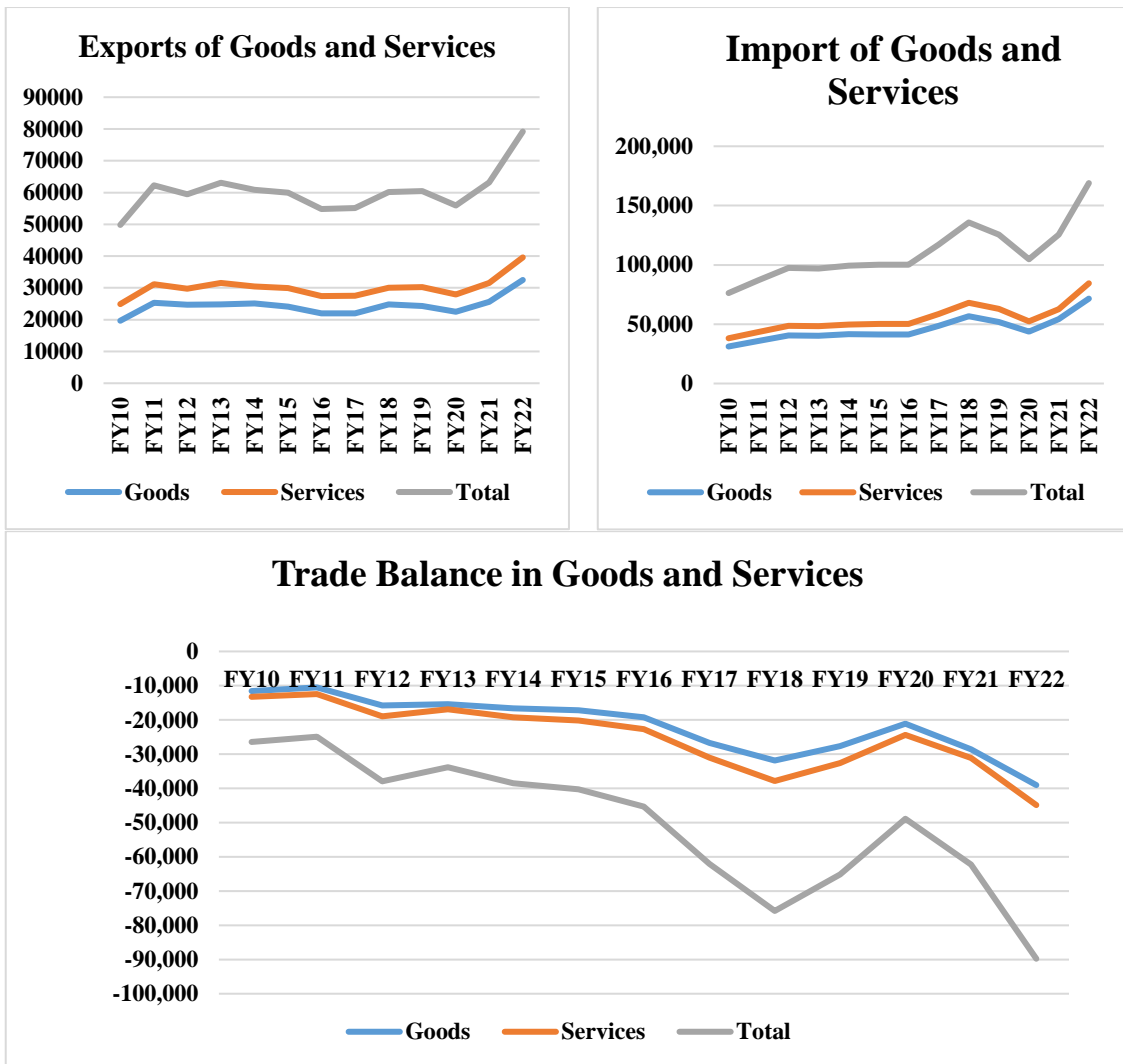


Figure 2.3: Trade Balance in Million US\$

The quarterly changes in Pakistan's goods and services trade balance from 2010 to 2022 are shown in Table 2.4 (SBP, n.d.).

Table 2.4
Quarterly Trade Balance in Goods and Net Services
in Millions of US Dollars

Years	Trade Balance (Goods)				Net Services			
	Quar. 1	Quar. 2	Quar. 3	Quar. 4	Quar. 1	Quar. 2	Quar. 3	Quar. 4
FY10	-2,850	-3,010	-2,335	-3,341	-704	-822	-416	252
FY11	-2,991	-2,781	-2,385	-2,359	-651	303	-716	-876
FY12	-4,241	-3,776	-3,820	-3,928	-746	-619	-732	-1,095
FY13	-3,661	-4,295	-3,694	-3,781	148	-138	-715	-767
FY14	-4,384	-4,266	-3,830	-4,110	-908	-600	-620	-522
FY15	-6,064	-3,873	-3,243	-4,011	-661	-839	-259	-1,204
FY16	-4734	-5089	-4338	-5122	-556	-971	-948	-931
FY17	-5276	-6107	-7096	-8201	-1162	-1101	-616	-1460
FY18	-7753	-7456	-7886	-8729	-1572	-1449	-1299	-1748
FY19	-8011	-7626	-5624	-6351	-1412	-1203	-873	-1482
FY20	-5281	-5625	-4949	-5254	-1178	-892	-791	-455
FY21	-5349	-6620	-7380	-9285	-663	-684	-596	-573

Source: State Bank of Pakistan, n.d.

Figure (2.4), is the graphical presentation of quarterly figures given in (Table 2.4). The graphs show the trade balance in goods and net services of Pakistan remain negative with the passage of time.

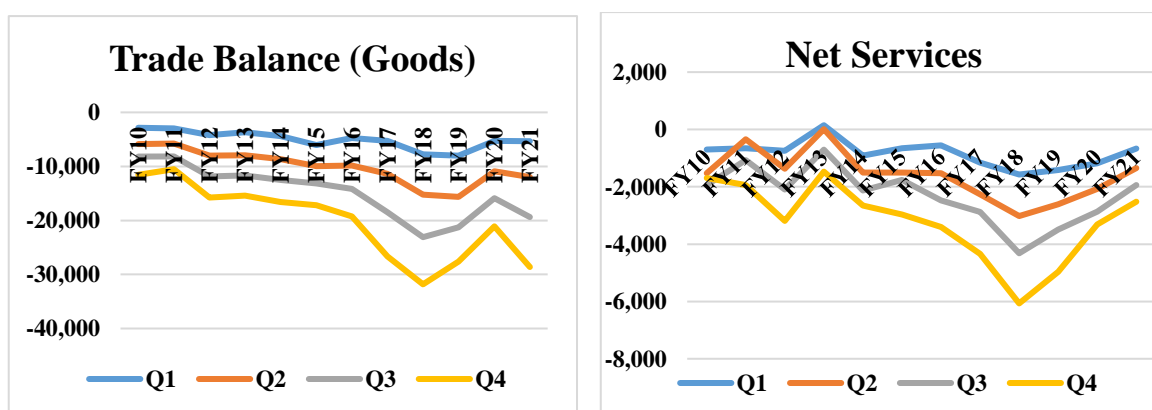


Figure 2.4: Quarterly Trade Balance in Goods and Net Services in Millions of US Dollars

Pakistan's current account balance and inflation rate from 2010 to 2022 are shown in the tables and figures above. As illustrates in table 2.1, in Pakistan, the rate of inflation decreased from 12.4% in 2010 to 9.5% in 2021. Pakistan's inflation rate increased to 19.87% in 2022. Pakistan's current account balance varied from -3946 to -17481 million US dollars between 2010 and 2022, as shown in Table 2.2. We find that there is a direct relationship between inflation and the current account deficit, which have both increased during this time frame. The current account deficit and the inflation rate are positively correlated, during Pakistan's time of flexible currency rate. The rationale behind the depreciation of exchange rate is the worsening current account balance under the flexible system. Inflation has gone up as a result.

CHAPTER 3

LITERATURE REVIEW

3.1 BALANCE OF CURRENT ACCOUNT AND INFLATION

Deficits in current accounts in developing countries are typically caused by factors like energy dependence or the rise in oil prices. According to empirical research evaluations, the burden of energy expenses rises when energy prices rise in most emerging countries. (Kamugisha and Assoua, 2020; Bayraktar et al., 2016; Bitsiz et al., 2008). One consistent theme runs across nearly all research studies on current accounts and inflation: in the vast majority of emerging nations, the exchange rate is the primary factor driving inflation (Ebeke & Fouejieu, 2018; Reyes, 2007). U.S. savings were insufficient to fund domestic investment in the 1980s, when discussing the balances of saving, investment, and import or export. As a result, foreign capital supported investments. Although this situation does not establish the existence of a causal connection between these variables, income, interest rate, and currency rate are only a few of the many other factors that influence this balance (Howard, 1989).

The emerging market most at risk of experiencing more currency depreciation are those with the highest current account deficits due to the volatility that emerged after the 2008 financial crisis. As uncertainties hang over the markets, this is assumed to be the cause, consequently, it will be challenging to finance the current account deficit. The currency needs to be undervalued to encourage capital inflow. As the currency exchange rate rises, the cost of imported items rises, pushing up prices of commodities and ultimately leading to inflation (Kılınç et al., 2016).

A research by Erkan (2023) determined whether lowering inflation and fall in exchange rate would contribute to lessen the deficit in current account. The Vector Auto Regressive model has been utilized to assess the link inflation, between real exchange rate, and balance of current account in Turkey. Monthly data for the years (2003-2021) were utilized for this purpose. The research conclusions showed that the real rate of exchange does not have any relation to the current account balance except for minor responses while assessing impulse response. According to the study findings, current account balance and inflation have a short-term impact on one another but their impacts are diminishing over time. In addition, it discovers that inflation is considerably influenced by the currency rate passing through effect.

Yildirim and Vicil (2022) applied a nonlinear approach (NARDL) to analyze the manner in which Turkey's inflation and current account balance are related. The data were used from 2002 to 2021 for this inquiry. They discovered that the current account is cointegrated with inflation over the long term although this impact is not statistically significant. In addition, dollarization and lag CPI values significantly affected current inflation which demonstrating the importance of pass through effect, inflation inertia and expectations.

The study of Behera and Yadav (2019) shows that expansion of the current account deficit (CAD) is caused by a decline in investments and savings. It was also discovered that investments in portfolios and foreign direct investment (FDI) have financed a significant portion of India's CAD which are somewhat substituted by irregular short-term shifts. Moreover, the study results demonstrate that inflation as well as other factors such as trade openness, growth in terms of trade drives the current account.

Alawin and Oqaily (2017) has shown how Jordan current account deficit contribute to inflation. To ascertain whether inflation has a relationship with the current account balance, theoretical and statistical techniques such as model of error correction for short term and cointegration analysis for long run analysis are adopted. A short run analysis shows a positive association between current account deficit and inflation as the situation does not allow to produce sufficient quantities of goods to replace imports leading to high prices. The study results have shown that inflation is negatively related with long term current accounts deficit. In fact, in long term perspective current account shortfall absorbs both the excess national demand and economy flexibility to create alternatives.

Ferrero (2015) shows that domestic shocks cannot be blamed for the drop in global real interest rate. These shocks demonstrate the negative connection between the US current account and housing prices. Consequently, monetary policy consideration has little effect on current account and housing prices.

Ang and Sek (2011) studied the factors that affected the current account balance in five countries with positive current account balances and five with negative balances from the period 1973-2010. Generalized moment approaches have been utilized. According to the results, the CPI, global oil prices, interest rates, and currency rates are the primary variables affecting current account deficits. Whereas trade openness and terms of trade are the major variables affecting current account surpluses.

Narayan et al. (2011) performed research to identify the factors causing inflation both in the long term and short term perspectives. By analyzing panel

data from 1955 to 2004 on 54 countries that have not yet developed their economies. For this purpose, a variety of statistical approaches have been utilized such as Arellano Bond Panel, Bover (1995), Blundell & Bond (1998) generalized method. Inflation was analyzed by remittances from migrant workers and institutional factors. The empirical evidence reveals that remittances in underdeveloped countries are associated with inflation and contribute positively and significantly to the rate of inflation. Moreover, the contribution to reducing inflation is made by improving democracy. In addition, inflation rate was positively impacted by each of these variables: openness, agricultural sector, current account shortfalls, debt, and the short-term interest rate in the (U.S.).

Mallick and Mohsin (2010) statistically and theoretically highlighted the relationship between investment, balance of current account and consumption in response to an inflation shock. The quarterly data of four economies (the United States, Italy, Canada, and United Kingdom) were used to estimate the impulse response and correlation under vector autoregressive (VAR). This study discovered that impact of inflation on consumption and real investment is negative both in short and in long run. However, balance of current account and inflation are positively related in the long term.

Sobrino (2010) investigates how targeting inflation affects current account by taking into consideration external factors like the worldwide US growth rate, prices of oil and real rate of interest. To assess targeting impacts on current account, build up a basic regression model and utilize a thirty five-year imbalanced panel data for nineteen targeters. The findings demonstrate that after taking worldwide fluctuations into consideration, inflation targeting has an inverse impact on current account. This confirms to the fact that inflation targeting should not be led by balance of payment (BOP) and exchange rate issues.

Rose (2007) study also pointed out that there is not much of a link between current account and inflation targeting. There was not a noticeable distinction between targeters and non-targeters according to his study. In most targeters' case, the current account information indicates a gain after the inflation targeting has been adopted. This matter has significant including South Korea, Brazil, and Thailand implemented inflation targeting after a balance of payments problem.

A model has been devised by Mansoorian and Mohsin (2006) to analyze the connection between inflation, employment, investments, consumption, and current account balance. The conclusions indicates that a country consumption

of products would decrease as its inflation rate increase and individuals swap leisure for consumption. As a result, less labour and capital will be invested. The drop in capital investments will also lead to a fall in the requirement for imports, which may lead to a short-term increase in inflation rate.

According to Hooper and Morton (1982), fluctuations in the current account balance have an impact on the exchange rate in addition to other elements including monetary causes. Expected US inflation, for example, has a crucial effect.

3.2 TRADE AND INFLATION

The dynamic connection between trade in commodities and services, imports, exports and inflation has been the subject of much investigations. A few studies that examine the aspects of trade, import, export, and inflation are listed below:

The study conducted by Aissa and Djedi (2023) aimed to tackle a significant issue related to understanding the impact of implementing a policy of restricting imports on Algeria inflation and growth. According to the study, a one billion US \$ drop in imports results in a price increase of 1.07% for consumer and producer goods as well as drop in the GDP by 0.3%.

The study by Chhabra et al. (2022) attempts to look at how the BRICS countries openness to trade and production gap affected inflation between 1999Q1 to 2018Q4. This study looks at the causal link between components by employing Dumitrescu and Hurlin (2012), and the long-term association is examined using the Dynamic Common Correlated Effect (DCCE) model. The results imply that a more liberal trade policy contributes to a decrease in growing inflation. The export openness effect on lowering prices reduces the effect of imports on inflation.

Awan and Mukhtar (2019) study highlighted Pakistan economy in term of trade balance. To explore the association between variables, time series data from 1980-2017 were obtained from multiple sources. Many statistical methodologies were used to estimate the effect of balance of trade on Pakistan's growth rate. The negative trade balance has a detrimental impact on country trade. The trade deficit was utilized as a dependent variable, whereas GDP, trade volume, and FDI were used as independent factors. According to the findings of this study, trade volume and GNI are both adversely and favorably associated to trade equilibrium over time. Additionally, trade imbalance and foreign direct

investment are favorably associated in the long term, but statistically inconsequential in the short term.

The link between import, export and inflation in Pakistan has been illustrated by Ahmed et al. (2018). Monthly figures for the period from 2001 to 2017 were considered in this study. A model for error correction was employed to investigate the short-term association between variables and co-integration technique was used for long run correlation. The causal link between factors were assessed using the causality approach. The study's findings clearly suggested that imports and exports have a positive relationship with inflation in both long and short run. It is found that over the long term 1% rise in exports and imports leads to a 0.57% and 0.63 % change in inflation, respectively. A short run analysis showed that inflation deviates from equilibrium by 1.18% each year and is adjusted accordingly. Where the Granger causality demonstrated the greatest effect of exports on inflation rate. In addition, Granger and Yamamomos causality test proposed there is no proof of import and export changing monthly inflation rates in the Pakistani economy.

A study has been conducted by Raza and Afshan (2017) looking at the exchange rate determinants in Pakistan between 1972 to 2013 using time series analysis. The study conclusions indicate that exchange rate has an inverse relationship with trade openness, terms of trade, and growth but a favourable relationship with the supply of money and the rate of inflation.

By applying data from 1971 to 2012, Ahmed et al. (2014) brought attention to the short- and over time inflation tendencies. The Johansen approach and the error correction model are used to validate the dynamics of inflation. The results of the investigation show that various factor such as GDP, Current Govt. Expenditure, money, imports, output gap and energy crises all positively contribute to inflation. The impact of exports on inflation is insignificant. So, Pakistan experiences both supply and demand side inflation.

Muktadir and Shafiullah (2014) explores how imports and exports are related to inflation in Bangladesh, by taking into account monthly time series information covering the years 1994 to 2011. In this work, a number of econometric methods have been implemented to measure the short and long run connection between elements. Through the use of cointegration method it is discovered that over time, the inflation rate increases by 3.21% and drop by 1.91% for every 1% increase in imports and exports, respectively. The coefficient of error correction shows inflation rate towards long run equilibrium is adjusted by 0.09% every year.

Afzal et al. (2013) found that the short-term inflation and openness is more negatively correlated than the long-term. For this purpose ARDL technique is used. Furthermore, a two-way causal connection between inflation and openness is discovered. It is noted that inflation and real GDP have a positive relationship, which appears to be consistent with Okun's law and the Phillips curve. The research suggests that in order to minimize inflation and boost economic growth should implement such policies that encourage openness. This investigation supports the Romer (1993) theory, i.e., Pakistan experience from 1970–71 to the year 2008–09 of a negative connection between inflation and openness.

Emeka, Fredrick, and Peter (2012) employed time series information from the period 1970-2008. They used bi-variant and multi variant models of macroeconomic parameters to look the consequences of trading with other nations and export on Nigeria's economy. The findings indicate that exports have a favourable and foreign investment (FDI) have a considerable impact on the Nigerian economy. They suggest in their Policy Recommendation that for the purposes of achieving Nigeria's economic objectives, it is appropriate to link fiscal policy with exports.

Ulke and Ergun (2011) investigated the relationship between imports and inflation in the Turkish economy using monthly time series information from 1995 to 2010. Numerous econometric approaches are used in this study. The analysis demonstrates that import and inflation have a link in long and short terms. Moreover, same analysis demonstrated that unidirectional causal connection between import and inflation.

Abidemi and Malik (2010) conducted a thorough analysis of the link that exists between inflation and its causes. Time series information from 1970 to 2007 were utilized for this purpose. The reasons of inflation are examined using a variety of statistical techniques, including the Johansen technique and the model for error correction. The study conclusions have shown that inflation in Nigeria is positively correlated with imports.

Al Nasser et al. (2009) investigated the connection between trade openness and inflation for 152 nations from 1950 to 1992. It was discovered that the point of view made by Terra (1998) on the inverse correlation between trade openness and inflation in highly indebted countries was not valid throughout the 1990s. Their findings, however, confirmed Romer's (1993) key finding that there is an adverse association between trade openness and inflation.

McCarthy (2007) investigated import prices and pass through of currency rate effects on inflation. Consume prices are pass-through by a variety of factors, including indirect effects from import prices. The volatility of exchange rate had a reduced impact on inflation in many advanced countries. There are eight variables in the VAR model: output gap, import prices, PPI, CPI, oil prices, rate of short run interest, rate of exchange and money growth. The orthogonalized VAR reduced form residuals are used to identify structural shocks using a Cholesky decomposition. Import prices and exchange rate shocks contribute relatively little to US deflation. Moreover, CPI, oil prices and PPI shocks are identified as major contributor.

Filippini and Molini (2003) made an effort to ascertain the trade flows with industrialized nations, several other developed countries as well as with East Asian nations, including China. This study utilized panel data that covered the years 1970 to 2002. The method of the investigation employed the Trade Gravity Model to analyze the effects of trade relations between developed, East Asian, and industrializing nations. The investigation revealed the estimator as well as the full hypothesis to be examined to have a positive and substantial influence with genuine anticipated signs. Furthermore, the study also found that as an exporting and importing state China has played both a major and substantial role, demonstrating the enormous benefits of bilateral trade.

The reasons of inflation in Turkey were the main focus of Lim and Papi (1997) investigation. The yearly time series data from 1970 to 1995 were used. A statistical approach called Johansen Co integration have been applied to examine long run correlation. Study findings shows that wages, imports, exports and money have positively related with inflation whereas exchange rate had an inverse effect on Turkish domestic prices.

Gylfason (1997) employed statistical approaches on cross-sectional data from 160 countries. This study investigates the link between export and several of its factors, such as inflation. The finding reveals that high inflation has historically been connected with poor exports. In addition, this study demonstrates that primary commodity exporters experience higher inflation than manufactured goods exporters.

3.3 MONETARY FACTORS OF INFLATION

Gagliardone and Gertler (2023) establish new Keynesian model in order to explain the recent and sustained increase in inflation that focusing on the function of shocks to oil prices and cooperative monetary policy. In the model,

oil is included as a complementary input for businesses as well as for households. Additionally, it permits rigidity in real wage as well unemployment. The essential factors in structural VAR are determined by impulsive reactions resulting from recognized money and oil crises. Moreover, model explains inflation and unemployment from 2010 is included, along with the latest inflation spike that started in the middle of 2021. The results demonstrate that both expansionary monetary policy and shocks to oil price was primarily responsible for this spike, even demand and labour market tightening shocks are taken into account.

Nasir et al. (2021) examined the connection between Pakistan's inflation (CPI) and money supply (M2) using time series data from 1987 to 2019. The ARDL approach is used to analyze the link between variables. The study indicated that inflation is positively related with the supply of money and interest rates, while unemployment is inversely linked to inflation.

Umar et al. (2019) looked at the impact of monetary policy on Pakistani housing prices. In this study stock market housing prices, monetary policy and Inflation time series monthly statistics were examined over a period of time from the beginning of 2011 to the end of 2016. The findings of the investigation indicated that house prices are heavily influenced by monetary policy in Pakistan. The house prices dropped due to the tight monetary stance. The study also discovered a one-way link between price of housing and monetary policy. Cajias and Ertl (2017) investigated the prices of home flexibility to shift in monetary policy. They conclude that this will have an inverse effect in the longer run. In addition, they pointed out that, Denmark among Scandinavian countries is exempt from the significant influence that monetary policy regimes have on housing values in Sweden, Norway and Finland.

Akinbobola (2012) examined correlation between money supply (M2), inflation and exchange rate in the country of Nigeria. The data were attained from investment finance statistics for this purpose. A Vector Error Correction Mechanism applied in this study which included quarterly statistics from 1986 to 2008. This study demonstrates that money supply, exchange rate variables are inversely related to inflation. As far as real foreign prices and real growth in output and have directly impacted the inflation rate. It is clear from the finding's inflation increased during the short period which has little impacted in long run.

A study by Kemal (2006) shows that money supply works across the system within a year. Money supply effect on inflation is relatively low in the short run and does not occur about 3 quarters. It also points out that any change

will occur in all of three variables GDP, money supply and prices, system will take time to attain equilibrium.

Bawumia and Abradu-Otoo (2003) use the Error Correcting Technique to investigate the connection between Ghana's rate of inflation, currency exchange, and monetary expansion. According to the empirical findings, there is an equilibrium link between inflation, real income, monetary supply and exchange rates over time. In accordance with the theory, the results show that the exchange rate and money supply have a positive long-term relationship with inflation, while its relationship to real income is adverse.

Hetzel (2004) stated if prices is a phenomenon of money, then how central bank control monetary base will decide how inflation behaves. However, if reserves are not used as an instrument or money as an indicator by the Central Bank, its operational practices are classified as having financial control. The predicted inflation rate is maintained at the same level as the inflation objective, causing money and inflation to increase in line with the desired level of inflation. The central bank limits monetary outflow that cause unfavorable price movements, by keeping the real rate of interest to be equal to the natural interest rate.

Boyd et al. (2001) demonstrate that inflation has a strong but nonlinear effect on financial market. Inflation influences growth through banking sector performance. The research evidence reveals that there is a significant negative link between share market, expansion of the banking sector, and inflation. When an economies inflation rate above the 15% threshold, the performance of its financial sector suffers incredibly. Moreover, when we have control over the expansion of financial intermediary inflation has no significant impact.

Batini and Nelson (2001) elaborate the Friedman point of view in 1972 about the delay between the monetary policy adoption and the inflation reaction. Their assertions are essentially supported by statistics on inflation, interest rates, money growth rates from the period 1953 to 2001, and yearly data on both of inflation and money growth. Their results validate the conclusion that monetary policy interventions take more than a year to maximum in their impact on inflation.

Liu and Adedeji (2000) investigated the key factors influencing inflation in Iran. In light of this inquiry, data from the years 1989 through 1999 were used. The results have been examined using the vector error correction and the Johansen test, respectively, by the authors. According to the study, factors that contribute positively to inflation include lag values for the monetary growth,

supply of money, and the four-year previous expected inflation rate while two years ago exchange premium is inversely connected to inflation.

Canetti and Greene (2000) segregated the effect of monetary expansion on present and forecast inflation rates from changes in currency rates. Ten African nations are included in the sample. They propose, based on the vector autoregressive (VAR) investigation, that monetary mechanisms control inflation rates in four nations, while devaluation in currency rates are the main reason in three countries.

Bernanke and Mishkin (1997) defined the monetary policy strategy as inflation targeting. They assessed the inflation targeting approach as a monetary policy framework as opposed to a rigid rule. According to this approach the main goal of central bank policy is low and steady inflation. A strategy to target inflation has a number of advantages, in particular such as making transparent policy and stronger emphasis on long-term concerns in policy discussions.

London (1989) looked at the function of exchange rates and money supply in Africa's inflation process, covering twenty three countries. Through the use of the Harberger-type pure monetarist model, it can be seen that real income, projected inflation, and money supply increase were important factors influencing inflation from 1974 to 1985. Later, the exchange rate was added to the monetarist model as an explanatory factor. The findings demonstrate that during the 1980s, changes in exchange rates had a notable impact on the inflation dynamic.

CHAPTER 4

THEORETICAL FRAMEWORK, DATA SOURCES AND METHODOLOGY

4.1 THEORETICAL FRAMEWORK

Primary and secondary income, together with the import and export of goods and services, are the primary elements that determine the current account balance. The following are the manner in which all of these factors impact both inflation and the current account:

Earnings from the provision of labour, land, financial assets, and natural resources are referred to as primary income. This comprises revenue from foreign investment. Transfers made by people who work in other country and send money to their place of residence are known as remittances from migrant workers, which also constitute a portion of primary income. The economy's ability to finance programmes for economic growth would decline as a result of the fall in primary income transfers. Due to this, current account deficit will increase and there will be less demand as well as prices decline. Secondary income includes such as international aid, grants, and donations. Projects and programmes will receive less funding as a result of the decline in secondary revenue. As a result, current account deficit would widen and demand is expected to remain weak while inflation will be reduced. The international trade has an economic importance in the economy. International trade, having a close relationship with economic growth in the country. In any country, it has an important effect on the overall supply and demand of goods and services. It has a direct short-term impact on the balance of payment and causes a significant volatility in the current account balances. It also has a long-term impact on a nation's GNP or National Income. The role of exports in international trade can be found easily, yet it is very delicate to find out whether imports are playing an important role in international trade. The depreciation of Pakistani rupee is an issue for the economy, and a large portion of its energy needs are met by imported oil. Imports are now more costly as a result of rising manufacturing costs driven on by increased import oil prices and the depreciated currency rate, which together led to greater inflation overall. This leads to an expansion of the Current account deficit, rising prices and a high level of cost inflation. On the opposite hand, Imports have an impact on inflation through permitting the current account to catch some of the excess demand; in response to this, inflation will drop. If the country exports become less expensive, whether as a result of rupee depreciation or declining worldwide competitiveness, ultimately this

sector revenue will remain low. This will lead to increase the current account deficit as well as inflationary pressures in the economy.

Many economic variables, including demand and supply, governmental regulations, and global economic conditions, can all contribute to inflation, which may be considered as a phenomena related to the economy. Inflation is often classified into two types depending on the demand and supply side price increases.

- Demand side inflation, which is known as Demand pull inflation
- Supply side inflation, which is known as Cost-push inflation

4.1.1 Demand-Pull Inflation

Inflation caused by demand may be described as when the supply of services and products in an economy is insufficient to meet the demand, prices rise. This can be attributed to an increase in any one of the aggregate demand component. According to Keynes the economy demand pressure may be successfully decreased by a drop in all components of aggregate demand. The country currency depreciating value is the main factor contributing to the increase in demand-pull inflation. When this occurs, imports are more costly and exports are less expensive, and there may be a multiplier impact on demand and output. The demand pull inflation is also increased by other factors including less taxes, higher public spending, higher household spending, higher investment and lower lending rates. In light of this, the causes of the increase in inflation include demand and monetary forces.

4.1.2 Cost-Push Inflation

Cost Push inflation is a concept used to explain the increase in prices resulting from increased production costs for goods and services. This might be due to things like taxation, rising material costs, or salary hikes. Cost related inflation can also be caused by outside factors, such as spikes in the price of oil. In this type of analysis, costs play a major role in determining product pricing. It mostly happens when one or more of the contributing factors, such as wage negotiations between employers and unions or company pursuit of bigger profit margins, raises the cost. This situation leads to price increases and considerable cost inflation.

Figure (4.1) provides an overview of the main drivers in both supply and demand inflation.

- Cost-push inflation is caused by growing production cost due to factors such as increased taxes by government, rising oil and energy prices, and larger profit margins for companies.
- When the value of the currency declines, it raises the cost of imports and lowers the cost of exports, putting inflation at danger due to supply and demand factors.
- When lending rates from financial institution fall, the result is an increase in demand for loans and spending that subsequently results in demand side inflation in the country.

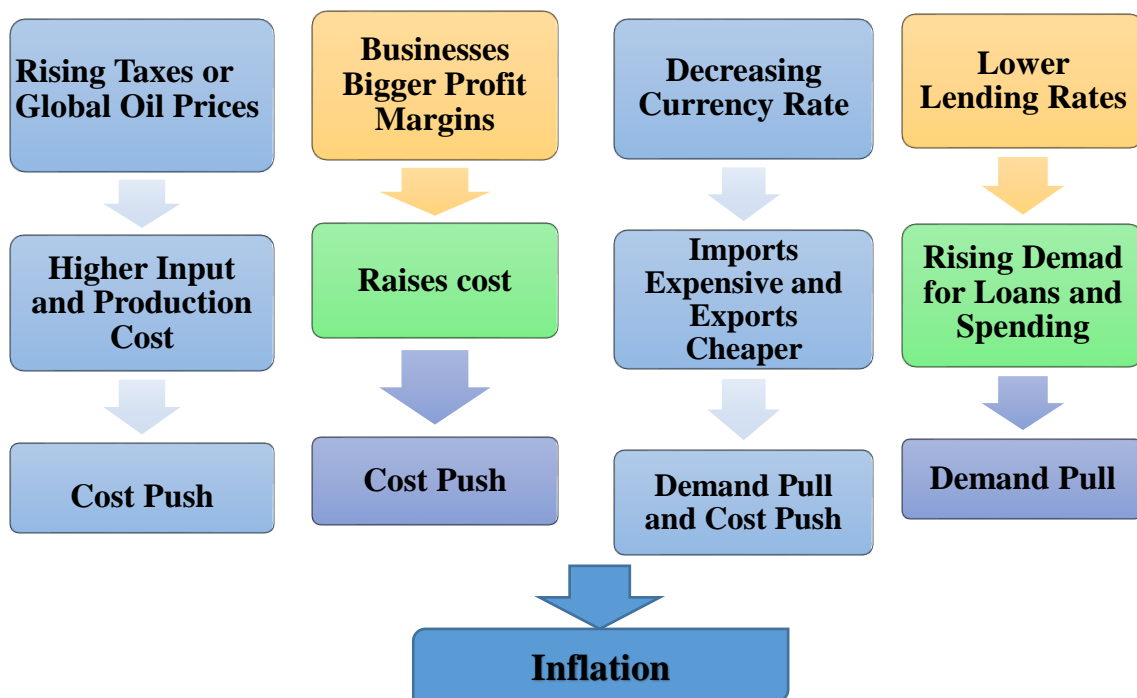


Figure 4.1: Cost and Demand Pull Inflation

The following elements may have an impact on inflation.

4.1.3 Gross Domestic Product

When the economy is growing rapidly, prices may experience pressure to rise because of the higher demand this causing inflation. When growth in GDP approaches maximum potential demand usually rises, inflation might result from this additional demand. Consumers with high incomes could be ready to

spend more, which would push inflation higher. As demand declines over the period of recession, prices may decline. Inflation driven by cost increases in manufacturing can also result from robust GDP growth.

4.1.4 Exchange Rate

The country policies pertaining to exchange rate and the state of the world economy are crucial factors. Inflation can be influenced by changes in exchange rate. A fall in the value of the country currency might result in increased import costs, which would increase inflation.

4.1.5 International Factors

The current economic crises including the coronavirus pandemic, the conflict between Russia and Ukraine, and broken trade links have led to severe inflation surges that are hard to control. The underdeveloped countries are especially at risk from these worldwide disturbances where the expansion of the economy depends heavily on trade.

The inflation rate is influenced by global economic variables. International economic factors including currency rates, trade regulations, and world commodity prices, world oil prices all have an impact on inflation.

The following monetary and fiscal tools are used to combat inflation.

4.1.6 Monetary Policy

Monetary policy is carried out by the central bank, is contrasted with fiscal policy. The monetary policy objective is to keep stable prices and preventing inflationary pressure. Inflation may be impacted by fluctuations in the supply of money. Inflation is defined by the quantity theory of money as a result of expansion of the money supply without actual production growing at the same rate. This pertains to the measures used by the State bank of a country to regulate the amount of credit and money accessible to the economy. Changes in interest rates, open market operations, and reserve requirements are all examples of monetary policy instruments.

4.1.7 Fiscal Policy

Fiscal policies are known as the government stance on spending and taxation. Frequently, elected public authorities execute fiscal policy. The government may adopt contractionary and expansionary fiscal policy to promote demand and stimulate the economy. Maintaining the nation's overall demand, employment, and inflation is the goal of fiscal policy. The government may implement contractionary fiscal policy in order to combat inflation. It may increase taxes and reduce expenditure to slow the pace of the economy. The expansionary fiscal policy adopt by the government in order to stimulate the economic activity.

The conceptual framework for these inflation-related components is shown in Figure 4.2.

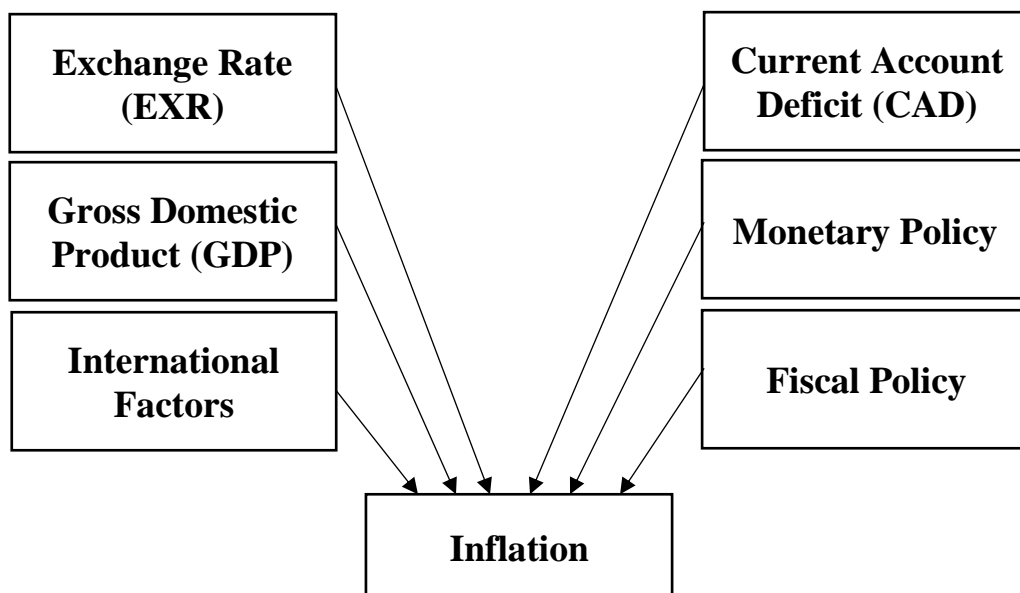


Figure 4.2: Conceptual Framework

4.2 THEORETICAL RELEVANCE OF VARIABLES

4.2.1 Current Account Deficit (CAD)

An increase in products and services imports may be linked to the growing current account deficit, which would cause imported inflation in the country. Conversely, rising imports of goods and services may reduce the gap in home demand which leads to lower inflation. Low exports can also contribute to the current account deficit, which leads to slow economic growth and price drops. Its sign is undetermined in theory (Alawin and Oqaily, 2017).

4.2.2 Exchange Rate (EXR)

It is anticipated to have a positive correlation because the currency depreciation will rise inflation. The link between exchange rate and inflation is positive under purchasing power parity. As a result, the cost of imported items will rise.

4.2.3 Money Supply (MS)

Quantity theory of money (QTM) predicts that higher money supply would result in higher inflation. Consequently, it is anticipated that inflation will be positively impacted by the money supply.

4.2.4 Fiscal Deficit (FD)

The Government of Pakistan borrows money to cover its fiscal deficit. This expands the supply of money, as a result inflation rising in the country. The fiscal deficit should have a favorable effect on prices. A fiscal deficit indicates that government spending is higher than receipts, which raises overall demand and results in demand-pull inflation. (Fayyaz, Mughal, and Khan, 2011; Agha and Khan, 2006; Chaudhary and Ahmad, 1995). It's expected that the inflation rate would increase as the fiscal deficit widens.

4.2.5 Gross Domestic Product (GDP)

The expansion of the economy can affect inflation either favourably or unfavourably. Inflation declines when income increases and vice versa. This suggests that income has a negative impact on inflation. Some empirical studies show a negative connection between income and inflation (Ayyoub, Chaudhry, and Farooq, 2011; Ahmed and Murtaza, 2005). On the contrary, the money demand will rise as income grows. The effect will be an increase in interest rate, which will raise inflation (Fisher hypothesis). This indicates that income affects inflation in a favourable way. Some research indicates a favourable association between income and inflation (Patra & Sahu, 2012; Malik & Chowdhury, 2001).

4.2.6 Oil Prices (OILP)

Pakistan energy needs are mainly reliant on imported oil. The cost of production rises when oil prices rise, causing inflation to rise. Thus, it is expected that there would be a positive connection between the price of imported oil and inflation.

Table 4.1 displays the theoretically anticipated consequences of these factors on inflation.

Table 4.1
Variables Anticipated influence on Inflation

Variables	Anticipated Impact	Variables	Anticipated Impact
β_1 CAD	Positive/Negative	β_4 FD	Positive
β_2 EXR	Positive	β_5 GDP	Positive/Negative
β_3 MS	Positive	β_6 OILP	Positive

Source: Author's calculations

4.3 ECONOMETRIC MODEL

In this study, dependent and independent variables have been used. There is one model to examine inflation (CPI). In the model, inflation is a dependent variable whereas current account, exchange rate, money supply, fiscal deficit, gross domestic product, oil prices are independent variables.

The model functional forms are as follows:

INF = Current Account Deficit, Exchange Rate, Money Supply,
Fiscal Deficit, Gross Domestic Product, Oil Prices

where;

INF = Inflation
CAD = Current account deficit
EXR = Exchange rate
MS = Money Supply
FD = Fiscal deficit
GDP = Gross Domestic Product
OILP = Oil Prices

The econometric model is developed using the theoretical framework as a foundation. This study employed the following econometric model:

$$\text{INF}_{\text{CPI}t} = \beta_0 + \beta_1 \text{CAD}_t + \beta_2 \text{EXR}_t + \beta_3 \text{MS}_t + \beta_4 \text{FD}_t + \beta_5 \text{GDP}_t + \beta_6 \text{OILP}_t + U_{1t} \quad (4.1)$$

where β_0 is constant and $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ represents coefficients for the CAD, EXR, MS, FD, GDP, OILP respectively, while “U” represent error term and “t” represent time series of the model.

4.4 TIME SPAN AND DATA SOURCES

In this study, time series analyses are used to examine the consequences of current account deficit on inflation in the context of Pakistan. The secondary data collection approach is used in this investigation. The time span under consideration ranges from 1971 to 2022. The yearly information is compiled from a number of sources, such as the World Development Indicator (WDI), International Financial Statistics (IFS), State Bank of Pakistan (SBP), and different Pakistan Economic Surveys.

4.5 DESCRIPTION OF VARIABLES

This section of the research explains all variables in the analysis.

4.5.1 Dependent Variable

4.5.1.1 Inflation

The consumer price index monitors over time price fluctuations paid by consumers for a symbolic basket of services and products (Finance Division, 2023). The CPI serves as the comprehensive consumer index and offers the widest representation of inflation at the consumer level. Inflation is calculated using the annual percentage of the consumer price index (CPI). The CPI data is obtained from World Development Indicator on a yearly basis.

4.5.2 Independent Variables

4.5.2.1 Current Account Deficit

The current account deficit reflects the gap between capital inflows into the country and capital outflows to foreign countries. A country experiences a current account deficit when it transfers larger money to overseas than it takes in the country. The current account balance contains the trade balance, net services as well as net factor income such as dividends and interest on overseas investment, workers remittances, and foreign aid. The current account can also be described as the gap between private and public investment and savings (Faruqee and Debelle, 1996). The current account deficit is measured in millions of US dollars as a percentage of GDP. The data is taken from the State Bank of Pakistan.

4.5.2.2 Exchange Rate

The nominal exchange rate states that one unit of local currency is equal to one unit of US dollar. The local currency rupee vs US dollar is the rate established by national authorities. A rise or fall in the value of domestic currency denotes currency appreciation or depreciation. It is derived as a yearly average of monthly averages. The exchange rate information is obtained from World Development Indicator.

4.5.2.3 Money Supply

The entire amount of monetary assets circulated in a nation over a specific time period is known as the money supply. M2 contains M1 as well as short-term money and savings deposits (Jagdish, 2009). The rate at which supply of money (M2) is growing will determine the amount of money in circulation. The increase of money supply (M2) is measured as a percentage of GDP each year. The annual money growth as a percentage of GDP information is obtained from World Development Indicator.

4.5.2.4 Fiscal Deficit

The fiscal deficit is a gap that occurs when government expenditure exceeds its receipts (Zaidi, 2015). A percentage of GDP is used to calculate the

fiscal deficit. Economic Survey of Pakistan provides the data on the fiscal deficit as a proportion of GDP.

4.5.2.5 Gross Domestic Product

The Gross Domestic Product (GDP) is the total worth of all finished goods and services manufactured in the country during a specific time period (Blanchard et al. 2010). The whole domestic production is quantified by the GDP. The GDP growth rate yearly percentage is estimated in 2015 US dollars at constant prices. The information is extracted from the World Development Indicator (WDI).

4.5.2.6 Oil Prices

Pakistan energy requirements are largely met by imported oil. As a result, rising prices of oil imports will result in higher manufacturing costs. International oil prices are measured by the global price of crude oil per cubic meter in current US dollars as a percentage of GDP. The oil prices information is sourced from our world in data.

4.6 METHODOLOGY

The most often cointegration tests used to identify the presence of cointegration are Engle and Granger technique (1987) which is based on the error term, Johansen (1988, 1991) and the Johansen and Juselius (1990) method. All of the model variables should not be stationary at the level for these strategies to be used, but should be stationary in their first difference (Pesaran et al. 2001). The ARDL approach developed by Pesaran and Shin (1999) and Pesaran et al. (2001) eliminates the incapacity of the cointegration technique to series with varying degrees of cointegration. The advantage of ARDL approach is applied to a mix order of cointegration indicates that certain variables got stationary at first difference while others became stationary at level this method give best outcomes.

An analysis of time series takes place to verify the effects of the current account deficit on consumer prices (CPI) over the long and short terms in Pakistan economy. Initially, stationarity tests are conducted for the model variables and the integration level between the variables is ascertained. The Augmented Dickey Fuller (ADF) and Philips Perron (PP) tests determines

whether a particular series is stationary or non-stationary. Prior to using the ARDL approach, the lag length criteria implemented to choose the appropriate lags inside the model. One way for showing the existence of a long-term relationship between variables is ARDL bound testing for cointegration. After if variables stationary at different levels and mixed order of cointegration then the series long run relation with varying levels of integration is examined using an ARDL cointegration method. An Error Correction Model (ECM) is employed to examine short term behaviour. The some diagnostic tests is applied to check the validity of the model.

The following Figure 4.3 shows the process of methodology.

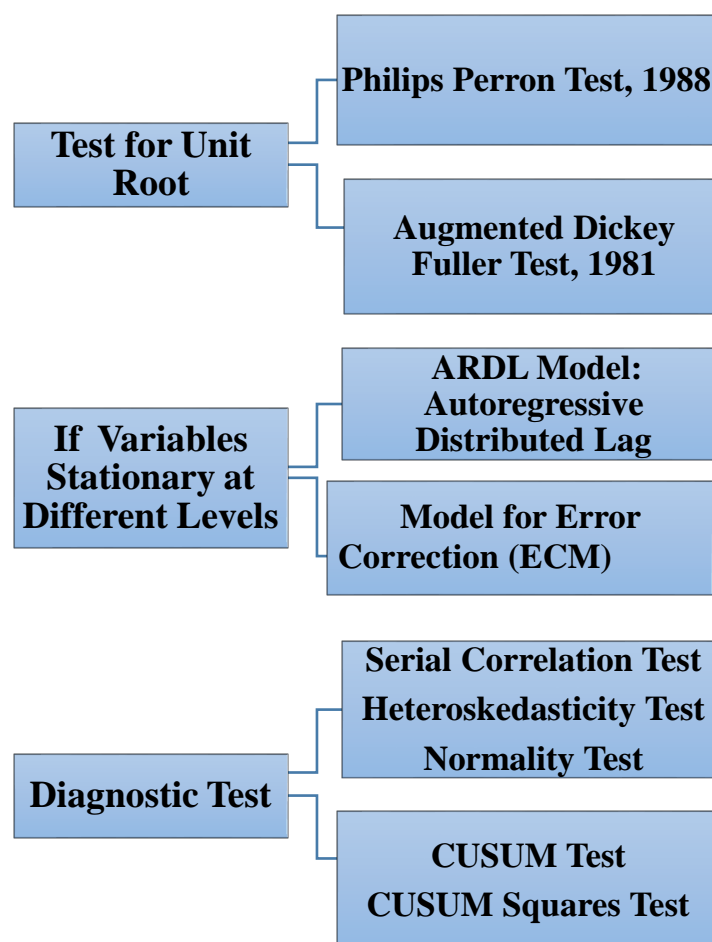


Figure 4.3: Process of Methodology

4.6.1 Unit Root Tests

A stochastic time series trend is referred to as a unit root, a "random walk with drift" is another term for it. In line with econometric methods of time series, due to the possibility of stochastic trend in time series each of the variable must

be stationary in the econometric model. Regression analyses using non-stationary series should not be performed as the results would be misleading otherwise. Mahadeva and Robinson (2004) states that if there is a trend in the economic variables, shocks impact the variables; these shocks are referred to as unit roots. Prior to conducting additional investigation, it is essential to examine every factor's actions. It is possible for variables to have unit roots and develop erroneous associations. The series is stable and the null hypothesis that it contains a unit root is denied if the critical values are higher than the computed values. If the null hypothesis is not rejected, unit root testing shall be carried out on the series difference until null hypothesis is denied and stationarity is attained.

Many academicians believe that most economic variables have unit roots. (Kwiatkowski, 1992). When time series at a level; $I(0)$ are stationary, model parameters may be estimated using the OLS technique. We will repeat this test after taking first difference, if the time series level wasn't stationary. When it becomes stationary, the information must be combined at the first difference; $I(1)$. When time series is nonstationary with respect to the first difference, following the second difference, we will perform this test again. The information must be integrated; $I(2)$ at the second difference, if it becomes stationary (Gujarati, 2010).

An autoregressive model is used in unit root tests to assess whether a variable is stationary or not. ADF, Schmidt–Phillips, Elliott–Rothenberg–Stock, PP tests are used in time series research to analyze changes in mean and variance over time. The unit root approaches assumes that variance and mean don't change over time. Because number of time series are non-stationary, ADF and PP tests utilized in this investigation to determine the stationary level of variables.

4.6.1.1 Augmented Dickey Fuller Test

The augmented dicky fuller (ADF) approach is the simplest way to discover unit root, most long-term economic data has a more complicated structure than a basic autogressive model can describe. The ADF is able of handling more complicated models than the Dicky and Fuller approach. The ADF unit root test is a stationarity test. The stationary level of variables is checked using the ADF test. The ADF test may be utilized with auto correlation. The ADF test compensate higher order autocorrelation with the inclusion of lag difference terms. The ADF technique assesses a hypothesis by generating p and

t value which validate the probability at significant level. The test statistics are used to reject the null hypothesis when they are less than the DF critical values.

If after carried out the ADF test each of the variables remained stationary in first differences and at levels remained not stationary. This suggests that a long-term link between the factors may exist (Engle and Granger, 1987).

The three fundamental regression models are as follows:

No intercept and trend:

$$dy_t = \alpha X_t + \gamma * Y_{t-1} + u_{1t} \quad (4.2)$$

With intercept:

$$dy_t = \beta_0 + \alpha X_t + \gamma * Y_{t-1} + u_{2t} \quad (4.3)$$

With intercept and trend:

$$dy_t = \beta_0 + \lambda_t + \alpha X_t + \gamma * Y_{t-1} + u_{3t} \quad (4.4)$$

When ADF adds lag differences to the aforementioned models:

No intercept and trend:

$$dy_t = \alpha X_{t-1} + \gamma * Y_{t-1} + \sum_{i=1}^p \gamma_i dy_{t-i} + u_{1t} \quad (4.5)$$

With intercept:

$$dy_t = \beta_0 + \alpha X_{t-1} + \gamma * Y_{t-1} + \sum_{i=1}^p \gamma_i dy_{t-i} + u_{2t} \quad (4.6)$$

With intercept and trend:

$$dy_t = \beta_0 + \lambda_t + \alpha X_{t-1} + \gamma * Y_{t-1} + \sum_{i=1}^p \gamma_i dy_{t-i} + u_{3t} \quad (4.7)$$

where, ρ is the dependent variables number of lags, dependent variable is y_t , d displays changes during the course of time t , the study time period is t , $\Delta y_t = y_t - y_{t-1}$, independent variable is X , the parameter of the dependent variable lag term is denoted by γ^* , β_0 displays constant, u is error term, λ is the time trend.

A stationary time series is the alternative hypothesis for this test., while in contrast the null hypothesis affirms that it is not stationary. The following is the ADF test null hypothesis:

$$H_0: \alpha > 0.10$$

H_0 is null hypothesis and it is accepted when critical value exceeds the probability value 0.10, indicating that there is a unit root problem with the series.

$$H_0: \alpha < 0.10$$

If the crucial value is smaller than the probability value of 0.10, we can agree with the alternative hypothesis, which states that the series does not have a unit root problem.

The lag length is chosen to run the test. The lagged dependent variables are used in order to avoid serial correlation. The Information criterion of Akaike (AIC) or the Bayesian criterion of Schwartz (SBC) are used to determine the lag length, or drops lag until the last lag becomes statistically significant.

4.6.1.2 Philips and Perron Test

Mostly used test for unit root is ADF although it can occasionally lead to incorrect findings. So, the ADF test was updated by Phillips and Perron in 1988, and devised a unit root test that is non parametric. Phillips and Perron (1988) modified ADF test and devised a non parametric unit root test which is known as Phillips Perron (PP) test. The Philips Perron (1988) technique use nonparametric approach that does not require the certain level of autocorrelation to be selected. The PP unit root test became popular due to its reliability and feasibility. The ADF method and the PP method both apply the same estimate procedure and it include the correction of serial correlation and heteroskedasticity. The parameters used in the ADF and PP tests are not the same. It is convenient especially whenever applied to financial time series data as it only functions effectively with a big sample size.

4.6.2 Autoregressive Distributed Lag (ARDL) Model

If the variables of concern have multiple orders of integration or are not entirely non-stationary, it is not possible to apply the Johansen Cointegration approach directly, as this strategy necessitates that all variables be I (1). An autoregressive distributed lag (ARDL) model, which can be used for mix order of integration time series, is a least square based method. This approach includes sufficient delays to explain the data production process from a general to specific modelling standpoint.

According to economic research, the components under consideration have a long-term link. This implies that the features of relationships over time have not changed. In a nutshell, over time averages and variances remain stable. Though mass of empirical investigation has demonstrated that when measuring historical elements, the requirement for consistency of the variances and averages is not met. A significant portion of cointegration approaches are used incorrectly, as a means of fixing the problem.

The Engle and Granger error correction mechanism is an approach for reconciling a variable short- and long-term behavior (Gujarati, 2010). The Error correction model (ECM) is a time series strategy, it controls both short- and long-term behaviour and is based on the balanced connection between two or more time series. ECMs have the ability to calculate one time series effects on another over the long and short-terms. An error correction refers to the belief that prior period divergence from a long term equilibrium, the error has an impacts on its short term behaviour. Therefore, the ECM directly estimates how quickly a dependent variable is going to return to its equilibrium following changes in other variables.

The auto regressive distributed lag method (ARDL) determines the cointegration in both the short and long term. The ARDL cointegration test which was established by Pesaran et al. (2001) and Pesaran and Shin (1999) is used in this study to verify the existence of a long term connection between dependent and independent variables. The following is the equation for the unrestricted error correction model (UECM):

$$\begin{aligned}
\Delta INF_{CPI_t} = & \beta_0 + \beta_t T + \theta_1 INF_{CPI_{t-i}} + \theta_2 CAD_{t-i} + \theta_3 EXR_{t-i} \\
& + \theta_4 MG_{t-i} + \theta_5 FD_{t-i} + \theta_6 GDPG_{t-i} + \theta_7 OILP_{t-i} \\
& + \sum_{i=0}^p Y_i \Delta INF_{CPI_{t-i}} + \sum_{i=0}^q Y_i \Delta CAD_{t-i} + \sum_{i=0}^r Y_i \Delta EXR_{t-i} \\
& + \sum_{i=0}^s Y_i \Delta MG_{t-i} + \sum_{i=0}^t Y_i \Delta FD_{t-i} + \sum_{i=0}^u Y_i \Delta GDPG_{t-i} \\
& + \sum_{i=0}^v Y_i \Delta OILP_{t-i} + \theta ECT_{t-i} + U_{1t}
\end{aligned} \tag{4.8}$$

The long-term equation is as follows:

$$\begin{aligned}
INF_{CPI_t} = & \beta_0 + \beta_t T + \theta_1 INF_{CPI_{t-i}} + \theta_2 CAD_{t-i} + \theta_3 EXR_{t-i} \\
& + \theta_4 MG_{t-i} + \theta_5 FD_{t-i} + \theta_6 GDPG_{t-i} \\
& + \theta_7 OILP_{t-i} + U_{1t}
\end{aligned} \tag{4.9}$$

The short term equation is as follows:

$$\begin{aligned}
\Delta INF_{CPI_t} = & \sum_{i=0}^p Y_i \Delta INF_{CPI_{t-i}} + \sum_{i=0}^q Y_i \Delta CAD_{t-i} \\
& + \sum_{i=0}^r Y_i \Delta EXR_{t-i} + \sum_{i=0}^s Y_i \Delta MG_{t-i} \\
& + \sum_{i=0}^t Y_i \Delta FD_{t-i} + \sum_{i=0}^u Y_i \Delta GDPG_{t-i} \\
& + \sum_{i=0}^v Y_i \Delta OILP_{t-i} + \theta ECT_{t-i} + U_{1t}
\end{aligned} \tag{4.10}$$

The ARDL model mentioned above includes both trend and constant terms. Where, ρ number of lags for the dependent variables and q, r, s, t, u, v, w independent variables number of lags, INF_{CPI_t} is dependent variable, the study time period is t , Δ shows variation throughout the period of time t , independent variables are $CAD, EXR, MG, FD, GDPG$ and $OILP$, the parameters of lag term for both the independent and dependent variables are represented by Y_i, θ, β_0 represents the intercept, U is the error term, while T is the time trend. The symbol Δ with variables denotes short term connection of chosen variables. Variables without Δ symbol denotes long run connection. ECT confirmed the rate at which short run to long run adjustment is made in a year.

4.6.3 Granger Causality Test

In 1969, the Granger test for causality was initially introduced and again reaffirmed by Clive Granger in 1980. The Granger test is frequently used in the analysis of causation. Its null hypothesis describes that variables do not Granger Cause to one another. In reality causality analysis differs from regression analysis and is connected to correlation. The prediction of one time series using another is the basis of causality. It is applied to determine the movement direction between many time series. Granger devised a straightforward test for determining causality, as follows: a determinant Granger-cause X_t is said to be Y_t . If X_t can be predicted more accurately by considering previous Y_t values than not utilizing such earlier values, no other conditions are to be changed. In order to take into consideration, the two variables X_t and Y_t for the causality test, the VAR model is required to be estimated in the following way. (Asteriou and Hall, 2007)

$$Y_t = \beta_0 + \sum_{i=0}^p \gamma_i Y_{t-i} + \sum_{i=0}^p \gamma_j X_{t-j} + U_{1t} \quad (4.11)$$

$$X_t = \beta_0 + \sum_{i=0}^p \gamma_i X_{t-i} + \sum_{i=0}^p \gamma_j Y_{t-j} + U_{2t} \quad (4.12)$$

where, in equation 4.11 dependent variable is Y and in equation 4.12 dependent variable is X , time period is t , β_0 represents constant, the coefficients of lag term for both variables are represented by γ_i , γ_j , U_1 and U_2 is the error terms in both the equations.

There are four possible outcomes for the Granger Causality. The first conceivable consequence is that variable x_t causes variable y_t . The second probable result of changing y_t causing x_t . The third hypothesis is that Granger and variables both cause each other, which is referred to as bi-directional causality. Finally, Granger's not the cause of either variable, in which case x_t is independent of y_t . The Granger causality first estimate the VAR models, then verifies the significance of the coefficients and use variable deletion strategy to the lagged x and y terms. Based on the outcomes from the variable deletion experiments, we may draw conclusions about the direction of causality based on the four possibilities mentioned above.

CHAPTER 5

EMPIRICAL RESULTS AND DISCUSSION

5.1 DESCRIPTIVE ANALYSIS

Before conducting different statistical test, descriptive analysis was done to understand the normality of the data and it also describes the nature of the data. Table 5.1 displays the variables descriptive statistics. This table provide values such as maximum, minimum, mean, median, standard deviation, skewness and so on. In the case of concerning the current account deficit the smallest deficit recorded is -9.774, and 4.435 is the highest surplus in a single year. In the data series, the average current account balance does not appear to be positive. Moreover, the maximum recorded rate of inflation is 26.663%, while the minimum is 2.529% in a year, and the annual average rate of inflation is 9.159%. Each variable standard deviation (SD) value shows the variance from the mean value. The standard deviation statistics will help in the interpretation of coefficient estimation. The standard deviation measures the dispersion of data away from its mean value. The findings demonstrate that the variables are highly varied. The standard deviation results demonstrate that 5.258 inflation (INF) deviates from its mean value, 2.957 deviation in current account deficit from its mean value, 47.630 deviation in exchange rate from its mean value, 5.970 deviation in money supply from its mean value, fiscal deficit is 1.742 deviated from its mean value, gross domestic product (GDP) 2.244 deviates from mean value and 2.308 deviation exist in world oil prices (OILP).

The Jarque Bera test is used for determining whether data is normally distributed. If the Jarque Bera probability value is larger than 0.05, we may conclude that the distribution of the data is normal. The degree of asymmetry in the real-valued random variable's probability distribution about its average is measured by its skewness. Data is entirely symmetrical, if the value of skewness is equivalent to zero. The skewness check determines the data is positively or negatively skewed by examining the facts that show the data is skewed either right or left of the mean. The value of inflation, current account deficit, exchange rate, money supply, fiscal deficit, and oil prices is positively skewed, it clarifies that the rightward-skewed distribution with regard to the mean. The gross domestic product value is negatively skewed, it indicates that the distribution skewed to the left of the mean.

Table 5.1
Variables Descriptive Statistics

	INF	CAD	EXR	MS	FD	GDP	OILP
Mean	9.159723	-3.332754	53.24791	45.44417	-6.350000	4.663742	3.452750
Median	8.094042	-3.398150	38.59505	45.33785	-6.300000	4.781950	2.789700
Max.	26.66300	4.435400	204.8671	58.86760	-2.400000	10.21570	9.793200
Min.	2.529300	-9.774600	4.761900	33.99580	-9.600000	-1.274000	1.004800
Std.Dev.	5.258351	2.957067	47.63042	5.970780	1.742603	2.244934	2.308743
Skewness	1.417156	0.437054	1.212950	0.120463	0.120092	-0.194069	1.224126
Kurtosis	5.007359	3.874677	3.959565	2.214963	2.172404	3.065671	3.419997
Jarque Bera	26.13610	3.313102	14.74580	1.461046	1.608974	0.335756	13.36906
Prob.	0.000002	0.190796	0.000628	0.481657	0.447317	0.845457	0.001250
Obs.	52	52	52	52	52	52	52

Source: Author's calculations

5.2 CORRELATION ANALYSIS

The link between the variables in the data set has been examined using the correlation matrix. A correlation matrix can have values anywhere between -1 to +1. A positive correlation between the variables is shown by a positive value, whereas a negative number denotes a negative correlation. When the correlation coefficient is nearer to -1 or +1, it implies that there is a strong positive or negative correlation exist between variables. When zero is the correlation coefficient, it suggests that there is not any kind of connection. There is a correlation coefficient in every matrix cell. A matrix of correlation for each variable is presented in Table 5.2. In the table first column, there is a correlation between inflation and each independent variable. The association between inflation (INF) and the current account deficit (CAD) is negative, as indicated by the -0.3635 value of coefficient. Positive correlation exist between inflation and exchange rate and value of coefficients is 0.0090. The value -0.0754 is shown that there is a negative association between money supply and inflation. The fiscal deficit, and GDP have negative correlation coefficients with inflation and the value is -0.1420, -0.0524 respectively, while other factor like oil prices has positive relationship with inflation and the value is 0.2314.

Table 5.2
Correlation Analysis

	INF	CAD	EXR	MS	FD	GDP	OILP
INF	1						
CAD	-0.3635	1					
EXR	0.0090	0.1353	1				
MS	-0.0754	-0.0371	0.5993	1			
FD	-0.1420	0.4927	0.0940	0.2291	1		
GDP	-0.0524	0.0223	-0.2143	-0.3062	0.0543	1	
OILP	0.2314	-0.1154	-0.2445	-0.2933	-0.0985	0.2509	1

Source: Author's calculations

The relationship between inflation and the current account deficit is depicted in Figure 5.1., showing that inflation and CAD are negatively correlated. Whereas because this association experiment is basically simple, it requires more research within a more comprehensive framework. The subsequent part makes an effort to do this.

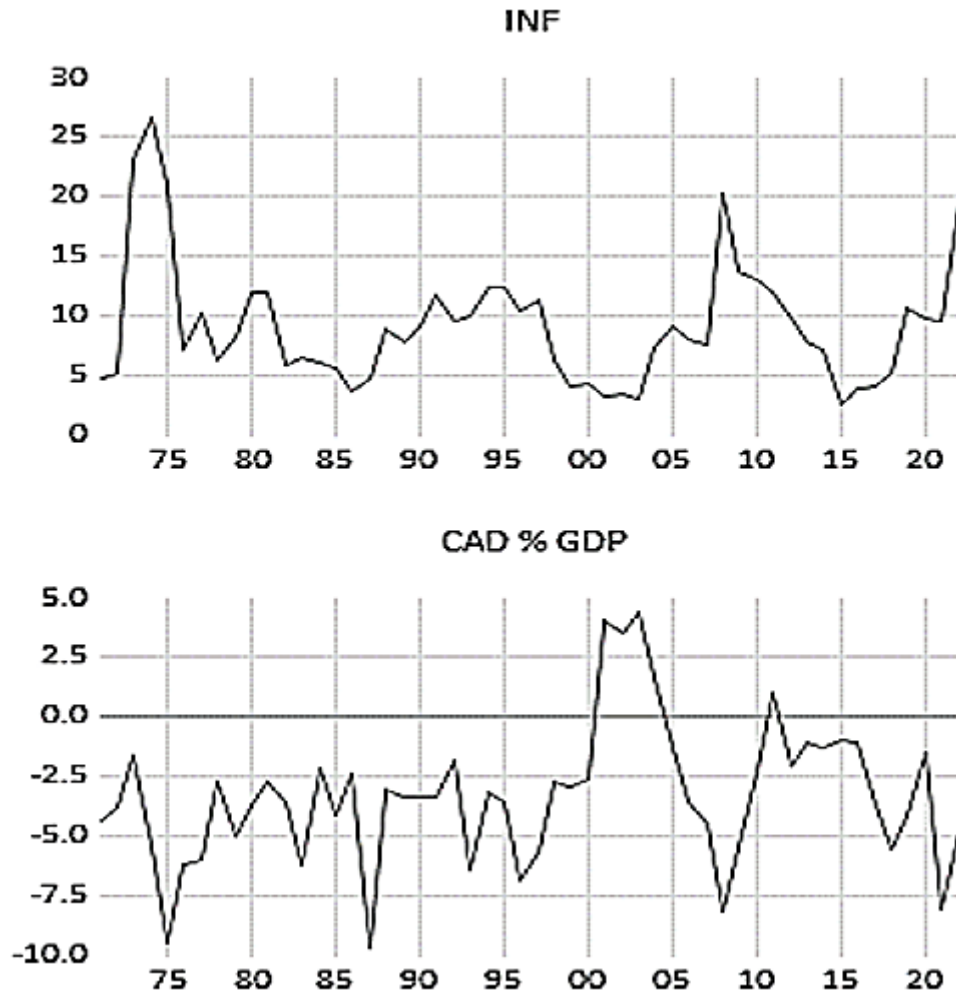


Figure 5.1: Line Graph for INF and CAD

5.3 UNIT ROOT TESTS

Unit root methods are applied to determine the data is stationary. It is essential to verify that the data is stationary for time series analysis, as failure to do so might lead to incorrect results. To confirm that the variables which we chose for our study work are stationary, we have applied the Augmented Dicky Fuller (ADF) or Phillips and Perron (PP) tests.

5.3.1 Philips Perron and Augmented Dicky Fuller Tests

The results of Philips Perron (PP) and Augmented Dicky Fuller (ADF) tests are presented in Table 5.3, which is used to check the stationarity of the data. The t-values and p-values are used to analyze the unit root. The findings show that current account deficit and gross domestic product are stationary at level I (0). While inflation, exchange rate, money supply, fiscal deficit and oil

prices are stationary at first difference I (1). As a result, although some variables are stationary at first difference, two variables are stationary at levels.

Augmented Dicky Fuller unit root test is one of the most used unit root test. A similar result is observed in the ADF and PP tests, proving that there is no unit root problem and time series under investigation is stationary at different levels. The Philips Perron (PP) and Augmented Dicky Fuller (ADF) tests reveal that the parameters of the model are stationary at various levels. Therefore, ARDL model is utilized to investigate the potential cointegration of variables as a result of their stationary location at different levels.

Table 5.3
Unit Root Philips Perron and Augmented Dicky Fuller Tests
Null Hypothesis: Variable is non Stationary

Phillips Perron Test					
Variables	PP at Level		PP at 1st Difference		Results
	T-Value	Prob.	T-Value	Prob.	
INF	-3.247487	0.0869	-6.619411	0.0000***	I (1)
CAD	-4.131964	0.0105***	-10.27516	0.0000	I (0)
EXR	3.555337	1.0000	-4.022515	0.0141***	I (1)
MS	-3.098670	0.1176	-5.786953	0.0001***	I (1)
FD	-3.179992	0.0999	-8.015940	0.0000***	I (1)
GDP	-5.723879	0.0001***	-14.39824	0.0000	I (0)
OILP	-5.824800	0.0001	-29.41135	0.0001***	I (1)
Augmented Dicky Fuller Test					
Variables	ADF at Level		ADF at 1st Difference		Results
	T-Value	Prob.	T-Value	Prob.	
INF	-3.091149	0.1207	-6.550577	0.0000***	I (1)
CAD	-4.131964	0.0105***	-9.491914	0.0000	I (0)
EXR	1.663876	1.0000	-4.038555	0.0135***	I (1)
MS	-5.059190	0.0007	-5.875712	0.0001***	I (1)
FD	-3.165995	0.1028	-7.543826	0.0000***	I (1)
GDP	-5.761474	0.0001***	-7.723261	0.0000	I (0)
OILP	-1.956273	0.6097	-8.118098	0.0000***	I (1)

a) Source: Author's calculations

b) Significant at 10% (*), at 5% (**) and at 1% (***) respectively.

5.4 LAG LENGTH CRITERIA

Before using ARDL technique, lag length selection is a crucial step as improper lag selection might lead to misleading cointegration findings. Table

5.4 contains the outcomes of VAR lag criteria. This entails selecting a suitable lag length using proper information criterions. The lag length criterion are five in number (LR, FPE, AIC, SC, and HQ), which represent the lag order chosen by the criterion. The Schwarz information criterion (SC) and Hannan Quinn information criteria (HQ) suggests one lag, Final Prediction Error (FPE), and sequential modified LR test statistic recommend two lags whereas the Akaike information criterion (AIC) suggests four lag. Therefore, favourable lag length in conducting current analysis is assumed to be 01. I will follow the majority and conduct additional analysis using one lags.

Table 5.4
Lag Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-929.0910	NA	2.05e+08	39.00379	39.27668	39.10692
1	-734.2924	324.6643	481992.4	32.92885	35.11192*	33.75384*
2	-674.1911	82.63937*	345429.8*	32.46629	36.55955	34.01314
3	-631.6260	46.11215	650438.1	32.73442	38.73785	35.00312
4	-553.2799	62.02399	43528.5	31.51166*	39.42528	34.50223

- a) Source: Author's calculations
b) * indicates lag order selected by the criterion

5.5 ARDL BOUND COINTEGRATION TEST RESULTS

First thing needs to find out whether the variables have a long-term relationship or not. The bound test is used for this purpose. The bound test calculates long-term association by using an ARDL bound test technique. The findings of stationarity tests suggested that the model of ARDL should be used to evaluate long-term cointegration in the model, because the variables have a varied integration order.

The value of F-statistics is used to examine the model bound testing outcomes. The output of bound test are shown in Table 5.5. The F-statistics value 7.2577 is greater than the lower and upper critical bound. As a result, empirical result confirms that inflation and independent variables are cointegrated in the long run. The long-term movement of the variables together is demonstrated by the null hypothesis rejection about the absence of cointegration. The findings suggest that the model exhibits long-term correlation.

When the long run cointegration is confirmed, an ARDL model is used as a consequence of the discovery of a persistent long run and short run cointegration relationship between the variables.

Table 5.5
ARDL Bound Cointegration Test Results

ARDL Bound Testing						
Estimated Model	Optimal Lag Length	LB I (0)	UB I (1)	Significance	Test stat	Value
INF (INF/CAD, EXR, MG, FD, GDPG, OILP)	(1, 0, 0, 1, 1, 0, 1)	2.53	3.59	10%	F-Stat	7.2577
		2.87	4	5%	K	6
		3.19	4.38	2.5%		
		3.6	4.9	1%		

Source: Author's calculations

5.6 ARDL LONG RUN ANALYSIS

This research calculated the long-term effects of the current account deficit, exchange rate, money growth, fiscal deficit, gross domestic product growth and oil prices on inflation in case of Pakistan. Table 5.6 contains the ARDL results. ARDL model results shows that R square has a value of 0.712400, which is close to 1. The R square value 0.63 represents the model fitness. This value indicates that our model is valid. The Durbin Watson value of 2.05 shows that the variables do not exhibit any autocorrelation. According to the conclusion of the ARDL long run estimation, the long-term effects of the current account deficit on inflation is negative. The coefficient of current account deficit is negatively related to inflation as one unit rise in the current account deficit will decrease inflation rate by 0.092 units in long run but this impact is statistically insignificant. When a nation increase the imports of goods as a result currency starts to weaken which lead to raising the cost of imports. As input cost increase, the cost of manufacturing of goods also increases. Therefore, rising imports are a contributing factor to increasing inflation. Our analysis shows that although a rise in current account deficit may cause an increase in imported inflation due to higher imports, but it also has the effect of absorbing part of the extra domestic demand, and it eventually lessens inflationary pressures on the economy of Pakistan in the long run.

Table 5.6
ARDL Long Run Analysis
Dependent variable= Inflation
Model: ARDL (1, 0, 0, 1, 1, 0, 1)
Sample: 1971-2022

Variables	Coefficient	Std. Error	t-Statistics	Prob.
CAD	-0.092009	0.453985	-0.202670	0.8404
EXR	0.127889	0.061468	2.080584	0.0441**
MS	0.598212	0.320050	1.869123	0.0691*
FD	0.885867	0.746084	1.187354	0.2423
GDP	0.472240	0.546155	0.864663	0.3925
OILP	-1.233239	0.765165	-1.611729	0.1151
R-Square	0.712400			
Adjusted-R-Squared	0.631283			
F-Statistic	8.782292			
Prob.(F-Statistic)	0.00000			
Mean	9.246568			
S.D.	5.272877			
DW- stat	2.054395			

a) Source: Author's calculations

b) Significant at 10% (*), at 5% (**) and at 1% (***) respectively.

In the long run, there is a positive and substantial relationship between the exchange rate coefficient and inflation. A rise in the exchange rate has an immediate effect on prices. The outcome shows 0.127 units increase in inflation because of the currency rate depreciating by one unit. The findings are consistent with earlier investigations, with only minor variations in coefficients. In Bangladesh, Mortaza (2006) research indicates that inflation is positively influenced by currency rate depreciation.

The yearly expansion of the money supply has a positive and notable impact on inflation. According to the calculation, inflation will rise by 0.598 units for every one unit increase in the money growth rate. As Quantity Theory of Money (QTM) stated that, inflation will rise as money supply increases. The quantity of money in circulation and the level of prices are directly correlated, according to the QTM theory. The aforementioned connection implies that monetary authorities have the ability to manage inflation by imposing restrictions on the money supply using tools like interest rate, reserve policy, and open market operations. The purpose of central bank changes to these instruments is to keep prices stable.

The consumer price index (CPI) is positively impacted by the fiscal deficit. As a result, a one unit rise in the budget deficit causes inflation to rise by 0.885 units. This implies that, a rise in government expenditure has impact on inflation in long run. The government of Pakistan is borrowing money for the purpose of covering its fiscal deficit. This increases the money supply, which causes the inflation rate to rise. When government expenditure exceeds revenue, there is a fiscal imbalance, which drives up demand overall and causes demand-pull inflation.

Inflation is positively affected by the increase of the gross domestic product growth. A rise in prices and an expanding economy are the results of increasing GDP growth. The results show that an increase in one unit in GDP growth resulted in a rise in inflation 0.472 units. The rise in oil prices (OILP) has a negative impact on inflation, while this effect is statistically negligible. The results show that a one unit rise in oil prices causes 1.233 units decrease in inflation in long run. Zakaria et al. (2021) use monthly data from 1980M1–2018M12 to quantify how South Asian countries' inflation is affected by the prices of global oil. Positive shocks to the price of oil significantly boost inflation, but negative oil price shocks have no significant effect. An increase in oil prices globally will lead to an increase in cost of production and higher inflation in the country. The rise in global oil prices directly affects pricing, and this impact is quickly reflected in prices when oil prices rise in the international market. Nonetheless, the study findings clarified why local prices do not automatically decrease in response to a decline in the price of oil in the global market.

5.7 ERROR CORRECTION MODEL

After reviewing the long run outcomes, the model for the short run is examined. ECM should obey two fundamental assumptions: its value should range from 0 to 1, and its sign should be negative. Table 5.7 contains the short-run output. The ECT coefficient value is -0.4837 and it's statistically significant at 1% level, indicating that variables adjustment speed towards long run equilibrium is 0.48% annually. Accordingly, if the long-term equilibrium diverge in the short run, the deviation of variables from its equilibrium is corrected by around 0.48% in every year. The outcomes demonstrate that inflation is both a short and long run phenomenon. As indicated by the R-Square value, the model explanatory variables explained 64.1% of the variation in inflation. The Durban Watson statistic 2.05 confirmed the absence of autocorrelation.

Table 5.7
Error Correction Model for the Short Run Analysis
Dependent Variable – INF
Model: ARDL (1, 0, 0, 1, 1, 0, 1)
Sample: 1971-2022

Variables	Coefficient	Std. Error	t-Statistics	Prob.
Δ INF (-1)	-0.483706	0.108818	-4.445073	0.0001***
Δ CAD	-0.044505	0.221487	-0.200939	0.8418
Δ EXR	0.061861	0.026188	2.362171	0.0233**
Δ MS (-1)	0.289359	0.134337	2.153814	0.0375**
Δ FD (-1)	0.428499	0.343418	1.247748	0.2196
GDP	0.228425	0.244159	0.935560	0.3553
Δ OILP (-1)	-0.596525	0.306767	-1.944552	0.0591**
Δ D(MS)	-0.317734	0.143378	-2.216058	0.0326**
Δ D(FD)	-0.739538	0.443571	-1.667238	0.1035
Δ D (OILP)	-0.014291	0.233403	-0.061229	0.9515
CointEq (1) */ECM	-0.483706	0.063177	-7.656415	0.0000*
R-Squared	0.641342			
Adjusted R-square	0.601491			
Durbin Watson-stat	2.054395			

a) Source: Author's calculations

b) Significant at 10% (*), at 5% (**), and at 1% (***) respectively.

5.8 GRANGER CAUSALITY TEST

The causation between the variables was examined using a causality test. The period from 1971 to 2022 is considered as a sample with one year lag. The outcomes are reported in Table 5.8. The absence of a causal relationship between the two variables is the null hypothesis, which are provided in pairs. A causal relationship between variables is determined by the p-value. An alternate hypothesis shall be accepted if the p value is below 5%. According to findings, a single causal link exists between money supply and inflation, and bidirectional causal connection exists between fiscal deficit and inflation. The findings show that it is impossible to rule out the null hypothesis, which holds the current account deficit is not caused by inflation. These findings demonstrate the exogenous nature of the current account balance. Therefore there is no evidence of a causal relationship between inflation and current account balance.

Table 5.8
Pairwise Causality Tests
Null hypothesis: No Granger Causality
Sample: 1971 – 2022
Lags: 1

Variables	Observation	F-statistics	P. Value	Results
CAD to INF	51	0.69046	0.4101	NO
INF to CAD		3.21841	0.0791	NO
EXR to INF	51	0.07157	0.7902	NO
INF to EXR		0.21831	0.6424	NO
MS to INF	51	5.89985	0.0189	YES
INF to MS		2.09950	0.1538	NO
FD to INF	51	3.81951	0.0565	YES
INF to FD		5.68810	0.0211	YES
GDP to INF	51	0.01167	0.9144	NO
INF to GDP		1.08759	0.3022	NO
OILP to INF	51	2.70359	0.1067	NO
INF to OILP		2.98910	0.0903	NO

Source: Author's calculations

5.9 RESIDUAL DIAGNOSTIC TESTS

The residual diagnostic test is used to check whether the residuals are normal. We use the Breusch Pagan test, the Breusch - Godfrey LM test, and the Histogram normality test to examine heteroskedasticity, serial correlation, and normality of the residuals respectively. Results of residual diagnostic tests are shown in Table 5.9.

The Obs* R squared is 0.510859, while 0.4748 is the Probability value. The F-statistic is 0.384491, and Probability value is 0.5389. The Serial Correlation Breusch-Godfrey (BG) LM Test establishes that the residuals of the ARDL model do not exhibit serial correlation.

Table 5.9
Residual Diagnostic Tests

Serial Correlation BG LM Test		Heteroskedasticity BPG Test		Histogram Normality Test	
F Statistic	0.384491	F Statistic	1.515377	Jarque-Bera	0.222516
Prob. F	0.5389	Prob. F	0.1652	Probability	0.894708
Obs* R Squared	0.510859	Obs* R Squared	15.27105		
Prob. Chi Square	0.4748	Prob. Chi Square	0.1704		

Source: Author's calculations

The obs* R square is 15.27105 and probability value is 0.1704. The F-statistic is 1.515377 and probability value is 0.1652. According to Breusch – Pagan Godfrey (BPG) test, heteroskedasticity is absent from the ARDL model residuals.

The normality of the residuals checked by histogram normality test. The Jarque-Bera value is 0.222516 and probability value is 0.894708. The Jarque-Bera probability value is greater than 0.05 which indicates that the residuals of the data are normally distributed.

The normality of the residuals confirmed by normality test is displayed in Figure 5.2.

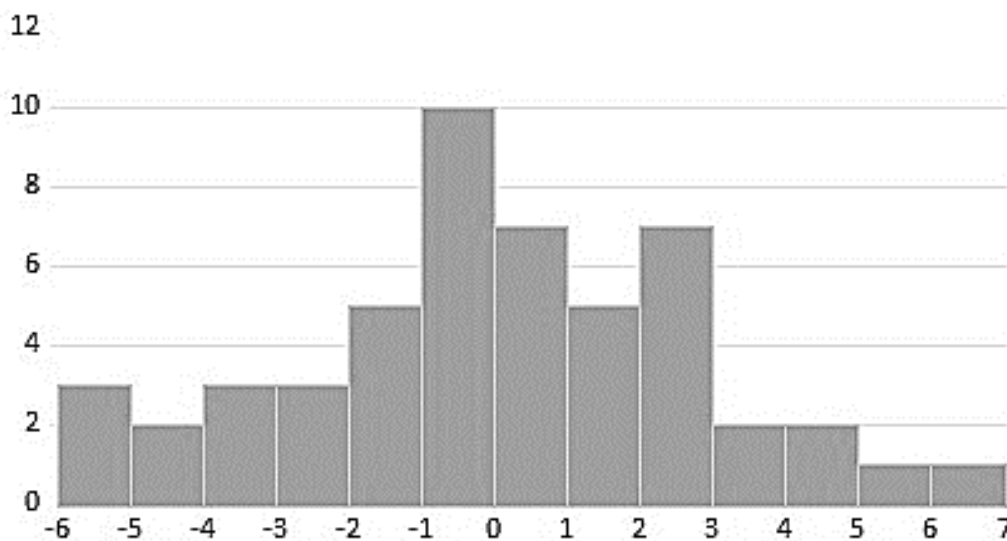


Figure 5.2: Histogram Test Graph

5.10 STABILITY TEST

The Ramsey reset test, cumulative sum of recursive residuals (CUSUM) and cumulative sum of square of recursive residuals (CUSUMSQ) tests are used to examine the stability of the data. Results of Ramsey reset test is shown in Table 5.10. The t - statistic value is 1.061887, while 0.2950 is the probability value. The F-statistic is 1.127604, and probability value is 0.2950. The likelihood ratio value is 1.491344, and probability value is 0.2950. The Ramsey reset test shows that the structure of the model is stable as the probability value is greater than 0.05.

Table 5.10
Ramsey Reset Test

t Statistic	1.061887
Probability	0.2950
F Statistic	1.127604
Prob. F	0.2950
Likelihood ratio	1.491344
Prob. Chi Square	0.2220

Source: Author's calculations

Results of CUSUM is shown in Figure 5.3. In figure the cumulative sum of recursive residuals (CUSUM) test plots remained inside the 5% critical bound which indicate the stability of the parameters. The structure of the model is stable as the CUSUM data is within the critical bound. However, if CUSUM exceed the 5% critical bound, it indicates that the coefficients are unstable. The absence of a discrepancy in the CUSUM graph confirms that ARDL model produce consistent long-term and short-term results.

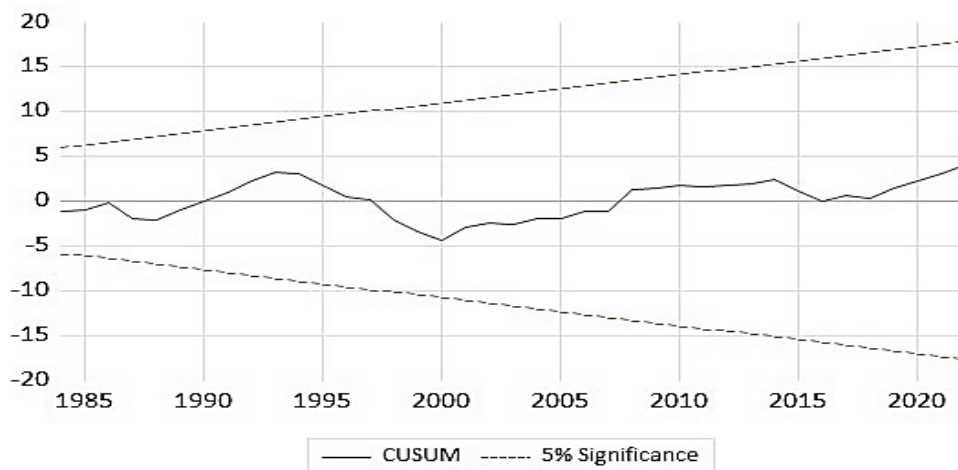


Figure 5.3: CUSUM Test Graph

Results of CUSUMSQ is shown in Figure 5.4. The cumulative sum of squares of recursive residuals (CUSUMSQ) test plots remained between the 5% critical bound which prove the stability of the parameters. The model is structural stable. However, if CUSUM of squares exceed the 5% critical bound, it indicates that the coefficients are unstable. The absence of a discrepancy in the CUSUMSQ and CUSUM graphs confirms that ARDL model produce consistent long-term and short-term results.

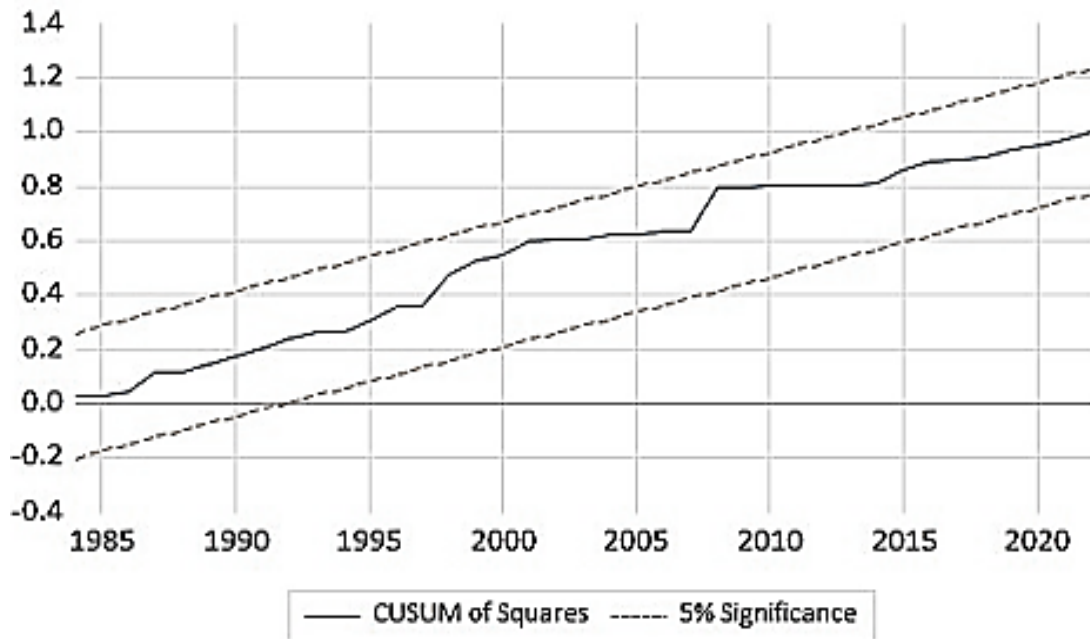


Figure 5.4: CUSUMSQ Square Test Graph

CHAPTER 6

CONCLUSION, SUGGESTIONS AND FUTURE RESEARCH PERSPECTIVES

6.1 CONCLUSION

This undertaken study has attempted to evaluate how current account deficit affected inflation in perspective of the Pakistani economy during the time period 1971 to 2022. The outcomes of the econometric investigation reveals that the current account deficit has a negative and insignificant effect on inflation in both long and short run. In the long term, a one unit rise in the current account deficit leads to 0.092 units decline in inflation (CPI). The country currency begins to depreciate as more commodities are imported, which increases the price of imports and instantly reflected in the pricing. The rise in cost of materials has an additional impact on manufacturing costs. Consequently, a contributing factor for increasing inflation is an increase in imports. However, imports have been increasing, the current account deficit has rising as well, this increase in the current account deficit is also having an impact on a substantial part of the country surplus demand, which in turn is causing inflation to decline in the long and short run.

In Pakistan economy, inflation and the exchange rate have a significant positive relationship over the long or short term. The relevance of the pass through effect is supported by the statistical significance and positive influence of the exchange rate on inflation. Furthermore, the results of the study revealed that the growth of money supply, considerably and positively impact on inflation, whereas the rise of the fiscal deficit and gross domestic product has also positive effect on inflation. Pakistan main energy requirement is met by imported oil. In particular, imported oil is required to satisfy energy demands. When the price of oil increases internationally, production costs increase, which drives up inflation. The study findings showed that inflation is negatively impacted by global oil prices while shocks to the price of oil that are negative have no significant impact. However, the study conclusion made it clear why domestic prices don't always drop in reaction to a drop in the price of oil in the world market.

Inflation has been a trend facing Pakistan's economy in recent years. Therefore, it is essential to identify the significant and relevant causative factors causing inflation. However, Granger causality test verified that there is a unidirectional causal relationship from money supply to inflation (CPI), and

there is a bidirectional causal relationship between the fiscal deficit and inflation.

6.2 POLICY SUGGESTIONS

This study analysis demonstrated that exchange rate, money supply are the main drivers of inflation. The results of this study are realistic reflection of Pakistan economic situation because exchange rate have been consistently falling while supply of money have been growing over the past few years. Prices fluctuate more fast when there is a decline in the value of the home currency. Therefore there is a larger pass through effect on pricing due to exchange rate. Exchange rate fluctuations should be avoided by authorities in order to stabilize inflation. Pakistan must control inflation in order to maintain sustainable economic growth. The listed below policy recommendations have been suggested.

- 1) The State Bank of Pakistan should implement suitable monetary policies to protect the value of Pakistani currency. Short-term effects of the tight monetary policy might include decreased investment and slower economic growth. However, stable financial and economic conditions will attract more long-term investments. Foreign direct investment would be encouraged by reducing currency volatility and improving the predictability of foreign exchange levels in forward and futures contracts.
- 2) The Granger causality test proves that unidirectional causal link between the money supply and inflation, whereas bidirectional causal link between the fiscal deficit and inflation. The study suggests that the State Bank of Pakistan should implement a reserve holding policy while issuing new currency. It is suggested that the higher savings is needed to reduce the investment gap, and government should be cautious in order to fund its fiscal deficit. The decision-makers needs to devise plans to change the fiscal deficit to the surplus.
- 3) The deficit in the current account would be reduced by the increase in exports, even in a scenario of rise in imports. The Government of Pakistan should stimulate the domestic industry and give incentives to local industries to manufacture real value-added goods. There exists a great potential in agriculture, fishing, mining, textile and sports industries, therefore government should support these sectors and create an atmosphere that is suitable to business for foreign markets that are in competition.

- 4) Furthermore, for the country to sustain a current account surplus, economic strategies must be implemented in order to promote exports and broaden the range of export of goods. Pakistan should increase its export, primary and secondary income and add capital goods in its production. In addition, the government should remove unnecessary taxes on exports and encourage foreign investment by providing profitable incentives.
- 5) A combination of these approaches frequently promotes sustainable growth. As a consequence, the current account will decrease, exports will rise, and any adverse effect on the economy will be avoided. The government should use price control committees to regulate prices in accordance with other policies.

6.3 FUTURE RESEARCH PERSPECTIVES

A number of tasks can be anticipated in the future. The data set needs to be broadened in terms of time and country dimensions as to reach more widely accepted conclusions. We utilized the consumer price index as an inflation measure in this investigation, Thus the whole price index rather than the consumer price index may be employed as a proxy for inflation in future research.

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APPENDIX

DATA FOR THE VARIABLES

Years	INF	CAD	EXR	MG (%GDP)	FD	GDPG	OILP
1971	4.7307	-468	4.7619	46.4844	-5.3	0.4684	14.0892
1972	5.1832	-363	8.6814	50.7274	-4.1	0.8134	15.5987
1973	23.0701	-107	9.9942	46.7644	-3.7	7.0643	20.6934
1974	26.6630	-481	9.9000	35.3934	-5.2	3.5402	72.8359
1975	20.9045	-1064	9.9000	33.9958	-9.3	4.2114	72.5214
1976	7.1583	-826	9.9000	38.3291	-9.6	5.1562	80.5094
1977	10.1330	-903	9.9000	39.3563	-8.6	3.9477	87.5540
1978	6.1387	-488	9.9000	40.0543	-7.9	8.0485	88.1830
1979	8.2670	-984	9.9000	43.1560	-8.9	3.7584	198.8206
1980	11.9382	-873	9.9000	41.5586	-6.3	10.2157	231.6534
1981	11.8799	-749	9.9000	39.0148	-5.3	7.9208	225.9925
1982	5.9035	-1116	11.8475	40.7925	-5.3	6.5375	207.3747
1983	6.3620	-178	13.1170	43.8769	-7.1	6.7784	185.8636
1984	6.0872	-688	14.0463	39.8551	-6.3	5.0652	181.0205
1985	5.6148	-1280	15.9284	40.6613	-7.7	7.5921	173.3469
1986	3.5064	-758	16.6475	43.3097	-8.1	5.5017	90.7618
1987	4.6812	-326	17.3988	45.3111	-8.2	6.4523	115.9527
1988	8.8379	-1162	18.0033	41.3654	-8.5	7.6253	93.8680
1989	7.8443	-1347	20.5415	38.9810	-7.3	4.9598	114.6386
1990	9.0521	-1353	21.7074	39.1371	-6.3	4.4586	149.2307
1991	11.7913	-1558	23.8008	39.0411	-8.8	5.0616	125.8018
1992	9.5090	-896	25.0828	42.5300	-7.5	7.7059	121.5242
1993	9.9737	-3327	28.1072	45.3647	-8.1	1.7577	106.7482
1994	12.3682	-1651	30.5666	45.4103	-5.9	3.7374	99.4897
1995	12.3436	-2163	31.6427	43.5708	-5.6	4.9626	107.0315
1996	10.3738	-4348	36.0787	46.0413	-6.5	4.8466	130.0007
1997	11.3755	-3557	41.1115	48.2032	-6.4	1.0144	120.0886
1998	6.2280	-1701	45.0467	47.1502	-7.7	2.5502	79.9790

Years	INF	CAD	EXR	MG (%GDP)	FD	GDPG	OILP
1999	4.1426	-1866	49.5007	44.8203	-6.1	3.6601	113.0282
2000	4.3667	-217	53.6482	34.7994	-5.4	4.2601	179.2307
2001	3.1483	326	61.9272	36.5151	-4.3	3.5544	153.7472
2002	3.2903	2833	59.7238	40.3906	-4.3	2.5083	157.3913
2003	2.9141	4070	57.7520	43.5835	-3.7	5.7770	181.3394
2004	7.4446	1812	58.2579	44.8916	-2.4	7.5469	240.6792
2005	9.0633	-1559	59.5145	45.4791	-3.3	6.5188	342.9267
2006	7.9211	-4990	60.2713	56.3716	-4	5.8990	409.7431
2007	7.5987	-6878	60.7385	58.8677	-4.1	4.8328	455.3128
2008	20.2861	-13874	70.4080	54.4676	-7.3	1.7014	611.7206
2009	13.6478	-9261	81.7129	51.6261	-5.2	2.8317	387.8999
2010	12.9389	-3946	85.1938	52.5128	-6.2	1.6067	500.0110
2011	11.9161	214	86.3434	48.1001	-6.5	2.7484	699.7755
2012	9.6824	-4658	93.3952	51.4812	-8.8	3.5070	702.3801
2013	7.6922	-2496	101.6289	52.2405	-8.2	4.3965	683.4403
2014	7.1894	-3130	101.1001	51.8274	-5.5	4.6747	622.3506
2015	2.5293	-2709	102.7693	53.3223	-5.3	4.7311	329.5023
2016	3.7651	-3394	104.7691	50.8043	-4.1	5.5267	275.0792
2017	4.0854	-12621	105.4552	51.4077	-5.2	4.4326	340.8596
2018	5.0781	-19897	121.8241	51.2233	-5.8	6.1517	448.5260
2019	10.5784	-13434	150.0363	51.1836	-7.9	2.4976	403.8716
2020	9.7400	-4449	161.8385	54.5264	-7.1	-1.2741	263.1548
2021	9.4962	-2820	162.9063	51.2998	-6.1	6.4871	446.0216
2022	19.8739	-17481	204.8672	45.9215	-7.9	6.1882	637.2825