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ASPECTS OF ANALYZING THE INFLUENCE OF INTERNATIONAL ECONOMIC RELATIONS UPON THE MACROECONOMIC EQUILIBRIUM

***Abstract.** Starting from the economic interpretation of the balance of payments, the conditions in which the situation of this balance depends on the balance of current transactions and on the balance of capitals, finally reflecting the currency reserves of the country, are outlined.*

The modalities of explaining the evolution of the current transactions balance are presented, as well as the fact that an excess of this balance reflects the financing capacity and a deficit reflects the financing requirement of the nation. At the same time, we prove how the situation of the balance of capitals is an increasing function of the ratio between the internal interest rate and the external interest rate, as well as the repercussions of the balance of payments account upon the process of inland monetary creation.

There are also shown the risks of an excess or of a deficit of the fixed rate balance of payments and the requirement of a monetary sterilization in order to counteract the variations of external money supply and to diminish the effects upon the relative prices and upon the national income.

Key words: *balance of payments, external debts, balance of current transactions, balance of capital, foreign demand, requirement of financing the nation, internal credit, currency reserve, monetary sterilization, oil prices, inflation, trade deficit.*

JEL Classification: F 59

1. Preliminary Considerations

To day, more than ever, we can talk about the existence of the external economic dependencies, meaning not any dependence, but that one bearing inside the force of the objective requirement.

The ratio between the complexity of the economic structure and the *external dependence of a country's economy* must be approached under two aspects, namely: on one side, a more complex structure supposes that the own different production

branches become mutually both commodity markets and source of raw materials, increasing the absorption capacity of home market, what leads to the rise of the *independence against the oversea*, and, on the other hand, the own development itself supposes the wider participation in the world circuit of values, requiring the increase of independence to oversea.

A prices reduction of our foreign competitors as regards the prices of similar Romanian products, will move the demand towards foreign products, while a comparable growth of these prices will move the demand towards Romanian products. In case of prices reduction of foreign products, the import will increase and the export will decrease and in case of prices growth, the import will decrease and the export will increase.

The balance of payments records the transactions totality of a country's citizens with the rest of the world. It includes both the current account and the stock account.

When the balance of payments of a country is in excess, the foreigners will have to procure the inland coin in order to pay this surplus, over the incomes they have obtained from sales to this country. The necessary inland coin will be procured only from the National Bank or from other Central Banks, through currency transactions according to the respective rate of exchange.

2. Economic Rendition of the Balance of Payments

From an economic point of view and not from a statistical one, the **balance of payments** is an *account* expressing all the payments made among the resident agents and the non-resident agents. A payment that is translated through an *input of foreign exchange* is registered to *credit* (commodities export, money aid paid by a foreign state, an investment of a foreign enterprise in the national territory, purchasing shares or bonds by a foreigner on the national financial market etc.). Conversely, the operations which bring an *output of foreign exchange* towards oversea are registered to the *debit* of the balance of payments (imports, transfers and movements of capital to abroad). The difference between credits and debits is the **balance account** of payments.

From the point of view of the economic analysis, three main components of external payments can be pointed out: *current transactions*, *non-monetary movements of capitals* and the *currency reserves*.

The current transactions cover all the operations related directly or indirectly to the international exchange of goods and services: imports and exports of goods and services, incomes of the production factors, unilateral transfers of the private agents or of administrations. Further on, we shall refer to the *balance account of the current transactions* or the *current account* through BTC.

A deficit in the current transactions has as a consequence an external obligation of the nation: we can not pay the imports with the aid of export profits and of the incomes received from the rest of the world. A part of these imports is consequently financed through estimates loan. In exchange, an *excess* in the current transactions has as a consequence *an increment of the overseas debts* or an *external non-obligation of the nation*. The total amount of the foreign exchange obtained during international exchanges surpasses the amount of the foreign exchange spent; this excess can be kept in foreign exchange invested abroad or used to returning the past external debts.

The non-monetary movements of capital cover long – term financial investments, direct external investments and short-term financial investments of the non-banking private sector. We shall present the balance account of the non-monetary movements of capital through *BCA* and, to this end, we shall use the expression *balance of capitals* or *capital account*.

We shall notice that short-term movements of capital are excluded from the banking sector and from the official sector (public treasury and central bank), these movements being what we call the *variation of the currency reserves*.

The global balance of payments is simply the sum of the two previous components:

$$\text{Global balance of payments} = BTC + BCA$$

The balance accounts *BTC* and *BCA* can eventually be compensated. For instance, a deficit in current transactions can be financed by currency loans from abroad, meaning the capitals input. An excess of the capitals balance *can compensate a deficit of BTC and in this way the global balance is equilibrated*. Conversely, an excess of *BTC* having as a consequence a net input of foreign exchange in the country, may be used in order to invest abroad, what means a capitals output. An excess of *BTC* can eventually be compensated by a deficit of *BCA* and the global balance remains equilibrated.

If the global balance (*BTC + BCA*) is in excess, this means the fact that the development of exchanges, transfers and movements of capitals has as a result a net input of foreign exchange in the country. This foreign exchange is found in the currency reserves of banks or of the central bank: a positive balance account of the global balance causes an increment with a sum equivalent to the public or private currency reserves. Conversely, a deficit of the global balance has as a consequence an output of foreign exchange and a diminution of the currency reserves with an equivalent sum. The variation of the country's currency reserves is equal to the balance account of the global balance. Consequently, if the variation of the currency reserves is denoted by ΔRES , we can write:

$$\Delta RES \equiv BTC + BCA \quad (1)$$

(We remind that symbol \equiv signifies “identically equal to”).

3. Analysis of the Influencing Factors of the Balance of Payments

We begin by decomposing the balance of current transactions from an accounting point of view. We know that:

$$BTC \equiv X - M + Rn_{RDM} \quad (2)$$

where: X – is the export of goods and service

M – is the import of goods and service.

Rn_{RDM} – is the net incomes received from the rest of the world (in order to simplify, we regrouped in Rn_{RDM} the unilateral transfers and the incomes of labor and capitals). We refer to the balance account of the exchanges from incomes, namely, *the incomes received minus the incomes paid*).

A first modality of explaining the evolution of BTC is to make hypothesis on the factors determining each of its components, X , M and Rn_{RDM} .

X is the abroad demand of national products. The abroad demand depends, firstly, upon the level of the activity and upon the real income from abroad. Hence, we state the hypothesis that X is an increasing function depending upon the real income of the rest of the world (denoted by Y_f). On the other hand, the purchasers from abroad have to compare the prices of the products exported to their country with their own prices. Consequently, the exports of a country equally depend upon the relative price of national products and upon the products from abroad, namely, upon the real exchange rate defined above. More precisely, we state the hypothesis that X is an increasing function depending upon the real exchange rate (J. Williamson [2000]¹, I.A. Elbadawi [2008]²) e_r (we remind that $e_r = eP^* / P$). Let's also remind that an increase of e_r corresponds to an increase of the relative price between the products from abroad/ national products, namely, an improvement of the competitiveness – price of national products that has to stimulate the export.

So, the exports depend upon the real external income and upon the real exchange rate:

$$X = X(e_r, Y_f) \quad (3)$$

Further on, we shall use a linear form of this relation:

$$X = x_1 e_r + x_2 Y_f, \text{ with } x_1 > 0 \text{ and } x_2 > 0 \quad (4)$$

¹ J. Williamson, *Exchange Rate Regimes for Emerging Markets: Reviving the Intermediate Option* (2000)

² I. A. Elbadawi, *Postconflict Transitions: An Overview*, *World Bank Economic Review* (2008)

where: x_1 and x_2 can be considered as elasticity – price indicators and elasticity – income indicators of exports.

Symmetrically, it is rational to consider that the imports are an increasing function depending upon the real internal income (Y). If the activity level rises, the internal demand is higher, a part of this internal demand being satisfied by the products from abroad, the imports rise. On the other hand, the imports are so much lower (or higher) as the relative price from abroad is higher (lower). M is accordingly a decreasing function depending upon the real exchange rate. Therefore, the imports depend upon the real internal income and upon the real exchange rate:

$$M = M(e_r, Y) \quad (5)$$

We shall use a linear form of this relation:

$$M = m_1 e_r + m_2 Y, \text{ with } m_1 < 0 \text{ and } m_2 > 0 \quad (6)$$

where: m_1 and m_2 can be considered as elasticity – price indicators elasticity – income indicators of imports.

Another complementary modality of analyzing *BTC* is to examine its role played into the internal macroeconomic equilibrium, among production, demand and income (Al. Isaic-Maniu, C-tin. Mitruț, V. Voineagu, [1995]³).

We restart from the accounting analysis previously presented.

The accounting equilibrium of the operations with goods and services has as result:

$$Y \equiv C + I + G + X - M \quad (7)$$

where: Y – real gross internal product

C – final consumption

I – private investment

G – public expenses.

On the other side, in a closed economy, the totality of the national revenue comes from the internal product: $Y \equiv R$. In an open economy, the national revenue R is equal to the real product plus the net incomes received from the rest of the world:

$$R \equiv Y + Rn_{RDM} \quad (8)$$

hence, it follows

$$Y \equiv R - Rn_{RDM}$$

Combining the identities (8) and (7), we have:

$$R - Rn_{RDM} \equiv C + I + G + X - M, \text{ yielding}$$

³ Al. Isaic-Maniu, C-tin. Mitruț, V. Voineagu, *Macroeconomie și analiză macroeconomică* (1995)

$$R \equiv C + I + G + X - M + Rn_{RDM} \quad (9)$$

The share of the national revenue allocated to the internal demand (A) will be:

$$A \equiv C + I + G \quad (10)$$

By taking into account the definition of BTU (relation 2), we can accordingly rewrite the identity (9):

$$R \equiv A + BTC$$

or even:

$$BTC \equiv R - A \quad (11)$$

The balance of the current transactions corresponds to the difference between the national revenue and the internal demand:

- An excess of the current transactions ($BTC > 0$) has the significance that the totality of the national revenue is not assimilated by the internal demand ($A < R$).
- a deficit of the current transactions ($BTC < 0$) has the significance that the internal demand is higher than the national revenue ($A > R$).

This approach has the merit to emphasizing the interaction between the external equilibrium and the internal equilibrium of the market of goods and services.

Naturally, a country expending less than its national revenue makes savings which can be used abroad and in this way accumulates currency from abroad. An excess of BTC is consequently a positive saving at the national level, a *financing capacity*. Conversely, a country expending more than its revenue is obliged to make debts abroad. A *deficit* of BTC is accordingly the *financing requirement of the nation*; it has the significance that the country uses the financing capacity (savings) of the rest of the world in order to expend more than its revenue. This financial aspect of the balance account of the current transactions balance can be outlined by explaining the origin of the difference between the national revenue and the internal demand. Let's decompose the difference $R - A$ (the right side of identity (11)):

$$BTC \equiv R - A \equiv R - (C + I + G) \equiv R - C - I - G \quad (12)$$

On the other hand, the national revenue includes, by definition, the private consumption (C), the private savings (S) and the taxes minus subsidies (Tn):

$$R = C + S + Tn \quad (13)$$

Combining (12) and (13) we get:

$$BTC \equiv R - A \equiv C + S + Tn - C - I - G$$

C and $-C$ are annulled and by rearranging the different terms, we get:

$$BTC \equiv (S - I) + (Tn - G) \quad (14)$$

This presentation offers a new point of view regarding the significance of a deficit or an excess of the current transactions. For instance, a deficit ($BTC < 0$) corresponds to an excess of the private investments as against the private savings ($[S - I] < 0$) and/or a budgetary deficit of the public administrations ($[Tn - G] < 0$). Consequently, the expenses excess (or the savings insufficiency) corresponding to the external deficit grows from the private options and from the budgetary policy. *All the other conditions remain unchanged*, an expansionist budgetary policy (budgetary deficit) conduces towards a deficit of the current transactions balance; conversely, a restrictive policy (budgetary excess) conduces towards an excess of BTC .

In a closed economy, the capital holders have the possibility to make options between treasuring up, direct investments in production activities, real assets or in financial investments. As we have already mentioned, the behavior regarding the use of capital is generally analyzed as a function of interest rates. The capital holders permanently umpire among the different available utilizations by comparing their profitability. The rates of high interests increase the profitability of financial investments in relation to other possible utilizations of capitals, especially the investments.

In an open economy, the national agents take also into account the supplied financial opportunities all over the world. If the interest rate in Romania (i) is lower than the abroad interest rate (i_f), the agents are stimulated to reduce the financial investments in Romania, in favor to the abroad financial investments: a net capitals output takes places. Conversely, a Romanian interest rate higher than the abroad rate has as result the net capitals input. The capitals balance representing the difference between the inputs and outputs of capitals, is consequently an increasing function of the difference (*variation*) of the interest rate with abroad.

$$BCA = BCA(i - i_f) \quad (15)$$

We can write up this formulae in order to take into account the effect of the capital movements over the exchange rate. For instance, let's us imagine a rate of the Romanian interest higher that the international rate ($i > i_f$). This generates net inputs of foreign capitals in Romania. But, in order to make financial investments in lei (lei = Romanian money) the foreign capitals have to be converted into lei; the capital inputs have as result a demand in excess of lei on the currency market. The demand of lei leads to a growth of the rate exchange (e). We shall further notice that the value of this growth depends upon the mobility degree of capitals and upon the currency policy. But, whatever its growth would be, the growth of the exchange rate (its decrease e) reduces the gain of the foreign investors who want to get a profit resulted from high

interest rate in Romania. The financial investments are better remunerated in Romania than abroad, but, in order to make these financial investments, the investors have to buy more expensive lei than before.

The national investors are expecting a growth of the exchange rate, when the Romanian interest rate increases. They anticipate the increase or decrease of e and corrects the variation of the interest rate in order to measure the net advantage of the Romanian financial investments, by taking into account the possible increase of lei. We denote by \hat{e} the anticipated percentage variation of the exchange rate. In this case, the movements of capitals depend upon the corrected interest differential: $(i - i_f + \hat{e})$.

The relation (15) becomes:

$$BCA = BCA(i - i_f + \hat{e}) \quad (16)$$

Further on, we shall use a linear form of relation (16):

$$BCA = k(i - i_f + \hat{e}) \text{ with } k > 0 \quad (17)$$

where k is a positive coefficient that can be interpreted as an elasticity indicator of the movements of capitals in relation to the interest variation.

The last component of the balance of payments outlines the repercussion of the balance account of the external payments over the internal monetary debts.

We have already shown that money had been created by banks, which on request of the non-financial agents, transform into scriptural money three types of debts: public treasury debts, economy debts and foreign debts.

The treasury debts and the economy debts are the aggregate of the **internal credit** to nation: we shall denote it by CIN . The foreign debts are made of all international means of payment hold by the banking system (including also the central bank); in other words, we speak about the currency reserves (RES). The coin M has necessarily as a counter proposal the internal credit or the foreign or the right to cash from abroad.

$$M \equiv CIN + RES \quad (18)$$

Variation of the money supply have in compensation a variation in the same sense of CIN and/or RES :

$$\Delta M \equiv \Delta CIN + \Delta RES \quad (19)$$

This money approach allows to specify one of the differences between the fixed exchange rates and the flexible exchange rates. We have shown that for fixed exchange rates, the currency reserves fluctuate as a reaction to the oscillations of the currency markets, while they remain unchanged for the flexible exchange rates. Accordingly, the money supply fluctuates in the first case and remains unchanged in the second case. The obligation to protect a stable parity makes theoretically the monetary policy less independent then during the floating exchange rates.

In addition, we can now better understand the risks of an excess of the balance of payments during the fixed exchange rates. On one side, as we have already shown, the excess causes a rise of RES and after the conversion of the foreign exchange, an increment of the monetary which can supply the inflation. On the other hand, to accumulate a permanent excess means to give a non-limited credit for abroad, paid by the national agents. In order to emphasize this fact, let us notice that relation (19) can also be written:

$$\Delta RES = \Delta M - \Delta CIN \quad (20)$$

An excess ($\Delta RES > 0$) signifies a money supply higher than the internal requests: $\Delta M > \Delta CIN$. In other words, the country accepts to supply money not as a response to the money demands of the resident agents, but to financing the demands of the agents from abroad, this eventually causing an inflation that will reduce the purchasing power of the resident agents.

In addition, if the excess comes from the balance of current transactions, it signifies, in a certain way, that there are more goods and services going out the country in order to satisfy the requests of foreigners than the goods and services going in the country in order to satisfy the internal requests. At limit, the maximum excess is reached when the internal demand is null and any internal product is only for foreigners !.

We have shown that for a fixed exchange rates, the excess or the deficit of the balance of payments are translated by an increase or decrease of the internal money supply. Yet, this supposes that the monetary authorities remain neutral towards the money oscillations determined by the external payments. But the exigencies of the internal monetary policy may ask the central bank to move for counteracting the variations of the external money supply: it is said that the central bank “sterilizes” the **money oscillations**.

In case of an excess determining an input of foreign exchange and an increment of the money supply, the central bank can take restrictive measures that restrain the internal money supply. The instruments used are more limited than in a closed economy. Thus, it can not rise the interest rates because the restrictive effect upon the internal credit could be compensated by the new inputs of foreign capitals. But it can ask for the compulsory reserves or even for direct inspections (credit restrictions).

In case of an external deficit determining a reduction of the money supply, the central bank can adopt an internal expansionist monetary policy in order to compensate the restrictive effect of the balance of payments. In this case, the central bank will have to apply to other instruments than the interest rates. Indeed, a reduction of the rate destined for stimulating the money supply would be counteracted by the outputs of capitals overseas.

We shall keep in mind that during the fixed exchange rates, the balance of payments determines variations of the money supply with a double condition: to maintain a monetary policy unchanged and the absence of the sterilizing operations.

An external deficit or an external excess have effects upon the relative prices and upon the national revenue, automatically contributing to the resorption of the initial imbalance. In addition, the exchange rate reacts to the imbalance of the external payments, either in a continuous way, in case of flexible exchange rates or in a discontinuous way (depreciation or appreciation) in case of fixed exchange rates.

4. The Influences of the Oil Prices Evolutions for Pakistan Economy

Looking at the table below, the industrial sector and the transportation sector are the two largest components of total energy consumption in Pakistan. A rise in the Price of Oil, by 100%, led to an increase in demand for oil by 19% over the period between 2003 and 2007. This denotes a low price elasticity – the percent change in quantity demanded/consumed, divided by the percent change in price- meaning the demand for oil in Pakistan is relatively inelastic to changes in Price.

Price Elasticity = $19\%/100\% = .19$; Relatively inelastic

Change in Oil Consumption with Change in Price

	<u>2003-2004</u>	<u>2006-2007</u>	<u>Change</u>	<u>Percent Change</u>
<u>Oil Consumption(TOE)</u>	15,221,024	18,120,837	+2,899,813	+19%
<u>Price of Oil (\$)</u> <u>(annual average)</u>	\$32.00	\$64.00	+\$32.00	+100%

Source: Hydrocarbon Development Institute of Pakistan.

Total Energy Consumption by Sector (metric Tonne)

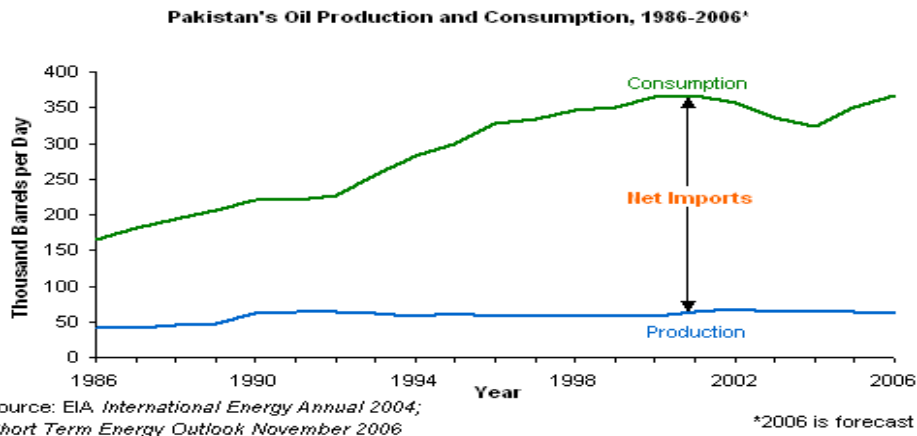
<u>Total Energy Consumption by Sector</u> <u>(metric Tonne)</u>	<u>2003-2004</u>	<u>2006-2007</u>	<u>Change</u>	<u>Percent Change</u>
<u>Domestic</u>	6,278,918	7,605,145	+1326227	+21.1%
<u>Commercial</u>	851,857	1,377,247	+525390	+61.7%
<u>Industrial</u>	11,098,642	15,792,049	+4693407	+42.3%
<u>Agriculture</u>	734,202	767,266	+33064	+4.5%
<u>Transportation</u>	8,771,365	9,721,183	+949818	+10.8%
<u>Total</u>	<u>27,734,984</u>	<u>35,262,891</u>	<u>+7527907</u>	<u>+27.1%</u>

Source: Hydrocarbon Development Institute of Pakistan www.hdip.gov.pk

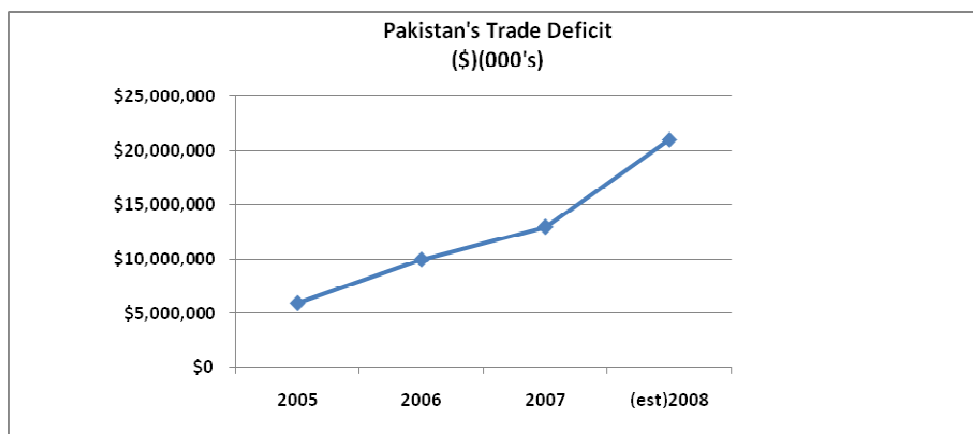
Aspects of Analyzing the Influence of International Economic Relations

The low price elasticity tells us that as prices rise there is limited or no effect on demand, thereby increasing the Dollar amount of quantity consumed. This means the total effect on the nations import bill consists of the 100% increase in price of oil, in addition to the 19% increase in oil consumed.

Looking at the picture below, the domestic production of oil is very limited in Pakistan, and more than 85% of oil is imported today. This picture shows changes in amount of oil consumed, but the issue here is the price of oil, although the barrels of oil consumed each day have increased at a marginal rate between 2002- and 2006, the price has gone up by more than 100% as shown earlier. The numbers today are even higher (est. 2008). The difference between the consumption and the domestic production of oil is adding to the import bill of Pakistan leading to a growing trade deficit.



The Balance of Payments of Pakistan has shown a growing trade deficit for the past 6 years. Looking at the picture below the trade deficit stood at approximately \$5 Billion in 2005, and has grown to over 20 Billion as of 2008. This rise is further deteriorating the macroeconomic fundamentals of the nation.



Source: Federal Bureau of Statistics, Pakistan www.statpak.gov.pk

5. Oil Prices and Inflation & Oil prices and Trade Deficit-Introduction to the Macroeconomic Model

Finally, economic model that explains the effects of rising oil prices on the economy of Pakistan is as follows, as the price of oil goes up, the value of imports rise, causing a negative impact on the trade deficit. The other more significant effect of rising oil prices is increased inflation due to the rise in costs of imported oil, leading to the rise on production, transportation, and all other energy costs faced by producers, and consumers. Higher Consumer Inflation leads to lower discretionary income left with consumers to buy other goods and services which decreases total consumption in an economy leading to slower economic growth. When inflation gets out of control central banks usually tighten the money supply which can contract the economy even further.

The main issue is the effect of rising prices on the national economy and the changes it brings within the economic model. Rising prices of oil are causing increased unanticipated inflation, and lower economic growth hence impacting the economy negatively. This can be shown through a simple macroeconomic model of:

GDP = Y = C + I + G + (x-m), where

C= consumption, I= investment spending, G= Government Spending, x= exports, and m = imports.

As price of oil goes up, inflation kicks in as price of every item in the basket of goods rises (virtually all items need some form of transportation or storage exposing them to the costs of energy). The increased prices lead to lower discretionary incomes leading to less C (consumption), decreasing the total amount of Y(GDP).

The other effect of rising oil prices is that as oil prices go up, an economy importing majority of its oil, will see a rapid increase in the value of m(imports), leading to an

increased trade deficit, hence lowering the trade balance, or creating a trade deficit which will result in lower Y (GDP). Both these cases will be further developed in section 4, using actual statistics.

6. Data Modeling & Empirical Analysis

The data used to prepare this paper, is derived from a variety of sources, including working papers, and Government organizations. The modeling consists of simple use of economic tools to analyze the impact of oil prices on the economy of Pakistan.

The numbers and statistics used all are recent most figures obtained from the State Bank of Pakistan, Federal Bureau of Statistics of Pakistan, Hydrocarbon Development Institute of Pakistan, the IMF, the World Bank, and The Asian Development Bank(ADB). All figures used are at calculated at current price levels, and the percent changes are calculated on a YoY basis.

The methodology used to determine the level of Gross Domestic Product consists of the expenditure model. The whole is divided into 2 sectors according to the official Federal Bureau of Statistics division in Pakistan; Production Sector, and Service Sector.

The Production Sector consists of total expenditure in Agriculture, and Industry. According to the national accounts the Agriculture industry in the production sector includes crops, livestock, fishing, and forestry. The Industrial sub-section within the production sector consists of mining & quarrying, manufacturing, construction, and electricity & gas distribution.

The Service sector includes expenditure in transportation, wholesale & retail trade, finance & insurance, ownership of dwelling, public administration & defense, and community, social & personal services.

7. Empirical Results

7.1 Price of Oil and National Income Accounting

Examination of the analytical model as mentioned above very similar results as to what actually happened in Pakistan during the period when oil prices rose exponentially. To do this, I am going to use the numbers from the following tables showing the GDP (Y) of Pakistan, the total Consumption Expenditure I, Investment (I) & Government Spending (G), and the net Exports (x-m).

GDP at Current Prices (2008)

USD \$ (BILLION)	2003	2004	2005	2006	2007	(est.)2008
Consumption (C)	66.10	78.00	91.85	107.30	120.00	129.78
Investment & Government Spending (I + G)	13.60	15.58	20.67	27.10	32.35	35.46
Exports (x)	10.65	11.25	13.78	15.63	16.05	16.85
Imports (m)	11.52	14.29	19.48	27.66	29.50	37.44
Balance of Trade (x – m)	(.87)	(3.04)	(5.70)	(11.97)	(13.45)	(20.59)
GDP (Y) = C+I+G+(x-m)	78.83	90.54	106.82	122.43	138.9	144.65
GDP Percent Change(YoY)%	-	+11.71	+17.9	+14.6	+13.5	+4.1%

Source: Federal Bureau of Statistics, Govt. of Pakistan. www.statpak.gov.pk

7.1.a Rising Value of Imports

As you can see, the numbers tell us nothing other than the GDP, at current prices has been steadily growing. The issue arises when we look at the change from one year to the next. For example comparing the balance of trade between 2007 and 2008 shows that the rate at which the trade deficit increased was $(20.59-13.45)/13.45 = 53\%$. Taking any year for example 2007, if we examine the numbers it is: $Y=C+I+G+(x-m)$, so $Y=120+32.35+(16.05-29.5) = 138.9$ (\$BILLION) >>**(I+G)=32.35**<<

In 2008 the value of **m increased**, leading to a negative effect on the growth of Y. Unexpectedly the value of imports rises to 40(\$BILLION). The GDP rose but a decreasing rate

$Y=129.78+35.46+(16.05-40) = 140.65$ (\$BILLION)

>>**(I+G)=35.46**<<

GDP growth rate fell from 17.9% (YoY) in 2005, to 4.1% (YoY) in 2008 (est.).

Meaning a rise in the value of imports at any given time will result in a fall in the growth rate of Gross Domestic Product, in nominal terms. Assuming oil is predominantly imported in Pakistan, the rise in the price of oil, will increase the value of imports (m) leading to a negative impact on the growth rate of national income(Y). The other impact of rising prices of imported oil translate into a growing trade deficit which depicted earlier shows the growth of imports much higher than the growth of exports. Examining the table above, exports have grown by 7.8% between 2006 and 2008, while imports have grown by 35.3%.

7.1.b Oil Prices, Inflation, and lower GDP growth.

Increased imported oil prices cause inflation, as the costs of production, storage, and distribution rise (assuming oil is a major source of energy in the economy). Increased inflation lowers the buying power of consumers in addition to lowering discretionary income left (after buying more expensive energy) with households to spend on other goods and services. This leads to lower growth in consumption spending, further weakening the economic outlook of the nation. The following table shows that although total consumption spending has been growing, the (YoY) change in percentage terms is declining in Pakistan. Proving that higher oil prices are leading to lower economic growth, as lower growth in consumption (C) means lower growth in GDP (Y). In addition to lower consumption growth, higher growth in imports (m), are further deteriorating the situation as shown earlier.

Consumption Spending Growth (2005-2008)

Consumption(C)	US\$ in Billions	Percent Change
2005	91.85	-
2006	107.30	+16.8%
2007	120.00	+11.8%
2008	125.78	+4.8%

Source: Federal Bureau of Statistics, Govt. of Pakistan. www.statpak.gov.pk

The CPI data which follows shows the rapid increase in the Consumer Price Index as a direct result of the rising price of oil.

Consumer Price Index (2004-2008)

Consumer Index(YoY)	Price	Percentage	Percentage Change
2004		4.57	-
2005		9.28	+103%
2006		7.92	-14.6%
2007		7.77	-1.8%
2008		18.29	+135%

Source: Federal Bureau of Statistics, Govt. of Pakistan. www.statpak.gov.pk

7.2 Real Negative Affect of Rising Oil Prices on Pakistan.

So the rising price of oil has had 2 major affects on the economy of Pakistan.

Effect 1. Increased value of imports (m), have led to decreased GDP growth rate.

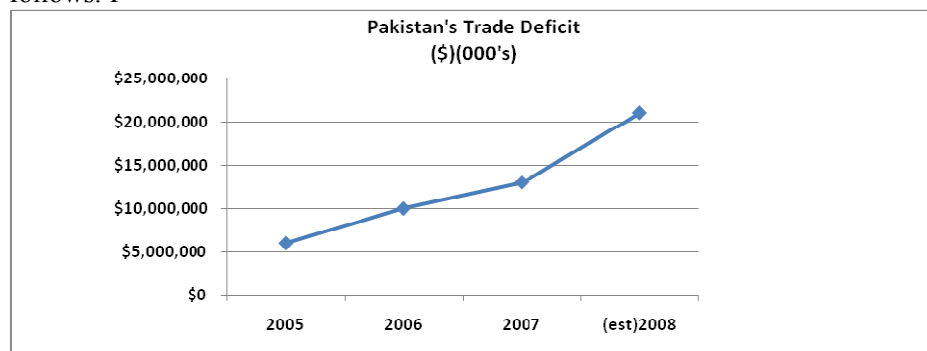
Increased prices of imported oil have also brought Inflation which has decreased buying power of money, and increased the energy costs of consumers and producers resulting in lower discretionary spending.

Effect 2. Lower discretionary spending has contributed to the declining rate of consumption growth (C) lowering GDP growth rate further.

Illustration of Effect 1. & Effect 2.

Effect 1

Increased Imports have led to a decreased trade balance or an increased trade deficit as follows. I



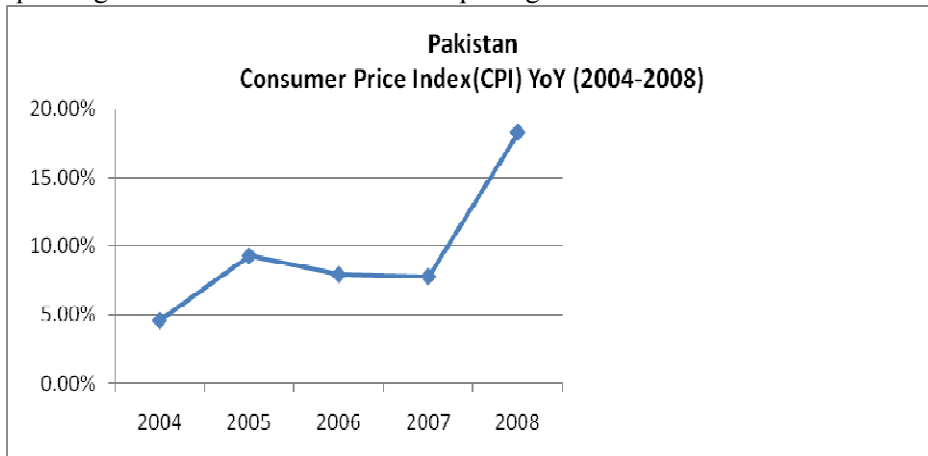
Source: Federal Bureau of Statistics, Pakistan www.statpak.gov.pk

Effect 2

Increased imported energy prices have led to increased prices at home leading to increased inflation. Increased inflation has decreased the discretionary income of

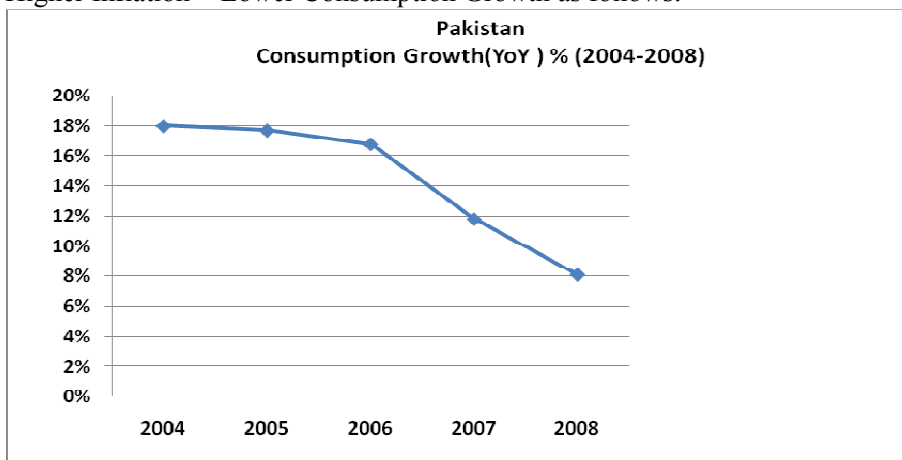
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households, leading to decreased discretionary spending. Decreased discretionary spending has resulted in slower consumption growth.



Source: Federal Bureau of Statistics, Pakistan www.statpak.gov.pk

Higher Inflation = Lower Consumption Growth as follows:



Source: Federal Bureau of Statistics, Pakistan www.statpak.gov.pk

Lower Consumption growth, and higher trade balance result in decreasing economic growth depicted as follows.



Source: Federal Bureau of Statistics, Pakistan www.statpak.gov.pk

8. Conclusion

From the analysis of the example regarding price of oil and its consequences for economic growth in Pakistan, and all over the world, I can conclude that the affects are severely damaging the macroeconomic stability of all economies which are dependent on imported oil.

Pakistan is a good example (J. Williamson [1999]⁴), to show how an increase in the price of a commodity that has a relatively inelastic demand can disrupt the macroeconomic fundamentals, such as the level of inflation, the growth in consumption, and the value of imports, and the trade deficit. A growing Negative impact of these indicators has led to slower economic growth in Pakistan. The major consequences on the economy of Pakistan have been:

Increased value of imports (m), have led to an increased trade deficit, which has resulted in a decreased GDP growth rate. Increased prices of imported oil have also brought Inflation which has decreased buying power of money, and increased the energy costs of consumers and producers resulting in lower discretionary spending. Lower discretionary spending has contributed to the declining rate of consumption growth (C) lowering GDP growth rate further.

The positive outcome in Pakistan has been the rapid development of Natural Gas, as an alternative to imported oil. Natural Gas is produced domestically, and this has kept the price of natural gas significantly lower than the price of oil in the Pakistan's energy markets. NGV's, and gas powered IPP's can do much more to transform Pakistan into

⁴ J. Williamson, *Pakistan and the World Economy*, Conference of The Pakistan Society of Development Economists, 1999

a nation run exclusively on natural Gas. Other alternatives to Fossil Fuels such as Oil and Natural Gas exist in the form of Solar Power, Wind Power, Bio-Diesel and Geo-Thermal Power, but the capital investment required is very large, and although current oil prices are shifting attention towards the renewable energy marketplace, there is still some time before solid steps are taken to take Pakistan towards complete renewable energy.

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