The Role of Money, Income and Exchange Rate in Sectoral Trade Balance: An Empirical Evidence

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Thesis submitted to International Institute of Islamic Economics,

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APPROVAL SHEET

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In the name of Allah Most Gracious and Most Merciful

DEDICATION

To my great father Mr. Abdur Razzaq

(May his soul rest in peace)

(Ameen)

DECLARATION

I hereby declare that this thesis, neither as a whole nor as a part thereof, has been copied out from any source. It is further declared that I have carried out this research by myself and have completed this thesis on the basis of my personal efforts under the guidance and help of my supervisor. If any part of this thesis is proven to be copied out or earlier submitted, I shall stand by the consequences. No portion of work presented in this thesis has been submitted in support of any application for any other degree or qualification in International Islamic University or any other university or institute of learning.

Amna Shamim

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All praise and exaltation is due to Allah S.W.T., the Creator and Sustainer of all Seen and Unseen worlds. First and foremost I present highest gratitude to Him for providing me the bounties and blessings to complete this work. May blessings of Allah SWT be upon our beloved Prophet Muhammad (P.B.U.H) who is the sole source of guidance for us.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
ARDL	Auto Regressive Distributed Lag
ECM	Error Correction Model
GDP	Gross Domestic Product
REER	Real Effective Exchange Rate
RMB	Chinese Currency (Renminbi)
OLS	Ordinary Least Square
VECM	Vector Error Correction

ABSTRACT

The purpose of this research is to test the empirical validity of the J-curve, and test the empirical relevance of monetarist and absorption approaches for total trade and nine sectors of trade of Pakistan. To check long-run and short-run effects, the ARDL model is used on annual data ranging from 1970 to 2012. The results indicate that only the sector "Manufactured Goods Classified Chiefly by Material" shows evidence for the evidence of the J-curve. However, we find that the exchange rate has more influence on total trade balance only. While for the sub sectors of total trade, money supply and GDP are more important. It is recommended that to improve trade balance we should focus on the GDP and money supply more than the exchange rate. Our results suggest that policy makers should not focus on total trade balance only for making policies, rather they must take into account the behavior of different sectors of trade as well. The main focus should be on these two sectors Chemical, and Mineral Fuels Lubricants & related Materials, as they are causing total trade balance deficit.

CHAPTER 1

INTRODUCTION

1.1 Background

An effective exchange rate[1] policy has become the main concern for the improvement of external competitiveness. It is widely believed that the end result of devaluation leads to expenditure switching, increase in production of the tradable goods and services, more exports, and in turn, improvement in external accounts of the country. Traditional stabilization policies and particularly their devaluation factors have exclusively analyzed in recent studies. Specifically, it has been explored that these policies can be destructive for most of developing countries as exports and imports are generally insensitive to changes in prices and exchange rate for developing countries. In principle, if the price elasticities of exports and imports are considerably low, the devaluation of the domestic currency may worsen the trade balance represents in domestic currency. Indeed, stabilization policies that include changes in the exchange rate cannot be rationalized if devaluation of domestic currency does not improve the trade balance. Along same lines, Grubel (1976) has argued that fiscal or exchange rate polices cannot completely correct the continuous imbalance in external payment of country that is mainly due to a defective monetary policy. Likewise, Miles (1979) also suggested that the balance of payment can be improved by devaluation of a domestic currency rather than improvement in trade balance. This result indicates that capital account brings improvement. Hence, he argued

[1] Exchange rate is defined as the price of a one unit of foreign currency (say US dollar) in domestic currency (say Pak rupee).

that the devaluation process largely works through a portfolio stock adjustment and is essentially a monetary phenomenon.

Besides the price elasticities of exports and imports, time lag is involved to improve the trade balance due to currency depreciation. Theoretically, the short-run and long-run effects of currency depreciation on trade balance can be quite different. Specifically, currency depreciation may improve the trade balance in the long-run, whereas, it results in a trade deficits in the short-run. This time path followed by the trade balance in response to domestic currency depreciation is known as the J-curve.

Although, the idea of depreciation can improve the trade balance theoretically, empirical work suggests mixed results at best. Rose (1990) tested the J-curve phenomenon for 30 countries. He found that for 28 countries, currency devaluation does not have any statistically significant impact on the trade balance, whereas, there is a negative impact for only one country. Based on his empirical findings, he suggested that improvement in trade balance is not essential in domestic currency devaluation.

When we review the recent literature we find that the most part of empirical work centers on the twin concepts of Marshall-Lerner (ML) condition[2] and the J-curve phenomenon (Bahmani-Oskooee and Ratha (2004)). Holding the Marshall-Lerner condition means a depreciation of the exchange rate leads to a reduction in import expenditures and an increase in export sales (Caporale et al. (2012)). However, it happens only if the sum of the price elasitcities of absolute values of import and export demand exceeds unity. Yet, one should also note that it may worsen in the short-run because of inelastic demand of

[2] According to the ML condition, the success of devaluation depends on whether the sum of import and export demand elasticities exceed unity, Bahmani-Oskooee & Ratha (2004).

exports and imports in the immediate aftermath of exchange rate depreciation, due to lag dynamics (Waliullah et al. (2010)).

This thought motivated many researchers to examine empirically wehether devaluation impact on the trade balance differs across the short-run and the long-run for various countries. However, at best, the results of their studies are country specific. For example for Japan, Kapoor and Ramakrishnan (1999) found the empirical evidence in favor of the J-curve phenomenon. On the other side, the results of Georgopoulos (2008) for Canada are not consistent with the idea of the J-curve. Bahmani-Oskooee and Ratha (2004) found that irrespective of using bileteral or aggregate data in the studies, the short-run response of trade balnce to currency depriciation does not follow any specific pattern. Therefore, according to them, there is a need of using disaggregated data to explain the exchange rate sensitivity of a country for comapative advantage goods at commodity level. Along these lines, recently Wijeweera and Dollery (2012) explored different outcome between the goods sector and the services sector which are the two main sectors of trade account of Australia.

In Pakistan, most of the empirical studies have tested the exchange rate influence on trade balance at the aggregate level. The examples of these studies are Aftab and Khan (2008), Asif and Rashid (2010), and Hameed and Kanwal (2009). The results of these studies are inconclusive, however. For example, Aftab and Khan (2008) found no empirical support for the J-curve, while Asif and Rashid (2010) reported that devaluation is not effective to improve trade balance. On the other hand, the results of Hameed and Kanwal (2009) support the traditional idea that devaluation improves the trade balance. One should note that none of the studies has been explored the impact of changes in exchange rate on

sectoral trade balance. However, it is likely that the exchange rate effects are different for different sectors. Indeed, the time series plots of different sector show different trends in the trade balance. These differences provide preliminarily evidence of a differential response of sectoral trade balance to the exchange rate changes and other determinants.

Departing from the existing empirical studies, the main objective of this study is to examine the impact of the exchange rate changes on sectoral trade balances. The study also aims to test the empirical relevance of monetarist and absorption approaches by including money supply and income variables into the specification. The results of the study would be helpful for policy makers to make policies for different sectors of trade. Examination of determinants of the trade balance using disaggregate data (sector level) would also provide new path to researchers for exploring the exchange rate effects on the trade balance. This would also help to improve our understanding of the J-curve phenomenon and other fundamental determinants of trade balance.

1.2 Problem Statement

In Pakistan, imports are greater than exports that causes trade deficit every year. In order to make an effective policy which may help to minimize the inverse effect of currency depreciation on trade, it is important to explore major sectors which are involved in the relation of trade balance and the exchange rate. Almost all the literature is based on aggregate assessment. However, in Australia there is an evidence of the existence of the J-curve in service sector but not for goods sector according to Wijeweera and Dollery (2012). In Pakistan, there is also no empirical work available at sector level to our best knowledge. Yet, it would be useful to examine the response of the trade balance of different sectors to exchange rate changes and other determinants.

1.3 Objective of the Study

Specifically, the study has the following two objectives:

- To test the empirical validity of the J-curve for nine different trade sectors of Pakistan.[3]

- To test the empirical relevance of monetarist and absorption approaches for different trade sectors.

1.4 Structure of Thesis

The rest of the study is organized as follows. Chapter 2 presents review of related literature and different theories of balance of payment. Chapter 3 presents theoretical frame work, methodology, and data. Chapter 4 explains our empirical results and presents the interpretation of the results. Chapter 5 presents conclusions, recommendations, and limitations.

[3] These nine sectors are classified according to Pakistan Economic Survey. These sectors cover almost all major sectors of the economy. The names of these sectors are given in data section of the study.

CHAPTER 2

LITERATURE REVIEW

Exchange rate variations affect many economic variables e.g. trade balance, prices, income, and production levels. It is important to note that a significant work has been done in the literature on the exchange rate effects on trade balance. Bahmani-Oskooee and Ratha (2004) has vast contribution in the literature on the J-curve.

Halicioglu (2008) shows that the trade of Turkey with rest of the world creates no indication of the long-run improvement of the trade balance. Similarly, in the case of Taiwan and Korea, there is no improvement of trade balance observed by Hsing (2005). Moreover, Singh (2004), Beak et al. (2006), Georgopoulos (2008), and Aftab and Khan (2008) are failed to find any long-run improvement as well as short-run deficit of trade in response of exchange rate changes.

However, according to Andersson and Styf (2009), trade ratio is strongly affected by depreciation of real effective exchange rate. Before recognizing the volume effect, there is no influence of negative price effect on trade ratio to increase. As Aftab and Khan (2008) explained, price effect and volume effect are two results of trade flows because of the exchange rate change. Feedback effect of the exchange rate may economically significant (Demirden and Pastine (1995)). Asif and Rashid (2010) test different policies of the exchange rate for Pakistan. Specifically, they show that to improve export to import ratio devaluation is not an effective tool.

Ahmad and Yang (2004) reveal that there is no long-run relationship between the real exchange rate and the trade balance. They also report that, to some degree, the trade balance has an impact of the exchange rate in the long-run, yet there is no negative effect of the exchange rate in the short-run. Onafowora (2003) uses Johansen method to estimate coefficient of the cointegration vector and finds a positive relationship between the real effective exchange rate (REER) and the real trade balance in the long-run.

To make trade balance comfortable and with an increment in its revenues the J-curve's study is making a pace in many countries. The J-curve has been discussed by many researchers so far. It has been shown by the studies by many researchers that the J-curve has an effect in the literature of economics internationally (Baek et.al (2006)). The review has been divided into various sections and consists of in-depth discussion about various variables related to the study.

2.1 Exchange Rate Effects over Trade Balance

The real exchange rate impacts are not significant on the real bilateral balance of trade for Singapore and the USA. In case of small countries exports and imports are denominated in foreign currency and depreciation keeps their value unchanged in the domestic country. In the small countries, imports and exports are treated separate repressors (Wilson and Tat (2001)). In case of oil exporting countries like Iran, Venezuela, and Saudi Arabia, the exchange rate of US dollar has either no or very little effect in the short-run. Partial changes had passed through to these three oil exporting countries. Even a small downward change leads to rise in the imports of US dollar. In the time when currency contract period is going on, neither amounts nor number of products can

respond to the changes in the exchange rate. An improvement has been seen in the trade of Iran and Venezuela by measuring it in US dollar prices (Yousefi and Wirjanto (2003)).

Taking into account the small economy, import prices which are measured by any other currency are constant while the home currency depreciates. So the degree of pass-through to import prices, quantified by the home currency is always one. The factors that affect the degree of pass-through for exporting prices are markup and proportion of cost of imported materials measured in local currency. Where the degree of pass through is small there will be little room to lower the export prices. The decrease in the local currency may provide benefit to the exporters. The degree of pass though increases in short span of time by the depreciation in the local currency. The reason to make existence of the J-curve is the rate of exchange pass through to exports amounts (Han and Suh (1996)). Similarly, Levin (1983) investigates the behavior of the exchange rate under the floating exchange rate system in response of trade balance, when the expectations of exchange rate are rational even though when speculators are risk averse. This study offers some main findings that speculators will alleviate the floating system of exchange rate proffered mobility of capital is adequately high. This has been also found that unless the capital mobility degree goes beyond an even higher level of critical stage, the exchange rates will move around their equilibrium values in long-run. The exchange rate can overshoot to its long-run equilibrium level due to a real unanticipated disturbance. Petrovic and Gligoric (2010) say that for shorter period of time in case of Serbia depreciating the exchange rate improves the balance of trade for longer time. They considered their results appropriate in order to make policy in the Serbia and also in other European countries which have to face the crises in the adjustments of current accounts.

Wang et al. (2012) examine the long-run as well as the short-run effects of exchange rate changes on the balance of trade. They carry out their empirical analysis by using data for one of the largest exporter countries in the world "China". The results show a real appreciation of RMB offered a decreasing long-run effect on the trade balance of China in only three of its trading partners while it has shown an increasing long-run effect in five of its trading partners.

Dixit (1994) relates the effects of exchange rate changes of the J-curve and hysteresis views to the volumes of trade. The concept of hysteresis explained that the volume of trade will respond only when the exchange rate is reaching to a specific threshold. So Dixit investigated the hysteresis model's implications for the dimension of time to examine the Yen-Dollar fluctuations and the imbalances of Japan-U.S. in the 1980s. The expected time lag in this model is dependent on the stochastic process' parameters, i.e. the rate and its initial position. The results showed that the initial value of the Dollar is high during the 1985 to 1987, which is very far above the threshold for the response of trade. Tivig (1996) discusses the exchange rate by using two-period model of duopolistic competition with different commodities and constant marginal cost. He concludes that no macroeconomic feature is compulsory for the occurrence of results.

2.2 The J-Curve's and Devaluation Relation with Trade Balance

It is important to mention that a lot of work has been done in the literature about trade balance and its relationship to the J-curve. Bahmani-Oskooee, Goswami, and Artatrana Ratha have done a lot of work on the J-curve and its effects with trade balance during recent years. Studies show that trade of the Turkey with rest of the world creates no indication of the J-curve in Turkey's trade. Having trade relations with thirteen partners,

Turkey has no J-curve in its trade and businesses with other countries (Halicioglu (2007)). He reports that the J-curve study in Turkey's case is very limited and these are based on only on the aggregate data. Effects of the J-curve are there in the US and Canada and especially for forest products trade. Moreover, the phenomenon of the J-curve is found with a very little evidence in case of forest products of US-Canada. The J-curve is not explainable for the increasing trade deficit and the declining trend in the trade of products related to the forests (Baek (2007)). In Baek's (2007) study, vector error correction model was used to know about the existence of the J-curve and its effects in economies of Japan, Taiwan, and Korea. The logical reason hidden under the effect of the J-curve is that the effect of trade volume followed after a delay the effect of price in way that the value of imports/exports raises over exports/imports in the long or short period of time in home currency. Existing negative effect has been seen for Japan by using vector error correction (VEC) model by involving trade ratios of two parties and aggregate. There had not been seen any effect of the J-curve traditionally for the case of Taiwan and Korea (Hsing (2005)). Any effect of the J-curve in the balance of trade of India is not shown as hypothesis of the J-curve put forward for consideration that after the diminishing of exchange rate the trade balance become worse in the shorter span of time.

Ratha (2010) using annual data of 1973 to 2006 shows that the real depreciation is not lead by nominal devaluation. This may be due to the pressure of inflationary devaluation. Another study by Hameed and Kanwal (2009) provides evidence that the trade balance has a positive and significant impact of the exchange rate in the long-run.

Devaluation reduces prices in exporter countries, while increases the price of imports at home country, leading to increase exports and reduce the amount of import, which affects

the trade balance positively (Andersson and Styf (2009)). According to Ratha (2010), if the nominal devaluation leads to real devaluation under the fixed exchange rate, then it surely improves the trade balance. Devaluation also has a positive effect for Brazil, Costa Rica, Netherland, Singapore, and Turkey ((Bahmani-Oskooee and Alse (1994)). However, Hameed and Kanwal (2009) suggest that devaluation leads improvement of trade balance but it is not an effective policy tool to recover deficits of trade balance. Thus, their findings are in line with the traditional views that bilateral trade can be improved through devaluation, at least, in the long-run.

Many studies have used the non-stationary time series data plus reduced models' forms to investigate the devaluations' effects on the trade balance and they have provided mixed results. According to Anderson and Styf (2010) devaluation in the currency of the Malaysia progressively worsens trade balance. Yazici (2010) examines that depreciation in the domestic currency of the Turkey improves the trade balance in the long-run. According to this study, the trade balance first weakens and then its starts improving. Oskooee and Kutan (2008) explain that in developing countries, depreciation and devaluation are contracted for short span of time. For long time, devaluation becomes stable, it neither goes positive nor goes negative. Aftab and Khan (2008) also do not provide results in favor of devaluation in developing countries. They show that through devaluation Pakistan improves its real income rather than the balance of trade.

As in Yazici (2009), the depreciation in the domestic currency of the Turkey improves the balance of trade in the long-run. The trade balance response to real depreciation of local currency has been hypothesized to follow the J-curve shape. According to him, the balance of trade first weakens and then its starts improving. Yazici (2009) adopted the

model which was used by the Oskooee (1985) because he found it the more utilized model in most of the literatures of the J-curve. Depreciation in the local currency, the balance of trade first increases, and then it decreases and then it again improves. This type of behavior shows that there is no effect of the J-curve in the economy and especially in the service sector of the Turkey. Pastine and Demirden (1995) suggest for the testing of the J-curve, the econometric structure that truly deals with feedback effects. The J-curve is found in the Dominican Republic, while it does not exist in Costa Rica, El Salvador, Guatemala, and Honduras. The J-curve explains the post devaluation trend of the trade balance Hsing (2009).

Some studies has also been done on El Salvador, Guatemala, Honduras and Nicaragua, Rose (1990), Miles (1979) etc. about the effects of the J-curve in these countries. The study, suggests that Mexico is a major trade companion of Canada. The depreciating peso has made extreme effects across Northern America. It is suggested by a theory of economics that decline exports amount comes from the depreciation of the currency of the said country will lead to an increase of exports over imports and through this it might cause a country to pay more amounts than usual.

In developing countries, depreciation and devaluation are contracted for short span of time. For long time devaluation becomes stable it neither goes positive nor goes negative (Oskooee and Kutan (2008)). Any standard J-curve was not supported by the trade of Pakistan. Pakistan is one of the developing countries which have devalued its currency time to time especially when it faced problem of budget deficit. In the long-run, no J-curve is found by them. Yet, they found unstated impact of depreciated exchange rate of Pakistan and its trade with Germany, Italy, Hong Kong, Spain, and the Netherlands. And

in trade with the UK, the USA, and France, depreciation in exchange rate does not lead to positive impact. For the short-run, there is no evidence of the J-curve effect in case of Pakistan. Pakistan's almost 20% trade is accounted from the USA and the UK. Suggestion was made to change the countries where it exports. Pakistan should find new markets to sell its products for earning more income (Aftab and Khan (2008)). Devaluation has negative effects for developing countries. Pakistan is said to improve its real income rather than improving its balance of trade. An increase in income from foreign countries Pakistan can improve its balance of trade. The pattern of moving balance of trade J shaped curve occurs which is known as the J-curve. Imperfect substitute model was used which was developed by (Rose and Yellen (1989)). Test of co-integration also carried out to possess relationship which is long term. Their results showed improvement in balance of trade by devaluating currency and this no evidence is found through it. Hameed and Kanwal (2009) failed to locate any J-curve in Pakistan due to great speed of devaluation.

2.3 Gross Domestic Product (GDP)

The review of literature suggests that the developing countries have loosened restrictions on trade for last twenty years to utensil in order to be the case for growth to be applied. Conflicting views were exchanged in a heated way that harmful matters with misspecification and a variety of removing record used is obligation which does not lead to firm conclusion. The action of measuring for liberalization is prolonged public disagreement, on the contrary to keep or restrict someone Greenaway et al. (2002) extracted out three gauges. First, they find that for any country to know the growth rate the GDP, education system, investments, growth in population are all of equal

importance. Secondly they show that the impact of liberalization for the short period of time on real GDP growth per capita is improper to be done instantly. Their findings show that loosens restrictions might impact positively on real GDP growth Greenaway. Oskooee and Harvey (2010) have done research on the currency depreciation in Malaysia by employing disaggregate data instead of aggregate data like the previous research studies. They have assessed the bilateral trade balance between Malaysia and its 14 largest trading partners by using cointegration and error-correction modelling along with quarterly data from 1973 to 2003 time period. Their results showed that short-run bilateral trade balance movement can attain any path. However, in the long-run, improvements can be seen in Malaysia's bilateral trade balance along with the rise in the GDP growth of the country. Hameed and Kanwal (2009) suggests that increased foreign income causes an increase in domestic income through higher demands for exports that improves the trade balance of Pakistan.

2.4 Foreign Income, Monetary Policy, and Trade Balance

If the earning capacity of the individuals decline then they would like to maintain the habitual living standard as they were having before the decrease in their income. If the earning of a person decreases then as a result the saving also declines and there also occurs a deficit in current account (Mansoorian (1998)). In order to assess the real depreciation's impact on outcome many researchers used fiscal policy and monetary policy with the real exchange rate. The effects of monetary policy on European countries like France, Italy and United Kingdom has been discussed by the Kim (2001). He employed VAR model in his research. The demand of public applies an expansion in the monetary values. In daily routine it is seen that the income is shortened down by the

expenditure switching effect. Landry (2009) uses an open economy macroeconomic model with state-dependent pricing (SDP). SDP and complementarity was introduced in price setting which implies a slow but continuous transmission of monetary policy for aggregating economic activity. Georgopoulos (2008) attempts to see some form of goods market segmentation to address the issue of the J-curve. The monetary policy is adopted to achieve a goal to raise the standard of livings of all residents of the country through the stable and low inflation. The positive change has been reported by having the impulse response (Georgopoulos (2008)). Tropical forests are most important in order to get the non-timber forest products. There is need to evaluate the sustainability of harvesting for ecological and economical assessment of harvesting and processing parts of plants from wild population (Ayisso et al. (2009)).

Aftab and Khan (2008) support the monetarist argument that improvement of trade balance is only caused by the reduction of real value of the cash balance and change of the relative price of the traded and the non-traded goods. However, in lines with the target approach, they suggest that switching from foreign to domestic good leads to improvement of trade balance. The most important factor is the behavior of competitors as if they also devaluate their currencies, then the result of devaluation of local currency may worsen.

Waliullah et al. (2010) present strong evidence that income and money supply both have a significant role in the determination of trade balance for Pakistan. Both in the short-run and the long-run, the trade balance of Pakistan relies more on money supply and income as compared to the exchange rate. According to Mansoorian (1998), if the earning capacity of the individuals declines, then they would like to maintain the habitual living

standard as they were having before the decrease in their income. If the earning of a person decreases, then, as a result, the savings also declines and there also occurs a deficit in current account. In order to assess the real depreciation's impact on outcome many studies used fiscal policy and monetary policy with the real exchange rate. The effects of monetary policy on European countries like France, Italy, and the United Kingdom have been discussed by the Kim (2001). He finds the evidence of the phenomenon of the J-curve for these countries. He also reports that the income is shortened down by the expenditure switching effect.

Foreign income, directly invested investment of foreigners, household consumption and real exchange rate are liable to affect the trade deficit. A deficit in the trade balance for the long term leads to increased burden of foreign debts. Mohammad (2010) uses Johansen cointegration test which was developed in 1996. He finds that income from foreigners show a positive impact on trade balance if it increases. In the research study of Tantum (1992), he estimates the manufactured good trade balance of U.S. with Japan by a model via using semiannual data from 1972 to 1987. Controlling for relative quality difference in autos in Japan and the USA, an attempt was made to describe the trade balance's movement over the time period of 1985 to 1987. Moreover, he uses estimated model to explore the impact of relative quality change and hypothetical exchange rate. His results provides limited empirical evidence which suggests that controlling for autos relative quality difference in both countries creates a difference that explain the demands of U.S. to imports autos from Japan. The Japanese and U.S. autos' relative quality changes over time period of 1985 to 1987 had very small effects on their trade balance.

2.5 Marshall-Lerner Condition and Trade Balance

The Marshall-Lerner condition has its basis in the study of the exchange rate in trade of foreign goods. Lee et al. (2010) observe that the degree of returns to scale, elasticity of substitution, and foreign prices influence the exchange rate effects on the relative prices and import demands. Their results reveal that the foreign and home prices elasticities for the import demand are significant in making a decision that the exchange rates' power is affecting local prices plus import demand. According to Han and Suh (1996), if the condition of Marshall-Lerner is not met for short period and the J-curve scale will be greater because of larger degree of pass-through, then the tracks of pass-through could not be same whether there is a depreciation or appreciation in the domestic currency. The effects on the trade balance of appreciation would be higher than the effects of depreciation. Renhman and Afzal (2003) have estimated a reduced form model of trade balance to create the validity of the J-curve phenomenon empirically by using new cointegration technique, ARDL. They have tested the J-curve hypothesis for Pakistan by employing quarterly data from 1972 to 2002 period of time. Their results supported the evidence of the J-Curve plus the long-run effect of the real depreciation in currency of Pakistan seems to be not favorable.

Almost all the literature is based on aggregate assessment. However, in Australia there is evidence for the existence of the J-curve in service sector but not for goods sector according to Wijeweera and Dollery (2012). In Pakistan, there is also no empirical work available at sector level to our best knowledge. In Pakistan, imports are greater than exports that causes trade deficit every year. In order to make an effective policy which may help to minimize the inverse effect of the currency depreciation on trade, it is

important to explore major sectors which are involved in the relation of trade balance and the exchange rate. Yet, it would be useful to examine the response of the trade balance of different sectors to exchange rate changes and other determinants.

CHAPTER 3

TOTAL TRADE AND ITS SECTORS IN PAKISTAN

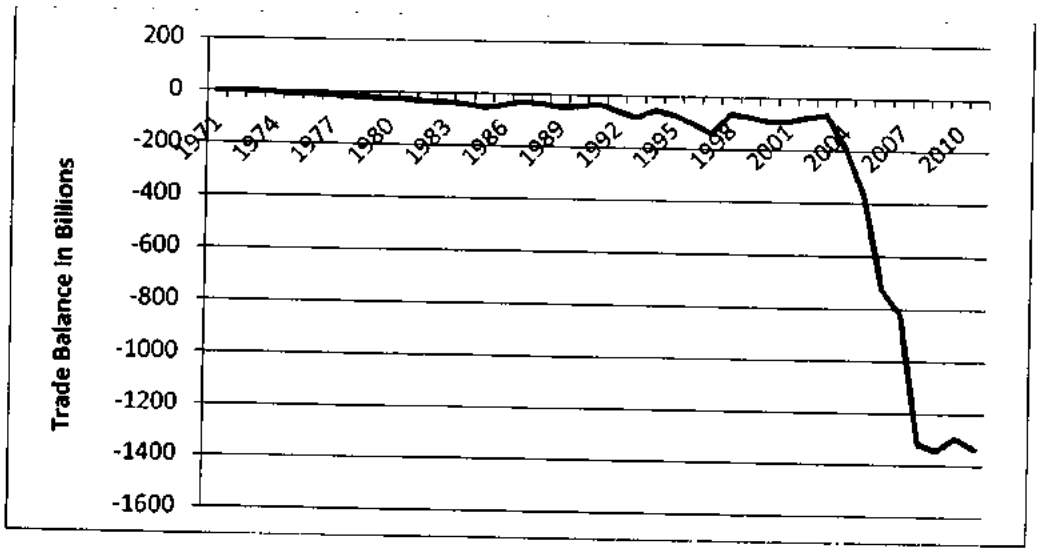
3.1 Introduction

In this chapter we review the total trade and sub sectors of total trade of Pakistan over the last 3 decades. Foreign trade is important to the economy because of the country's need to import a variety of products. The early years of Pakistan's economy can be characterized by a weak industrial base, dominance of the agriculture sector, lack of well-organized infrastructure, and above all eco-political instability.

3.2 Total Trade

Pakistan's exports have fluctuated widely during the past 30 years. Pakistan's international trade is suffering from huge amount of deficit due to low demand for its exports. Imports have exceeded exports in almost every year since 1950, and Pakistan had a deficit on its balance of trade each year from 1971 through 2012 except 1973. (See Figure 1)

Figure 1: Trend in Total Trade Balance



In 1971, exports were Rs.1.9 billion, compared with imports of Rs.3.6 billion, which resulted in a deficit of Rs.1.6 billion. In 1973 exports were exceeded imports that resulted in trade surplus of Rs.0.153 billion. In 1975, trade deficit rose to Rs.10.6 billion. The ratio of export and imports were recorded same in 1981 and 1976. The highest trade deficit of 51.78 billion was recorded in 1985. Trade deficit reduced to 32.83 billion in 1991, increased to 81.61 billion in 1993. The early 2000s exhibited a marked slow down in trade deficit as compared with first eight years of 1990s. The 2003 witnessed the lowest trade deficit. From 2003 to 2009 there is continuous increase in trade deficit that reaches at 1315 billion. After 2009 there is decrease in trade deficit till 2012.

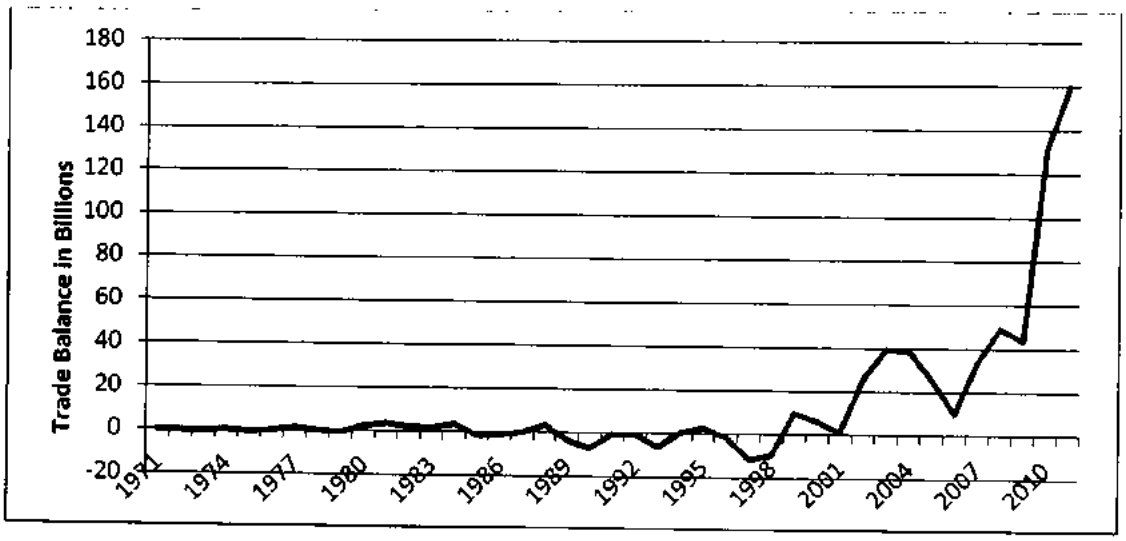
3.3 Sub Sectors of Total Trade

According to commodity groups total trade of Pakistan has nine sub sectors, Food and live animals sector, Beverages and tobacco sector, Crude materials inedible, except fuels sector, Mineral fuels lubricants and related materials sector, Animal and vegetable oil & fats sector, Chemical sector, Manufactured goods classified sector, Machinery and transport equipment sector, and Miscellaneous manufactured articles sector.

3.3.1 Food and Live Animals Sector

Food and live animal sector witness throughout fluctuations. It has both trade deficit and surplus from 1971 to 1983 but the overall trend and contribution is positive. From 1985 to 1998, overall trend is decreasing and having more trade deficit. There is a sudden increase in trade surplus in 2003 and again sudden decrease in 2007. From 2007 to 2011 trend is increasing and trade balance is in surplus.

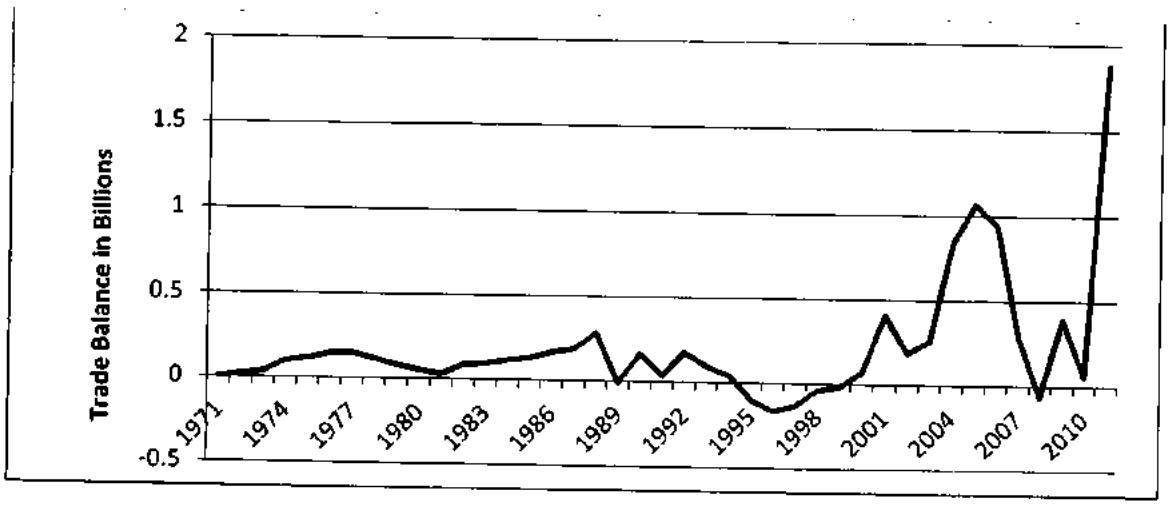
Figure 2: Trend in Trade Balance of Food and Live Animals



3.3.2 Beverages and Tobacco Sector

Trade balance of beverages & tobacco sector is in surplus. There is trade deficit in 1989 and late 1990s. Overall contribution of this is positive. From 1972 to 1987 trade balance is in surplus having decreasing trend till 1983 and then increasing trend of trade surplus. There is sudden trade deficit in 1989 but this is for very short time of period. Early 1990s it is also in surplus but showing deficit in late 1990s. Again rising trend till 2007 and then decreasing trend but still in surplus.

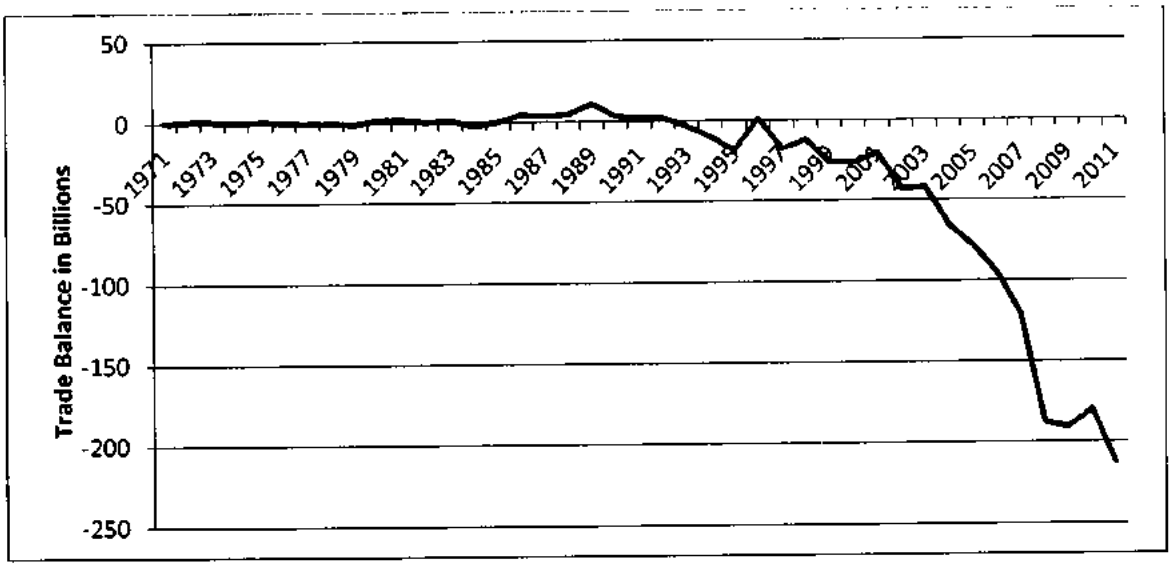
Figure 3: Trend in Trade Balance of Beverages and Tobacco Sector



3.3.3 Crude Materials Inedible, Except Fuels Sector

Overall trend of Crude Materials Inedible, Except Fuels sector is decreasing and having small fluctuations. First half of 1970s shows trade surplus while second half have trade deficit. 1980s witness trade surplus except 1985. After 1993 there is continuous decreasing trend and trade balance is in deficit that is increasing.

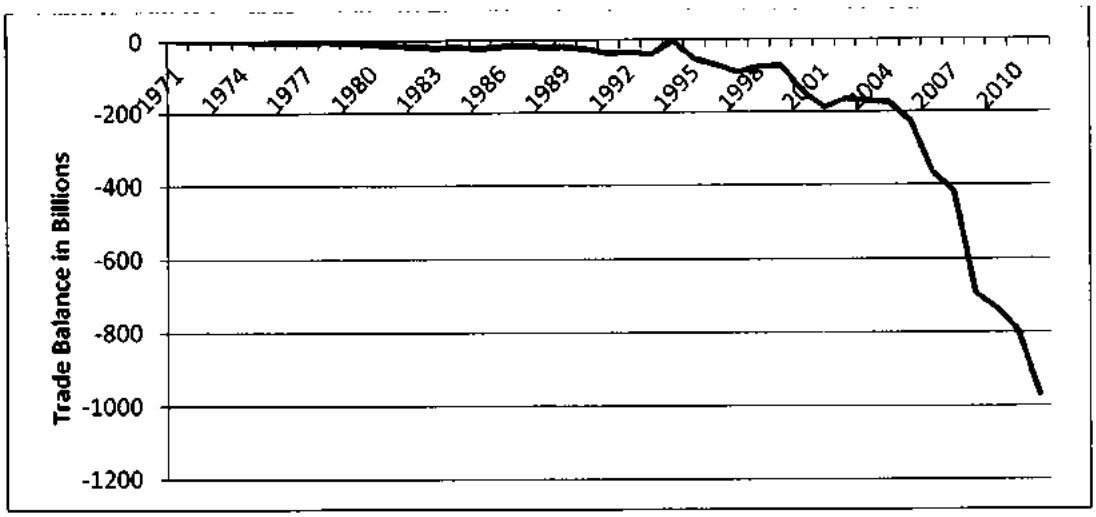
Figure 4: Trend in Trade Balance of Crude Materials Inedible, Except Fuels Sector



3.3.4 Mineral Fuels Lubricants and Related Materials Sector

Trade balance of Mineral Fuels Lubricants and Related Materials Sector is fourth largest sector of Pakistan's trade that causing deficit every year. There is an improvement in trade deficit in 1995.

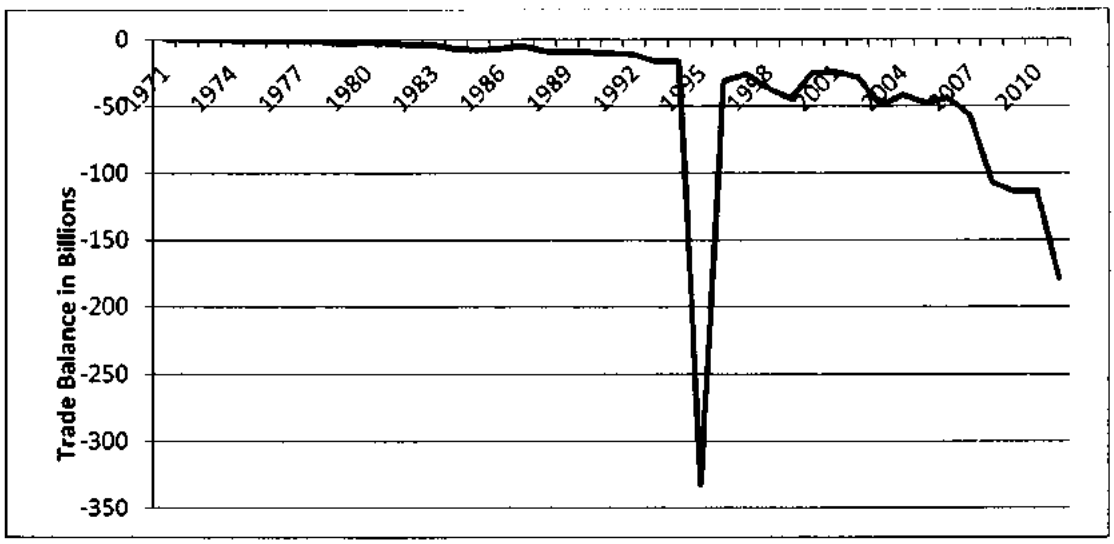
Figure 5: Trend in Trade Balance of Mineral Fuels Lubricants and Related Material Sector



3.3.5 Animal and Vegetable Oil and Fats Sector

Animal and Vegetable Oil and Fats are significant imports as it has 32% share in overall trade deficit. This sector has major contribution to trade deficit. From 1971 to 1986there is decreasing trend in trade deficit. There is a decrease in trade deficit in 1989 and from 2001 trade deficit is continuously decreasing.

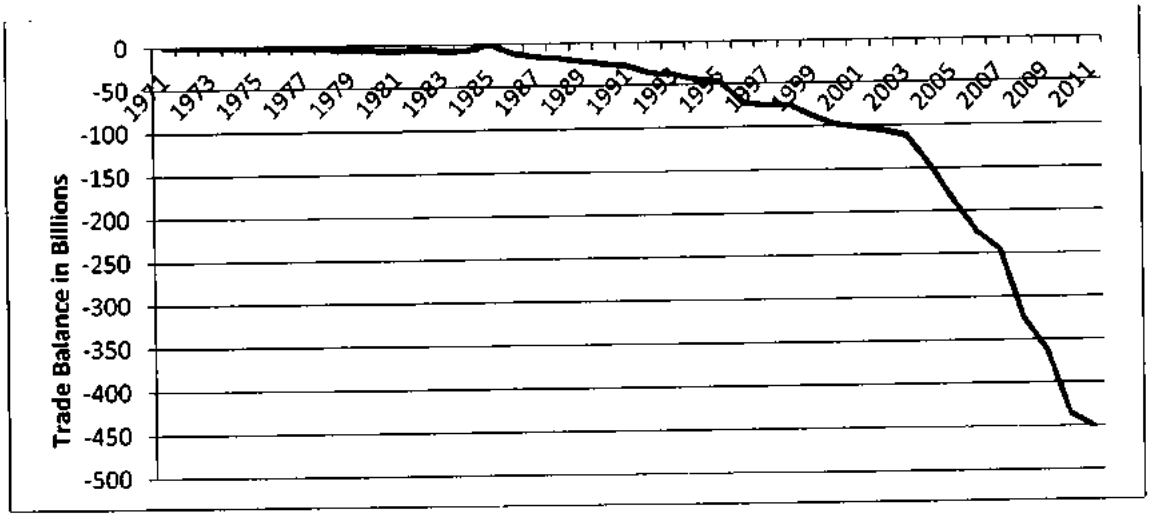
Figure 6: Trend in Trade Balance of Animal and Vegetable Oils and Fats Sector



3.3.6 Chemical Sector

Chemical sector is third largest sector of Pakistan's trade, and trade balance of this sector is in deficit. There is increasing trend in trade deficit from 1971 to 1983. In 1986 there is sudden change trade deficit that leads to it at lowest point, but in 1988 there is again sudden change in trend that leads to highest level of deficit. From 1988 to 2012 there is continuous decrease in trade deficit.

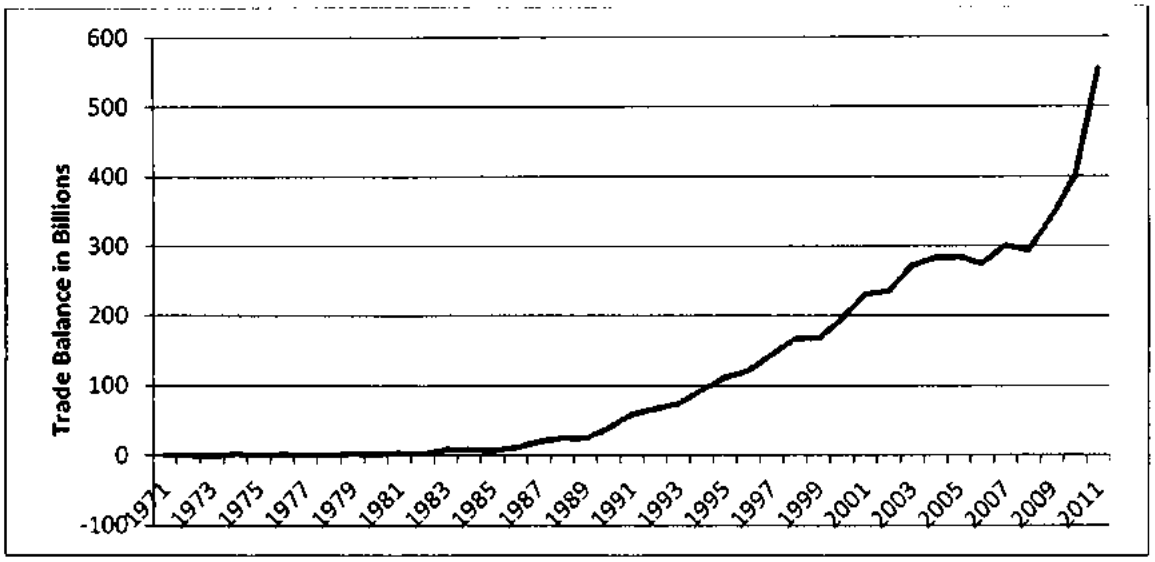
Figure 7: Trend in Trade Balance of Chemical Sector



3.3.7 Manufactured Goods Classified Chiefly by Material Sector

After witnessing the persistent deterioration in 1974, Manufactured & Goods Classified Chiefly by Material sector performance has been impressive in years (1998-2003) with average trade surplus of 7 percent per annum, and witnessed continuous average improvement of 5 percent in its terms of trade balance during 1975-2012.

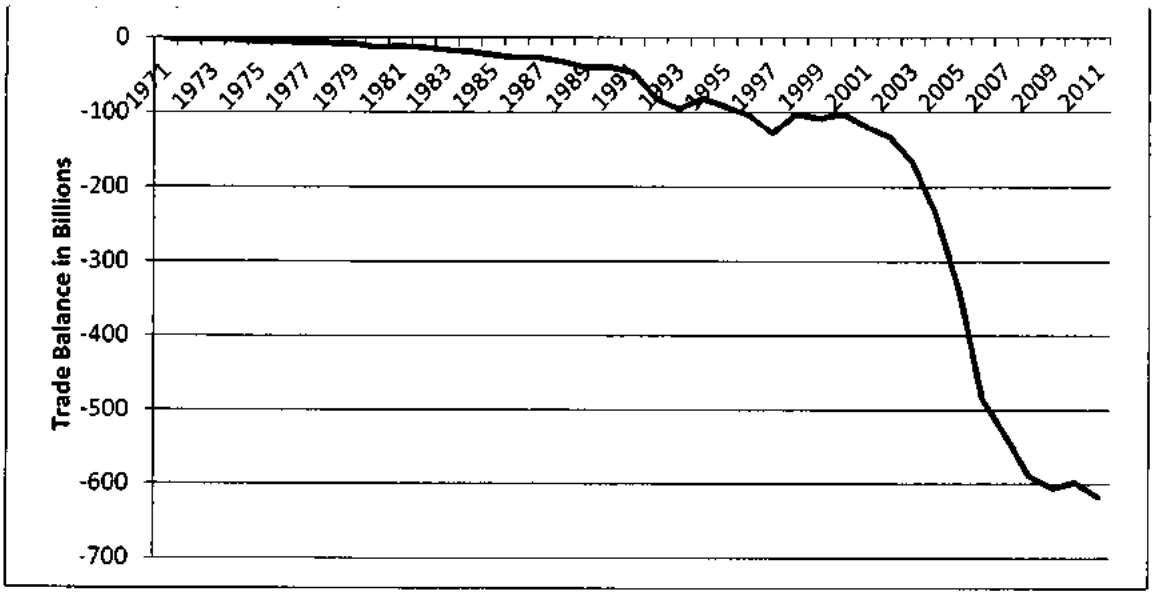
Figure 8: Trend in Trade Balance of Manufactured Goods Classified Chiefly by Material Sector



3.3.8 Machinery and Transport Equipment Sector

Overall trade balance of Machinery and Transport Equipment Sector is in deficit. It is the second largest sector of Pakistan trade, that causing trade deficit. Trend is smooth having no much fluctuation. From 1974 to 1990 overall trade deficit is increasing while, from 1991 to 2012 trade deficit is decreasing.

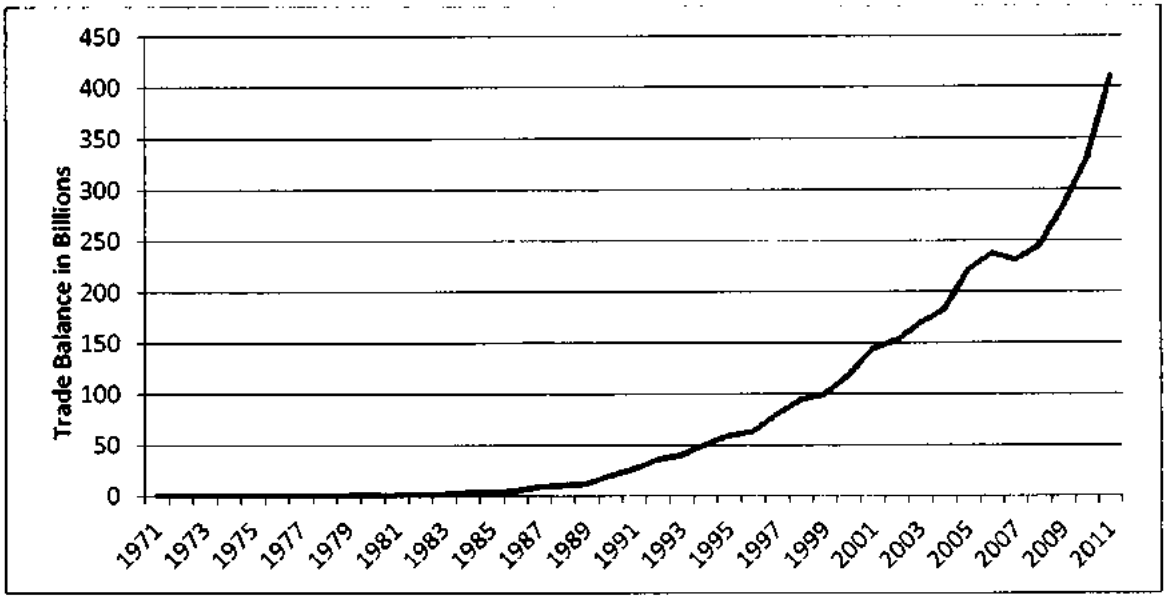
Figure 9: Trend in Trade Balance of Machinery and Transport Equipment Sector



3.3.9 Miscellaneous Manufactured Articles Sector

Miscellaneous Manufactured Articles Sector is the only sector of Pakistan's trade, which has trade surplus every year. Late 1970s shows decrease in trade surplus. From 1980 to 1995 trend is increasing and there is sudden decrease in 1998. After 1999 fluctuations in trade balance are small.

Figure 10: Trend in Trade Balance of Miscellaneous Manufactured Articles Sector



CHAPTER 4

BALANCE OF PAYMENT THEORIES

4.1 Introduction

There is variety of theoretical distinctive strategies to predict the result of policy variation on the balance of payment. Specifically, three approaches, namely the Absorption approach, Marshal Lerner condition, and the Monetarist approach, are common in explaining the determinants of the trade balance.

4.2 Absorption Approach

The original Keynesian balance of payments theory was the absorption model developed by Alexander, of the IMF, in the early 1950s when the authors for instance Harberger (1950), Meade (1951), and Alexander (1952, 1959) changed the particular concentration of economic analysis on the balance of payments. As in all Keynesian models, the balance of payments, on current account, is analyzed as a macroeconomic phenomenon in the goods market. The (current account) balance of payments will necessarily equal the difference between aggregate domestic output and aggregate domestic expenditure (with a surplus if output is larger and vice versa). This approach states that trade balance of a country will improve if an increases in output of goods and services is more than its absorption.

4.3 Marshal Lerner Condition

The elasticity approach explains the exchange rate change effect. This particular check out is usually grounded within a static and also partially stability procedure for the balance of payments that is well renowned as the elasticity approach Bickerdike (1920),

Robinson (1947), and Metzler (1948). It describes that with the beginning of balanced trade, devaluation will certainly enhance the balance of payments if the sum of the price elasticities of demand for domestic and foreign imports is greater than one. In specific, Marshall-Lerner condition explains that for an affirmative effect of devaluation on the trade balance and implicitly for a steady exchange market, the absolute values of the sum of the demand elasticities for traded goods and services should surpass unity. The Marshall-Lerner condition has its basis in the study of the exchange rate in trade of foreign goods. Lee et al. (2010) observe that the degree of returns to scale, elasticity of substitution, and foreign prices influence the exchange rate effects on the relative prices and import demands. Their results reveal that the foreign and home prices elasticities for the import demand are significant in making a decision that the exchange rates' power is affecting local prices plus import demand.

Besides the price elasticities of exports and imports, time lag is involved to improve the trade balance due to currency depreciation. Theoretically, the short-run and long-run effects of currency depreciation on trade balance can be quite different. Specifically, currency depreciation may improve the trade balance in the long-run, whereas, it results in a trade deficits in the short-run. This time path followed by the trade balance in response to domestic currency depreciation is known as the J-curve. To make trade balance comfortable and with an increment in its revenues the J-curve's study is making a pace in many countries. According to Han and Suh (1996), if the condition of Marshall-Lerner is not met for short period and the J-curve scale will be greater because of larger degree of pass-through, then the tracks of pass-through could not be same whether there

is a depreciation or appreciation in the domestic currency. The effects on the trade balance of appreciation would be higher than the effects of depreciation.

4.4 Monetary Approach

A distinct approach, the monetarist approach for balance of payments, is proposed in the late 1950 by the authors such as Polak (1957), Hahn (1959), Pearce (1961), Prais (1961), Mundell (1968, 1971). It focuses on the demand and supply of money interaction to attain balance of payments of the economy. The monetary theory of the balance of payment derives its essential feature from Hume's (1752) specie flow mechanism, where an exogenous increase in the money stock in a country causes the level to rise. The increase in price level diverts the demand abroad, leading to deficit in the balance of trade. The trade deficit is financed through net monetary outflows, leading to a fall in the money stock, and hence prices, until international competitiveness is restored. As the prices return to their original level, the money stock also returns to its original level, implying that the increase in the money supply have flowed out abroad (Faiz (1989)). The monetary approach to the balance of payments and inflation is more explicit about the long-run consequences of policies or decisions than about the mechanisms of short-run adjustment or the adjustments themselves, (Meltzer (1976)).

It is important to realize how neatly the absorption model complements the elasticities approach. The traditional approach ignored supply side effects and income effects. The absorption approach looks only at these two effects. The two approaches can be combined. The three distinctive views provided here illustrate that balance of payment of a country will be influenced by the change of domestic income level, money supply, and

the exchange rate. In this study, we build up an empirical model by incorporating all three approaches in order to analyze Pakistan's trade balance at sector level.

CHAPTER 5

DATA AND METHODOLOGY

5.1 Theoretical Framework

There is variety of theoretical distinctive strategies to predict the result of policy variation on the balance of payment. Specifically, three approaches, namely the elasticity approach, the absorption approach, and the monetarist approach, are common in explaining the determinants of the trade balance. The elasticity approach explains the exchange rate change effect. This particular check out is usually grounded within a static and also partially stability procedure for the balance of payments that is well renowned as the elasticity approach Bickerdike (1920), Robinson (1947), and Metzler (1948). It describes that with the beginning of balanced trade, devaluation will certainly enhance the balance of payments if the sum of the price elasticities of demand for domestic and foreign imports is greater than one. In specific, Marshall-Lerner condition explains that for an affirmative effect of devaluation on the trade balance and implicitly for a steady exchange market, the absolute values of the sum of the demand elasticities for traded goods and services should surpass unity.

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The three distinctive views provided here illustrate that balance of payment of a country will be influenced by the change of domestic income level, money supply, and the exchange rate. In this study, we build up an empirical model by corporating all three approaches in order to analyze Pakistan's trade balance at sector level.

5.2 Methodology

In order to examine the response of the trade balance to exchange rates, money supply, and income, we use autoregressive distributed lag (ARDL) approach popularized by Pesaran and Shin (1995, 1999), Pesaran et al. (1996), and Pesaran (1997). This method has many advantages over the conventional way (e.g. the Johnson's (1995) cointegration approach) to test for the existence of the long-run level relationship among the underlying variables. For instance, the ARDL approach considerably takes into account the endogeneity problem. Further, the ARDL approach does not required the same order of integration of the underlying variables. Finally, it allows researcher to estimate the long-run parameters and to examine both the short-run and long-run causality within the same framework. In our case, we start our empirical investigation by estimating the following ARDL model for each sector of trade, separately.

$$\Delta \ln TB_t = \alpha_t + \beta_1 \ln TB_{t-1} + \beta_2 \ln GDP_{t-1} + \beta_3 \ln M3_{t-1} + \beta_4 \ln EX_{t-1} + \sum_{j=1}^{n} \lambda_j \Delta \ln TB_{t-j}$$

$$+ \sum_{m=0}^{p} \delta_m \Delta \ln GDP_{t-m} + \sum_{s=0}^{q} \gamma_s \Delta \ln M3_{t-s} + \sum_{k=0}^{r} \eta_k \Delta \ln EX_{t-k} + \varepsilon_t \qquad (1)$$

where $\ln TB_t$ is the log of export to import ratio for the sector underlying, which is defined as the ratio of exports to imports, $\ln GDP_t$ is the log of gross domestic product (GDP), which is used as a proxy for income, $\ln M3_t$ is the log value of M3, which is used as a proxy for money supply and finally $\ln EX_t$ is the log value of nominal exchange rate, which is defined as a price of a one unit of the foreign currency in the domestic currency. ε_t is white-noise error term, which has zero mean and constant variance.

The first part of the equation (1) with $\beta_1, \beta_2, \beta_3$ and β_4 parameters represents the long-run level relationship of exchange rates, income, and money supply with the trade balance. Specifically, the null hypothesis to test the existence of the long-run level relationship can be formalized as follows:

H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (No level relationship)

H_1: At least one of the $\beta_i \neq 0$

where the null hypothesis implies that there is no level (long-run) relationship, whereas the alternative hypothesis implies that there is level relationship among the variables included in the model.

The second part of equation (1) with the parameters λ_j, δ_m, γ_s and η_k represents the short-run dynamics of the model. In order to test the short-run relationship, we formalize the following hypothesis:

$H_o : \lambda_j = \delta_m = \gamma_s = \eta_k = 0$ (No short-run relationship)

H_1: At least one of the parameter $\neq 0$

We start our empirical analysis by estimating equation (1). Next, we conduct a bound test for testing the level relationship. To do this, we compare the value of calculated F-statistic with the critical upper and lower bounds value tabulated by Pesaran (1997) and Pesaran et al. (2001). If the calculated F-statistics is greater than the upper critical bounds value, the null hypothesis of no long-run relationship would be rejected, regardless of whether the underlying variables are integrated of order 0 or one. On the other hand, if the calculated value of F-statistics is smaller than the lower critical bounds values, we do not reject the null hypothesis of no long-run relationship. Finally, if the F-statistics falls between the lower and upper bounds, the result will be inclusive.

In the next step, if there is indication for the long-run level relationship among the variables, then the following long-run model is estimated to obtain the long-run estimates:

$$\ln TB_t = \alpha_0 + \sum_{j=1}^{n} \beta_j \ln TB_{t-j} + \sum_{m=0}^{p} \delta_m \ln GDP_{t-m} + \sum_{s=0}^{q} \psi_s \ln M3_{t-s} + \sum_{k=0}^{r} \eta_k \ln EX_{t-k} + \varepsilon_t \quad (2)$$

If we find the long-run relationship, then we estimate the Error Correction Model (ECM) for

each sector included in the model. This will test the speed of the long-run adjustment after the short-run disturbance. The following equation is a standard form of ECM:

$$\Delta \ln \mathrm{TB}_t = \gamma_1 + \delta_1 ECM_{it-1} + \sum_{j=1}^{n} \alpha_j \Delta \ln TB_{t-j} + \sum_{m=0}^{p} \beta_m \Delta \ln GDP_{t-m}$$
$$+ \sum_{s=0}^{q} \eta_s \Delta \ln M3_{t-s} + \sum_{k=0}^{r} \psi_k \Delta \ln EX_{t-k} + \varepsilon_t \qquad (3)$$

5.3 Data

Secondary data would be used for this study. Data on exports and imports are taken from various issues of Statistical Year Book of Pakistan. Data on GDP are taken from the World Development Indicators. Data on Money Supply are taken from various issues of the Pakistan Economic Survey, and data on the real exchange rate (EX) are taken from the International Financial Statistics (IFS) database. The data are annual and cover the time period 1970 to 2012.

CHAPTER 6

EMPIRICAL RESULTS

In this chapter, we present our empirical results. In Section 1, we start our empirical analysis with the unit root estimation. Next, we test cointegration among variables. In Section 2, we present the ARDL estimations of the long-run and the short-run, for total trade. In Section 3, we present ARDL estimations for the long-run and short different sectors of trade.

6.1 Unit Root Estimations

Augmented Dickey-Fuller (ADF) unit root test is conducted before we test cointegration among the variables. Unit root is helpful to determine that ARDL model should be used or not as ARDL model deals with both *I(0)* and *I(1)* in the same framework. Table 1 shows the results of unit root test with intercept and, with intercept and trend.

Table 1: Unit-Root Estimation (ADF Test)

Variables	With Intercept		With Intercept and Trend	
	Lag 0	Lag 1	Lag 0	Lag 1
GDP	-0.504	-0.994	-2.026	-3.422***
ΔGDP	-4.932*	-5.296*	-4.959*	-5.602*
MS	-0.592	-0.608	-2.290	-3.076
ΔMS	-5.091*	-5.040*	-5.061*	-5.013*
Exr	-2.458	-0.691	-2.230	-1.466
ΔExr	-9.509*	-4.314*	-9.162*	-4.363*
Total trade	-2.238	-2.685	-2.186	-3.039
ΔTotal trade	-6.549*	-5.652*	-6.425*	-5.598*
Food and live animals	-3.838*	-3.384***	-4.199**	-3.576**
ΔFood and live animals	-7.504*	-8.432*	-7.362*	-8.340*
Beverages and tobacco	-2.713***	-1.628	-3.993**	-2.479
ΔBeverages and tobacco	-9.708*	-4.416*	-9.551*	-4.324*
Crude materials inedible, except fuels	-1.999	-1.847	-3.997**	-2.563

ΔCrude materials inedible, except fuels	-10.248*	-6.247*	-10.192*	-6.219*
Mineral fuels lubricants and related materials	-2.984**	-2.565	-2.896	-2.464
ΔMineral fuels lubricants and related materials	-7.707*	-4.861*	-7.706*	-4.950*
Animal and vegetable oils and fats	-1.341	-0.970	-2.154	-1.912
ΔAnimal and vegetable oils and fats	-7.490*	-4.964*	-7.489*	-5.045*
Chemical	-2.343	-2.603	-2.611	-3.021
ΔChemical	-6.069*	-5.638*	-6.069*	-5.597*
Manufactured goods classified chiefly by material	-2.823***	-1.289	-3.610**	-1.282
ΔManufactured goods classified chiefly by material	-13.937*	-9.551*	-13.814*	-11.406*
Machinery and transport equipment	-2.433	-1.632	-2.450	-1.654
ΔMachinery and transport equipment	-8.705*	-4.803*	-8.623*	-4.822*
Miscellaneous manufactured articles	-2.302	-1.856	-2.222	-1.860
ΔMiscellaneous manufactured articles	-6.861*	-4.536*	-6.828*	-4.535*

Notes: *, **, ***, represents significant at the 1%, 5% and 10% level, respectively.

Unit root estimations are showing the mixture of *I(0)* and *I(1)*. The variables that are cointegrated at *I(1)* are Gross Domestic Product (GDP), Money Supply (MS) and Miscellaneous Manufactured Articles at 1% and 5%. The Exchange rate and Total Trade are integrated of order one at 1% and 10%. Crude Materials Inedible Except Fuels, Chemical and Machinery & Transport Equipment at 1% and Animal & Vegetable oils & Fats at 1%, 5% and 10%. Variables that are *I(0)* are Food & Live Animal at 1% and 10%, Beverages & Tobacco at 10% and Mineral Fuels Lubricants & Related Materials and Manufactured Goods Classified Chiefly by Material at 55 and 10% with different lags.

The results of Unit root with intercept and trend. Variables that are I(I) are MS, Mineral Fuels Lubricants & Related Materials, Mineral Fuels Lubricants & Related Materials, Animal & Vegetable oils & Fats, Machinery & Transport Equipment and Miscellaneous Manufactured Articles at 5% and 1% while Exchange Rate, Total Trade and Chemical at 1%. Variables that are *I(0)* are Food & Live Animal, Beverages & Tobbaco, Crude

Materials Inedible Except Fuels, Manufactured Goods Classified Chiefly by Material at the 5% level and GDP at the 1%, 5% and 10% at different lags.

ARDL approach is based on the main assumption that the variables are cointegrated of order zero *I(0)* or *I(1)* or both. This assumption supports the implementation of bound test, it has three steps. In the first step, we choose the lag order on the basis of Schwarz-Bayesian Criteria (SBC) as F-statistics is very sensitive to lag structure of model in eq 1. If the upper-bound of the critical value that is calculated through regression in variables, then the null hypothesis of $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ is rejected means cointegration exist among variables.

6.2 Cointegration Results

Table 2 shows the cointegration results based on ARDL model. It is said to be cointegrated if the calculated F-statistics is greater than the upper critical bounds value 4.79 and 4.02 with intercept, and 5.67 and 4.80 with intercept and trend at 5% and 10% level of significance respectively, the null hypothesis of no long-run relationship would be rejected, regardless of whether the underlying variables are integrated of order 0 or 1. On the other hand, if the calculated value of F-statistics is smaller than the lower critical bounds values 3.52 and 2.91 with intercept and 4.48 and 3.73 with intercept and trend at 5% and 10% level of significance respectively, we do not reject the null hypothesis of no long-run relationship. Finally, if the F-statistics falls between the lower and upper bounds, the result will be inclusive.

Table 2: Cointegration Results based on ARDL Model

Sectors	Lag	F-statistics
Total trade	2	7.201[a]
Food and live animals	2	4.560[b]
Beverages and tobacco	1	4.197[b]
Crude materials inedible, except fuels	1	4.416[b]
Mineral fuels lubricants and related materials	2	6.608[a]
Animal and vegetable oils and fats	1	1.137
Chemical	2	4.699[b]
Manufactured goods classified chiefly by material	2	6.503[a]
Machinery and transport equipment	1	1.767
Miscellaneous manufactured articles	2	3.414[b]

Notes: [a] and [b] represents significant at 5% and 10%

Here all most all sectors show the evidence of cointegration except two sectors Animal & Vegetable oils & Fats and Machinery & Transport Equipment. While other sectors Total Trade, Mineral Fuels Lubricants & Related Materials and Manufactured Goods Classified Chiefly by Material are cointegrated at 5% significance level and Food & Live Animal, Beverages & Tobacco, Crude Materials Inedible except Fuels, Chemical and Miscellaneous Manufactured Articles are cointegrated at the 10% significance level. Out of ten sectors, for eight sectors null hypothesis of no level relationship is rejected while for remaining two sectors we are failed to reject the null hypothesis of no level relationship.

Table 3: Autoregressive Distributed Lag Estimates for Total Trade

ARDL(2,0,0,0) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	-0.389	-0.732	0.469
$LNTB_{t-1}$	0.764	4.766	0.000
$LNTB_{t-2}$	-0.262	-1.996	0.054
$LNGDP_t$	0.048	0.195	0.847
$LNMS_t$	-0.120	-0.503	0.618
$LNEX_t$	0.548	2.945	0.006
$R^2 = 0.79382$		F-Statistics (5, 33) = 25.4104[.000]	
Adjusted $R^2 = 0.76258$		Durbin-Watson Stat = 2.176	

Table 4: Autoregressive Distributed Lag Estimates for Food and Live Animals

ARDL(1,1,0,1) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	-1.636	-1.392	0.173
$LNTB_{t-1}$	0.443	3.109	0.004
$LNGDP_t$	-1.616	-1.748	0.090
$LNGDP_{t-1}$	2.175	2.106	0.043
$LNMS_t$	-0.427	-0.752	0.458
$LNEX_t$	-2.195	-3.114	0.004
$LNEX_{t-1}$	1.676	2.316	0.027
$R^2 = 0.49369$		F-Statistics (6, 32) = 5.2005[.001]	
Adjusted $R^2 = 0.39876$		Durbin-Watson Stat = 1.7408	

Table 5: Autoregressive Distributed Lag Estimates for Beverages and Tobacco

ARDL(1,0,0,0) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	4.952	2.002	0.053
$LNTB_{t-1}$	0.424	2.935	0.006
$LNGDP_t$	1.153	0.981	0.333
$LNMS_t$	-1.373	-1.161	0.253
$LNEX_t$	0.136	0.191	0.849
$R^2 = 0.57817$		F-Statistics (4, 35) = 11.9928[.000]	
Adjusted $R^2 = 0.52996$		Durbin-Watson Stat = 2.1382	

Table 6: Autoregressive Distributed Lag Estimates for Crude Materials Inedible, Except Fuels

ARDL(1,0,0,1) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	5.323	1.819	0.078
$LNTB_{t-1}$	0.395	2.576	0.015
$LNGDP_t$	0.984	1.152	0.257
$LNMS_t$	-1.233	-1.434	0.161
$LNEX_t$	2.022	2.643	0.012
$LNEX_{t-1}$	-1.982	-2.589	0.014
$R^2 = 0.80236$		F-Statistics (5, 34) = 27.6061[.000]	
Adjusted $R^2 = 0.7733$		Durbin-Watson Stat = 2.1011	

Table 7: Autoregressive Distributed Lag Estimates for Mineral Fuels Lubricants and Related Material

ARDL(1,0,2,2) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	152.119	3.502	0.002
Trend	0.944	3.651	0.001
$LNTB_{t-1}$	0.388	2.477	0.019
$LNGDP_t$	-1.391	-0.937	0.356
$LNMS_t$	-1.247	-0.712	0.482
$LNMS_{t-1}$	1.001	0.451	0.656
$LNMS_{t-2}$	-4.686	-2.668	0.012
$LNEX_t$	1.482	0.825	0.416
$LNEX_{t-1}$	-1.156	-0.536	0.596
$LNEX_{t-2}$	-1.746	-1.920	0.065
$R^2 = 0.63941$		F-Statistics (9, 29) = 5.7137[.000]	
Adjusted $R^2 = 0.52750$		Durbin-Watson Stat = 2.4098	

Table 8: Autoregressive Distributed Lag Estimates for Chemical

ARDL(2,0,0,1) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	-2.457	-2.649	0.012
$LNTB_{t-1}$	0.886	6.354	0.000
$LNTB_{t-2}$	-0.361	-2.497	0.018
$LNGDP_t$	0.340	0.376	0.710
$LNMS_t$	-0.098	-0.107	0.915
$LNEX_t$	-3.827	-4.460	0.000
$LNEX_{t-1}$	3.092	3.597	0.001
$R^2 = 0.72433$		F-Statistics (6, 32) = 14.0136[.000]	
Adjusted $R^2 = 0.67264$		Durbin-Watson Stat = 2.0121	

Table 9: Autoregressive Distributed Lag Estimates for Manufactured Goods Classified Chiefly by Material

ARDL(2,0,0,2) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	-101.562	-5.243	0.000
TREND	-0.589	-5.231	0.000
$LNTB_{t-1}$	0.014	0.141	0.889
$LNTB_{t-2}$	0.313	2.852	0.008
$LNGDP_t$	2.917	4.577	0.000
$LNMS_t$	0.940	1.673	0.105
$LNEX_t$	-0.269	-0.356	0.724
$LNEX_{t-1}$	0.645	0.690	0.495
$LNEX_{t-2}$	2.143	5.275	0.000
$R^2 = 0.90264$		F-Statistics (8, 30) = 34.7649[.000]	
Adjusted $R^2 = 0.87667$		Durbin-Watson Stat = 1.3052	

Table 10: Autoregressive Distributed Lag Estimates for Miscellaneous Manufactured Articles

ARDL(1,0,0,0) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$LNTB_{t-1}$	0.626	5.602	0.000
$LNGDP_t$	0.052	0.191	0.850
$LNMS_t$	-0.128	-0.441	0.662
$LNEX_t$	0.670	2.536	0.016
$R^2 = 0.77655$		F-Statistics (3, 35) = 40.5448[.000]	
Adjusted $R^2 = 0.75740$		Durbin-Watson Stat = 2.1294	

6.3 Results for Total Trade Balance

In this Section, equation (2) and equation (3) are estimated, in order to analyze the empirical results of the long-run and short-run impact of GDP, money supply and exchange rate on trade balance of whole economy.

Table 11: Estimated Long-Run Coefficients using the ARDL Approach for Total Trade

ARDL(2,0,0,0) Schwarz Bayesian Criterion			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	-0.783	-0.701	0.488
LNGDP	0.098	0.193	0.848
LNMS	-0.242	-0.491	0.627
LNEX	1.101	4.022	0.000

In the long-run exchange rate is significant for total trade balance while GDP and money supply are insignificant. Trade balance has positive and statistically significant impact of exchange rate. This is the evidence that in the long-run Marshall-Lerner condition hold for total trade balance as the 1% currency depreciation leads to an increase of 1.1% in total trade balance.

Table 12: Error Correction Representation for Total Trade

ARDL(2,0,0,0) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$\Delta LNTB_{t-1}$	0.262	1.996	0.054
$\Delta LNGDP_t$	0.048	0.195	0.847
$\Delta LNMS_t$	-0.120	-0.503	0.618
$\Delta LNEX_t$	0.548	2.945	0.006
ECM_{t-1}	-0.497	-4.314	0.000
R^2= 0.3992		F-Statistics (5, 33) = 4.3854[.004]	
Adjusted R^2 = 0.30817		Durbin-Watson Stat = 2.176	

In the short-run exchange rate is significant for total trade balance while GDP and money supply are insignificant. The short-run impact of exchange rate is significantly less than of the long-run impact. It shows that in the short-run Marshall-Lerner condition does not hold for total trade balance as the 1% currency depreciation leads to decrease of 0.54% in total trade balance.

6.4 Results for Sector Level Trade Balance

6.4.1 Long-Run Estimates for Different Sectors

This section presents the long-run and the short-run relation between variables and trade balance at sector level.

Table 13: Estimated Long-Run Coefficients using the ARDL Approach for Food and Live Animals

ARDL(1,1,0,1) Schwarz Bayesian Criterion			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	-2.937	-1.474	0.150
LNGDP	1.003	0.949	0.350
LNMS	-0.767	-0.734	0.468
LNEX	-0.932	-1.596	0.120

In the long-run variables, GDP, money supply, and exchange rate are not significant for the sector of Food & Live Animal. Results indicate that absorption approach exist for this sector as GDP positively related with trade balance. The exchange rate coefficient has negative sign, shows depreciation worsen the trade balance, means Marshal-Lerner condition does not holds for this sector. Results of money supply are consistent with the theory and previous empirical work. Coefficient of money supply indicates that decrease in money supply leads to increase in Food & Live Animal sector.

Table 14: Estimated Long-Run Coefficients using the ARDL Approach for Beverages and Tobacco

ARDL(1,0,0,0) Schwarz Bayesian Criterion			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	8.593	2.116	0.042
LNGDP	2.001	1.006	0.321
LNMS	-2.383	-1.193	0.241
LNEX	0.236	0.189	0.851

Long-run estimates for the sector Beverages & Tobacco show that GDP, money supply, and exchange rate are insignificant. GDP has statistical positive impact. It shows evidence of absorption approach. Signs of coefficients show that Monetary approach also exist and Marshal-Lerner condition holds for this sector.

Table 15: Estimated Long-Run Coefficients using the ARDL Approach for Crude Materials Inedible, Except Fuels

ARDL(1,0,0,1) Schwarz Bayesian Criterion			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	8.798	2.584	0.014
LNGDP	1.626	1.101	0.279
LNMS	-2.038	-1.403	0.170
LNEX	0.066	0.068	0.946

Table 15 shows that GDP, money supply, and exchange rate are insignificant for the sector Crude Materials Inedible except Fuels. However estimates show that absorption approach and monetarist approach exist and Marshal-Lerner condition holds.

Table 16: Estimated Long-Run Coefficients using the ARDL Approach for Mineral Fuels Lubricants and Related Material

ARDL(1,0,2,2) Schwarz Bayesian Criterion			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	248.615	2.971	0.006
TREND	1.543	3.529	0.005
LNGDP	-2.273	-0.985	0.333
LNMS	-8.059	-2.382	0.024
LNEX	-2.320	-2.095	0.045

The long-run estimates for Mineral Fuels Lubricants & related material in Table 16 show that the money supply and exchange rate are statistically significant. Results indicate that monetarist approach exist for this sector while results for GDP and exchange rate are not consistent with the theory, as these results do not support absorption approach and Marshall-Lerner condition does not holds. According to these estimates exchange rate has negative effect on this sector by 2.32 %, while money supply has very strong impact of 8.06% increase by 1% decrease in money supply.

Table 17: Estimated Long-Run Coefficients using the ARDL Approach for Chemical

ARDL(2,0,0,1) Schwarz Bayesian Criterion			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	-11.486	-2.744	0.010
LNGDP	0.716	0.370	0.714
LNMS	-0.206	-0.107	0.916
LNEX	-1.546	-1.377	0.178

In Table 17 shows that GDP, money supply, and exchange rate are also insignificant for the trade balance of Chemical sector. Absorption approach and monetarist approach exist for this sector while Marshal-Lerner condition does not hold in the long-run. Results show positive impact of GDP and negative impact of money supply and exchange rate.

Table 18: Estimated Long-Run Coefficients using the ARDL Approach for Manufactured Goods Classified Chiefly by Material

ARDL(2,0,0,2) Schwarz Bayesian Criterion			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
Constant	-150.889	-4.397	0.000
TREND	-0.875	-4.311	0.000
LNGDP	4.334	3.676	0.001
LNMS	1.396	1.696	0.100
LNEX	3.743	6.650	0.000

The long-run coefficients for Manufactured Goods Classified Chiefly by Material in Table 18 show that GDP, money supply, and exchange rate are significant. Results of GDP and exchange rate are consistent with theory and previous empirical work. Absorption approach exists and Marshal-Lerner condition holds. The negative sign of money supply coefficient is not in favor of monetarist approach. These results show positive effect of GDP, money supply and exchange rate as 1% in GDP and money supply leads to increase in trade balance by 1.33% and 1.39% respectively. And 1% depreciation of domestic currency shows improvement of 3.74% in trade balance. Increase in GDP and depreciation may play a vital role for the improvement of this sector.

Table 19: Estimated Long-Run Coefficients using the ARDL Approach for Miscellaneous Manufactured Articles

ARDL(1,0,0,0) Schwarz Bayesian Criterion			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
LNGDP	0.13794	0.19034	0.850
LNMS	-0.34338	-0.43811	0.664
LNEX	1.792	3.0478	0.004

Table 19 shows that exchange rate is significant while GDP and money supply are insignificant for the sector of Miscellaneous Manufactured Articles. The long-run coefficients show consistency with theoretical and empirical work. Absorption approach and monetarist approach exist and Marshal-Lerner condition holds. As GDP has positive impact of 1.79% on the sector of Miscellaneous Manufactured Articles.

6.4.2 Short-Run Estimates for Different Sectors

ECM results for Total trade show that most of the coefficients are not significant in the short-run except exchange rate.

Table 20: Error Correction Representation for Food and Live Animals

ARDL(1,1,0,1) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$\Delta LNGDP_t$	-1.616	-1.748	0.089
$\Delta LNMS_t$	-0.427	-0.752	0.457
$\Delta LNEX_t$	-2.195	-3.114	0.002
ECM_{t-1}	-0.557	-3.908	0.000
R^2= 0.46762		F-Statistics (4, 34) = 7.0269[0.000]	
Adjusted R^2 = 0.3678		Durbin-Watson Stat = 1.7408	

The short-run results for the sector Food & Live Animal in Table 20 show that GDP and exchange rate are significant and money supply is insignificant. The negative sign of the

coefficient of GDP indicates that the increase in GDP leads to decrease in trade balance. The negative coefficient sign of GDP supports Keynesian view that increase in income encourage the use of imported goods that worsen trade balance. Results of money supply for this sector are consistent with theory and previous empirical work. Comparative to long-run, short-run impact is less. While, short-run impact of exchange rate is greater comparative to long-run. Depreciation worsen the trade balance of Food & Live Animal sector both in the short-run and in the long-run but the magnitude is greater in short-run.

Table 21: Error Correction Representation for Beverages & Tobacco

ARDL(1,0,0,0) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$\Delta LNGDP_t$	1.153	0.981	0.333
$\Delta LNMS_t$	-1.373	-1.161	0.253
$\Delta LNEX_t$	0.136	0.191	0.849
ECM_{t-1}	-0.576	-3.991	0.000
R^2= 0.33236		F-Statistics (4, 35) = 4.3558[0.006]	
Adjusted R^2 = 0.25606		Durbin-Watson Stat = 2.1382	

The trade balance of Beverages & Tobacco is less affected by GDP, money supply and exchange rate in short-run with the comparison to long-run. While none of these variables are significant. Although they are not cointegrated but sensitivity to trade balance is high. These results support the absorption approach, monetarist approach, and Marshal-Lerner condition.

Table 22: Error Correction Representation for Crude Materials Inedible, Except Fuels

ARDL(1,0,0,1) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$\Delta LNGDP_t$	0.984	1.152	0.257
$\Delta LNMS_t$	-1.233	-1.434	0.160
$\Delta LNEX_t$	2.022	2.643	0.012
ECM_{t-1}	-0.605	-3.946	0.000
R^2= 0.44519		F-Statistics (4, 35) = 6.8206[0.000]	
Adjusted R^2 = 0.3636		Durbin-Watson Stat = 2.1011	

Table 22 shows results for the sector Crude Materials Inedible except Fuels. Here the exchange rate is the only variable that is significant. It has statistically significant impact on trade balance that is the evidence of Marshall-Lerner condition. 1% depreciation leads to increase in trade balance by 2.02% in short-run. GDP also has positive impact that supports absorption approach that with the increase in output, trade balance will be improved. Money supply has negative impact for this sector support monetarist approach and previous empirical works as increase in money supply worsen trade balance.

Table 23: Error Correction Representation for Mineral Fuels Lubricants and Related Material

ARDL(1,0,2,2) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$\Delta LNGDP_t$	-1.391	-0.937	0.356
$\Delta LNMS_t$	-1.247	-0.712	0.482
$\Delta LNMS_{t-1}$	4.686	2.668	0.012
$\Delta LNEX_t$	1.482	0.825	0.416
$\Delta LNEX_{t-1}$	1.746	1.920	0.064
$\Delta TREND$	0.944	3.651	0.001
ECM_{t-1}	-0.612	-3.905	0.000
R^2= 0.52732		F-Statistics (7, 31) = 4.6218[0.001]	
Adjusted R^2 = 0.38063		Durbin-Watson Stat = 2.4098	

The impact of GDP on trade balance of sector Mineral Fuels Lubricants & Related Materials is insignificant and less in short-run than of long-run. It has negative impact means increase in GDP decreases trade balance that supports the Keynesian view, increase in income encourage the use of imported goods. Money supply has negative and significantly less impact in short-run than of long-run. And exchange rate exchange rate has significant positive effect on trade balance in the short-run while, a significant negative effect in the long-run means depreciation improves trade balance in the short-run while deteriorates it in the long-run. Marshall-Lerner condition holds for the short-run.

Table 24: Error Correction Representation for Chemical

ARDL(2,0,0,1) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$\Delta LNTB_{t-1}$	0.361	2.497	0.018
$\Delta LNGDP_t$	0.340	0.376	0.709
$\Delta LNMS_t$	-0.098	-0.107	0.915
$\Delta LNEX_t$	-3.827	-4.460	0.000
ECM_{t-1}	-0.475	-1.144	0.000
R^2= 0.52138		F-Statistics (5, 33) = 6.9717[0.000]	
Adjusted R^2 = 0.43164		Durbin-Watson Stat = 2.0121	

In the short-run the exchange rate is significant for the trade balance of Chemical sector while GDP and money supply are insignificant. GDP has positive impact on trade balance shows that increase in income improves trade balance that supports absorption approach. The negative sign of money supply coefficient supports the monetarist approach that states, increase of money supply deteriorate trade balance. Marshall-Lerner condition does not hold for this sector. The negative sign of the exchange rate coefficient shows that depreciation worsens trade balance of this sector.

Table 25: Error Correction Representation for Manufactured Goods Classified Chiefly by Material

ARDL(2,0,0,2) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$\Delta LNTB_{t-1}$	-0.313	-2.852	0.008
$\Delta LNGDP_t$	2.917	4.577	0.000
$\Delta LNMS_t$	0.940	1.673	0.104
$\Delta LNEX_t$	-0.269	-0.356	0.724
$\Delta LNEX_{t-1}$	-2.143	-5.275	0.000
$\Delta TREND$	-0.589	-5.231	0.000
ECM_{t-1}	-0.673	-4.422	0.000
$R^2 = 0.84836$		F-Statistics (7, 31) = 23.9774[0.000]	
Adjusted $R^2 = 0.80793$		Durbin-Watson Stat = 1.3052	

The short-run estimates for the sector of Manufactured Goods Classified Chiefly by Material in Table 25 show that GDP and the exchange rate are significant. The impact of GDP on trade balance is positive and consistent with the theory and empirical work. 1% increase in income improves trade balance by 2.92%. Money supply has positive impact on trade balance that does not support the monetarist approach. Increase in money supply by 1% leads to improve trade balance by 0.94% in the short-run. The negative sign of the exchange rate coefficient shows that depreciation worsen trade balance in the short-run, but the positive of the exchange rate coefficient in the long-run show that depreciation improves the trade balance in the long-run. It shows the evidence of the J-curve for this sector.

Table 26: Error Correction Representation for Miscellaneous Manufactured Articles

ARDL(1,0,0,0) Schwarz Bayesian Criterion Dependent Variable: (TB)			
Regressor	**Coefficient**	**t-ratio**	**P-Value**
$\Delta LNGDP_t$	0.052	0.191	0.850
$\Delta LNMS_t$	-0.128	-0.441	0.662
$\Delta LNEX_t$	0.670	2.536	0.016
ECM_{t-1}	-0.374	-3.349	0.002
R^2= 0.25063		F-Statistics (3, 35) = 3.9019[0.017]	
Adjusted R^2 = 0.1864		Durbin-Watson Stat = 2.1294	

The results for the sector of Miscellaneous Manufactured Articles show that GDP and money supply are insignificant while the exchange rate is significant. These results are consistent with the theory and previous empirical work. The results of GDP supports absorption approach that increase in income improves the trade balance. The results of money supply support the monetarist approach that increase in money supply worsens the trade balance, and the exchange rate depreciation improves the trade balance.

CHAPTER 7

CONCLUSION

7.1 Introduction

In Pakistan, imports are greater than exports that causes trade deficit every year. The previous studies regarding the trade balance of Pakistan have employed aggregate trade data only. Using the sector level data may reveal the actual movements of GDP, money supply and exchange rate. In order to make an effective policy which may help to minimize the inverse effect of currency depreciation on trade, it is important to explore major sectors which are involved in the relation of trade balance and the exchange rate. In Pakistan, there is also no empirical work available at sector level to our best knowledge. This study goes through three major alternative theories elasticities, absorption approach and monetary approach for the adjustment of balance of payment. The purpose of this study is to examine the effect of GDP, money supply and exchange rate on aggregate trade balance at and the sector level trade balance of Pakistan trade. Trade balance is taken as export to import ratio. Real exchange rate is used as proxy for depreciation/ devaluation. In this study the analysis is made on the annual data ranging from 1970 to 2012. Furthermore, unit root test (ADF) is performed to test the stationarity of variables. Similarly, ARDL model is used to check the long-run relationship and Error Correction Model is used to check the short-run relationship.

7.2 Key Findings

GDP, Food & Live Animal, Beverages & Tobacco, Mineral Fuels Lubricants & Related Materials, and Manufactured Goods Classified Chiefly by Material are the variables that are stationary at level, while all other variables are stationary at first level. All variables

are significant except, Animal & Vegetable oils & Fats, and Machinery & Transport Equipment. The study shows mix results. Every trade sector shows different relation with GDP, money supply, and the exchange rate. The impact of these variables varies sector to sector in the short-run and in the long-run.

The results provide strong evidence that the exchange rate has a substantial impact in determining the short-run as well as in the long-run behavior of Total trade balance, as compared to GDP and money supply. To improve the trade balance for the sector Food & Live Animal, in the short-run we need to focus on exchange rate and for the long-run improvement GDP growth is very important. For the improvement of Beverages & Tobacco sector we need to decrease the money supply that causes inflation, simultaneously focus on the growth of GDP both in the short-run and in the long-run is required. Depreciation is good for the sector Crude Materials Inedible except Fuels for short-run and contractionary monetary policy is in favor of trade balance. Complex results for Mineral Fuels Lubricants & Related Materials sector describes that in the short-run depreciation improves trade balance but in the long-run it worsens it. This shows the inverse of the J-curve phenomenon. For the long-run improvement of trade balance we must have strict contractionary monetary policy. GDP worsen the trade balance for this sector. The trade balance of Chemical sector has high and negative impact of exchange rate. Depreciation deteriorates the trade balance both in the short-run and in the long-run. Increase in GDP improves trade balance. Contractionary monetary policy is good for this sector.

The short-run and the long-run results for the sector Manufactured Goods Classified Chiefly by Material describes that improvement of GDP leads to improvement of trade

balance. Expansionary monetary policy is in favor in short-run as well as in the long-run, depreciation worsen the trade balance in the short-run and improves it in the long-run. This sector shows the evidence for the J-curve phenomenon. Depreciation improves the trade balance in the short-run as well as in the long-run for the sector Miscellaneous Manufactured Articles. Increase of money supply leads to decrease in trade balance both in the short-run and in the long-run. And GDP has positive but comparatively less impact on trade balance of this sector.

As among nine sectors of total trade, five sectors have trade surplus while four sectors are showing trade deficit. Among these four sectors two sectors Animal & Vegetable Oil & Fats, and Machinery & Transport Equipment, have no level relationship. Remaining the two sectors Chemical, and Mineral Fuels Lubricants & related Materials, have negative relation with exchange rate. And these two sectors are highly affected with money supply. Increase in money supply causes trade deficit for these sectors. The main focus should be on these two sectors as they are causing total trade balance deficit.

7.3 Recommendations

According to the results, exchange rate has more influence on total trade balance only. While for the sub sectors of total trade money supply and GDP are more important. As depreciation worsen trade balance for most of the sectors. It is recommended that to improve trade balance we should focus on the GDP and money supply more than exchange rate. Policy makers should not focus on total trade balance only for making policies rather they must concentrate on the behavior of different sectors of trade as well. The main focus should be on these two sectors Chemical, and Mineral Fuels Lubricants & related Materials, as they are causing total trade balance deficit.

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