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Impact of Foreign Direct Investment and Worker's Remittances on Balance of Payment: A Case Study of Pakistan

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Abstract - A record of all transactions made between one particular country and all other countries during a specified period of time is known as Balance of Payment (BOP). There are many factors that determine the position of balance of payments in the country either it is surplus or deficit. This study analyzes the statistical data of BOP of Pakistan from 1986 to 2010 and is an attempt to find out possible reasons for adverse BOP of Pakistan since its creation. The analysis shows that out of eight variables only two variables proved to be statistically significant namely foreign direct investment inflows and worker's remittances. However the impact of these variables on BOP turned out to be negative.

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Impact of Foreign Direct Investment and Worker's Remittances on Balance of Payment: A Case Study of Pakistan

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Abstract - A record of all transactions made between one particular country and all other countries during a specified period of time is known as Balance of Payment (BOP). There are many factors that determine the position of balance of payments in the country either it is surplus or deficit. This study analyzes the statistical data of BOP of Pakistan from 1986 to 2010 and is an attempt to find out possible reasons for adverse BOP of Pakistan since its creation. The analysis shows that out of eight variables only two variables proved to be statistically significant namely foreign direct investment inflows and worker's remittances. However the impact of these variables on BOP turned out to be negative.

I. Literature Review

Balance of payments studies have been manifold in terms of its comprehension and its treatment and their purpose have been to solve the emerging problems because of it in the economy. A detail of the quality indicators and their implication to quantify the quality of balance of payments along with ascertaining various aspects of data quality that may be enhanced, together with their interrelations with other quality dimensions have been carried out. Authors have kept into account its compatibility with IMF DQAF (Data Quality Assessment Framework) concentrating on revisions and consistency. The quantitative indicators facilitate compilers in setting significances in order to enhance the quality of euro area data in reference to accuracy, reliability and serviceability (Violetta Damia, Carmen Picón Aguilar, 2006).

FDI might have different effects depending on their type that is market-seeking and factor-seeking (Root 1994). Market-seeking FDI can have a negative impact on the recipient country a study conducted on US shows that foreign firms tend to have increased imports than exports (Graham and Krugman 1989). MNEs hunting for raw material and cheap labor are involved in factor-seeking FDI. Factor-seeking FDI increases the level of exports from the host nation to the home country and to many other countries as well (Root 1994). FDI provoked by low-cost production objectives exploits low-cost factors like cheap labor as part of an overall global sourcing strategy, leading to an ability to export products from the emerging host nation to other countries in the world, including the MNEs' home countries. In this case, the host country is able to increase exports and to improve its trade balance (Phongpaichit, 1990).

Studies conducted to understand the effect of FDI on imports are limited. FDI both at the initial investment and operation phases can influence import of a country. At the initial investment phase, import of equipments, machineries, installation facilities and experts all contribute to increased import balance. FDI companies have high propensities to import capital and intermediate goods and services that are not readily available in the host country (Hailu, 2010).

A study conducted in Bangladesh (country under observation is Bangladesh) to understand the relationship of FDI and imports reveal that the co-efficient is statistically significant with a positive sign and suggests that a 10 percent increase in the inflow of FDI increases imports by 1.3 percent. The income elasticity of import demand is high indicating that a 10 percent increase in real GDP increases imports by nearly 27 percent (Hossain, 2008).

At a macro level, the positive financial and social externalities generated by remittances, which are likely to be large, and offer a stable source of foreign currency that can help prevent balance of payment crisis (Lopez-Cordova and Olmedo, 2006:7, 8).

Worker's remittances reach home country through two channels; formal and informal. Formal channels include major money transfer operators (MTOs) and banks. Some migrants use formal channels, but language barriers as well as related costs for these services may force remitters from using them. As a result, it is the informal channel which is most frequently used. For instance, migrants may carry cash home themselves or send cash through the mail or a friend (Carrasco and Ro, 2007:3,4). Luna Martinez (2005) finds out that According to the findings of a survey of central banks in 40 developing countries , in most countries existing data do not reflect the full amount of the remittance inflows, and most countries need to establish better mechanisms that would allow them to maximize the developmental effect of remittance inflows.

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There is no universal agreement yet on how to measure international workers' remittances to developing countries. Thus, the figures revealed do not reflect the true amounts (Karagoz, 2009).

Given doubts in the measurement, notably the unknown extent of unrecorded flows through formal and informal channels, the true mass of remittances flows may be much higher (perhaps 50 percent or more), with noteworthy regional and country variation. Due to this common data limitation, as Aydas et al. (2004:4) pointed out; empirical analysis on workers' remittances could merely emphasize the "official" aspect of its measurement.

Studies on remittances and its effect on economic growth have revealed varied results. For instance, Chami et al. (2003), covering 113 countries found that remittances had a negative effect on growth. The author of the study believes that the negative effect is due to the moral hazard problem that remittances create. Fundamentally, the study concluded that income from remittances allows receiving families to decrease their own work and productivity, which then translates into a reduction in the labor supply for the developing country.

Whereas Faini (2002) and Ang (2007) came up with a conclusion that remittances have a positive impact on growth. Faini (2002) believes that remittances surmount capital market limitations and allow migrant households to gather positive assets. Ang (2007) studied the case of Philippines and discovered that at the national level remittances do influence economic growth positively and significantly.

Household surveys in Pakistan show that a larger part of international remittances are saved (71%) compared to domesticurban-rural remittances (49%) and rental income (8.5%) (Adams, 1998).

Making Robert Mundell's article of 1960, as a point of reference, where he has developed a model for the balance of payment crises stating that the holdings of the central bank's foreign reserves determine the assurance in the continuation of a currency peg, another model has been developed reframing Mundell's point of view. This model is based on the foundation of an equilibrium business cycle model in which the devaluation or deflation probability is an endogenous variable conditioned on foreign reserves. This model rationalizes the real effects and the fall of momentary fixed-rate-regimes and provides an economic justification that foreign reserves are forceful indicator of the currency crises (Enrique G. Mendoza, Martin Uribe, 1999).

The case of India is discussed using the BPCG (Balance of Payment Constrained Growth) model. The author comments that it's a developing country which has low trade in comparison to gross domestic product ratio. A general assumption that same elasticities of substitution exist between the goods produced in different regions should be relaxed according to the extension of the model by the author. This paper works on Johansen's co-integration technique for evaluating the trade parameters. Vector error correction framework is used for the investigation of short run adjustments. Author's predicted BPCG hypothesis show lesser deviations in the average growth rates while they tend to depict quite considerable variation when analyzing individual decade data (Arsalan Razmi, 2005).

Mexico is another case like that of India, in which there is an attempt to identify the constraints of the growth of its economy. The structural deficit of current account and real exchange rate has been thought to be the factors responsible for the lower growth rate. The current account balance is estimated through weighted two stage least squares which helps in developing an annual econometric model from 1970-99.The basic goal is to derive a sensibility and long-run relationship of the general system to the exchange rate. The detection and analysis re-enforces the "extended exchange rate Thirwall's law" (Eduardo Loría, 2003).

The relationship of balance of payment crises and inflation targeting reveals that monetary system is sensitive to the speculative attacks and that it is demolishing in consequence of a rise in the reserve losses. These losses then cause the implicit and explicit commitment of the central bank to intervene in the foreign exchange market. These attacks are therefore graded from least to severe in terms as Exchange rate targeting, CPI inflation targeting, domestic non-tradables inflation targets, and money targeting (Michael Kumhof, Shujing Li, Isabel Yan, 2006).

A research on finding the reasons of the Mexico's balance of payment crises show that it is due to the high degree of capital mobility and financial globalization. There has been disparity between financial assets and foreign reserves because of changes in foreign capital flows and expectation of banking system rescue. Correct and suitable policies can help remove these issues which is more of a requirement (Guillermo A. Calvo, Enrique G. Mendoza, 1996).

In order to know the constrained growth due to balance-of-payments, balance of payment equilibrium growth rate analogous to Thirlwall's Law from a Pasinettian multi-sector macrodynamic framework is established. Multi sectorial Thirwall's law emphasizes that a country's growth rate per capita income and its exports are directly related. It is shown that several theoretical, empirical and policy implications can be drawn from such a structural economic dynamics approach to balance-of-payments-constrained growth (Ricardo Azevedo Araujo, Gilberto Tadeu Lima, 2007).

Latin American economy being the subject of study in reference to the economic growth and trade balance based on the balance of payment constrained growth model discloses that the econometric evidence in relation to the authentication of Thirwall's law in Latin

America may be exposed to external adjustments but the main proposition cannot be rejected. This proposition is that of the Thirwall's law. The main objective of the paper is to find out the difference in the actual growth rate and estimated growth rates (Marcio Holland, Flavio Vilela Vieira, Otaviano Canuto, 2004).

The research on whether devaluation of a currency has any effect on the balance of payment of a developing and developed countries which may be of empirical in nature or theoretical, there is a need to have a clear look into the matter. The study reveals that ML condition holds in the long run with some degree of J-curve effects in the short run (Olugbenga Onafowora, 2003).

Knowing the extent of liberalization through trade liberalization policies has been possible evaluating data from 22 countries regarding their exports, imports, balance of trade and balance of payment. The research shows that there is an increase in the exports and imports both but imports tend to be even larger than exports. This in turn causes lesser degree of liberalization (Amelia Santos-Paulino, A. P. Thirlwall, 2004).

II. Pakistan's Bop Analysis

Since the creation of Pakistan, her balance of payment has been in deficit except for the three occasions firstly a year after the independence in 1948, secondly in 1951-52, during Korean war and thirdly in 1972 when East Pakistan was separated.

This study however focuses on the data from 1986 to 2010. There are no dramatic changes in trade deficit from 1986 to 2004. The data depicts a noticeable increase of trade deficit from 3279 to 6207 (million U.S. $) in the year 2004-05. In the following year the deficit again jumps to almost double the amount in preceding year reaching the amount of 12130 million U.S. $. The adverse situation does not stop here as in the year 2008 the deficit reached the all time high of 20914 million U.S. $.

III. Data and its Source

The source of the data in this study is Pakistan Bureau of Statistics. The data was collected from 1986 to 2010 and included: i) the length of roads in kilometers (highways only) and the total railroad route in kilometers. The increase or decrease in infrastructure supposedly depicts the level of economic activity within a country so the purpose of including these two variables was to see the impact of infrastructure on BOP. ii) Remittances in millions U.S. $. iii) Foreign direct investment (FDI) in millions U.S. $. iv) Production of wheat in '000' tons. v) Production of rice in '000' tons. vi) Production of cotton in '000' bales. vii) Electricity generation (GWH). See Appendix-table 1

The purpose of including electricity generation as a test variable is to see if it has a significant effect on BOP. If we examine the BOP over the years it seems there might be a positive correlation between BOP and electricity generation which makes sense theoretically speaking as increase in electricity generation would hypothetically mean increase in overall industrial production and thus increase in exports resulting in improving BOP. Wheat, rice and cotton are the major crops of Pakistan and also the major exports of Pakistan. As Pakistan is an agricultural economy, the production of crops is very crucial in determining the final BOP.

IV. Methodology and Aanalysis

I have tried to make it simple and to the point. The data was analyzed using SPSS in two steps, in the first step all eight variables were tested against BOP and in the second step only the statistically significant variables out of those eight were tested against BOP. The technique used to scrutinize the data was regression analysis. The dependent variable was BOP and the rest eight variables discussed above were kept as independent variable. The initial test revealed that the model had a value of R Square .958 which is healthy enough to explain the BOP with these independent variables. The ANOVA table also suggests that the model is significant as the p value is less than .05 (level of confidence). See appendix- table 2 and table 3..

The coefficients table however showed that there are only three variables which are statistically significant which are: remittances, FDI and production of rice having the p-value of .020, .000 and .024, respectively. Interestingly all the three significant variables had a positive sign with their corresponding beta values indicating a positive effect on trade deficit i.e. increase in any of the statistically variable results in the increase of deficit in BOP. See appendix-table 4.

In the next step the test was carried out again using three statistically significant variables which are: worker's remittances, FDI and Rice production, as independent variable and BOP as the dependent variable. The model summary shows that the 93 % (R square= .931) of the BOP can be explained using these three variables. The ANOVA table also suggests that the model is significant as the p-value is .000 which is less than .05 (confidence level). See appendix- table 5 and table 6.

The review of coefficients table turns out that only two variables are statistically significant which are Worker's remittances and FDI inflows the respective p-values of the two variables were .001 and .000. The value of beta for remittances was 1.020 indicating that an increase of one unit in remittances will increase the BOP deficit by 1.020 million U.S. $, which is an unusual finding similarly the beta value for FDI was 2.292,

indicating that an increase in one unit of FDI will result in the increase of BOP deficit by 2.292 million U.S. $. See Appendix-table 7.

V. Concluding Remarks

Pakistan has been facing a problem with her BOP since its creation for most years it has been in deficit. The foreign direct investment in Pakistan has increased over the years but the data suggests that it has a negative impact on BOP probably because the FDI has resulted in the increase of imports as discussed in literature. The effect of remittances greatly depends on the way they are used, in Pakistan there is no productive use of remittances as indicated in a survey that 71% of the remittances are used as savings (Adams, 1998).

Pakistan is an agricultural country, the production and exports of crops needs immediate attention so that it can result in the economic growth of the country. There has been no R7D in the field of agriculture to increase the production of crops. Pakistan needs serious agricultural reforms.

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Appendix

Table 1

Years	BOP (deficit) in Million US $	Rail Route (Kilometers)	Length of Roads (Kilometers)	Remittances in Million US $	FDI in Million US $	Wheat production in '000' tones	Rice production in '000' tones	Cotton Production (000) bales	Electricity generation (GWH)
1986	2564	8775	126243	2595.31	145.2	13923	2919	7155	2589
1987	1694	8775	133953	2278.56	108	12016	3486	7760	28703
1988	1936	8775	142941	2012.6	162.2	12675	3241	8633	33091
1989	2373	8775	151449	1896.99	209	14419	3200	8385	34562
1990	1981	8775	162345	1942.35	216.2	14316	3220	8560	37529
1991	1488	8775	170823	1848.29	246	14565	3261	9628	41042
1992	2348	8775	182709	1467.48	335.1	15684	3243	18288	45440
1993	3128	8775	189321	1562.24	306.4	16156	3116	9054	42751
1994	1761	8775	196817	1445.56	354.1	15213	3995	8041	50640
1995	2257	8775	207645	1866.1	442.4	17002	3447	8697	53545
1996	3098	8775	218345	1461.17	1101.7	16907	3967	10595	56946
1997	3574	8775	229595	1409.47	682.1	16651	4305	9374	59125
1998	1490	8775	240885	1489.55	601.3	18694	4333	9184	62104
1999	1653	7791	247484	1060.19	472.3	17858	4674	8790	65402
2000	1740	7791	248340	983.73	469.9	21079	5156	11240	65751
2001	1527	7791	249972	1086.57	322.5	19024	4803	10732	68117
2002	1205	7791	251661	2389.05	484.7	18227	3882	10613	72406
2003	1060	7791	252168	4236.85	798	19183	4479	10211	75682
2004	3279	7791	256070	3871.58	949.4	19500	4848	10048	80826
2005	6207	7791	258214	4168.79	1524	21612	5025	14265	85628
2006	12130	7791	259021	4600.12	3521	21277	5547	13019	93629
2007	13564	7791	261821	5493.65	5139.6	23295	5438	12856	98213
2008	20914	7791	258350	6451.24	5410.2	20959	5563	11655	95661
2009	17134	7791	260200	7811.43	3719.9	24033	6952	11819	91616
2010	15420	7791	260760	8905.5	2205.7	23917	6883	12914	95358

Table 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.979[a]	.958	.937	1449.484

Table 3

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.690E8	8	9.612E7	45.751	.000[a]
	Residual	3.362E7	16	2101003.102		
	Total	8.026E8	24			

Table 4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-17516.371	11949.592		-1.466	.162
	Railroad	1.545	1.135	.134	1.361	.192
	Roads	.010	.038	.079	.262	.796
	Remittances in Million US $	.884	.343	.334	2.576	.020
	FDI in Million US $	2.627	.390	.709	6.730	.000
	Wheat production in '000' tonnes	-.265	.387	-.158	-.685	.503
	Rice production in '000' tonnes	1.992	.798	.390	2.495	.024
	Cotton Production (000) bales	.164	.166	.070	.992	.336
	Electricity generation (GWH)	-.063	.068	-.270	-.918	.372

a. Dependent Variable: BOP (deficit) in Million US $

Table 5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.965[a]	.931	.921	1623.890

a. Predictors: (Constant), Rice production in '000' tonnes, FDI in Million US $, Remittances in Million US $

Table 6

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.472E8	3	2.491E8	94.452	.000[a]
	Residual	5.538E7	21	2637019.662		
	Total	8.026E8	24			

a. Predictors: (Constant), Rice production in '000' tonnes, FDI in Million US $, Remittances in Million US $

b. Dependent Variable: BOP (deficit) in Million US $

Table 7

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1249.480	1694.146		-.738	.469
	Remittances in Million US $	1.020	.277	.386	3.678	.001
	FDI in Million US $	2.292	.347	.618	6.600	.000
	Rice production in '000' tonnes	.113	.492	.022	.231	.820

a. Dependent Variable: BOP (deficit) in Million US $