Role of Trade, Aid, Remittances and Financial Development in Pakistan

Kumar, Ronald/R

University of the South Pacific

29 October 2011

Role of Trade, Aid, Remittances and Financial Development in Pakistan

Ronald R. Kumar
University of the South Pacific
ronaldkmr@yahoo.com

Abstract

In this paper, we explore the role of trade openness, overseas development aid (ODA), remittance inflows and financial development vis-à-vis income in Pakistan for the periods 1980-2010 using the bounds procedure within the augmented Solow-model approach. In the long-run, trade openness, ODA, and remittances have a significant positive effect on the income level, while financial development is not statistically significant. In the short run, ODA has contributed positively towards income growth while remittances, trade openness and financial development have lagged negative effects. Therefore, understanding that aid and remittance inflows behave somewhat differently, for development policy discourse, emphasis need to be on: formalizing and easing remittance transfers by minimizing transaction costs; promoting financial and mobile-led technology inclusion; strengthening public-private partnership in developing necessary infrastructures and promoting investment; encouraging trade openness whilst exploiting areas of comparative advantages with greater outward looking trade strategy; focusing on regional integration and co-operation in view of promoting trade in services (labour mobility); strengthening donor relations to ensure consistent flow of aid whilst effectively managing and deploying aid in productive infrastructure projects to generate employment and providing the necessary institutional conduit overall economic development.

Key words*: remittances, trade openness, economic growth, aid, financial development, ARDL Bounds test, Pakistan.*

Exploring the role of Trade, Aid, Remittances and Financial Development in Pakistan

1. Introduction

Pakistan is one of the developing countries in the South Asia with a population of 173.6 million and annual per capita income of around 919USD. The inflation rate is also soaring, averaging at 12.7 percent over the past five-year period since 2010 while the economy is growing at 4.3 percent. Close to 64 percent of the population resides in the rural areas. Unemployment rate stands at 5.4 percent (2006-2008) and the economy continues to face pockets of poverty, growing public expenditure and reliance on external debt to finance deficit (Akram et al. 2011; World Bank 2011b; ADB, 2009).

While the economy relies on remittance inflows which have grown over the years, it is challenged with restoring investor confidence and securing external finance (ADB, 2009). The growth in remittance inflows to Pakistan has resulted from increase in worker migration; higher skill levels of migrating workers; better investment opportunities and gains from investment realized by the remitters (Kock and Sun, 2011); and the opening of Middle East markets providing greater employment opportunities (Feroze and Basharat 2011; Kakar, Khilji, and Khan 2011). Pakistan receives remittances from a number of countries including United Arab Emirates (UAE), United States of America (USA), Saudi Arabia, Gulf Channel Countries, including Bahrain, Kuwait, Qatar and Oman, United Kingdom (UK) and European Union (EU) countries besides some others like Norway, Australia, Canada, and Japan.

The financial sector has undergone some significant reforms since 1990s in an effort to ensure greater efficiency and productivity in the sector. The economy's trade (export and imports) are also growing, albeit slowly. Further, the economy also depends on aid inflows for significant infrastructural developments.

In light of these, this study explores the contribution of remittance inflows, overseas development assistance (ODA) or aid, trade openness, and financial development towards income using the augmented Solow approach (Solow 1956). The study is important in at least three ways. Firstly, we provide a formal approach to measuring factor contribution to per worker income; secondly, the role of traditional capital inflows such as aid and contemporary inflows such as remittances are explored besides trade openness and financial development; and thirdly we put forward some suggestions for policy discourse for the economy of Pakistan.

The balance of the paper is outlined as follows. A brief literature survey is provided followed by a brief discussion on trends relating to the variables under study. Thirdly, the data, method and model are discussed followed by the analysis. Finally, conclusion and policy discussion follows.

2. A brief literature survey

2.1 Remittances

Remittance inflows refer to the private income or savings from income earned that are transferred from one or more family members living and working abroad back to the family members in the home country (Chami, Cosimano, and Gapen 2006). Over the last four decades, remittances have surpassed official development assistance (ODA) of developing countries, and have been growing substantially increasing from US$22 billion in 1985-1989 to US$308 billion in 2009 (World Bank 2011a).

The poverty reducing effects, human capital (education), healthcare needs, entrepreneurial development besides providing buffer cash, improvement in productive capacity from increased consumption and opportunities for capital investment and improved human welfare and freedom of choice as a result of increase in remittance inflows to greater number of households have been widely acknowledged in a number of studies (Buch and Kuckulenz 2010; UNESCAP 2010; Browne and Leeves 2007; Ratha 2007; Browne 2006 De Haas 2005; Maclellan and Mares 2005; Sen 1999).

While services like automated teller machines (ATM), Western Union money transfers, and bank draft facilities are some of the formal means of transferring remittances in many countries, the cost of sending remittances to some developing and small countries have been high (Ratha and Riedberg 2005) The factors influencing remittance transfer includes (a) the number of competitors (service providers), which depends on the size of that particular remittance corridor and legal regulations; (b) the cost of remittance providers, which depends on the method and technology available to them for use; (c) the needs and preferences of customers; and (d) the extent to which consumers are aware of the various choices of services available to them. Further, the preferences of customers are equally dependent on the availability and accessibility of existing remittance-transfer services, the selection of which are largely based on the speed, the needs at the destination, and the sender's legal status (Irving, Mohapatra and Ratha 2010).

Ahmed, Sugiyarto and Jha (2011) study the micro and macro level impact of remittances in Pakistan and similar to Siddiqui and Kemal (2006), they show that reduction in remittances will reduce GDP, investment and household consumption, which in turn will increase poverty level and that households who receive remittances tend to be better off and their probability of becoming poor decreases by 12.7 percent.

Suleri and Savage (2006) in their research on remittances and natural disasters in Pakistan conclude that: remittances can make people less vulnerable to natural disasters since households with

international migrants tends to be better able to make investments in better housing; remittances receiving households are more resilient to natural disasters; remittances received when shared outside the household tend to have a positive multiplier effects; remittance flows are highly vulnerable to the infrastructure damage that occurs during disasters; and irrespective of the ways remittances are received (formal or informal), the role of a quality telecommunication, finance and local transport services are critical determinants of smooth flow of remittances. Moreover, the role of aid and donor agencies in improving remittance-dependent infrastructure is extremely important in ensuring that remittances as an alternative source of capital inflows are not disrupted in times of emergencies. Subsequently, remittance inflows in some countries like Pakistan are considered a vital shock absorber for individual households and for the country as a whole, particularly in the events of crisis and disasters (Kock and Sun 2011).

Chami, Hakura and Montiel (2009) using a sample of 70 countries (including Pakistan), study impact of remittances on the volatility of GDP and find that remittance flows have contributed to reducing the volatility of GDP growth in remittance-receiving countries. Ahmed, Zaman and Shah (2011), like Kumar (2011a) find that remittances are statistically significant determinant of income growth. However, the long run results from Ahmed, Zaman and Shah (2011) is not clear as only the ARDL form of the results are presented, and in the short run, which is a growth accounting exercise does not include the capital and labour stock in the analysis. Kumar (2011) accounts for this by using the augmented Solow approach and finds that exports, per worker capital stock and remittances contribute significantly towards income growth in the long run while financial development is not statistically significant. Shabaz, Islam and Aamir (2011) analyze the impact of devaluation on economic growth and find that remittances have a long-run positive effect, however, in the short-run, the impact is negative.

2.2 Financial development

A substantial body of literature exists in support of the role of financial development as critical contributor to economic growth. Financial systems promote investment and growth by acting as intermediaries and by reducing information, transaction and monitoring costs. Further, financial institutions provide loans; expedite and exploit new and existing business opportunities; mobilize savings; and diversify risks through pooling and investing thus creating liquidity in the economy whilst influencing aggregate demand and overall economic activities (Beck, Levine and Loyaza 2000; Levine, Loayza and Beck 2000; King and Levine 1993). A number of indicators have been used to measure the importance and relative ease with which banks provide funds. These include: (a) ratio of broad money; (b) ratio of the asset of deposit money banks to assets of the central bank and deposit money banks; (c) reserve ratio; and (d) ratio of credit to private sector by deposit money banks to GDP (Creane et al. 2004). In a study of Turkey Kar, Peker, and Kaplan (2008) find trade liberalization, financial development and the interaction between the two as positively contributing to economic growth in the long term. In some recent studies, the role of remittances, aid, foreign

direct investment besides financial development towards income generation have been underscored. Some of the recent studies conclude that these capital inflows are pertinent sources of growth for small and developing countries like India, Philippines, Fiji, Samoa, and Tonga (Jayaraman, Choong and Kumar 2011a; 2011b; 2010; 2009). However, contrary views on financial development having significant effect on growth are also noted in some countries like Pakistan and Vanuatu (Kumar 2011a, b).

Notably the financial sector in Pakistan has undergone various reforms over the years (Ahmed, Farooq and Jalil, 2009; World Bank 2009b). Various researches have positively associated financial development with economic growth (Anwar, Shabir and Hussain 2011; Atif et al. 2010; Muhammad and Umer 2010; Lal et al. 2009). However, some of these studies estimate growth equation without regard to capital and labour stock as fundamental contributing factors (Anwar, Shabir and Hussain 2011; Muhammad and Umer 2010; Khan 2008) while others use gross fixed capital formation, which is often used as investment, as a proxy for capital stock (Lal, et al. 2009). Ahmad and Malik (2009) in a panel study of 35 countries including Pakistan, find that financial development has a very small effect on per capita GDP. Jalil and Ma (2008) find that financial development has a significant effect on economic growth of Pakistan. However their study show a relatively high capital share (0.75) when credits to private sector is used as a proxy for financial development.

While evidence of growing number of electronic banking services in Pakistan (such as ATM, credit card, funds transfer, cheque payment, funds deposit, balance enquiry, utility bills, statement of account, remittances, draft, pay order, phone banking, and mobile banking) are highlighted (Sumra, et al, 2011), the actual link of some these services with remittance transfers and broader growth and development remains to be explored.

2.3 Trade Openness

Various trade policy measures have been identified by many researchers. Among the most notable ones are: (a) openness (measured by the ratio of trade or imports to GDP); (b) trade-flows adjusted for country characteristics; (c) tariffs; (d) non-tariff barriers; (e) informal and qualitative barriers; (d) composite indices; and (e) measures based on price outcomes Rose, 2004). In regards to trade openness, a study by Wacziarg and Welch (2008) show that trade liberalization has resulted in higher growth for many countries, and those which experienced negative or no effect were mainly due to political instability, unfavorable macroeconomic policies, or high protection barriers. Winters, McCulloch and McKay (2004) argue that trade liberalization, if managed properly, can be an important component of a pro-poor development strategy. Kar, Peker, and Kaplan (2008) using Turkey as a case study finds that trade liberalization, financial development and the interaction between the two have positively contributed to economic growth in the long term. However, trade liberalization being supportive of growth is largely influenced by an economy's trade profile which includes the intra-regional trade, relative dependence on imports, exports and trade with developed

markets, trade balance as a share of GDP and the time it takes to complete trade procedures (UNESCAP 2011).

2.4 Overseas Development Assistance

Aid (or ODA) has been a critical driver of growth, particularly for many developing countries where the inflow of aid is relatively stable (Chauvet and Guillaumont 2009). A number of articles have been composed to measure the impact of foreign aid on macroeconomic performance, many of which focusing on economic growth (Boone 1996; Robinson 1971; Rosenstein-Rodan 1961).

On the contrary, Neanidis and Varvarigos (2009) argue that aid can be harmful for recipient countries growth rate in cases where aid inflows are volatile. In similar vein, some other studies (Rao 2010; Werker, Ahmed and Cohen 2009; Shleifer 2009; Kumar 2011b) contend that aid does not have any significant effect on growth, particularly for the recipient countries which are relatively small in terms of population size and have poor economic institutions. Aid inflows to a recipient country is also affected by the recipient countries government performance, income level and the donors own interest (Chong and Gradstein 2008; Harrigan and Wang 2010). Subsequently, aid allocation and distribution to have impact on growth requires that recipient country governments to: incorporate grants in their budgetary decision-making, review the aid apparatus, and have an effective governance system and good policy environment in place (Sobhee and Nath 2010; Heckelman and Knack 2009; Bowman and Chand 2007; Rajan and Subramanian 2007; Burnside and Dollar, 2000).

3. Trends of Capital Inflows in selected countries of developing South Asia

Looking at the selected South Asian countries, between 1960 and 2000, Bhutan, Maldives and Nepal were the three largest recipients of aid relative to their GDPs, while India, Bangladesh and Pakistan were the largest recipients in absolute terms (Table 1). These trends took a shift from 2001 onwards Afghanistan recorded a substantial inflow of aid both in absolute and relative terms.

Table 1: ODA in USD millions (ODA as % GDP) of selected South Asian Countries[a]

Year	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan
1961-1970	34.6 (3.7)	n.d.	0.1 (0.2)	975.6 (2.3)	0.3 (3.9)	14.2 (2.2)	397.9 (6.9)
1971-1980	65.1 (2.6)	690.5 (5.3)	2.6 (2.5)	1225.1 (1.1)	4.7 (13.9)	66.2 (4.4)	621.8 (4.6)
1981-1990	45.7 (0.7)	1451.7 (6.5)	28.1 (13.4)	1750.9 (0.7)	15.1 (13.3)	297.2 (10.0)	957.5 (2.8)
1991-2000	220.4 (2.0)	1388.2 (3.8)	62.2 (21.3)	1864.4 (0.6)	31.7 (8.3)	404.0 (9.4)	976.9 (1.8)
2001-2005	1680.8 (32.2)	1214.7 (2.3)	75.9 (12.5)	1371.4 (0.2)	35.9 (5.1)	409.6 (6.2)	1630.2 (2.0)

2006	2955.8 (38.3)	1219.8 (2.0)	101.5 (11.3)	1383.0 (0.1)	37.5 (4.1)	526.6 (5.8)	2139.8 (1.7)
2007	3964.6 (40.7)	1514.6 (2.2)	89.8 (7.5)	1390.9 (0.1)	37.4 (3.5)	605.3 (5.9)	2243.8 (1.6)
2008	4865.1 (41.4)	2061.4 (2.6)	86.5 (6.9)	2113.8 (0.2)	54.3 (4.3)	696.6 (5.5)	1539.4 (0.9)
2009	6235.3 (47.0)	1226.9 (1.4)	125.4 (9.9)	2502.2 (0.2)	33.3 (2.5)	855.5 (6.6)	2780.6 (1.7)
2010	n.a.	n.a.	154.0 (10.2)	n.a.	n.a.	n.a.	2919.9 (1.7)

a. Figures in parentheses denote percentages to GDP; the interval years are averages calculated by the author; n.a. – no data available.
Source: World Bank (2011b)

In regards to remittance inflows, except for Maldives and Bhutan,[1] all other countries (Bangladesh, India, Nepal and Pakistan) recorded a growth in remittances. In countries like Bangladesh, Nepal and Pakistan, remittance inflow have surpassed the aid (Table 2)

Table 2: Remittances in USD millions (Remittances as % GDP) of selected South Asian Countries[a]

Year	**Bangladesh**	**Bhutan**	**India**	**Maldives**	**Nepal**	**Pakistan**
1971-1980	144.6 (1.0)	n.a.	1227.6 (0.9)	n.a.	n.a.	1228.5 (6.5)
1981-1990	617.8 (2.8)	n.a.	2447.9 (0.9)	1.7 (1.5)	n.a.	2323.6 (7.2)
1991-2000	1329.3 (3.4)	n.a.	9801.1 (2.3)	2.1 (0.5)	64.7 (1.4)	1426.4 (2.5)
2001-2005	3210.5 (6.0)	n.a.	18376.7 (3.0)	2.2 (0.3)	726.2 (10.4)	3440.8 (3.9)
2006	5427.5 (8.8)	0.2 (2.2)	28333.6 (3.0)	2.8 (0.3)	1453.2 (16.0)	5121.0 (4.0)
2007	6562.3 (9.6)	0.2 (2.9)	37216.8 (3.0)	3.0 (0.3)	1733.9 (16.9)	5998.0 (4.2)
2008	8940.6 (11.2)	0.3 (3.6)	49977.3 (4.1)	3.4 (0.3)	2727.1 (21.7)	7039.0 (4.3)
2009	10520.7 (11.8)	0.4 (4.8)	49468.4 (3.6)	3.7 (0.3)	2985.6 (23.1)	8717.0 (5.4)
2010	10851.9 (10.8)	0.3 (4.8)	54034.7 (3.1)	4.1 (0.3)	n.a.	9690.0 (5.5)

a. Figures in parentheses denote percentages to GDP the interval years are averages calculated by the author; n.a. – no data available.
Source: World Bank (2011b)

[1] No data was available on remittances for Afghanistan.

Pakistan, whose key indicators are given in Table 3, is second largest recipients of remittances as a percentage of GDP after Bangladesh and third largest in absolute terms after India and Bangladesh. Notably, unlike aid inflows, remittance inflows in Pakistan have continued to increase (Table 1-2), showing resilience and stability despite the economic recession heightened by the current global financial crisis and increasing food prices.

Table 3: Pakistan: Selected key indicators[a]

Aid as percentage of GDP (2006-2010)	1.5
Aid Per Capita in US$ (2005-2009)	12.5
Current Account Balance as percent of GDP (2006-2010)	-4.8
External balance as a percent of GDP (2006-2009)	29.5
Fiscal balance as percent of GDP (2006-2010)	-5.1
GDP Growth Rate in percent (2006-2010)	4.3
Inflation rate in percent (CPI) (2006-2010)	12.7
Land Area (Sq.km.'000)	770.9
Per Capita GDP (US$) Current Prices (2006-2010)	919.2
Population (million) (2010)	173.6
Population Growth as percent (2006-2010)	1.8
Rural population as percent of total population (2006-2010)	64
Workers' remittances as a percent of GDP (2006-2010)	4.7

a. Interval periods are averages calculated by the author.
Source: World Bank (2011b), ADB (2010)

Except of 2009 where Pakistan experienced a decline in merchandise export (-13.8%) and imports (-25.2%), on average, from 2001-2010, exports have grown by 9.8 percent and imports by 15.4 percent (Table 4). Similar trend has been noted in the intra-regional trade growth (14.2%), and intra-regional trade as a percent of total trade (32.9%). However, trade balance (exports less imports) as a share of GDP has been negative, averaging about -6.6 percent which is likely to impact short-term progress of the economy.

Table 4: Trade Profile

Trade Variable	**2001-2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**Average**
Merchandise Export growth	12.4	5.5	5.4	13.9	-13.8	22.8	9.8
Merchandise Import growth	19.8	17.6	9.3	29.9	-25.2	19.4	15.4
Intra-regional export growth	13.2	3.4	1.1	29.9	-7.3	n.a.	10.6
Intra-regional import growth	20.7	16.7	15.7	23.1	-19.8	n.a.	16.0
Intra-regional trade growth	18.0	13.0	12.0	25.0	-16.0	n.a.	14.2
Intra-regional export (% exports)	23.9	25.9	24.9	28.5	30.5	n.a.	25.3
Intra-regional Import (% imports)	36.4	36.9	39.2	37.2	39.9	n.a.	37.2
Intra-regional trade (% trade)	31.6	33.4	34.5	34.7	37	n.a.	32.9
Relative dependence on exports to developed markets	8.2	7.6	6.6	5.5	4.3	n.a.	7.3
Relative dependence on imports from developed markets	1.4	1.3	1.0	0.9	1.0	n.a.	1.3
Relative dependence on trade with developed markets	7.0	7.5	6.7	5.7	4.4	n.a.	6.6

Trade balance (% of GDP)	-3.5	-10.2	-10.3	-15.1	-8.8	n.a.	-6.6

Note: n.a. – no data available.

Source: UNESCAP (2011)

Pakistanis migrate to a number of places all around the globe. Nevertheless, among the top ten migrant destinations in 2010 included, among others, India, Saudi Arabia, UAE, United Kingdom and Qatar is in the top of the list (Table 5). Subsequently, the top ten remittance sending countries included among other countries, Saudi Arabia, UAE, UK, USA and India which were at the top of the list (Table 6).

Table 5: Migration from Pakistan to the rest of the world (2010)

Rank	Destination	Migrant	Rank	Destination	Migrant	Rank	Destination	Migrant
1	India	1,150,952	27	Japan	9,440	53	Chile	286
2	Saudi Arabia	1,005,873	28	Mozambique	9,227	54	Dominican Rep.	248
3	UAE	453,005	29	Ireland	8,598	55	Cambodia	198
4	UK	451,712	30	Belgium	8,236	56	Brazil	173
5	USA	288,011	31	Thailand	7,764	57	Sierra Leone	150
6	Qatar	250,649	32	Korea, Rep.	5,378	58	Cayman Is.	135
7	Other South	156,165	33	Sweden	4,493	59	Sri Lanka	133
8	Canada	155,159	34	Myanmar	3,602	60	Czech Rep.	94
9	Kuwait	122,878	35	Israel	3,461	61	Hungary	93
10	Oman	94,993	36	Austria	2,871	62	Luxembourg	89
11	Italy	64,161	37	Madagascar	2,728	63	Mexico	86
12	Bahrain	57,251	38	Switzerland	2,427	64	Panama	75
13	Spain	54,576	39	New Zealand	2,418	65	Ecuador	73
14	Germany	46,253	40	Tanzania	1,711	66	Poland	64
15	Jordan	26,776	41	Georgia	1,655	67	Slovak Rep.	43
16	Greece	24,537	42	Philippines	1,534	68	Bolivia	42
17	Singapore	22,932	43	Turkey	1,275	69	Iceland	28
18	Bangladesh	22,308	44	Portugal	1,210	70	Nicaragua	28
19	Australia	22,179	45	Egypt, Arab Rep.	853	71	Guatemala	20
20	Nepal	21,324	46	Brunei Darussalam	765	72	Lithuania	20
21	Norway	21,284	47	Finland	681	73	Peru	19
22	France	21,051	48	Iraq	588	74	Belize	18
23	Iran	18,720	49	Fiji	579	75	Paraguay	15
24	Malaysia	16,477	50	Cyprus	458	76	Venezuela	10
25	Denmark	13,562	51	Latvia	387	77	Uruguay	3
26	Netherlands	11,113	52	Sudan	350	**Total (in millions)**		**4.68**

Source: Migration and Remittances Factbook, 2011 (World Bank 2011c)

Table 6: Remittance inflows to Pakistan in USD millions (2010)

Rank	Country	Remittance	Rank	Country	Remittance	Rank	Country	Remittance
1	Saudi Arabia	1715.9	18	France	68.8	35	Israel	8.8
2	UAE	1353.6	19	Greece	65.5	36	Mozambique	7.8
3	UK	1326.3	20	Denmark	51.9	37	New Zealand	6.2
4	USA	985.9	21	Netherlands	38.9	38	Myanmar	3.0
5	India	978.0	22	Ireland	31.2	39	Portugal	2.7

6	Qatar	557.0	23	Jordan	31.2	40	Madagascar	2.3
7	Canada	485.9	24	Japan	29.6	41	Finland	2.3
8	Kuwait	305.5	25	Belgium	27.2	42	Turkey	1.9
9	Italy	188.7	26	Malaysia	23.1	43	Brunei Darussalam	1.9
10	Oman	161.5	27	Iran.	22.8	44	Georgia	1.7
11	Other South	154.5	28	Bangladesh	18.8	45	Philippines	1.5
12	Spain	151.7	29	Nepal	18.0	46	Tanzania	1.4
13	Germany	147.3	30	Sweden	14.9	47	Cyprus	1.2
14	Bahrain	119.4	31	Korea, Rep.	10.9	48	Egypt, Arab Rep.	0.9
15	Norway	100.4	32	Switzerland	10.4	49	Latvia	0.7
16	Australia	75.2	33	Austria	9.8	50	Fiji	0.7
17	Singapore	69.4	34	Thailand	9.1	51	Iraq	0.6
Total remittances for 2010								**9407.3**

Source: Migration and Remittances Factbook, 2011 (World Bank 2011c)

4. Data, Method and Results

4.1 Data and Method

The study looks into the nexus between remittances, trade openness, and per worker income for a 31-year period (1980-2010). The capital stock utilized for the study has been built up by a perpetual inventory method,[2] and the labour stock is calculated using average employment rate as a percent of annual population.[3]

Therefore, (i) remittances, expressed as percent of GDP (REM_t); (ii) trade (total of imports plus exports) as a percentage of GDP (TRD_t) which is used as a measure of trade openness (c.f. Dollar and Kraay, 2004), aid (ODA_t), and credit to private sector (FIN_t) which is used for financial development are used in the analysis besides per worker capital stock computed using perpetual inventory method. All variables are retrieved from the *World Development Indicators* and *Global Development Finance* database (World Bank 2011b). The variables are duly transformed into log-form for estimation. Using the conventional Cobb-Douglas production function, with the Hicks–neutral technical progress, the per worker output (y_t) is defined as:

$$y_t = A_t k_t^{\alpha}, \qquad 0 < \alpha < 1 \tag{1}$$

where A_t = stock of technology and k_t = capital per worker, and α is the capital share.
The Solow model assumes that the evolution of technology is given by

$$A_t = A_o e^{gT} \tag{2}$$

[2] Initial capital stock is assumed to be 1.5 times the real GDP at 1979 (in rupees) with a depreciation rate of 10 percent. Labour stock is estimated using the labour force.

[3] Average employment (1991-2009) of 48.4 percent was used to calculate the annual labour stock from the total population.

Where A_0 is the initial stock of knowledge and T is time.

It is also plausible to assume for our purpose that

$$A_t = f(T, TRDOPN_t, ODA_t, REM_t, FINDEV_t) \quad (3)$$

where TRD_t = trade openness as a percent of GDP, ODA_t = aid as a percent of GDP, REM_t = remittances as a percent of GDP, $FINDEV_t$ = financial development proxied by domestic credit to private sectors as a percent of GDP.

Therefore, rearranging (2) and (3), we get:

$$y_t = (A_o e^{gT} TRDOPN_t^{\mu} ODA_t^{\beta} REM_t^{\lambda} FINDEV_t^{\delta}) k_t^{\alpha} \quad (4)$$

4.2 Bounds Test Results

In the next step, we use the bounds testing procedure. The choice of this method is because the sample size is relatively small (1980-2010), that is 31 years of data. For small sample sizes, bounds testing approach under autoregressive distributed lag (ARDL) procedure developed by Pesaran (Pesaran, Shin and Smith 2001) is recommended. In this approach, although pre-testing of unit roots is not required and it is possible to investigate cointegration of the variables irrespective of their order, the test is carried out to ensure that all variables are stationary at most in their first differences. This is because bounds procedure require that variables need to be at most I(0) or I(1).The unit root test was carried out using the ADF and Phillips-Perron (PP) test statistics. From the test results, all variables are nonstationary in their levels and stationary (no unit root presence) in their first difference at least at 5 percent level of significance (Table 7).

Table 7: Results of Unit Root Tests[a]

Variable	ADF		Phillips and Perron	
	Level	1st Difference	Level	1st Difference
Ly_t	-0.31	-3.79**	-0.73	-3.78**
Lk_t	-3.12	-3.70*	-1.87	-3.62*[†]
$LTRDOPN_t$	-2.68	-6.59**	-2.73	-6.62**
$LODA_t$	-3.36	-6.22**	-3.34	-13.51**
$LREM_t$	-1.07	-4.76**	-1.04	-4.74**
$LFINDEV_t$	-2.91	-4.17**	-2.31	-4.14**

Notes: The ADF critical values are based on Mckinnon. The optimal lag is chosen on the basis of Akaike Information Criterion (AIC). The null hypothesis for both ADF and Phillips-Perron tests is a series has a unit root (non-stationary).[†]Lag length = 2, Spectral estimation method = AR spectral - OLS, with trend and intercept;**, and * denotes the rejection of the null hypothesis of unit root at 1% and 5% levels of significance respectively;

The next step is to examine the existence of a long run relationship between per worker output (y_t), capital per worker (k_t), trade openness ($TRDOPN_t$), aid (ODA_t), remittances (REM_t) and financial development ($FINDEV_t$) using the bounds test. The ARDL specification is given as follows:

$$\begin{aligned}\Delta Ly_t &= \beta_{10} + \beta_{11}Ly_{t-1} + \beta_{12}Lk_{t-1} + \beta_{13}LTRDOPN_{t-1} + \beta_{14}LODA_{t-1} + \beta_{15}LREM_{t-1} \\ &+ \beta_{16}LFINDEV_{t-1} + \beta_{17}TREND + \sum_{i=1}^{p}\alpha_{11i}\Delta Ly_{t-i} + \sum_{i=0}^{p}\alpha_{12i}\Delta Lk_{t-i} \\ &+ \sum_{i=0}^{p}\alpha_{13i}\Delta LTRDOPN_{t-i} + \sum_{i=0}^{p}\alpha_{14i}\Delta LODA_{t-i} + \sum_{i=0}^{p}\alpha_{15i}\Delta LREM_{t-i} + \sum_{i=0}^{p}\alpha_{16i}\Delta LFINDEV_{t-i} + \varepsilon_{1t}\end{aligned} \quad (6)$$

There are two steps in examining the relationship between Ly_t, Lk_t, $LTRDOPN_t$, $LODA_t$, $LREM_t$, and $LFINDEV_t$. First, Equations (6) is estimated by ordinary least squares techniques.[4] Second, the existence of a long-run relationship can be traced by imposing a restriction on all estimated coefficients of lagged level variables equating to zero. Hence, bounds test is based on the F-statistics (or Wald statistics) with the null hypothesis of no cointegration ($H_0 : \beta_{i1} = \beta_{i2} = \beta_{i3} = \beta_{i4} = \beta_{i5} = \beta_{i6} = 0$) against its alternative hypothesis of a long-run cointegration ($H_1 : \beta_{i1} \neq \beta_{i2} \neq \beta_{i3} \neq \beta_{i4} \neq \beta_{i5} \neq \beta_{i6} \neq 0$). The results of the bounds test are reported in Table 8, confirming the presence of a long run cointegration when only real output per worker (Ly_t) is set as the dependent variable. The computed F-statistics for Ly_t is 7.87 which is significant at 1 percent critical value upper bound.

Table 8: Results of Bound Tests

Dependent Variable		Computed F-statistic
Ly_t		7.87*
Lk_t		1.65
$LTRDOPN_t$		2.42
$LODA_t$		2.99
$LREM_t$		2.97
$LFINDEV_t$		3.70
	Pesaran, Shin and Smith (2001)	
Critical Value	Lower bound value	Upper bound value
1 %	3.93	5.23
5 %	3.12	4.25

Note: Critical values are obtained from Pesaran, Shin and Smith. (2001), Table CI.v: Case V with unrestricted intercept and unrestricted trend, p. 300. * indicates significance at 1% level

[4] To save space, we do not specify the other ARDL specifications where ΔLK_t,$\Delta LTRDOPN_t$, $\Delta LODA_t$, $\Delta LREM_t$ and $\Delta LFINDEV_t$ are specified as dependent variables however they are tested during the analysis and the results are given in Table 6.

Before pursuing to the long-run and short-run estimates, the ARDL estimates diagnostic test results were inspected (lower panel of Table 9). These test includes (a) Lagrange multiplier test of residual serial correlation; (b) Ramsey's RESET test using the square of the fitted values for correct functional form; (c) normality test based on a test of skewness and kurtosis of residuals; and (d) heteroscedasticity test based on the regression of squared residuals on squared fitted values – all of which indicated that the equation performed well as the disturbance terms are normally distributed and serially uncorrelated with homoscedasticity of residuals thus confirming the models have correct functional forms. Besides, the CUSUM and CUSUM of Squares graphs showed that the parameters of the models are relatively stable over time.[5]

4.3 Regression Results

The regression results (Table 9 below) shows that in long run, except for financial development, which has a negative and statistically not significant coefficient ($LFINDEV_t$ = -0.04), all other variables, i.e. per worker capital stock (Lk_t = 0.42), trade openness ($LTRDOPN_t$ = 0.15), aid ($LODA_t$ = 0.03) and remittances ($LREM_t$ = 0.03) are positive and statistically significant at least at 5 percent level of significance. These long-run positive effects are evidence of long-term rebalancing effect on income level as aid, remittances, trade openness, capital accumulation and sound (short-term) economic policies normalizes any short-term disequilibrium and negative effects on income. Therefore, evidently, trade openness, aid and remittances have contributed towards long-run income.

In the short run, growth in: per worker income (ΔLY_{t-1} = 1.48), per worker capital stock (ΔLK_t = 1.97) and aid ($\Delta LODA_t$ = 0.03) are positive and statistically significant contributor of growth in per worker income (ΔLy_t). On the other hand, growth in trade openness ($\Delta LTRDOPN_{t-1}$ = -0.21), remittances ($\Delta LREM_{t-1}$ = -0.10 and $\Delta LREM_{t-2}$ = -0.05), and financial development ($\Delta LFINDEV_t$ = -0.13) are negative and statistically significant. The latter short-run negative effects are plausibly due to: relatively long time taken to close trade deals and negotiations, greater dependency on imports at the expense of declining exports thus putting greater pressure on trade balance and trade budget in the short-run; large amount of remittances flowing through informal channels and used predominantly in consumption activities and later impacting investment (World Bank, 2009), ineffectiveness of financial sector service integration, high transaction costs which discourage greater flow of remittances through formal channels and consequently impinge on financial deepening and aggregate demand. The short-run effects from growth in aid, although marginal, has a positive effect on the growth level.

The capital share (Lk_t) is about 0.42 percent, which is slightly higher than the stylized value of one-third reported in some studies (Ertur and Koch 2007; Rao 2007). However, as argued by Bosworth

[5]The CUSUM and CUSUM of Squares graphs are not reported in order to conserve space. However, the results are available upon request.

and Collins (2008), developing countries tend to have a relatively higher share of per worker capital ratio. The error-correction term (ECT_{t-1} = -2.95), which is the measure of reconciling short-run with long-run equilibrium, has a correct (negative sign) and is significant at 1 percent level, indicating a speedy convergence to long-run equilibrium given the short-run dynamics.

Table 9: Dependent variable: Ly_t and ARDL(3,2,3,3,1,3)

Long-run coefficients				**Short-run coefficients**			
Regressor	Coefficient	t-ratio		Regressor	Coefficient	t-ratio	
Lk_t	0.42	5.269	***	ΔLY_{t-1}	1.48	2.270	**
$LTRDOPN_t$	0.15	3.434	**	ΔLY_{t-2}	0.80	1.747	NS
$LODA_t$	0.03	4.682	***	ΔLK_t	1.97	2.513	**
$LREM_t$	0.03	4.580	***	ΔLK_{t-1}	0.67	0.849	NS
$LFINDEV_t$	- 0.04	- 1.665	NS	$\Delta LTRDOPN_t$	0.08	1.243	NS
C_t	3.10	5.301	***	$\Delta LTRDOPN_{t-1}$	- 0.21	- 1.811	*
$TREND_t$	0.02	13.076	***	$\Delta LTRDOPN_{t-2}$	- 0.05	- 0.953	NS
				$\Delta LODA_t$	0.03	2.687	**
				$\Delta LREM_t$	- 0.04	- 1.707	NS
				$\Delta LREM_{t-1}$	- 0.10	- 4.064	***
				$\Delta LREM_{t-2}$	- 0.05	- 2.119	*
				$\Delta LFINDEV_t$	- 0.13	- 2.044	*
				$\Delta LFINDEV_{t-1}$	- 0.04	- 0.815	NS
				$\Delta LFINDEV_{t-2}$	0.01	0.150	NS
				C_t	9.15	3.678	***
				$TREND_t$	0.05	3.875	***
				ECT_{t-1}	- 2.95	- 3.511	***

Error Correction Representation & ARDL Statistics

R^2	=	0.931	$\bar{R}^2$	=	0.691
S.E. of Regression	=	0.010	F-statistics [F(16, 11)]	=	5.083
Mean of Dependent Variable	=	0.022	S.D. of Dependent Variable	=	0.018
Residual Sum of Squares	=	0.001	Equation Log-likelihood	=	110.592
Akaike Info. Criterion	=	88.592	Schwarz Bayesian Criterion	=	73.938
DW-statistic	=	2.540			

$ECM = Ly_t - 0.42Lk_t - 0.15LTRDOPN_t - 0.03LREM_t - 0.003LODA_t + 0.04LFINDEV_t - 3.1013C - 0.02TREND_t$

Diagnostic Tests from ARDL Specification

	LM Version	p-value	F Version	p-value
Serial Correlation	$\chi^2(1)$ = 4.9036	0.027‡	F(1,5) = 1.0616	0.350†
Functional Form	$\chi^2(1)$ = 0.1589	0.690†	F(1,5) = 0.0285	0.872†
Normality	$\chi^2(2)$ = 0.9616	0.618†	Not applicable	
Heteroscedasticity	$\chi^2(1)$ = 0.1430	0.705†	F(1, 26) = 0.1335	0.718†

*** - Significant at 1% level, ** - significant at 5% level and * - significant at 10% level.
†and ‡ Rejection of null hypothesis at 1% and 5% level of significance respectively. NS – not statistically significant

4.4 Granger Causality Results

The granger causality test (Table 10) shows a unidirectional causality running from per worker income to per worker capital stock ($Ly_t \rightarrow Lk_t$), per worker capital stock to remittance inflows ($Lk_t \rightarrow LREM_t$), trade openness to financial development ($LTRDOPN_t \rightarrow LFINDEV_t$), remittances to financial development ($LREM_t \rightarrow LFINDEV_t$) and financial development to per worker income ($LFINDEV_t \rightarrow Ly_t$). In other words, growth income Granger-cause capital accumulation and productivity, capital stock Granger-cause remittance inflows, remittance inflows Granger cause financial development and financial development Granger-cause growth income level.

Table 10: Pairwise Granger Causality F-Statistics with ECT_{t-1} from ARDL Bounds Test

I(1) Variables	**F-Statistics**						ECT (t-statistics)
	ΔLy_t	ΔLk_t	$\Delta LTRDOPN_t$	$\Delta LODA_t$	$\Delta LREM_t$	$\Delta LFINDEV_t$	
ΔLy_t	-	4.37970**	2.27850	1.58099	0.42376	1.40394	- 2.9514 (-3.5106) ***
ΔLk_t	0.54935	-	1.12456	0.22404	4.13829**	1.41084	- 0.4374 (-6.8081) ***
$\Delta LTRDOPN_t$	1.48182	0.69339	-	0.85739	0.88628	4.99487**	- 3.1672 (- 4.1528) ***
$\Delta LODA_t$	0.90932	0.90538	1.26246	-	0.96034	0.44634	- 1.3691 (-1.9066) *
$\Delta LREM_t$	1.58874	1.01655	0.59071	1.55654	-	2.71630*	- 0.4427 (- 0.7089)
$\Delta LFINDEV_t$	4.81305**	2.35987	2.14102	0.55097	0.70809	-	- 0.7848 (-2.3011) **

*, ** and *** refers to 10% , 5% and 1% level of significance respectively.

5. Conclusions and some policy discussions

We used the ARDL bounds approach to analyze the effectiveness of trade openness, aid, remittances, and financial development using the augmented Solow model. Our results support aid, trade and remittances as catalyst for long-run growth of income. Underscoring the importance of capital productivity and capital stock accumulation, we therefore emphasize the need to manage and encourage greater inflow of traditional capital such as aid and the contemporary capital like remittances, besides promoting greater trade liberalization and outward looking export strategy.

A critical aspect of growth of Pakistan is boosting capital productivity and accumulation. This will be possible through private sector inclusion in driving economic activity. Subsequently, there is need for nurturing investor confidence, providing access to finance for investment and adapting the right mix of capital-labor in the production process is pivotal. Informal sectors like working from home-based work, waste picking, and construction among others, contribute significantly towards employment and helping the poor and marginalized groups (Horn, 2010). Therefore, attention needs to be given to informal sectors with a view towards promoting their growth with appropriate regulations and institutional structures that will advocate.

Besides public-private partnership in ensuring critical and targeted sectors are developed, the role of small and medium enterprises (SMEs) engaged in exports of goods and services need to be incentivized (World Bank 2009a, b) since SMEs contribute 13 percent towards the GDP, about 30 percent towards the total exports, comprise close to 98 percent of total enterprises, and employs about 79 percent of the workforce of the economy (UNESCAP 2011). Improving institutional linkages, a deeper and wider economic exchange and building confidence with trade partners would also minimize the spending on defense (Lama 2007).

The need to focus on labor mobility under the mode 4 of the temporary movement of natural persons (TMNP) need not be taken lightly. Most of the workers from Pakistan and India migrate as health workers in developed countries. Therefore, encouraging and engaging remittance senders and recipients who have a track record of sending remittances by providing attractive investment opportunities for them back home would further boost prospects for remittance inflows. Migration for short-term employment abroad with least transaction costs for workers and employers can be further explored and bilateral agreements sketched out to create a win-win outcome. Furthermore, pivotal to long-term development is the need for an overarching regional convention on migration by various governmental and non-governmental sources at a global level which will strengthen the operational aspects, protect migrants from being exploited and address some of the burgeoning problem of irregular-illegal migration (Lama 2007).

The above analysis also advocates the need for strengthening partnership at regional and international fronts to bolster aid inflows from donor agencies, the need to explore and close trade deals with particular reference to labor mobility for short-term and long-term employment opportunities thus subsequently improving remittance inflows. Moreover, expediting better trade deals possibly with economies within the South Asian region (say India) for greater export orientation and exploiting comparative advantages in production and trade (such as textiles, garments, cross-border power and energy trade) would move the economy further out in the production frontier.

Moreover, inter-dependency through regional integration will minimize vulnerabilities, provide support in times of crisis, and provide reliable donor support for major internal projects. Further, it is in the interest of the government to explore markets for cheaper goods and services whilst expanding its positive list of imports without minimizing or compromising qualities, diversifying the export markets in order to reduce trade volatility, minimize adverse imbalances in trade which often results from maintaining artificial trade barriers, and minimize losses (or capture gains) on foreign exchange from cost-effect trade deals (Lama, 2007) (the gains realized may be channeled towards critical areas such as health, education and rural development).

Another important sector that needs serious attention is the financial services. Financial sector in Pakistan consists of regulators, commercial banks, development finance institutions and stock markets (Qayyum n.d.) which have undergone some significant restructuring and reform to expedite technical (allocative) efficiency and productivity within the sector. However, the reform has a long way to go and the financial system is not so inclusive in terms of providing affordable and accessible services to the poor and the middle class. Therefore, the role of the State Bank of Pakistan and the Security and Exchange Commission of Pakistan (SECP) need to look in areas like: expediting any leftover reform and restructuring programs to improve banking efficiency; encouraging competition and innovation among financial institutions; monitoring and regulating service charges, particularly in view to promoting greater remittance; and technology inclusion (wireless mobile network operations) besides banking systems to ensure low cost money transfer (Merritt, 2010). Further, the use of remittances can be maximized when initiatives such a micro-savings and small business initiatives are extended to the remittance recipients with attractive deals.

6. References

Asian Development Bank (ADB) (2010) *Fact Sheet,* Manila: Asian Development Bank. <http://www.adb.org/Documents/Fact_Sheets/PAK.pdf> [Accessed: 17October, 2011]

ADB. 2009. *Asian Development Outlook 2009 Rebalancing Asia's growth*. ADB: Manila: Asian Development Bank.

Ahmed, V., G. Sugiyarto and S. Jha. 2011. "Remittances and Household Welfare: A Case Study of Pakistan." *Journal of Social and Policy Sciences* 1(1): 125-190.

Ahmed, J., K. Zaman and I. Shah. 2011. "An empirical analysis of remittances-growth nexus in Pakistan using bounds testing approach." *Journal of Economics & International Finance* 3(3): 176-186.

Ahmed, U., S. Farooq and H. Jalil. 2009. "'Efficiency Dynamics and Financial Reforms: Case Study of Pakistani Banks." *International Research Journal of Finance and Economics* (25): 172-182. <http://www.eurojournals.com/irjfe_25_13.pdf> [Accessed: 24 October, 2011]

Ahmad, E. and A. Malik. 2009. "Financial Sector Development and Economic Growth: An Empirical Analysis of Developing Countries." *Journal of Economic Cooperation and Development* 30(1): 17-40.

Akram, N., I., Padda, M. Khan, and M. Husnain. 2011. "'Fiscal Situation in Pakistan and its consequences for Economic Growth and Poverty." *American International Journal of Contemporary Research* 1(1): 94-111.

Anwar, S., G. Shabir and Z. Hussain. 2011. "Relationship between Financial Sector Development and Sustainable Economic Development: Time Series Analysis from Pakistan." *International Journal of Economics and Finance* 13(1): 262-270.

Atif, R., A., Jaddon, K. Zaman, A. Ismail and R. Seemab. 2010. "Trade Liberalization, Financial Development and Economic Growth: Evidence from Pakistan (1980-2009)." *Journal of International Academic Research* 10(2): 30-37.

Beck, T., R., Levine and N. Loayza. 2000. "Finance and the sources of growth." *Journal of Financial Economics* 58(1-2): 261-300.

Boone, P. 1996. "Politics and the effectiveness of foreign aid." *European Economic Review* 40(2): 289-329.

Bosworth, B. and S. Collins. 2008. "Accounting for Growth: Comparing China and India." *Journal of Economic Perspectives* 22(1): 45-66.

Bowman, C. and S. Chand. 2007. "Size Matters The Impact of Aid on Institutions." Research Paper No. 2007/25. UNU-WIDER.<http://www.wider.unu.edu/stc/repec/pdfs/rp2007/rp2007-25.pdf> [Accessed: 14 July, 2010]

Browne, R. and G. Leeves. 2007. "Impacts of International Migration and Remittances on Source Country Household Incomes in Small Island States: Fiji and Tonga." Discussion Paper No. 347. School of Economics, University of Queensland, Australia.

Browne, C. 2006. "Remittances and migration." In C. Browne (ed.)*, Pacific Island Economies*. Washington, D.C.: International Monetary Fund.

Buch, M. and A. Kuckulenz. 2010. "Worker Remittances and Capital Flows to Developing Countries." *International Migration* 48(5): 89-117.

Burnside, C. and D. Dollar. 2000. "Aid, Policies, and Growth." *American Economic Review* 90(4): 847-868.

Creane, S., R. Goyal, A. Mobarak and R. Sab. 2004. "Financial Sector Development in the Middle East and North Africa." IMF Working Paper WP/04/201. IMF. <http://faculty.som.yale.edu/mushfiqmobarak/financial%20sector%20development.pdf> [Accessed: 29 November, 2011].

Chami, R., D. Hakura and P. Montiel. 2009. "'Remittances: An Automatic Output Stabilizer?" IMF Working Paper WP/09/91. IMF. <http://www.imf.org/external/pubs/ft/wp/2009/wp0991.pdf> [Accessed: 17 October, 2011]

Chami, R., T. Cosimano, and M. Gapen. 2006. "Beware of emigrants bearing gifts: optimal fiscal and monetary policy in the presence of remittances." IMF Working Paper WP/06/61. Washington, D.C.: International Monetary Fund.

Chauvet, L. and P. Guillaumont. 2009. "Aid, Volatility, and Growth Again: When Aid Volatility Matters and When it Does Not." *Review of Development Economics* 13(3): 452-463.

Chong, A. and M. Gradstein. 2008. "What determines foreign aid? The donors' perspective." *Journal of Development Economics* 87(1): 1-13.

De Haas, H. 2005. "International Migration, Remittances and Development: myths and facts." *Third World Quarterly* 26(8): 1269-1284.

Dollar, D. and A. Kraay. 2004. "Trade, Growth and Poverty." *Economic Journal* 114(493): F22-F49

Ertur, C.,and W. Koch. 2007. "Growth, Technological Interdependence and spatial externalities: Theory and Evidence." *Journal of Applied Econometrics* 22(6): 1033-1062.

Feroze, A. and A. Basharat. 2011. "Security Analysis of Mobile Banking Services in Pakistan." *Asian Transactions on Fundamentals of Electronics, Communication & Multimedia* 1(3): 13-17.

Harrigan, J. and C. Wang. 2010. "A New Approach to the Allocation of Aid among Developing Countries: Is the USA different from the Rest?" *World Development* 39(8): 1281-1293.

Heckelman, J. and S. Knack. 2009. "Aid, Freedom and Growth." *Contemporary Economic Policy* 27(1): 46-53.

Horn, Z. 2010. "No cushion to fall back on: The impact of the global recession on women in the informal economy in four Asian countries." In Bauer, A. and M. Thant (eds.), Poverty and Sustainable Development in Asia – Impacts and Responses to the Global Economic Crisis. ADB: Manila: Asian Development Bank.

Irving J., S. Mohapatra and D. Ratha. 2010. "Migrant Remittance Flows: Findings from a Global Survey of Central Banks." World Bank Working Paper No: 194/2010. Washington, D.C.: World Bank.

Jalil, A. and Y. Ma. 2008. "Financial Development and Economic Growth: Time Series Evidence from Pakistan and China." *Journal of Economic Cooperation* 29(2): 29-68.

Jayaraman, T.K., C.K. Choong and R. Kumar. 2011a. "Role of Remittances in India's Economic Growth." *Global Business and Economics Review* (forthcoming). <http://www.inderscience.com/browse/index.php?journalID=168&action=coming> [Accessed: 20 October, 2011]

Jayaraman, T.K., C.K. Choong and R. Kumar. 2011b. "Role of remittances in small Pacific Island economies: an empirical study of Fiji" *International Journal of Economics and Business Research* 3(5): 526-542.

Jayaraman, T.K., C.K. Choong and R. Kumar. 2010. "Role of remittances in Tongan economy." *Migration Letters* 7(2): 224-230.

Jayaraman, T.K., C.K. Choong and R. Kumar. 2009. "Role of Remittances in Economic Growth in Pacific Island Countries: A Study of Samoa." *Perspectives on Global Development and Technology* 8(4): 611-627.

Kakar, Z., A. Khilji and M. Khan. 2011. "Globalization and Economic Growth: Evidence from Pakistan." *Economica* 7(3): 208-217.

Kar, M., O. Peker and M. Kaplan. 2008. "Trade Liberalization, Financial Development and Economic Growth in the Long Term: The Case of Turkey" *South East European Journal of Economics and Business* 3(2): 25-38.

Khan, M. 2008. "Financial Development and Economic Growth in Pakistan: Evidence Based on Autoregressive Distributed Lag (ARDL) Approach." *South Asia Economic Journal* 9(2): 375-391.

King, R.G., and R. Levine. 1993. "Finance and Growth: Schumpeter Might Be Right." *The Quarterly Journal of Economics* 108(3): 717-737.

Kock, U. and Y. Sun. 2011. "Remittances in Pakistan-Why have they gone up, and why aren't they coming down?", IMF Working Papers WP/11/200. IMF. <http://www.imf.org/external/pubs/ft/wp/2011/wp11200.pdf> [Accessed: 17 October, 2011]

Kumar, R.R. 2011a. "Do Remittances, Exports and Financial Development Matter for Economic Growth? A Case Study of Pakistan using Bounds Approach." *Journal of International Academic Research* 11(1): 18-27.

Kumar, R.R. 2011b. "Role of Trade Openness, Remittances, Capital Inflows, and Financial Development in Vanuatu." In: Sirkeci, I., Cohen, J.H., Ratha, D. (eds.), *Migration and Remittances during the Global Financial Crisis and Beyond*. Washington DC; World Bank (forthcoming).

Lal, I., D. Sulaiman, A. Hussain and A. Jalil. 2009. "Effects of financial Structure and Financial Development on Economic Growth: A Case Study of Pakistan." *European Journal of Social Science* 11(3): 419-427.

Lama, M.P. 2007. "India Pakistan Relations: Creating Stakeholders and Constituencies for Interdependence." In: Prakash, N. (ed.), *Rising India: Friends and Foes*. Lancer Publishers, New Delhi, India. <http://www.icpsnet.org/adm/pdf/1195033200.pdf> [Accessed: 24 October, 2011]

Levine, R., N. Loayza and T. Beck. 2000. "Financial Intermediation and Growth: Causality and Causes." *Journal of Monetary Economics* 46(1): 31-77.

Maclellan, N. and P. Mares. 2005. "Remittances and labour mobility in the Pacific - A working paper on seasonal work programs in Australia for Pacific Islanders." Melbourne, Swinburne Institute for Social Research. <http://researchbank.swinburne.edu.au/vital/access/manager/Repository/swin:5609> [Accessed on 24 August 2009].

Merritt, C. 2010. "'Mobile Money Transfer Services: The Next Phase in the Evolution in Person-to-Person Payments." Retail Payments Risk Forum White Paper. Federal Reserve Bank of Atlanta, USA. <http://www.frbatlanta.org/documents/rprf/rprf_resources/wp_0810.pdf> [Accessed: 27 October, 2011]

Muhammad S.D., and M. Umer, M. 2010. "The Bound Testing Approach for Co-Intergration and Causality between Financial Development and Economic Growth in Case of Pakistan." *European Journal of Social Sciences* 13(4): 525-531.

Neanidis, K.C. and D. Varvarigos. 2009. "The allocation of volatile aid and economic growth: Theory and evidence." *European Journal of Political Economy* 25(4): 447-462.

Pesaran, M.H., Y. Shin and R. Smith. 2001. "Bounds testing approaches to the analysis of level relationships." *Journal of Applied Econometrics* 16(3): 289-326.

Qayyum, A. n.d. "Financial Sector Reforms and the Efficiency of Banking in Pakistan." Pakistan Institute of Development Economics (PIDE), Islamabad, Pakistan. <http://www.saneinetwork.net/pdf/sanei_viii/11.pdf> [Accessed: 24 October, 2011]

Rajan, R. and A. Subramanian. 2007. "Does Aid Affect Governance?" *American Economic Review* 97(2): 322-327.

Rao, B.B. 2010. "Estimates of the steady state growth rates for selected Asian countries with an extended Solow Model." *Economic Modelling* 27(1): 46-53.

Rao, B.B. 2007. "Estimating short and long-run relationships: a guide for the applied economist." *Applied Economics* 39(13): 1613-1625

Ratha, D. 2007. *Leveraging Remittances for Development.* Migration Policy Institute. Washington D.C.: World Bank

Ratha, D. and J. Riedberg. 2005. *On Reducing Remittance Costs.* Washington D.C.: World Bank

Robinson, S. 1971. "Sources of Growth in Less Developed Countries: A Cross-Section Study." *Quarterly Journal of Economics* 85(3): 391-408.

Rose, A.K. 2004. "Do WTO members have more liberal trade policy?" *Journal of Internal Economics* 63(2): 209-235.

Rosenstein-Rodan, P.N. 1961. "International Aid for Underdeveloped." *Review of Economics and Statistics* 43(2): 107-138.

Sen, A. 1999. *Development as Freedom.* New York: Anchor Books

Shabaz, M., F. Islam and N. Aamir. 2011. "'Is Devaluation Contractionary? Empirical Evidence for Pakistan." MPRA Paper No. 32520. MPRA. <http://mpra.ub.uni-muenchen.de/32520/> [Accessed: 17 October, 2011].

Shleifer, A. 2009. "Peter Bauer and the Failure of Foreign Aid." *Cato Journal* 29(3): 379-390.

Siddiqui, R. and A. Kemal. 2006. "Remittances, Trade Liberalization, and Poverty in Pakistan: The Role of Excluded Variables in Poverty Change Analysis." PIDE Working Papers 2006:1. Pakistan.

Sobhee, S.K. and S. Nath. 2010. "Is Donors' Concern About the Fungibility of Foreign Aid Justified? A Panel Data Analysis." *Journal of Developing Areas* 43(2): 299-311.

Solow, R.M. 1956. "A Contribution to the Theory of Economic Growth." *Quarterly Journal of Economics* 70(1): 65-94.

Suleri, A.Q. and K. Savage. 2006. *Remittances in crises: a case study from Pakistan*. Overseas Development Institute (ODI), U.K.

Sumra, S.H., M. Manzoor, H. Sumra and M. Abbas. 2011. "The Impact of E-Banking on the Profitability of Banks: A Study of Pakistani Banks." *Journal of Public Administration and Governance* 1(1): 31-38.

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). 2011. *Asia-Pacific Trade and Investment Report 2011 - Post-crisis Trade and Investment Opportunities*. Bangkok: UNESCAP.

UNESCAP. 2010. *Economic and Social Survey 2010*, Bangkok: UNESCAP.

Wacziarg, R. and K Welch. 2008. "Trade Liberalization and Growth: New Evidence." *The World Bank Economic Review* 22(2): 187-231.

Werker, E., F. Ahmed and C. Cohen. 2009. "How Is Foreign Aid Spent? Evidence from a Natural Experiment." *American Economic Journal: Macroeconomics* 1(2): 225-244.

Winters, A.L, N. McCulloch and A. McKay. 2004. "Trade Liberalization and Poverty: The Evidence So Far." *Journal of Economic Literature* 42(1): 72-115.

World Bank. 2011a. *Migration and Development Brief No. 16*. Washington D.C.: World Bank <http://siteresources.worldbank.org/EXTDECPROSPECTS/Resources/476882-1157133580628/MigrationandDevelopmentBrief16.pdf> [Accessed: 8 August, 2011]

World Bank. 2011b. W*DI Online Word Development Indicators*. Washington D.C.: World Bank. <http://databank.worldbank.org/ddp/home.do?Step=1&id=4#> [Accessed: 8 August, 2011]

World Bank. 2011c. *Migration and Remittances Factbook 2011*. Washington D.C.: World Bank. <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21352016~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html> [Accessed: 27 October, 2011].

World Bank. 2009a. *Pakistan Economic Update September 2009*. Washington D.C.: World Bank. <http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1241610364594/PakistanEconomicUpdateOctober2009.pdf> [Accessed: 22 January, 2011]

World Bank. 2009b. *Pakistan Bringing Finance to Poor*. Washington D.C.: World Bank, <http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1241610364594/6097548-1242706658430/BringingFinancePakistanPoorMay192009.pdf> [Accessed: 23 January, 2011]