



The PAKISTAN DEVELOPMENT REVIEW

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Reverse Capital Flight to Pakistan: Analysis of Evidence

ZAFAR MAHMOOD

Capital flight from Pakistan has remained one of the major concerns of policy makers, mainly because of the nature of private capital outflows; that is, whereas private citizens hold a large amount of foreign assets, the country's burden of foreign debt continues to grow. Capital flight over and above normal levels raises serious concerns. Capital flight induces foreign donors to demand repatriation of private capital held abroad in return for their support. Previous studies have largely ignored the fact that illegal capital flow is a two way phenomenon. Private citizens' foreign capital is brought into the country when time is opportune. Using the measure of trade misinvoicing, this paper finds that between 1972 and 2013 the (net) reverse capital flight in Pakistan was of the order of about \$30 billion. To explain this phenomenon, the paper examines the evolution of Pakistan's exchange and trade control regimes in four phases. It is found that reversed capital flight increased during liberal regimes when both current and capital accounts were liberalised, meaning that in the absence of strong regulatory bodies, private citizens could manipulate trade and exchange laws. The paper offers some specific policy recommendations to restrict cross-border movement of capital through illegal channels.

JEL Classification: F21, F32, H26

1. INTRODUCTION

Capital flight from Pakistan has been one of the main concerns for planners and policy-makers. Their worries come from the “paradoxical” nature of private capital outflows: private citizens hold large foreign assets while the country is in crisis burdened under growing foreign debt. Any abnormal capital flight when the position of foreign exchange reserves is unstable raises serious concerns for national welfare loss.¹ Evidence on capital flight often induces foreign donors to impose conditions for repatriation of private capital held abroad.

The impetus for capital flight from a country represents a demand for foreign exchange that arises due to portfolio reasons, excessive taxation, expectations of a major exchange rate realignment, macroeconomic (large fiscal and current account deficit) and political instability, and, of course, various foreign pull factors. Illegal outflow of capital

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¹Interestingly, whereas capital flight activates idle capital, it also deteriorates income distribution in the country. Moreover, it deprives the government of tax revenues and foreign exchange earnings via workers' remittances that are leaked to fund both way movement of illegal capital.

is often channelled through remittances transferred by such means as Hundi/Hawala system, export under-invoicing, import over-invoicing, and smuggling of precious metals, antiques, etc.

Interestingly, illegal (unrecorded) capital flow is a two-way phenomenon. The capital held abroad by private citizens is brought into the country at opportune times. Policy-makers have only recently taken notice of this problem and decided to reverse capital flight that might be taking place through workers' remittances. Reverse capital flight takes place when imports are under-invoiced and exports are over-invoiced. What are the reasons for reverse capital flight? The answer is three-fold. First, it helps whitening the black money that earlier flew from the country. Second, it facilitates evasion of taxes on imports, and realises superfluous rebates and refunds on exports. Third, it assists in the circumvention of non-tariff measures (NTMs) on imports.

Given the nature of trade misinvoicing in Pakistan, it is permitting the two way movement of illegal capital. In this situation an adjustment of unrecorded private capital flows (arising from short-term capital movements or on payments flows that do not show directly in the recorded statistics) with capital flows arising from trade misinvoicing becomes essential to have a complete account of illegal capital flows in Pakistan.

Previous studies [Khan (1993) and Sarmad and Mahmood (1993)] focus only on the problem of capital flight from Pakistan, while Mahmood and Nazli (1999), covering the period 1972 to 1994, find evidence of reverse capital flight to Pakistan but stop short of analysing the phenomenon due to changes in trade and exchange control regimes.² The present paper shows that private citizens' motives in evading trade taxes and circumventing trade controls are to build foreign assets in Pakistan. Thus, net reverse capital flight is indeed taking place instead of net capital flight from the country.

Why does reverse capital flight take place? This is mainly because most of the reverse capital ends up in the informal part of the economy, where the owners of illegal capital easily avoid domestic taxes. Owners of this capital under-invoice import of goods with high customs duties to bring back their illegal capital. For this purpose, they use their foreign based capital or foreign exchange bought through Hundi/Hawala companies. To further hide their illegal capital from the radar of domestic tax authorities, they invest the capital, brought home in the guise of imported goods, in the informal sector. Interestingly, this happens despite the fact that owners of illegal capital can easily bring back the capital by remitting through the formal banking channels. This is so because by bringing back the illegal capital through under-invoiced imports they are not only able to evade import taxes but can also keep the illegal capital hidden from authorities by investing it in the informal sector.

Concomitantly, Section 111(4) of the Income Tax Ordinance, 2001, provides immunity from probe to foreign remittances coming through formal banking channels. This in effect encourages money laundering and round-tripping. It works like a permanent amnesty scheme to bring back capital residing outside the country. Since no questions are asked about the source of capital and no taxes are imposed, reverse capital

²It is important to note that with trade liberalisation, in the absence of effective regulatory institutions, opportunities to misinvoice trade increases, which accommodate two ways illegal capital flows. It may be noticed that the arrest of some owners of the foreign exchange companies in 2008 corroborate the view that the central bank's policy on capital account liberalisation is not implemented in letters and spirit, and thus other means, including trade account, are being utilised to illegally transfer capital across borders.

inflow through remittances is mostly used in the formal economy or kept in foreign currency accounts. One reason for the recent surge in remittances, largely believed to be the reverse capital, is the adoption of stringent money laundering laws and regulations by the international community.

The paper covers the period 1972 to 2013. During this period Pakistan passed through different exchange rate regimes including fixed exchange rate, managed floating exchange rate, multiple exchange rate, dirty float and flexible exchange rate. On the trade policy front, during this period Pakistan implemented various reform programmes, in particular the drastic cut in tariff rates and NTMs, and incentives for export promotion. Moreover, Pakistan allowed full convertibility on the current account along with partial convertibility on the capital account.³ It would be useful to analyse the illicit capital flows by using the latest available data, in terms of the link between capital flight and shifts in exchange rate and trade policy regimes.

The rest of the paper is divided into seven sections. Section 2 provides an overview of exchange rate and trade regimes in Pakistan. Section 3 discusses the methodology to identify and measure the size of trade misinvoicing. The approaches to estimate capital flight are discussed in Section 4. Section 5 provides the adjustment mechanism of illegal capital flows with trade misinvoicing. Section 6 reports data and data sources. Estimates of illicit capital flows and discussion on the findings are reported in Section 7. Finally, Section 8 concludes the paper and offers some policy recommendations.

2. EXCHANGE RATE AND TRADE REGIMES

To explain the trends in illicit capital flows, it would be useful to demarcate in an analytically meaningful manner the evolution of Pakistan's exchange and trade control regimes. In this context, we delineate four phases:

2.1. Phase I (1972-1981): Fixed Exchange Rate Regime and Partial Lifting of Trade Controls

During this phase, Pakistan maintained the fixed exchange rate policy. On 11th May 1972, the Pakistani currency was devalued by 56 percent, which was appreciated by 11 percent in February 1973 soon after the US dollar was devalued by 10 percent. The exchange rate fixed in 1973 was maintained upto 7th January 1982. Upon devaluation of the currency, the trade control system was overhauled on the lines recommended by the International Monetary Fund (IMF). The export bonus scheme that introduced a multiple exchange rate system throughout the 1960s was abolished, tariffs were reduced on intermediate and capital goods, and the degree of *cascading* in the tariff structure was lowered. With the exception of tax rebates and export financing, all export subsidies were withdrawn. Instead, export duties were introduced on a number of intermediate inputs to promote high value added industries. These were eliminated subsequently, however. In

³The very fact that trade misinvoicing takes place in Pakistan, to move capital in and out of the country, explains that the capital account *de facto* is not fully convertible. Thus, those who wish to take their money out or bring in get indulged into trade misinvoicing activities because of certain controls that are still in place on the movement of capital.

addition to these policy measures, the import licensing system was simplified; all the permissible imports were placed either on the “Free List” or the “Tied List”. During this phase both current and capital accounts remained substantially restricted.

The impact of these liberalisation measures on the economy was short lived due to rising domestic inflation. The rupee once again became overvalued, especially after the appreciation of the US dollar to which the currency was pegged. Instead of devaluation of the rupee, the government preferred to use export subsidies and quantitative restrictions on imports to manage the trade balance. Licensing procedures were tightened again. Differential import duty rates were imposed for commercial and industrial users. All of these measures further increased the anti-export bias in government policies.

2.2. Phase II (1982-1998): Managed Floating Exchange Rate and Liberalisation Initiatives

The government fine-tuned the overvaluation of the currency by adopting the managed floating exchange rate on 8th January 1982 and linking the currency to a basket of 16 currencies of its major trading partners. The value of the currency started declining after the adoption of the new exchange rate regime. Since 1991, some new measures to reform the exchange and payments system were introduced that included: (i) resident Pakistanis were allowed to maintain foreign currency accounts like non-residents to attract funds held abroad by private citizens, legally or illegally; (ii) restrictions on holding foreign currency and on foreign exchange allowances for travel were removed; and (iii) rules governing private sector’s foreign borrowing were liberalised, especially where no government guarantee was required. In addition, a host of other restrictions on foreign payments were removed (e.g., for the purpose of education, royalty payment, foreign advertisement, and professional institutions’ membership).

During this phase the import tariff structure was significantly rationalised: maximum tariff rate declined from 350 percent in 1982 to 45 percent in 1998. Import licensing was eliminated with the exception of a small number of items remaining on the negative and restricted lists; these were further reduced gradually. Non-tariff barriers were reduced except for security, health, religious and reciprocity reasons. Some new export promotion measures were also introduced such as: (i) streamlining of schemes of duty-drawbacks, bonded warehousing and export credit; (ii) garment units in export processing zones were allowed to buy textile export quotas from the Pakistani market; (iii) foreign companies were allowed to export goods; and (iv) improvements were made in the institutional arrangements for quality control, marketing and training of skilled manpower.

In 1994, full convertibility of Pak-Rupee was introduced for current account transactions as part of the trade liberalisation programme, while a cautious approach was adopted for the convertibility of the capital account. The central bank implemented partial convertibility of the capital account by allowing foreign exchange companies to operate in Pakistan and the corporate sector to obtain foreign equity. Pak-Rupee was also made fully convertible for some capital account transactions, e.g., foreign portfolio investment in the country. Aside from allowing 100 percent foreign equity participation, no restrictions were in place on the repatriation of capital, profits, royalty, etc.

2.3. Phase III (July 1998-July 2000): Multiple Exchange Rate and Dirty Float Regimes

This phase was marked with political instability in the country and economic sanctions by western countries against the nuclear test by Pakistan. The government froze the foreign currency accounts in order to preserve its official foreign exchange reserves. These steps eroded the confidence of the private sector. Whatever gains had been made on the current and capital accounts through liberalisation in the earlier periods were virtually reversed. To counter the crisis, government adopted the system of multiple exchange rates consisting of an official rate (pegged to US dollar), a floating inter-bank rate (FIBR), and a composite rate (combining official and FIBR rates). On May 1999, Pakistan adopted the system of dirty floating exchange rate and the currency was pegged to the US dollar by removing the multiple exchange rate system. The exchange rate was then defended within narrow bands (margins) till July 2000.

Despite economic and political difficulties, Pakistan resisted the protectionist pressure from domestic interest groups and continued with market-based reforms, including a more liberal policy for imports and foreign investment. Besides, the maximum tariff rate came down to 30 percent from 45 percent in 1998. The scope of export prohibitions was reduced and export subsidies were linked with export-performance.

2.4. Phase IV (July 2000-2013): Flexible Exchange Rate Regime and Trade Liberalisation

Since 20th July 2000, Pakistan has been following a flexible exchange rate regime. Nevertheless, the *de jure* exchange rate arrangement is managed float without fixing pre-determined paths for the exchange rate. The central bank's interventions are limited to moderating and preventing excessive fluctuations in the exchange rate. The central bank intervenes in the market using the US dollar. Foreign exchange controls and restrictions are now minimal. Current account transactions are now unrestricted except for occasionally imposed limits on advance payments for some imports. Foreign investors can now freely bring in and take out their capital, profits, dividends, royalties, etc. IMF (2010) classifies Pakistan's exchange rate regime as a *de facto* conventional peg to the US dollar within a narrow band.

Pakistan has reduced tariff rates across the board. Between 2003 and 2007, the maximum tariff rate was 25 percent. However, due to rising trade deficit, the maximum tariff was raised to 35 percent in 2008. In the 2012-2013 budget, the government reduced maximum tariff rate to 30 percent and simplified the tariff structure by reducing the number of tariff slabs from 8 to 7. Quantitative restrictions and other direct state interventions relating to trade have been drastically reduced. Ordinary customs duties are now the primary trade policy instrument along with some NTMs that range from price controls to exchange and finance controls, quantity controls, and monopolistic and technical measures. Many of the statutory regulatory orders (SROs) providing discretionary exemptions to firms and industries are still in force making the trade regime more complicated.

The government has introduced the Strategic Trade Policy Framework (2009-2012). It includes measures such as: financing of export firms at fixed interests for a short to medium term, creation of a fund to hedge markup rate hikes, provision of insurance cover for visiting buyers, facilitation of export firms in foreign markets, arranging warehousing facilities abroad, providing support for compliance certification, compensating inland freight charges, funding technology, skills and management upgradation for value added products, supporting brand promotion and compliance with safety standards, clustering development, reducing cost of doing business, etc.

3. TRADE MISINVOICING

An importer is tempted to under-invoice imports if import duties and rents on quantitatively restricted imports are higher than the premium on the exchange rate in the open (or black) market that he has to purchase to pay foreign sellers in full. When there are no foreign exchange controls but trade barriers do exist, then clearly there is an incentive to under-invoice imports [Mahmood (1997)]. There is, however, some risk attached both to under-invoicing of imports and engaging in illegal foreign exchange transactions. Thus, under-invoicing will not occur unless the difference between import tariff equivalent and premium on foreign exchange in the open market is greater than the evaluated risk factor of being caught by law enforcing agencies [Bhagwati (1964)]. The importer who practices under invoicing brings capital to the country (the reverse capital flight) and draws benefit from this transaction. It is quite likely that if this perceived benefit is added to the saving of import duties due to import under-invoicing then the above differential further rises. Capital is brought into the country but by by-passing official foreign exchange reserves.

One can also explain over-invoicing of imports that takes place simultaneously. This is used to take capital out of the country. In this case, the importer is willing to pay higher customs duties to take out its capital, normally the 'black money', outside the country to safe havens, to whiten it at a later date. With the resultant higher average import tax earning rate it transmits false signals about the trade policy being more protectionist or restrictive whereas in fact it is not.

Likewise, under-invoicing of exports is practised to take black money outside the country. By under-invoicing, the exporter is willing to surrender the benefit of export subsidy if it is available or avoid export tax if there is any. This practice deprives the government of foreign exchange earnings.

Some exporters also resort to export over-invoicing to illegitimately benefit from export subsidies and to make reverse capital flight possible to whiten the black money taken out of the country at some earlier date. If the exporters do not have black money outside the country then they buy it from the Hundi/Hawala ("correspondent") exchange companies based in foreign countries. In this case exporters compare the differential between the subsidy rate and the perceived benefit from reverse capital with the premium on foreign exchange paid on capital purchased from the Hundi/Hawala traders in the open market; if the differential is greater than the evaluated risk factor of being caught, then the exporter will over-invoice. In this case government receives additional foreign exchange earnings but loses on account of extra export subsidies it pays for over-invoiced exports.

4. ILLICIT CAPITAL MOVEMENTS

Two approaches to measure illicit capital movements are available in the literature: direct and indirect. The direct approach uses information obtained from the balance of payments accounts. This approach identifies capital flight as short-term capital outflows, and considers it as a response of private citizens to investment risks in the country. Usually, these funds promptly respond to political or financial crisis and expectations about more restrictions on capital account or devaluation of the home currency.

Cuddington (1986) using the direct approach, defines capital flight as a short-term (speculative) reaction of private investors to macroeconomic instabilities or other policy-induced investment risks.⁴ This is why the Cuddington approach focuses only on the acquisition of short-term foreign assets by private non-bank investors, and errors and omissions instead of the private sector's total acquisition of external claims.⁵ Cuddington chooses only the short-term foreign assets because they presumably respond quickly to changes in expected profitability or shift in risks. Cuddington thus defines capital flight (KF_{CUD}) as:

$$KF_{CUD} = -NEO - NAC \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

where, NEO stands for net errors and omissions; and

NAC for net acquisition of non-bank private short-term capital.

The direct measure of capital flight is not free from criticism as it does not take other than short-term capital flows into account because long-term foreign financial assets are close substitutes for short-term assets due to the existence of very active secondary markets in long-term financial assets. On the other hand, errors and omissions include unrecorded flows or statistical discrepancies. In view of this criticism, indirect approaches to capital flight are also suggested.

Indirect approaches include the World Bank's (1985) and that of Morgan (1986). In these approaches, capital flight is considered as a residual of increase in external debt, net foreign direct investment, foreign exchange reserves and the current account deficit. Here, the idea is that the first two inflows finance the latter two outflows. If the first two *sources of funds* cannot finance the latter two *uses of funds* then the difference would indicate occurrence of capital flight.

The World Bank approach considers increases in external debt and net foreign direct investment as capital inflows to the country, and deducts from these inflows the sum of current account deficit and increase in official reserves. This difference is taken as a claim on foreign assets by private individuals. In other words, this approach assumes that if the capital inflows do not finance the current account deficit or official reserve accumulation (i.e., the recorded use of foreign funds), it leaves the country in the form of capital flight. The World Bank definition of capital flight (KF_{WB}) can be expressed as follows:

⁴Also see, Eggerstedt, Hall, and Wijnbergen (1993).

⁵It may be noted that 'errors and omissions' usually consist of both unrecorded short-term and long-term capital; therefore, estimates based on Cuddington's definition are not purely short-term. Moreover, capital flight cannot be restricted to short-term assets only, because the long-term foreign bonds are now considered as close substitute to short-term assets as there is very little loss of liquidity associated with acquisition of long-term assets in the secondary capital market.

$$KF_{WB} = CED + NFDI + CAB + COR \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

where,

CAB is Current account balance,
 COR is Changes in official reserves,
 CED is Changes in external debt, and
 $NFDI$ is Net foreign direct investment.

The Morgan definition⁶ works out foreign capital inflows on the lines of the World Bank definition. In this approach inflows are used to finance the current account deficit, increase in official reserves and increase in the net foreign assets held by commercial banks. Thus, the Morgan definition of capital flight (KF_{MOR}) can be written as:

$$KF_{MOR} = CED + NFDI + CAB + COR + NAFA \quad \dots \quad \dots \quad \dots \quad (3)$$

where, $NAFA$ is Net acquisition of foreign assets by commercial banks.

5. ADJUSTMENT OF CAPITAL FLIGHT WITH TRADE MISINVOICING

Trade and foreign exchange restrictions and lax enforcement of controls create incentives for trade misinvoicing in such a way that it can result in both way movement of private capital, i.e., capital flight from the country and/or reverse capital flight to the country. Interestingly, the difference in trade statistics of the reporting country and its trading partners often helps to identify this problem. Using the partner country data technique,⁷ we adjust the capital flight estimates derived from three approaches with estimates of trade misinvoicing in the following way:

$$\begin{aligned} KFM_{WB} &= KF_{WB} + MI \\ KFM_{MOR} &= KF_{MOR} + MI \\ KFM_{CUD} &= KF_{CUD} + MI \end{aligned}$$

where,

KFM_{WB} is Capital flight estimates adjusted for trade misinvoicing using the World Bank approach.

KFM_{MOR} is Capital flight estimates adjusted for trade misinvoicing using the Morgan approach.

KFM_{CUD} is Capital flight estimates adjusted for trade misinvoicing using the Cuddington approach.

$MI = MI_x + MI_m$ = Misinvoicing in total trade.

$MI_x = M_{icp} - X_{pic} * Ad$ = Misinvoicing of exports.

If $MI_x < 0$ then exports over-invoicing is taking place from the country.

⁶The definitions of capital flight by the World Bank and Morgan consider total accumulation of foreign assets short-term and long-term (both reported and unreported).

⁷In this technique, cif import values of the country are compared with cif-fob adjusted export values of the partner country to find 'perverse' discrepancies in trade statistics [see, Bhagwati (1964); Bhagwati, Krueger, and Wibukswadi (1974); Gulati (1987); Mahmood and Mahmood (1993); Mahmood (1997) and Mahmood and Azhar (2001)].

If $MI_x > 0$ then exports under-invoicing is taking place from the country.

$$MI_m = M_{pic} - X_{icp} * Ad = \text{Mis invoicing of imports.}$$

If $MI_m > 0$ then imports over-invoicing is taking place in the country.

If $MI_m < 0$ then imports under-invoicing is taking place in the country.

M_{icp} = Imports of industrial countries from Pakistan (*cif*).

X_{pic} = Exports of Pakistan to industrial countries (*fob*).

M_{pic} = Imports of Pakistan from industrial countries (*cif*).

X_{icp} = Exports of industrial countries to Pakistan (*fob*).

Ad = Adjustment factor defined as *cif-fob* ratio.

6. DATA

We adopt here the sign convention used in the balance of payments accounts. The data used here are for the period 1972-2009. The data definitions and sources used are as following:

- (1) Changes in external debt. World Bank: *World Debt Tables*.
- (2) Net foreign direct investment. IMF: Balance of Payments. Line 3..XA.
- (3) Current account surplus. IMF: Balance of Payments. Line A..C4.
- (4) Changes in official reserves. IMF: Balance of Payments. Line 2..X4.
- (5) Errors and omissions. IMF: Balance of Payments. Line A..X4.
- (6) Non-bank private short-term capital. IMF: Balance of Payments. Line 8..2X4.
- (7) Net acquisition of foreign assets by banks. Figures are multiplied by -1 for consistency with the balance of payments sign convention. IMF: *International Financial Statistics*. Line 7ad.
- (8) Trade data for Pakistan and industrial countries IMF: *Direction of Trade*.
- (9) cif-fob factor. IMF: *International Financial Statistics*.
- (10) Before 1982, values in items 1-6 were reported in terms of Special Drawing Rights (SDRs). These values are converted into US dollars by using the average SDR/dollar exchange rate reported in IMF: *International Financial Statistics*, Line sb.

7. ESTIMATES OF CAPITAL FLIGHT

How large is the size of illicit capital flows in Pakistan? Between 1972 and 2013, Pakistan received (net) illicit capital inflow (or reverse capital flight) of about \$30 billion.⁸ Accumulated reverse capital flight represents 50.5 percent of the total outstanding external debt and 13 percent of the GDP in 2013. Such a large size of reverse capital flight negates the widespread and exaggerated impression about the net capital flight from the country.

In illicit capital flow activities individuals with varied behaviours and interests are involved. Their motive essentially is to circumvent economic policies to draw maximum benefit for themselves. As economic policies change from time to time to meet

⁸It needs to be underlined here that since workers' remittances through official channels are also partly used to reverse the capital flight, the above figure is, somewhat, an understatement of the true size of the reverse capital flight. In the FY2005-06 Pakistan received \$4.6 billion, which rose to \$13.92 billion in FY2012-13—a 3-times rise in remittances.

developmental objectives of the economy, so does illicit capital movement in intensity and direction. The preceding analysis shows that illicit capital flow is an area which successive governments in Pakistan have not been able to contain.

Table 1 shows that on average in all periods, the Pakistani traders over-invoiced exports and under-invoiced imports to bring illicit capital to the country. More specifically, Table 1 reveals that in the first phase (1972-1981) exports were under-invoiced by an average of \$28.43 million per annum. It shows the clear motive to take capital out of the country. This is the period when capital account restrictions were the harshest. Exports of intermediate inputs were restricted by using export duties. Thus, exporters not only circumvented capital controls but also export restrictions with connivance of the Customs staff. In the same phase, however, imports were under-invoiced by \$277.48 million per annum. In this case, the clear motive was to bring illicit capital back to the country and evade high import duties. On the net basis, during the first phase there was a reverse capital flight of \$249.10 million per annum through trade misinvoicing.

In all the remaining three phases, Table 1 shows that there was over-invoicing of exports and under-invoicing of imports. Consequently, in the period when managed floating exchange rate or flexible exchange rate policies were in force, the country received a net inflow of illicit capital through the balance of payments account. The highest average per annum export over-invoicing was recorded during the third phase (1998-2000). This period was marked with depletion of foreign exchange reserves, economic sanctions imposed by the Western countries, freezing of foreign currency accounts, use of multiple exchange rates and later, adoption of the dirty floating exchange rate, and use of export-performance linked export subsidies. At the time when government was looking for financial resources, exporters deprived the country by obtaining extra subsidy on account of over-invoiced exports. Nonetheless, government was satisfied as the over-invoiced earnings on exports raised its foreign exchange reserves.⁹

Table 1

Trade Misinvoicing (Average Per Annum, US Dollar in Million)

Period/Phase	Exports	Imports	Total Trade
I: 1972-1981	28.43	-277.48	-249.10
II: 1982-1998	-161.52	-769.62	-931.14
III: 1998-2000	-443.35	-160.10	-603.46
IV: 2000-2013	-166.38	-557.97	-724.35
Total Period	-138.48	-548.66	-687.14

Source: Author's estimates.

The highest under-invoicing of imports was recorded during the second phase (1982-1998), when by and large tariffs and NTBs were very high, so there was an incentive for importers to circumvent trade policy restrictions and indulge in import under-invoicing activities and bringing home illicit capital (Table 1). The fourth phase

⁹It may be noted that in the absence of export over-invoicing, remittances that were to be used to over-invoice exports may come through legal channels thus raising the official foreign exchange reserves.

(2000-2013) also recorded very high levels of average per annum import under-invoicing. During this period, tariff rates were not very high but still high enough to entice importers to resort to such activities. Although, NTBs declined during this period but NTMs increased owing to corruption and bad governance. On the net basis, the overall illicit capital inflow was the highest during the second phase followed by the fourth phase. Total trade misinvoicing estimates show that relatively lower trade restrictions and liberalisation of current and capital accounts, especially in the fourth phase, could not stop illicit capital movement. This implies that implicit trade and capital accounts restrictions remained widespread, which enticed people to defy them to draw benefits. The pertinent question is how this large illicit capital inflow was financed. The answer is through Hundi/Hawala, a channel that is used to finance trade misinvoicing. In addition, illicit capital that was taken out of the country at some earlier date became a major source of reverse capital flight at a later date.

Table 2 reports estimates of capital flight that are un-adjusted for trade misinvoicing using the three approaches discussed earlier: the World Bank, Morgan and Cuddington's. Estimates using these approaches are not very consistent with each other; thus, it is difficult to arrive at any consensual conclusion. Whereas the Morgan and Cuddington estimates are consistent with each other in the first three phases, they are inconsistent with each other in the fourth phase.

The World Bank estimates show that there was a net capital flight from Pakistan in the first three phases, while both Morgan and Cuddington approaches show net inflow of illicit capital (Table 2). In the fourth phase, estimates based on the World Bank and Cuddington approaches show reverse capital flight while the Morgan approach shows a net capital flight from the country; this is mainly because of large acquisition of foreign assets by commercial banks, a component this approach includes in addition to the components of the World Bank approach (see Equations 2 and 3). Arguably, acquisition of foreign assets by commercial banks is not capital flight, so the Morgan estimates should be used with some care. On the whole, for all periods unadjusted estimates for the World Bank and Morgan definitions show net capital flight from Pakistan, while the Cuddington approach shows reverse capital flight.

Table 2

Un-adjusted Capital Flight (Average Per Annum, US Dollar in Million)

Period/Phase	World Bank	Morgan	Cuddington
I: 1972-1981	16.9	-6.3	-29.00
II: 1982-1998	39.71	-357.71	-121.53
III: 1998-2000	89	-227.67	-461.33
IV: 2000-2013	-57.46	2216.00	-43.46
Total Period	8.47	511.47	-100.12

Source: Author's estimates.

Although, we could not arrive at some consensus using estimates of capital flight that are un-adjusted for trade misinvoicing, yet the adjusted estimates of capital flight are congruous in all approaches in all phases except for Morgan in the fourth phase (Table 3). The World Bank approach shows that with the change in exchange rate regime and trade

liberalisation, the size of reverse capital flight has increased. A similar result can be noticed for the Cuddington approach. This pattern has emerged due to a fall in cost of illicit capital flow transactions owing to both trade and capital accounts' liberalisation, especially as the regulatory bodies are weak in implementing the rules and regulations. All in all, Table 3 reveals that Pakistani private citizens have been bringing huge amounts of illicit capital every year since 1972.

Table 3

<i>Adjusted Capital Flight (Average Per Annum, US Dollars in Million)</i>			
Period/Phase	World Bank	Morgan	Cuddington
I: 1972-1981	-232.15	-255.35	-278.05
II: 1982-1998	-891.44	-1288.85	-1052.67
III: 1998-2000	-514.45	-831.12	-1064.79
IV: 2000-2013	-781.81	1492.57	-767.81
Total Period	-678.67	-175.67	-787.25

Source: Author's estimates.

So far we have discussed the trends in illicit capital movement across borders. We can gain more insights if we use the estimates to find out the importance of illicit capital flows in terms of GDP and foreign exchange earnings. The ratio of reverse capital flight to GDP¹⁰, for example, can be considered as the investment going into the underground economy. The ratio of reverse capital flight to foreign exchange earnings indicates the significance of illicit capital inflow *vis á vis* official capital inflows.

Using the World Bank approach, the estimates of reverse capital flight to GDP show the highest ratio in the second phase (1982-1998), followed by the third phase, the first phase and the fourth phase (Table 4). What these estimates signify? On average, they are about 1.5 percent of the annual GDP. If we recap the happenings in the second phase, it may be noticed that during this period Pakistan launched a programme of economic liberalisation, privatisation and denationalisation, the structural adjustment programme with donors' support, a shift in the exchange rate regime from fixed to a managed float, policy of whitening of domestic black capital and the illegal capital residing abroad and permission for opening of foreign currency accounts to residents. With these major policy changes, when the cost of transaction of capital flows declined, it became easy for private citizens to bring back their capital held abroad. To avoid any legal actions at a later date by the government, most of this capital was brought into the country through illegal channels instead of legal channels.

The ratio of reverse capital flight to foreign exchange earnings was the highest in the third phase (Table 4). This was the time period when the country followed multiple exchange rate policy, freezing of foreign currency accounts as a result of decline in foreign exchange earnings including remittances and export earnings. Consequently, in this period of uncertainty private citizens proportionately brought home more capital through illegal channels.

¹⁰Different studies estimate that the size of the underground economy in Pakistan is about the same as that of the formal economy. See for instance, Kemal and Qasim (2012).

Table 4

Significance of Adjusted Illicit Capital Flows for Pakistan (Annual Average; Percent)

Period/Phase	Capital Flight as a Percentage of GDP			Capital Flight as a Percentage of Foreign Exchange Earnings		
	World Bank	Morgan	Cuddington	World Bank	Morgan	Cuddington
I: 1972-1981	-1.259	-1.460	-1.721	-8.415	-10.410	-14.950
II: 1982-1998	-1.932	-2.650	-2.395	-9.531	-13.115	-11.969
III: 1998-2000	-1.856	-1.540	-1.513	-1.0561	-9.254	-8.785
IV: 2000-2013	-0.499	1.063	-0.821	-2.512	4.756	-4.234
Total Period	-1.357	-1.277	-1.722	-7.369	-7.089	-10.241

Source: Author's estimates.

8. CONCLUSION AND POLICY RECOMMENDATIONS

The findings of this paper refute the general assertion that providing external funds to countries like Pakistan could be futile if they lead to capital flight. Contrary to this claim, this paper shows that reverse capital flight takes place on net basis all the time. These illicit inflows complement the resources received by the country in the form of foreign loans, foreign investment and the country's own foreign exchange earnings. Of course, illicit capital is largely invested in the underground part of the economy. The underground part of the economy, including the real estate sector, is out of the tax net. Industries in Pakistan prefer to under-report their true installed capacity by under-invoicing their plant and machinery and hence under-report the actual size of the establishment. This practice ultimately helps industries to also evade taxes on their sales, purchase of domestic inputs and income.

Capital flight exacerbates problems in the domestic economy including unfavourable investment climate. By implication, a healthy state and conducive economic environment should be instituted in the event of reverse capital flight. The paper finds evidence of large volume of reverse capital flight to Pakistan. Does this mean that everything on the economic front is very well in the country? Perhaps not! As noted earlier, the way business in commercial markets and real estate sector is flourishing and expanding, one is tempted to conclude that the situation is favourable for absorbing reverse capital flight.

An important finding is that the reverse capital flight increased during the period of trade and exchange liberalisation. This indicates that in the absence of strong regulatory bodies, liberalised trade and exchange regimes allowed private citizens to manipulate trade and exchange laws.

Tax evasion and avoidance have been the key sources of illicit movement of capital across borders in Pakistan. Improving tax administration and effective enforcement of trade laws can control to and fro movements of illicit capital. The following specific measures are suggested to restrict the cross-border movement of capital through illegal channels:

- (1) Money obtained through corruption and tax avoidance/evasion is the main source of illicit funds that are illegally transferred across borders. There is therefore a dire need to introduce governance reforms to control rampant corruption in the country, which undercuts lawful activities in the country.

- (2) Illicit capital movements are largely due to lax enforcement of capital and trade controls by regulatory bodies. This provides high premium to private citizens if they circumvent trade and foreign exchange controls and misuse trade incentives. An effective implementation of trade and exchange controls is, therefore, expected to discourage illicit movement of capital. In this context, it would be very rewarding if customs administration is improved, tariff structure is simplified by making it more uniform, and appointing pre-shipment inspection companies with good reputation.
- (3) To control Hundi/Hawala (correspondent) businesses, their related individuals or entities be traced by banking authorities who are holding large sums of funds to settle laundered money in Pakistan. Government's Remittance Initiative has made a little dent in this system but this menace is still going on at a large scale.
- (4) A policy support that discourages undervaluation of capital in the country would make under-invoicing of imports of plants and machinery less attractive. For example, a policy of accelerated depreciation allowance to attract investment might offset under-invoicing of imports of capital goods and other goods.
- (5) For domestic capital that is residing illegally abroad, arrangements may be made with other countries about prompt sharing of information concerning private citizens' bank accounts and trade-related transactions to and from Pakistan. Moreover, the international community must be reminded of its responsibilities of not allowing its jurisdiction for movement of illicit capital to and from Pakistan by using international forums.
- (6) As most of the reverse capital flight ends up in the informal part of the economy, there is an urgent need to bring this part of the economy under the tax net to resolve the problem of illicit capital movement. But this raises a pertinent question; is Pakistan's taxation system so unfair and punitive that capital owners prefer to invest in the informal sector? To be fair with the tax authorities, it seems that it is not a question of paying some tax, but no tax at all! Thus, a culture of tax compliance needs to be created, but this calls for an active role of the decision-makers.
- (7) Use of trade misinvoicing (i.e., the trade account) to move capital in and out of the country indicates that the capital account in the *de facto* realm is not fully convertible although in the *de jure* area the system seems to be fully convertible. This dichotomy needs to be eliminated by taking appropriate and effective measures.
- (8) Last but not least, sound macroeconomic environment and policies in the country should be able to prevent cross-border movement of illicit capital.

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Impact Evaluation of Remittances for Pakistan: Propensity Score Matching Approach

RIZWANA SIDDIQUI

This study attempts to uncover the biases in the impact evaluation of remittances when the problems relating to selection bias and counterfactual are not taken into account. Taking migration as an intervention and foreign remittances as an input, the study measures the socioeconomic impact using an approach which yields more accurate non-experimental estimates in self-select cases through multiple output and outcome indicators such as income, expenditure, saving, and capital accumulation which, directly and indirectly, affect households' welfare, poverty incidence and growth prospects of a country. Using PIHS data, the study first calculates the difference in socioeconomic characteristics of treated or remittances beneficiary households (RBH) and control or remittances non-beneficiary households (NRBH) ignoring endogeneity and observable differences. Second, it calculates the propensity score and evaluates the impact using data from common support area for both RBH and NRBH households. Third, it evaluates the impact using the propensity score matching approach which replicates the experimental benchmark. The difference in the first and the third estimates reveals the bias originating from the issues of selection and difference in observable characteristics. The results show that after controlling for observable characteristics of households, regional difference, networking and applying the selection correction technique, the average impact of remittances is significantly reduced. A disaggregated analysis shows that the socioeconomic impact of remittances differs by the level of skills. The impact is significant for relatively low skilled poor households but for high skilled households it remains significant only in case of bank deposits. The paper concludes that estimates are biased upward if the selectivity issue and endogeneity problems are ignored which may lead to wrong policy implications.

JEL Classification: F24, O15, P36

Keywords: Propensity Score Matching, Remittances, Poverty, and Capital Accumulation

1. INTRODUCTION

The extent to which foreign remittances affect welfare, poverty and growth has been a matter of considerable debate.¹ Pakistan is among the top five countries whose

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foreign exchange earnings comprise a significant amount of foreign remittances. Growing by about 20 percent annually the foreign remittances now form 5 percent of Pakistan's GDP in 2010-11.² Their importance can be viewed from the fact that remittances do not have to be paid back like other foreign exchange receipts such as official development assistance. Therefore, its integration into overall development planning is essential to maximise its benefits. A comprehensive analysis using the most appropriate technique is needed to form appropriate policies [White (2005)].

Foreign remittances play an important role at the macro as well as micro levels. They are a major source of income of the recipient households in Pakistan and help mitigate the financial hardships of the households. The recipient households put them to various uses that have welfare, poverty, and growth implications. The existing literature³ measures the impact of the remittances using methodologies that vary from the most complicated ones such as the economy wide computable general equilibrium (CGE) model [Siddiqui and Kemal (2006) and Siddiqui (2009)] to the simplest as descriptive statistics.⁴ The CGE method is most demanding not only in overcoming the problem of data scarcity and capturing multi-round effects⁵ but also in finding appropriate elasticities and skills for programming [Knerr (1992)]. Some studies explore just one dimension or the other in the partial equilibrium framework.⁶ However, the majority of these studies do not account for selection to migration⁷ and ignore the counterfactual or differences in the observable characteristics, hence they tend to overstate the impact. Therefore, it is

¹Remittances currently represent about one-third of total financial flows to developing countries, which are larger than official development assistance flows. In many countries, they are also larger than foreign direct investment. Therefore, the interest in the impact of remittances is growing to better understand how remittances resulting from migration contribute to poverty reduction [Fajnzylber and Lopez (2007)].

²In absolute term, remittances have increased from \$1087 million to \$13186.58 over 2001-12 [Pakistan (2008-09, 2012-13)].

³Adams (1998), Aggarwal, *et al.* (2006); Amjad (1986); Amjad (1988); Arif (1999); Burney (1988); Gilani, *et al.* (1981); Hyun (1988); Iqbal and Sattar (2005); Jongwanich (2007); Kazi (1988); Mahmud (1988); Malik and Sarwar (1993); Maqsood and Sirajeldin (1994); Nayar (1988); Quisumbing and McNiven (2007); Rodrigo and Jayatissa (1988); Siddiqui and Kemal (2006); Tan and Canlas (1988); Tingsabad (1988).

⁴Amjad (1986, 1988); Burney (1987, 1988), Gilani, *et al.* (1981); Kazi (1988) for Pakistan, Oh-Seok (1988) for Korea, Mahmud (1988) for Bangladesh, Nayar (1988) for India, Rodrigo and Jayatissa (1988) for Sri Lanka, Tan and Canlas (1988) for Philippines, Tingsabad (1988) for Thailand.

⁵An inflow of remittances increases household income and expenditure, which may, in turn, generate new income and employment opportunities—multiplier effect [Adams (1998)].

⁶For instance, Iqbal and Sattar (2005) estimate the relationship between growth and remittances. Arif (1999) investigates investment behaviour of remittances beneficiary households (RBH) and Malik and Sarwar (1993) compare the consumption pattern of RBH and NRBH [non-remittance beneficiary households]. Adam (1998) has conducted a Tobit analysis to explore remittances impact on rural asset accumulation—land, livestock and non-farm assets. All these studies ignore the problem of selection to migration. Though Maqsood and Sirajeldin (1994) account for selection correction terms and focus on one aspect, wage earnings and used explanatory variables which are correlated with migration such as wealth.

⁷Gilani, *et al.* (1981); Amjad (1986); Irfan (1986); Various studies in Amjad (1988); Burney (1987); Malik and Sarwar (1993); Arif (1999); Iqbal and Sattar (2005); Siddiqui and Kemal (2006); Jongwanich (2007); Some of them have analysed the impact of remittances on macro and micro aggregates quantitatively using regression analysis. For instance Maqsood and Sirajeldin (1994) consider migration as endogenously determined, therefore made corrections in their earnings function. However, all these studies overstate the impact because they ignore the differences in observable characteristics i.e., measure the impact of remittances on consumption without taking into account the impact of income what they have earned in the domestic economy before migration.

obligatory to take into account the selectivity issue and the difference in observable characteristics that measure the actual impact of treatment. Any ambiguity in the impact raises need for empirical research. To correctly measure the socio economic impact of remittances, one must compare the socio-economic indicators such as income, expenditure, saving and capital accumulation (human, financial and physical) of the migrant-households⁸ to what they have if they are not migrated. The latter has not been observed. Recognising this difficulty, Rosenbaum and Rubin (1983) were the first to propose the propensity score matching (PSM) approach for more accurate non-experimental estimates in self-select cases. In the following years, the method was also recommended by Heckman, *et al.* (1997); Dehejia and Wehba (2002); White (2006); and McKenzie and Gibson (2006); Deininger and Liu (2008) for this type of analysis.

Considering migration as an intervention—a case of non-random selection of remittance beneficiary households [individual self-select to migrate]—this author adopted the PSM approach to evaluate the impact of remittances on the socio economic condition of households which, directly and indirectly, affect welfare, poverty, and growth prospects of the country. For this purpose data from the Pakistan Integrated Households Survey (PIHS) [Pakistan (2002)] on income, consumption, saving, asset holdings, indebtedness, capital accumulation—human, physical and financial, and domestic economic activity for both groups i.e. [RBH and NRBH] was used employing the same methodology. This study assumes that households which receive foreign remittance are treated or remittance beneficiary households (RBH) and the control group which does not receive remittance income are called non-treated or remittance non-beneficiary households (NRBH).

Here three approaches are used to calculate bias in attribution of remittances. First, the naive approach to calculate the mean difference in socio-economic indicators using full sample of all RBH and NRBH ignoring selection bias and counter factual. Second, the difference in the indicators is calculated using data from common support area after allowing for the propensity score. Third, after pairing observation from RBH and NRBH groups based on PSM to balance treatment and control group on observable characteristics, the difference in the mean value of socio-economic indicators is calculated. The difference in the three estimates reveals the bias that originates due to selection bias and the difference in observable characteristics.

The rest of the paper has been organised as follows. The next section presents impact evaluation methodology, selection variables and multiple socio-economic indicators. Data used for the analysis are discussed in Section 3. Section 4 discusses distribution of beneficiary and control group. The results are discussed in Section 5. Sections 6 and 7, respectively, discuss heterogeneity in the impact by skill level and compare the results of this study with earlier ones. Section 8 concludes the paper.

2. METHODOLOGY

In impact evaluation studies, bias originates from three sources; (i) selection bias, (ii) self-selection, and (iii) difference in observable characteristics.

⁸Migrant households are those who receive remittance income from abroad and non-migrants are those who do not receive income from abroad.

First, the naive approach is used to measure the difference in socio-economic impact of remittances. In this approach, the impact is measured using all households—RBH and NRBH ignoring selection bias and counterfactual.⁹

Second, the conceptual framework from Rosenbaum and Rubin (1983) and Heckman, *et al.* (1997, 1998); which has been widely used in this type of analysis [Dehejia and Wehba (2002); McKenzie and Gibson (2006); Deininger and Liu (2008) etc.] is used to reveal the bias (if any) in the estimates. The framework consists of PSM and difference methods. The PSM approach has many advantages over the other methods:

(1) It overcomes the problem of multi dimensionalities and develops an index of propensity score $P(X)$ for the treated (RBH) and control (NRBH) groups to match. In the presence of a large number of explanatory variables, matching all variables becomes difficult. The PSM method renders the multidimensional matching problem to one-dimensional i.e. instead of matching on a vector X of variables.

(2) It gives more accurate non-experimental estimates, where households self-select into the programme [Dehejia and Wehba (2002); McKenzie and Gibson (2006); Deininger and Yanyan (2008); White (2006)].

(3) It replicates the experimental benchmark if the outcome from the treatment and control groups is (i) compared over a common support area (the distribution of households likely to receive the treatment is similar in both groups). (ii) Data is collected from both groups in a similar fashion [Dehejia and Wehba (2002)].

(4) The method does not require a parametric model and allows the estimation of mean impacts without arbitrary assumptions about functional forms and error distribution [Jalan and Ravallion (2001)].

In this study the remittance-response function or selection equation is estimated first. The major concern in the PSM approach concerns which explanatory variables should be included in remittance response function to estimate the probability of a household receiving remittances or not. The probability depends on households and community based characteristics of RBH and NRBH. The dependent variable represents the status of households receiving remittance income (decision to migrate) or not i.e., a dichotomous variable taking the value '1' when household receive remittances and '0' when it does not.

$$D_{REM} = b_i x_i + g_j z_j \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

D_{REM} is a dichotomous variable where $D_{REM} = 1$ if a household receive remittances, otherwise 0.

x_i is a vector of individual or household level characteristics

z_j is a vector of community characteristics

In the absence of information about migrated labour, it is worthwhile to examine family characteristics that motivate the migrated worker's decision to remit income.

⁹Malik and Sarwar (1993) have compared consumption of RBH and NRBH using this method. The results show that total consumption and recurrent consumption of RBH are higher by 0.05 points, whereas expenditure on durable goods is higher for NRBH.

These variables are chosen in such a way that they affect remittance income (migration decision) but not the outcome variables.

The most important variable that determines remittance from migrated labour is their education [Nishat and Bilgrami (1993); Adams (2008)].¹⁰ This information is not available from the existing data. However, the correlation between the education of the head of the households and average education of the earners is 0.75. Therefore, here the education of the head of household has been used as a determinant of the remittance income. Five categories of education [(1-5), (6-9), (10-13), (14-15), and 16 and above including all professional categories] are defined with base category of education of less than one year.

The principal migration motivation comes from household size, which determines the need for migration. If a household has a large family size, labour is expected to migrate to earn more owing to the fact that labour receives higher wages abroad. The age of the head of the household is included in the equation as an explanatory variable.

People living in the same community are more likely to have many characteristics (Z_j) in common including community norms, infrastructure, leadership, physical environment, social structure, household strategies. Therefore, they behave in similar fashion. The existence of migratory network affects migration from that community. In this study community remittance income per household has been used to indicate the existence of migratory network.¹¹ It indicates that the larger the value of remittances per household, the stronger is the migratory network and more people are expected to migrate abroad from that community.¹²

Region also reflects a certain skill level. For instance, labour from rural area belongs to lower education level and more likely to send a higher proportion of low skill (low educated or unskilled) labour compared to urban labour. Language is also an important factor in determining the type of labour migrating to different parts of the world. In this case, workers from more developed provinces with high literacy rate are more likely to send skilled labour.¹³ In this study one dummy variable has been employed for region $-D_{Region}$ with rural as base category and three dummy variables (D_i) for three provinces, Punjab, Sindh, Khyber Pakhtunkhwa (KP) with rest of Pakistan (ROP)¹⁴ as the base category to control for regional differences, assuming that characteristics mentioned above are region specific and vary across the regions [Nishat and Bilgrami (1993)].

¹⁰Education may also be an important variable to determine, whether migrant send money through formal or informal channel. The highly educated are expected to send remittances through formal channels-using financial institution. Whereas illiterate or low educated labour send remittance through informal channels such as 'hundi'. Education and occupation are highly correlated.

¹¹This indicates migration prevalence rate and is used as an instrument for the opportunity to migrate [Mansuri (2007)]. Migratory network increase migration opportunities by providing information to potential migrants and existing migrant worker relax financial constraints [Mansuri (2007)].

¹²Remittance income per households along with education level will also determine how these remittances are sent and from where. However, all these are assumptions, for real analysis there is a need to collect data on these issues.

¹³Education may also be important determinant of labour migrated to specific region. For instance, labour with high education level may migrate to English speaking countries, whereas labour with lower education level may migrate to Middle East countries.

¹⁴ROP includes Balochistan, Federal Administered Tribal Areas and Azad Kashmir.

The likelihood of being a recipient family is presented by reduced form equation which includes above mentioned households level and community level characteristics.

The model is defined as follows:

$$D_{REM} = \alpha + \beta_2 Y_{REM}^{com} + \beta_3 Age_{HH} + \beta_4 Hsize + \sum_{EDU=1}^5 \beta_{EDU} D_{EDU} + \sum_i \gamma_i D_i + \phi D_{region} \dots \quad (2)$$

$D_i = 1$ for i th province and 0 otherwise,

where

$i = P$ (Punjab), Sindh (S), Khyber Pakhtunkhwa (KP)
 $= 0$ otherwise

$D_{EDU} = 1$ for k th education level of head of the household and 0 otherwise,

where

$EDU =$ primary (1-4), Middle (5-9), FA(10-13), BA (14-15), 16 and above with base category of less than one year of education.

$D_{region} = 1$ for urban and 0 otherwise, base category rural

$Hsize =$ Household size—total members present in a household

$Y_{REM}^{com} =$ Community remittance income per household

$Age_{HH} =$ Age of the head of household

In this study the SPSS programme has been used to estimate the logistic function defined in Equation 2.

The second concern in this approach is to choose treatment (RBH) and comparison or control group (NRBH). The SPSS-PSM—macros developed by Levesque to match PSM of the treated (RBH) with control group (NRBH) are employed and the common support area (S) is defined selecting the observation following Heckman, *et al.* (1998).

$$S = Supp(X; D_{rem} = 1) \cap Supp(X; D_{rem} = 0) \dots \dots \dots \quad (3)$$

It defines the area with the common range dropping all observations from RBH and NRBH whose P values are beyond the range defined in Equation 3.

Third, the exact matching approach in which each RBH is paired with NRBH has been used which minimises the difference of their PSM within the common support area and drops the rest of the households.

The next goal is to calculate the attribution of remittances to socio-economic outcome. Classic evaluations focus on two parameters: average impact on the units that are given the opportunity to take it up (non-participant-NRBH) and the average impact on those who receive it (participants-RBH) [Ravallion (2009)].

Let Y be the vector of socio-economic variables that are defined as output and outcome variables. The outcomes corresponding to $D_{REM}=1$ and $D_{REM}= 0$ are denoted by $(Y1, Y0)$, respectively, and X is the vector of variables that are time invariant characteristics of the treated unit RBH. The assumption underlying the matching estimator is that all relevant differences between the two groups are captured by their observables X . The treatment assignment D_{REM} (household receiving remittance income) is independent of Y ($Y0$ and $Y1$) given X (observable characteristics). It can be written as

$$(Y_0, Y_1) \parallel D_{REM} \mid X \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (4)$$

This implies that

$$(Y_0) \parallel D_{REM} \mid P(X) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (5)$$

Where $P(X)$ is propensity score, and defined as $P(X) = Pr (D_{REM}=1 \mid X)$ which by definition lies between 0 and 1. Another implicit assumption required by the matching estimator is the stable unit treatment value assumption (*SUTVA*), which states that the outcome of i th unit given treatment is independent of the outcome of unit j th unit given treatment. To satisfy this assumption we have to ignore the general equilibrium effects [Ham, *et al.* (2005)]. In the absence of baseline data, the remittance impact (*REMI*) is measured as follows:

$$REMI = E(Y_1/D_{REM} = 1) - E(Y_0/D_{REM} = 0)$$

This expression measures mean difference in the impact of remittance income on RBH over the control group NRBH.

The effects of remittances vary with the education of head of the households.¹⁵ This study tests the hypotheses: Does the effect of the treatment vary by education level? Let *Edu* denote schooling and *s* denote the different levels of schooling. The effect of remittances income on different educational groups is estimated for each education level in the following way:

$$\Delta_s = E(Y_1 - Y_0) \parallel D_{REM}=1, Edu=s = E(Y_1 \parallel D_{REM}=1, Edu=s) - E(Y_0 \parallel D_{REM}=0, Edu=s) \quad (6)$$

We define $s = 0, 1, 2, 3, 4, 5$

- S=0 if education is less than one year
- S=1 if education is below primary, (1-4) year
- S=2 if education is between (5-9) year
- S=3 if education is between (10-13) year
- S=4 if education is between (14-15) year

S=5 if education is 16 years and above including professionals such as doctors, engineers etc.

This study measures the attribution of remittances to socioeconomic aspects of households such as income, expenditure, saving, investment, welfare, and poverty. These indicators are discussed in detail in the next section.

Third, the bias in the impact of remittances is calculated ignoring the differences in observable characteristics. It is calculated as difference in difference.

Let D1, D2, and D3 be the differences measured using full sample, data from common support area, and using PS matching of RBH and NRBH, respectively. The difference between D1 and D3 reveals the bias in the estimates if one ignores the issues of endogeneity and differences in the observable characteristics.

$$\text{Bias} = D1 - D3$$

¹⁵Quisumbing and McNiven (2007) show that countries exporting unskilled labour receive more remittances per capita than the remittances per capita received by the countries exporting skilled labour.

2.1. Socio-economic Indicators

In this study multiple socio-economic indicators (including basic need indicators (BNIs such as calorie intake, housing, safe drinking water, sanitation facilities, education) have been used to measure attribution of remittances. Satisfaction of basic needs determines a country's capability development [Siddiqui (2006)] and poverty reduction.

(a) *Income Effects*

Migrants are expected to receive higher income as workers leave their home country to take the advantage of higher wages [Farchy (2009)] and remit a significant amount of their earnings; about 78 percent of their total earnings [Siddiqui and Kemal (2006)]. Remittances are not exogenous transfers but a substitute for the domestic earnings that migrants had earned if they had not migrated. Income per adult equivalent has been used here to measure the income effect of migration.¹⁶

The RBH group has three choices to use these receipts: consume, save or invest, which directly and indirectly affect poverty and growth prospects of a country.

(b) *Consumption*

Earlier literature on socio-economic impact of remittances [Gillani, *et al.* (1981) and Amjad (1988)] show that remittances (57 to 62 percent) are generally, used for consumption purposes.¹⁷ The expenditure pattern of households is central to any meaningful discussion on welfare and poverty. If households increase the demand for food and non-food items, remittances are more likely to improve the welfare of households and reduce poverty. Here food and non-food expenditure in rupees per adult equivalent term and calorie intake (BN) per adult equivalent have been used which directly determine the welfare and poverty effects and indirectly determine the growth effects as increase in expenditures boosts the economy through multiplier effects. Similarly, higher expenditure on consumer durables [households' equipment] such as washing machine, TV, oven, refrigerator, automobiles also indicates higher standard of living. Ownership of households' equipment is measured in rupee value at the household level.

(c) *Investment*

If remittances ease working capital constraint, it is expected to improve capability and growth prospects of a country by increasing human and physical capital.

Investment in Human Capital: Remittances are expected to improve the capability of a household if migrant households spend more on children's education to improve the quantity and quality of their education. It compensates for loss in human capital due to migration of labour in the long run and improves literacy rate (as indicator used to measure capability of a country). In this study 'average class of school-going children in

¹⁶According to the theory of migration, migration itself is nothing but investment in human capital, which contributes to growth on their return. But that analysis is beyond the scope of this paper.

¹⁷57 percent of total remittances (through official and unofficial channels) are allocated to recurrent consumption and 62 percent of remittances through official channels only.

a household' and expenditure on education per class have been used to measure quantity and quality of human capital formation, respectively i.e., the key outcome from the perspective of economic growth in the long run.

Investment in Physical Capital: Empirical studies show that migrant households largely invest in housing. Housing is one of the basic needs. This effect has been captured in terms of adults/room. In addition, existence of facilities like availability of clean water (BN), sanitation, electricity, gas, and telephone indicates higher standard of living. These facilities are partially dependent on infrastructure development by the government.¹⁸

Investment in productive capital is captured through agriculture farming/land holding, livestock holdings, and entrepreneurial activity etc. If remittance income increases accumulation of productive capital, it is expected to have a growth promoting impact.

(d) Saving

Households save by buying jewellery, keep cash at home or save in bank schemes. (i) Jewellery is one form of investment in unproductive capital though it indicates leakage from the economy but can be used in growth enhancing activities. For instance, It may be used for investment purposes on the return of migrant labour. However, for the year under analysis, this is idle money and indicates households' financial condition. This indicator is measured at the household level in terms of rupees. (ii) Households cash holdings at home are measured in rupees. (iii) Households' bank profit receipts measuring the size of the bank deposits¹⁹ are used as outcome indicators of financial saving that determine financial development—financial resources available for credit distribution. Remittances via financial development can also positively affect poverty and growth [Aggarwal, *et al.* (2006)]. If the deposit level is higher for RBH, it may also have growth-enhancing effect through the banks' intermediation process—credit expansion. It can be indirectly inferred that higher bank deposits have a growth promoting impact.

(e) Poverty

Poverty is measured by head count ratio i.e. the percentage of population below the poverty line which is officially prescribed poverty line for rural and urban areas.

(f) Growth

The growth impact is deduced indirectly from growth oriented activities such as increased demand for goods and services, entrepreneurial activity, livestock activities, land farming etc. Entrepreneurial activities alone are considered as a driver of growth. If these activities increase, one may expect to have growth promoting effects of remittances. These channels of remittances' impact on outcome indicators are comprehensively presented in log Frame in Appendix I Table 1.

¹⁸Multiplier effects of remittances also generate growth-enhancing impact. Through back ward and forward linkages—investment of one household could generate an increase in income of the other, for example, investment in housing generates employment for construction workers and income. Existing literature show that this sector boost at the macro level.

¹⁹Aggarwal, *et al.* (2006) use level of deposits to measure financial development that affect poverty and growth via credit expansion.

3. DATA

This study relies on data from Pakistan Integrated Household Survey (PIHS) for the year 2001-02 conducted by Federal Bureau of Statistics (FBS) [Pakistan (2002)]. The data provides detailed information on household size, income, consumption (food, non-food, and durable commodities), asset endowment (land, buildings, livestock), loans, education status and expenditure on education, work status by gender, and small scale entrepreneurial activities. The sample consists of 16182 randomly selected households. The sample is restricted to households whose income is greater than Rs 1000 per month. Households whose consumption data is missing have been dropped. Out of this sample of 15924, 802 households (5 percent of the total) are remittance beneficiary households (RBH) and 15122 are non-remittance beneficiary households (NRBH). Table 2 in Appendix I presents the set of variables along with their definition that have been included in the analysis.

The major characteristics of households have been presented in Tables 3–5 in Appendix I. The geographic distribution of the RBH show that majority of migrated households are located in two provinces of Pakistan, Punjab and Khyber Pakhtunkhwa, 33.2 and 30.7 percent, respectively (Table 3 in Appendix I). However, RBH are largely from rural areas –56.1 percent of the total (Table 4). This implies that migrated labour can largely be categorised as unskilled or low skilled labour. The majority of migrants consist of unskilled and semiskilled workers, i.e., 52.24 percent, while highly qualified migrants are only 2.52 percent in 2007 [Siddiqui (2011)].

The average size of the households is 7.2 individuals with average age of head of the household being 45.7 years having education of 4.2 years (Table 5 in Appendix I). The income per adult equivalent per year is Rs 28063.7. Food expenditure is high relative to non-food expenditure consuming 3732 calories per day per adult. Households own household equipment worth Rs 19851.5. The human capital accumulation indicated by the education level of currently school going children is 7.2 years with very low average for the household education level of 2.7 years. Average expenditure on education of children currently going to school is Rs 3807.9 per year.

The living condition is not good –2.5 adults / room. On average, 76.8 percent of households have tap water and 35.6 percent have access to sanitation facilities, 69.9 percent have electricity. Average gas and telephone facilities are very low as a whole— 21.3 and 12.1 percent—respectively. Households, on average, own assets including residential and commercial buildings, and land worth Rs 0.35 million. They own 1.4 acres of land per household. Household save on jewellery purchases and cash worth Rs 16619.6 and Rs 10355.5 respectively and they owe money amounting to Rs 29814.9 and receive profit on bank deposits of Rs 332. Entrepreneurial activity is low as households, on average, hold 0.2 enterprises. Two employed persons per household indicate a dependency ratio of 3.6 per earner. With poverty line for rural and urban areas at Rs 705 and Rs 850 expenditure per adult per month, respectively, the poor households are 39.1 percent and 29.8 percent of the total in rural and urban areas in 2001-02.

4. DISTRIBUTION OF THE TREATMENT AND COMPARISON SAMPLES

First, a binary logistic function [Equation 2] is tested to calculate the probability that a household receives remittances. The results are reported in Table 1. The results show that a majority of variables are significant at the 5 percent level.

Table 1

Results from Estimated Logistic Function

	Coefficients	T-Statistics
Community Characteristics		
D_P	0.32	3.1
D_S	0.49	2.3
D_N	0.15	1.5
D_UR	0.10	1.2
LY ^{com} _{REMH} *	0.89	21.8
Households Characteristics		
D_EDU1	0.16	1.0
D_EDU2	0.18	1.7
D_EDU3	0.03	0.3
D_EDU4	0.40	1.8
D_EDU5	0.39	1.8
LHSIZ*	0.18	2.3
LAGE*	0.01	0.1
Constant	-12.35	-17.0

*-Variables are in log form.

Second, the paired t-test is employed to examine whether the mean of each element of X vector for the treatment is equal to that of the matched sample. The results show that prior to matching, the difference between the mean values of explanatory variables of the two groups was very significant, but the difference becomes insignificant for all variables after PSM (see Table 2). This indicates that the distribution of the covariates is approximately the same across the RBH and NRBH.

Table 2

Mean of the Covariates of Remittances Income

Covariates (X-Vector)	T- Test for Equality of Means			
	Before PSM		After PSM	
	Mean Difference	T	Mean Difference	T
Age	3.1	5.2	1.0	1.3
Education of Head of the Household	0.3	1.6	-0.1	-0.4
Province	0.7	10.6	0.0	0.5
Region	-0.1	-4.3	0.0	-0.6
Household Size	0.5	3.2	0.2	0.8
Remittance per Household by District	8439.8	28.0	785.0	1.8

***The range of estimated probability that a household receives remittance income is between 0.0002 – 0.35476. The distribution of propensity scores (PS) for the treated and control groups before and after PSM are presented in Figures 1 to 4 in Appendix I. The common support area is defined by dropping observation from the RBH group whose P-values are larger than that of NRBH and the non treated observation of which P-values are smaller than that of treated i.e.; unmatched PS. In other words we select a common field for both players, which is with PS in the range of 0.00035 – 0.35187. I drop the cases that have probability less than 0.00035 and larger than 0.35187 from both groups. Prior to matching, the mean of estimated PS for migrant and non-migrant households were, respectively, 0.14867 and 0.045161. In the trimmed sample the mean of PS for control is 0.06342, the gap between the two reduces. But after the matching there is negligible difference in the mean values of propensity scores of the two groups—0.14867 for the control and 0.13853 for the RBH.

Prior to matching, the comparison of the mean values of the indicators across the treated (RBH) and control group (NRBH) reveal a crude difference (that includes difference due to observed characteristics) in living standards. The results show that household size is larger for RBH i.e., 7.7 compared to 7.2 of the NRBH, the larger family size indicates the need for migration (Table 5 in Appendix I). On average, the head of the households is older with higher education level in the RBH. Treated units receiving remittance income have higher expenditure per adult per year compared to NRBH. Their expenditure on food is lower than expenditure on non-food item in contrast to the expenditure pattern of NRBH. The human capital indicators support the positive relationship of remittance income and human capital formation [see calorie intake, average class of school going children at present, and expenditure on education per year]. On average, RBH households own equipment that 2.7 times higher in worth than NRBH. RBH have 3.4 rooms per household compared to 2.4 rooms for NRBH. RBH own houses with more facilities such as electricity, safe drinking water, and sanitation. The higher percentage of RBH also has gas and telephone facilities. All these indicators show higher standard of living of treated units compared to non-treated ones. The RBH hold larger assets which include residential buildings, non-residential buildings and livestock, have more cash and jewellery and are less indebted. The profit on bank deposits of RBH is about three times higher than that of NRBH. On average, they hold fewer acres of land holdings. The results support the view that remittances have positive impact on housing and consumer durables and non-land assets [Quisumbing and McNiven (2007)]. Low entrepreneurial activities among RBH do not support the growth impact of remittances. It may affect growth through credit expansion. However, the poverty impact of remittances is very strong with only 5 percent of RBH being below the poverty line compared to 23.9 percent of NRBH. This is a naïve valuation approach that overstates the remittances impact as the difference in mean value which includes the impact of the difference in observables characteristics.

5. RESULTS

Table 3 reports the difference in the mean value of socio-economic indicators of the treated and control groups of households under three definitions. First, the differences in the mean values of socio-economic indicators of the treated and control groups are calculated using all observations. Second, these differences are calculated based on a set of observations from common support area. Third, households that minimise the difference between PS of the two groups—treated (RBH) and control (NRBH)—are matched. The differences are tested statistically using t-ratios. These results are compared by taking the difference in difference of mean of first and third exercise to find the bias in the estimated values if the endogeneity problem and difference in observable characteristics are ignored.

In Table 3, Column 1 and 2, respectively, the mean differences in socio-economic indicators are reported which are based on the whole sample of the treated or remittances receiving households (802) and the control group consists of all households who do not receive remittances (15924) and their t-values. Column 3 and 4 present the results for the trimmed sample (common support area) with the sample of 802 and 15122, respectively, for beneficiary and non-beneficiary households. Finally, the 5th and 6th columns present

the average treatment (remittances) effect on the treated (RBH) after exact matching of propensity score with control group (NRBH) which minimises the difference between treated and control groups of households after controlling for observables' characteristics along with their t-ratio to measure significance.

Table 3
*Comparison of Differences in Means for Households—
Treated (TRH) Vs Control (NRBH)*

Outcome and Output Indicators	Full Samples		Trimmed Sample- Common Sport Area		After Propensity Score Matching		Bias
	Mean Difference	t-statistics	Mean Difference	t-statistics	Mean Differences	t-statistics	
(1) Income per adult equivalent	-368.0	-0.1	-6889.4	-0.8	9948.1	5.9	-2803.5
(2) Expenditure per adult equivalent	11483.5	9.1	10433.9	8.2	8619.3	5.6	-24.9
(3) Expenditure on food per adult per year	3663.9	11.4	3280.2	10.1	2788.3	7.4	-23.9
(4) Non-food consumption (durables) per adult per year	7819.6	7.8	7153.7	7.1	5831.0	4.7	-25.4
(5) Calorie intake per adult per day	1063.1	4.0	868.4	3.2	695.5	1.9	-34.6
(6) Expenditure on education	5753.7	7.7	5152.9	6.8	4094.9	4.7	-28.8
(7) Average class	1.2	8.6	1.0	6.9	0.7	3.5	-43.4
(8) Average class of currently going to school children	4.4	9.4	3.7	7.8	2.4	3.7	-45.9
(9) Household equipment	31602.3	5.8	28515.4	5.2	20046.5	3.1	-36.6
(10) Room occupy	1.1	17.0	1.0	15.5	0.7	7.3	-39.3
(11) Electricity	0.2	16.7	0.1	11.3	0.1	4.6	-55.5
(12) Gas	0.0	0.5	0.0	-1.3	0.0	0.0	-114.1
(13) Telephone	0.3	16.0	0.3	14.5	0.2	10.1	-19.2
(14) Safe drinking water	0.0	-2.9	0.0	-3.0	0.0	1.1	-156.8
(15) Sanitation facilities	0.2	13.7	0.2	10.3	0.1	5.2	-45.0
(16) Asset	559293.9	5.7	519566.9	5.3	336624.2	2.9	-39.8
(17) Livestock	0.1	0.8	-0.1	-1.0	0.1	1.5	172.2
(18) Land holdings (acres)	-0.7	-4.8	-0.4	-2.5	-0.3	-1.0	-53.1
(19) Jewelry (Rs)	140415.7	1.2	139428.0	1.2	137027.2	1.2	-2.4
(20) Saving in cash (Rupees)	19384.1	4.2	17449.0	3.7	15671.4	2.4	-19.2
(21) Loan	-1096.2	-0.1	11115.0	1.6	9212.7	1.2	-940.4
(22) Profit on bank deposits	745.3	2.5	651.1	2.2	645.1	1.9	-13.4
(23) Men employed	-0.8	-19.7	-0.7	-16.6	-0.5	-8.7	-34.2
(24) Women employed	-0.3	-14.8	-0.2	-10.4	-0.1	-3.8	-58.6
(25) Employed total	-1.1	-22.9	-0.9	-18.4	-0.6	-8.7	-40.8
(26) Enterprises	-0.1	-4.3	-0.1	-5.9	-0.1	-4.3	60.4
(27) Poverty (Head Count Ratio)	-0.2	-22.4	-0.2	-19.9	-0.1	-7.7	-33.1
Number of Observation	802 vs 15122		802 vs 10756		802 vs 685		

The results of this impact evaluation reveal that RBHs are in better position than NRBH. The results show that difference in the mean income per adult equivalent is negative but not significant in the first two exercises. After exact matching, this difference in mean values becomes positive and significant (Col. 5 and 6). This proves the theory that workers migrate to take the advantage of higher wages. The results show that households with same qualification and social background earn higher income abroad than in the domestic country. In all the three exercises, the RBH have higher expenditure per adult equivalent but the difference is minimum when the PS, i.e. the exact matched samples have been used. This result also holds for food expenditure,

calorie intake and non-food expenditure. After exact matching of RBH and NRBH, the difference in expenditure per adult equivalent reduces to Rs 8619.3–24 percent.

With reference to human capital indicators, RBH appear to be better educated. The difference in education level of children currently going to school reduces from 4.4 classes to 2.4 classes. This is also reflected in average expenditure per class. Like previous studies, the results support the hypotheses that remittances have positive impact on human capital accumulation. However, results also show that if differences in the observable characteristics are not controlled, the impact would be 43 percent and 45.9 percent larger over the actual impact on human capital accumulation. The results may misguide policy makers if issues of endogeneity and counterfactual are ignored.

Other differences are associated with ownership of durable goods and other amenities of life. On average, RBH households own more equipment than the NRBH. A higher proportion of the RBH has access to electricity, telephone facilities and room per adult equivalent than the NRBH. However, gas and tap water facilities are not significantly different in both groups may be because of lack of public infrastructure.

In case of different types of physical capital accumulation, the results suggest that remittances do not have a statistically significant impact on the accumulation of livestock, land holdings, jewellery, and loans (Table 3) but have higher assets of residential buildings, cash holdings (significant at 5 percent) and profit receipts from banks (significant at 10 percent level).²⁰ These results make the role of remittances in generating economic growth doubtful. Some of these results confirm the earlier findings of Amjad (1988); Gilani (1981) and Arif (1999) that migrant households invest in housing but reject that they are used for land, jewellery, and repayment of loans. However, the results are not comparable as earlier studies did not take into account counterfactual.

The level of female and male economic activity in RBH is significantly lower than in the NRBH. This suggests that both men and women in the households are less likely to work if they receive remittances. This may also imply that the control group of households are relatively poor and women are forced to work to meet their basic needs. Men's lower economic activity in RBH is self-evident since it is they who are working abroad. The lower participation of both men and women also indicates the loss of production due to migration. Non-agriculture establishments (enterprises) are largely owned by non-migrant households or NRBH. The difference between the two groups is significant. This indicates that remittances are not invested in productive enterprises and the hypotheses that remittances influence growth is not correct. The results of earlier studies by Gilani, *et al.* (1981), Tinsabad (1988) for Thailand, and Rodrigo and Jayatissa (1988) for Sri Lanka show that remittances are used for non-agriculture investment by 8.2 percent, 29.5 percent, and 3.6 percent, respectively. Therefore, government should promote local businesses so that households predominantly engaged in consumption or unproductive investment have the option to engage in productive activities.

These results show that the living standard of remittance receiving households is higher than that of the non-treated group. But, if we ignore the difference in observable

²⁰The reason can be that majority of RBH belong to rural area, and they may be receiving remittances through informal channels. Even if the migrant send through formal channels (Banks), household may not report.

characteristics, we overstate the impact extensively. This leads us to conclude that remittances raise the standard of living. The results associated with basic needs such as calorie intake, housing, sanitation facilities etc. also have a role in poverty reduction. Poverty, measured by head count ratio, shows that among the RBH would be, on average, 0.1 points lower than among the NRBH i.e., a difference of 0.1 point (p.d) between the two groups. This finding supports the earlier finding by Siddiqui and Kemal (2006), which shows that remittances reduce poverty by 0.1 percent over the base year with one percent increase in remittances. The difference in poverty is of 0.2 points when we compare poverty of two groups—all treated and all non-treated. This method overstates the impact of remittance on poverty. PSM overcomes the bias problem cutting the impact down to 0.1 p.d—a reduction of 33 percent. The bias in other estimates can be observed from the last column of Table 3 which shows that the estimates are biased upward. If one ignores the issues of selection and differences in observable characteristics, remittances would look like having a greater than actual impact (see Table 3) which is likely to result in wrong policies. The last column of Table 3 shows that the existing literature measuring the impact of remittances belongs to the first group. This study for Pakistan is the first which evaluates the impact of remittances overcoming the problem of endogeneity and counterfactuals and provides an experimental benchmark. Therefore, the results of earlier studies need careful consideration if used for policy formulation.

6. HETEROGENEITY IN IMPACT OF REMITTANCES BY EDUCATION LEVEL

It is important to examine heterogeneity in treatment effect on socioeconomic aspects of households grouped by education level using a methodology that renders an experimental benchmark. Here households are defined in two strata on the basis of education of the head of the household—low skill (less than 10 years) and high skill (10 years and above). In each group, households are further classified into three sub groups. In the lower strata of education (below matriculation) three skill levels are classified as: L-LS (less than one year of education), L-MS (1-4 years of education) and L-HS (5-9 years of education). In the upper strata of education [matriculation and above] three groups are classified as: H-LS (10-13), H-MS (14-15), H-HS (16 years and above).²¹

The overall results show that the relatively poorer group of households (first four groups) register larger gain from foreign remittances in terms of income and expenditure per adult equivalent which increases with the education level except for L-MS. In this group (L-MS) the difference in the income is significant at 10 percent level. Poverty reduces the most among household groups in lower strata where education of the head of the household is below matriculation. In the upper strata, income expenditure and poverty impact are observed in households classified as low skill (10-13 years of education). The other two groups do not register any significant impact of remittances. These groups belong to the richest group of households.

²¹Where in the lower strata, L-LS =Low-Low skill,, L-MS=Low medium skill, L-HS= Low-high skill, In the upper strata H-LS=High- low-skill, H-MS=High-medium-skill, and H-HS=High-high-skill.

Table 4

Impact Evaluation of Remittances by Education Level

Outcome Indicators	Education less than 1 year		Education below Primary (1-4 years)		Education Primary but below Matric (5-9 years)	
	Difference in Means	T-Statistics	Difference in Means	T-Statistics	Difference in Means	T-Statistics
Number of Observation	403		44.0		156.0	
Income per Adult Equivalent	6374.36	7.99	4725.54	1.73	8011.45	2.48
Expenditure per Adult Equivalent	5396.05	7.94	637.83	0.23	9212.72	4.95
Poverty (Head Count Ratio)	-0.2	-5.84	-0.1	-1.12	-0.2	-4.39
	<i>Education Matric to below BA (10-13 years)_</i>		<i>Education BA to below MA (14 to 15 years)</i>		<i>Education MA and above including Professionals (16 years and above)</i>	
Number of Observation	146.0		27.0		28.0	
Income per Adult Equivalent	21040.96	3.51	13569.31	1.01	22259.93	0.98
Expenditure per Adult Equivalent	18456.22	3.57	11935.50	0.77	13012.64	0.56
Poverty (Head Count Ratio)	-0.1	-2.93	0.00	-0.05	0.00	0.00

The poverty effect of remittance is estimated to be 0.1-point difference (p.d) for the whole group in the aggregate analysis. The poverty reduction effect is estimated to be -0.2 p.d for L-LS and L-HS, and larger than average effect for the whole group (-0.1 p.d.). The poverty impact decreases (in absolute term) from -0.2 p.d. to -0.1 p.d. for below matriculation to above matriculation group. This finding is consistent with the findings of Siddiqui and Kemal (2006), which show that poverty impact is larger among relatively poor households and has a smaller impact on relatively rich households. There is no poverty impact for the richest group of households. This does not imply that migration is an irrational decision for these groups of households. Some earlier studies show that the positive effect of migration is not realised until five or six years after the original migration Ham, *et al.* (2005). The initial returns are not significant. Siddiqui (2011) shows that migration of skilled labour has increased in recent years. So the benefits have not been significantly realised yet, or the sample of these households is very small.

The detailed results for these households are presented in Table 6 in Appendix I. The results show that the impact of remittances is still positive in terms of income, expenditure and all types of capital accumulation for the households with less than one year of education. In the upper strata, households with education of matriculation and above, i.e., with 10-13 years of education benefit. The other two groups show significant positive impact only on [profit from bank at 10 percent level of significance] and [expenditure on education, room occupancy], respectively [see Table 6 in Appendix I]. From this it can be concluded that two households in the upper strata belong to richer group of households and do not register the impact in the basic needs' variable. But the impact is significant in bank accounts. However, insufficient data for these groups may be the major reason for the insignificant results. The overall results show that aggregate analysis hides the variation in impact by education level.

7. COMPARISON WITH EARLIER STUDIES

The main difference between the results of this study and the earlier studies is that the change in outcome indicators in this study is unlikely to be correlated with the migration decision, while in the earlier studies it is correlated. The characteristics that influence the migration decision are likely to influence the decision of other households. The majority of earlier works do not take into account the issues of selection and differences in observable characteristics. Therefore they are likely to overestimate the impact.

Empirical estimates from earlier studies are compiled in Table 7 in Appendix I. The table reports major results along with data and methodology used in the analysis. It shows that disparities in estimation techniques and data affect the conclusion. It also shows that more than 90 percent labour migrated from Pakistan, India, Sri Lanka, and Bangladesh to Middle East in the 1980s.

Income and Consumption: Many studies conducted in the 1980s, especially in South Asian countries, have focused on the use of remittances based on existing migration data collected at the household level. Amjad (1988), Kazi (1988) and Gilani, *et al.* (1981), for Pakistan have found that migrant households allocate about 63 percent of resources to total consumption expenditure and 56.8 percent when remittances through unofficial channels are also included. While the results of the present study show that RBH spend 44 percent on food measured in per adult equivalent term, which is lower than the food expenditure of NRBH at 53 percent. Similarly, Gilani, *et al.* (1981) show that RBH allocate 62 percent of their remittances to recurrent consumption (57 percent), durable goods (2.8 percent) and other expenditure (2.3). The results of these studies do not compare the expenditure pattern with counterfactual or control group expenditure. Hence their findings cannot be used to conclude that remittances contribute to higher consumption or lower consumption. Malik and Sarwar (1993) overcome this problem and estimate demand functions for three types of consumption expenditure—total consumption expenditure, recurrent consumption and expenditure on durable goods for RBH and NRBH for various regions of Pakistan. The study concludes that the expenditure pattern is different for migrant and non-migrant households. But the study ignores the differences in observable characteristics and estimate the function by using the whole sample. The result of the present study shows that estimates are biased if the difference is measured using all migrant and non-migrant households. The difference in consumption of RBH and NRBH decreases by 25 percent in total consumption and in expenditure on durables, while the expenditure on food decreases by 24 percent. Therefore it is necessary to use a methodology which at least minimises if not eliminates the bias.

Empirical evidence shows that more than 50 percent of the migrated labour to Middle East were unskilled labour. Mahmood (1988), Hyun (1988), and Tan and Canlas (1988) show that migrated labour from Bangladesh, Korea and Philippines are earning three to six times higher than wages in their country of origin. If we control for the selection bias and the observable characteristics, the difference in income²² becomes significant and positive (see Table 3).

²²This difference is in total earned income.

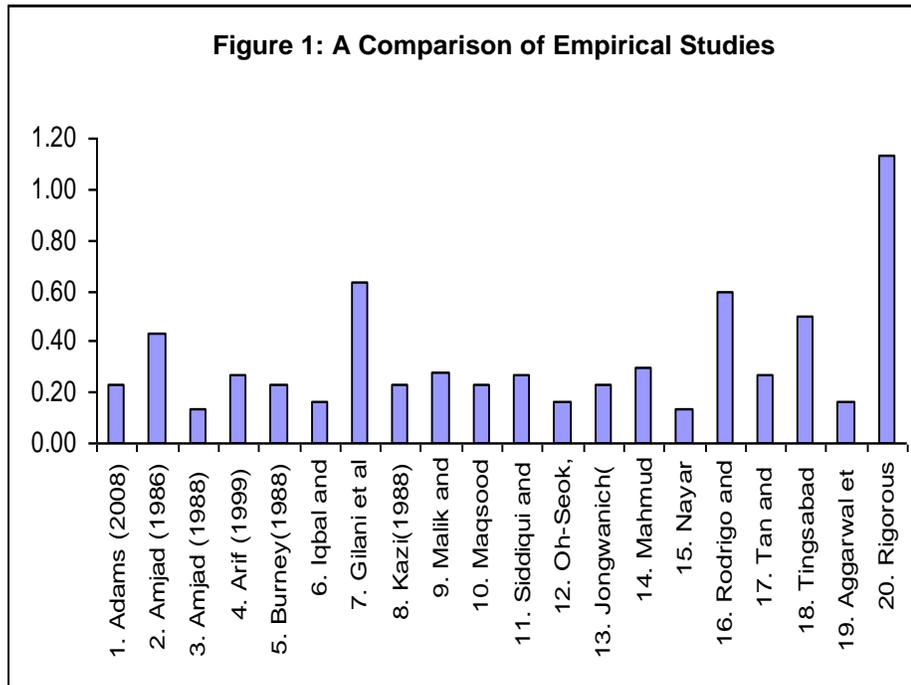
Welfare, Poverty and Inequality: Higher income and consumption are expected to reduce poverty and inequality. Siddiqui and Kemal (2006) show that remittances reduce poverty and improve welfare by 0.01 percent and 0.06 percent, respectively. Rodrigo and Jayatissa (1988) show that inequality increases with remittance inflow. The study by Jongwanich (2007) using cross country data shows that remittances through direct and indirect channels reduce poverty by 0.03 percent. The results of the present study—reduction in poverty by 0.01 percent—match with the results of Siddiqui and Kemal (2006) who show that the poverty impact varies by type of household, rich and poor. These results are confirmed by the results of this study as the impact varies by type of households i.e., the poor register larger impact. However, the results are not exactly comparable as the base year is different. This study shows that bias reduces poverty estimates by 33 percent, when we correct for the selection bias and observable characteristics.

Investment: The studies show that investment in real estate, land, and housing are higher for RBH and ranges between 20.7 and 35.4 percent for Pakistan. Another study for Thailand shows that 33 percent migrant households own houses compared to 20 percent non migrant households. Overall, 75 percent migrant households own assets compared to 39 percent non migrant households. The studies also measure the impact of remittances or their allocation to different types of assets, physical, financial, and human (see Table 7) but the fact remains that they over-estimate the impact due to uncontrolled difference in observable characteristics or counterfactuals. This type of analysis does not measure the sole benefits of migration or remittances, but also include the effects of uncontrolled differences in socio economic characteristics of households.

Growth: Burney (1987) using demand composition and Iqbal and Sattar (2005) using the Chami, Fullenkamp, Jahjah model show positive relationship between growth and remittances. Burney (1987) shows that the contribution of official remittances from Middle East to GNP growth was 13.6 percent during 1973-4 to 1976-7. This contribution increased to 24 percent when remittances through unofficial channels were also taken into account. Iqbal and Sattar (2005) show that increase in remittances by one percentage point increase growth by 0.44 percentage point. Jongwanich (2007) estimates the neoclassical model of Barro using cross country data. The study could not find any direct and significant impact on growth, but indirect effect of remittances on growth works through human capital investment (0.02 percent) and physical capital (0.01 percent). The growth impact remains inconclusive in the present study. The results show that remittances affect human capital accumulation positively, which have a growth promoting impact [Jongwanich (2007)]. In addition higher bank deposits also point to growth promoting effects through the banks' intermediary role i.e. credit expansion. But low entrepreneurial activity and less land holding shows the opposite.

This writer constructed a table of expected outcome indicator of remittances impact giving value of '1' if a study includes the indicator and zero if it ignores, measuring data quality with 1=secondary, 2=primary, 3=data on both treated and control groups. Similarly the methodology is ranked as 1 if data uses only descriptive statistics, and 2 if both descriptive and statistical estimation analysis are used, while 3 means rigorous. An index based on the information has been developed. An ideal situation (hypothetical) is when comprehensive data with treated and control groups is used, for

rigorous impact evaluation to measure the impact on all expected outcome indicators. A comparison of the ideal study with the previous empirical studies shows deviation from the optimal analysis (see Figure 1). The figure shows that majority of studies divert from optimum evaluation level. There is a need to motivate researchers to conduct impact evaluation using method which reduces biases if not eliminate them in the impact and renders an experimental benchmark.



8. CONCLUSION

Given the multi dimension impact of remittances, its integration into overall development planning is essential. For that purpose, it is required to conduct a comprehensive analysis using the most appropriate techniques to draw lessons for suitable policies. Rosenbaum and Rubin (1983) indicate that robust estimates can be obtained by overcoming the problem of selection bias and difference in observable characteristics using PSM and difference method which replicates experimental benchmark in self-select cases.

This paper contributes to the literature of remittance in Pakistan by analysing the impact of remittances using the propensity score matching and difference method. The major finding of the study is that robust estimates that take into account both selection and endogeneity problems in estimating the average impact of remittances are substantially different from the estimates which disregard these issues and so overstate the actual impact. A comparison of impact corrected for selection with those where it is not shows a very large and significant bias. In policy-making it is the unbiased results that are needed.

The paper quantifies the benefits of migration (remittance), in terms of income, expenditure, savings, human capital and physical capital accumulation, poverty, and growth. After balancing for the differences in observable characteristics, migration is found to be beneficial. The number of migrant households with income levels below poverty line reduces by 0.1 points over non-migrants in the aggregate. Their higher human and physical capital ownership, savings in cash and profit from bank point to the growth promoting impact of remittances, whereas lower entrepreneurial activity and low men and women participation in economic activities in the RBH group illustrate the opposite. The growth impact of remittances therefore remains inconclusive.

Aggregate analysis hides heterogeneity in impact by education level and underestimates/over-estimate the effect for poor/rich households. The results show remittances have significant impact on poor households (with less than one year of education) but have no impact on highly educated households. Therefore, matching is a useful way to control for observable heterogeneity too.

The pattern of use of remittances determines the impact on poverty and growth. Therefore, if the objective is to achieve higher growth, the remittances can be redirected from current consumption towards productive investment by offering higher interest rate on deposits or subsidies for productive investment. However, further analysis requires more demographic and economic information on migrants and return migrants, their stay abroad, how they send money back home, over what period of time and from where. That analysis would be helpful to devise migration policies for poverty reduction and growth enhancing strategies.

APPENDIX I

Table 1

<i>Impact in the Log Frame: Remittances Inflow from Abroad</i>	
Level	Indicators
Activities	Migration
Input	Remittances
Outputs	1. Accumulation of Capital Stock: Human, Physical and Financial.
Intermediate Outcomes	1. Better nutrition 2. Higher enrolment 3. Higher physical capital stock 4. Higher Bank Deposits
Final Outcomes	Improved Social and Economic Indicators: literacy rate and health status and growth
Short Run Impact	1. Reduce poverty 2. Improve welfare of households
Long Run Impact	Higher Productivity and Earnings

Table 2

Detail of Variables Used in the Analysis

Variable Name	Definition
1. Remittances	Households' remittance income from abroad in (Rs).
2. Income per Adult	Household income from all sources—domestic and foreign, divided by number of adult equivalent (Rs).
3. Total Expenditure per Adult	Total households expenditure divided by number of adult equivalent (Rs).
4. Expenditure on Food per Adult	Food expenditure per adult equivalent in Rs.
5. Calorie Intake	Calculated by multiplying quantity of good consumed with calorie per unit.
6. Expenditure on Non-food Items per Adult	Non Food Expenditure in Rs per year per adult equivalent
7. Expenditure on Durables such as Clothing and Footwear	Expenditure on durables per adult equivalent per year
8. Expenditure of Education per Class	Households Expenditure on Education divided by level (classes) of school going individuals
9. Average Class of School Going Children	Total number years of schooling of currently going to school children divided by number of school going children
10. Household Size	Number of households members
11. Females Economic Activity	Female Employment
12. Education of the Head of the Household	Highest level of Education of head of the household
13. Capital Stock Accumulation	
13a. Human Capital	Measured by education of currently going to school (years of schooling), average level of education of households and expenditure on Education per class.
13b. Physical Capital	Asset: Buildings (completed or under construction),— land, residential buildings, commercial buildings
13c. Equipment	Durable goods: Tangible asset accumulation such as refrigerator, TV, automobile and other durables.
13d. Financial Capital	Profit on Bank Deposits measure size of deposits
13e. Savings	Jewellery and Cash
14. Poverty	Head Count Ratio, Percentage of population below poverty line
14.a Poverty Line	Rural and urban poverty line are calculated based on the assumption that the gap between rural and urban poverty line is same as in 1990 Official national poverty line is used to calculate poverty line for rural and urban areas. Poverty lines are Rs 748, Rs 850 and Rs 705 for Pakistan, Urban and Rural areas, respectively
15. Household Condition (measured by amenities)	
15a. Electricity	Electricity direct connection
15b. Gas	Gas direct connection
15c. Tap Water	Piped, Hand Pump, Tube well direct
15d. Sanitation Facilities	Flush connected to public sewerage, Flush connected to pit
15e. Telephone	Telephone direct connection
15f. Occupancy	Room per adult

Table 3

Geographic Distribution (%)

	<i>Control(NRBH)</i>	<i>Treated(RBH)</i>	<i>Total</i>
Punjab	39.8	33.2	39.4
Sindh	24.2	4.0	23.2
KP	15.9	30.7	16.6
ROP	20.1	32.2	20.8
Total	100	100	100

Source: Author's Calculations.

Table 4

Distribution of RBH and NRBH by Region

<i>Urban</i>	<i>Control</i>	<i>Treated</i>	<i>Total</i>
Punjab	39.5	57.9	40.3
Sindh	40.8	41.0	41.3
KP	31.3	32.9	31.4
ROP	28.0	32.9	28.4
Total Urban	36.2	43.9	36.6
Rural			
Punjab	60.5	42.1	59.7
Sindh	59.2	0.0	58.7
KPK	68.7	67.1	68.6
ROP	72.0	67.1	71.6
Total Rural	63.8	56.1	63.4
Pakistan	100.0	100.0	100.0

Source: Author's Calculations.

Table 5

Mean Values of Output and Outcome Variables

<i>Variables</i>	<i>Full Sample</i>	<i>Treated</i>	<i>Control</i>
No. of Observation	15924.0	802.0	15122.0
H-size	7.2	7.7	7.2
Age	45.7	48.6	45.5
Education of Head of the Household	4.2	4.5	4.2
Remittances per adult per year	778.1	15450.0	0.0
Households in a district	155.4	175.0	154.4
Income per Adult	28063.7	27714.3	28082.2
Expenditure per Adult	16053.0	26958.1	15474.6
Food intake per adult per year	8865.5	12344.9	8681.0
Non-food consumption (durables) per adult per year	7187.4	14613.2	6793.6
Calorie intake per adult per day	3732.2	4741.7	3678.7
Average class of currently going to School	7.2	11.4	7.0
Expenditure on education per year	3807.9	9271.8	3518.1
Average class of households	2.7	3.9	2.7

Continued—

Table 5—(Continued)

Household Equipment	19851.5	49862.1	18259.9
Room per households	2.4	3.4	2.4
Electricity	69.9	88.7	68.9
Gas	21.3	22.0	21.3
Telephone	12.1	38.5	10.7
Tap water	76.8	72.3	77.1
Toilet	35.6	58.9	34.4
Asset	351314.6	882440.2	323146.2
Livestock	0.2	0.2	0.2
Land Ownership	1.4	0.8	1.5
Jewelry	16619.6	149963.3	9547.6
Cash	10355.5	28763.3	9379.3
Loan	29814.9	28774.0	29870.2
Bank Deposit profit	332.0	1039.8	294.5
Employment	1.9	0.9	1.9
Enterprises	0.2	0.2	0.2
Poverty based on expenditure per adult equivalent	23.0	4.99	23.9

Source: Author's Calculations.

Table 6

Impact Evaluation of Remittances by Education Level

Education level Outcome/Output Indicators	Less than one Year		1-4 year		5-9 years		10-13		14-15		16 and above	
	Difference in mean	T-Statistics										
1. Income per adult equivalent	6374.36	7.99	4725.54	1.73	8011.45	2.48	21040.96	3.51	13569.31	1.01	22259.93	0.98
2. Expenditure per adult equivalent	5396.05	7.94	637.83	0.23	9212.72	4.95	18456.22	3.57	11935.50	0.77	13012.64	0.56
3. Expenditure on Food per Adult per Year	1685.03	5.64	664.59	0.60	2476.38	3.52	5719.69	4.77	5642.87	1.51	6204.74	1.63
4. Calorie intake per adult per year	770.47	1.96	-140.26	-0.08	87.90	0.10	948.61	0.96	665.87	0.23	2930.88	0.83
5. Non food consumption (durables)per adult per year	3711.02	7.54	-26.77	-0.01	6736.34	4.85	12736.53	3.00	6292.63	0.51	6807.90	0.34
6. Expenditure on education	3311.67	6.09	3333.83	1.98	5507.90	2.89	2179.34	1.49	12313.57	0.72	13585.78	1.98
7. Average class of Households	1.02	4.55	0.37	0.65	0.59	1.44	0.25	0.45	0.54	0.42	-0.29	-0.24
8. Average class of currently going to School children	4.34	6.10	1.86	0.83	2.92	1.75	-1.42	-0.84	-1.49	-0.32	-1.62	-0.37
9. Household Equipment	13742.28	5.97	7194.39	1.25	51042.25	2.11	28240.48	2.01	54.49	0.00	-54404.74	-0.77
10 Room Occupy	0.86	7.61	0.52	1.54	0.73	3.68	0.11	0.44	0.34	0.75	0.70	1.69
11 Electricity	0.16	4.94	-0.12	-1.68	0.08	2.55	0.01	0.40	-0.04	-1.00	0.05	1.00
12 Gas	-0.01	-0.58	0.02	0.20	0.04	0.73	0.02	0.36	0.00	0.00	-0.06	-0.46
13 Telephone	0.21	8.61	0.09	0.95	0.35	7.16	0.25	4.41	0.02	0.17	0.14	1.11
14. Safe Drinking Water	0.05	1.39	0.00	0.00	0.10	1.98	-0.08	-1.78	0.05	0.50	-0.04	-0.40
15. Sanitation facilities	0.18	5.43	-0.02	-0.20	0.15	2.68	0.08	1.62	0.01	0.08	0.15	1.60
16. Asset	246351.34	5.79	237325.76	0.97	646653.19	1.45	268842.66	0.84	979637.04	1.11	11444.81	0.02
17. Livestock	0.21	1.50	-0.36	-0.80	0.43	1.97	0.01	0.05	0.02	0.08	-0.57	-2.12
18. Land holdings (acres)	0.00	0.03	-4.85	-0.80	0.02	0.06	-0.36	-0.77	-0.68	-0.89	-0.36	-0.47
19. Jewelry (RS)	251106.20	1.06	5470.45	0.46	21636.55	4.39	26957.60	1.92	7958.52	0.83	27948.05	1.45
20. Saving in Cash (Rupees)	13687.21	3.84	37196.97	1.30	24624.74	1.65	33712.75	2.55	-118451.85	-0.97	6919.16	0.15
21. Loan	23780.64	1.77	43602.41	1.54	-14039.49	-0.76	-8412.13	-1.26	-16068.15	-1.38	-15250.00	-0.82
22. Profit on bank deposits	-76.19	-0.79	795.45	1.16	530.70	1.32	1822.15	1.42	1814.81	1.68	4175.32	0.68
23. Men employed	-0.51	-6.06	-0.28	-0.88	-0.43	-3.20	-0.65	-5.06	-0.30	-1.29	-0.69	-2.58
24. Women employed	-0.14	-2.96	0.00	0.00	-0.10	-1.77	-0.15	-2.00	-0.17	-1.64	0.10	0.79
25. Employed total	-0.65	-6.21	-0.28	-0.68	-0.53	-3.49	-0.80	-4.90	-0.47	-1.87	-0.58	-1.95
26. Enterprises	-0.08	-2.37	-0.20	-1.75	-0.10	-1.59	-0.19	-3.12	-0.01	-0.08	-0.04	-0.36
27. Poverty (Head Count Ratio)	-0.15	-5.84	-0.09	-1.12	-0.16	-4.39	-0.09	-2.93	0.00	-0.05	0.00	0.00

Source: Author's Calculations.

Table 7

Empirical Estimates from Existing Literature

Focus on	Data	Results
		official(unofficial)= 1.49 (2.89)to 6.59(11.01) in1970 and 1980s
		0.44 to one percentage point of remittances
		Human capital= 0.02 Physical Investment =0.01
Growth (5,6,21)	TS	
Earning Estimate of non Migrant		
Per Capita Remittances(1)	469 HH survey	223.6
Earnings(remittances)r(8)	ARTEP	4908Rs/Month
Remittances(2,4)	ARTEP/ILO	2589 Rs /m
Wage ratio after migration /Domestic(13,15,19)		2.65, Bangladesh=5.77 Philippines= 6.35
Variation in Remittances income =ratio of poorest/richest 20 %,(1)	469 HH survey	1-13.8%
Consumption out of remit/ Share of consumption (2,7,9,8,18,20, 99)	Total	63.3% - 56.8%
	recurrent	53.50%
	marriages	9.80%
	Consumer Durables	included in recurrent
	Total	35.40%
Real Estate		
	Construction /Purchase of Residential House	12.14
	Improvement in House & Construction	2.27
	Commercial Real Estate	5.72
	AgricultureLand	1.55
Investment/Saving, after/Before(2)	Total	24.2% saving
	Agricultural Investment	3.3
	Industrial/commercial Investment	8.21
	Financial Investment/Saving=foreign currency account	14.2
Residual		8.5
	Human Capital	0
	Poverty(12, 22)	0.01, 0.03
	Welfare(12)	-0.06
	average cost of migrant(15,20)	1534 in \$ 1983 38979 to 43518 baht
		62.19 57.00 2.35 2.84 21.68
		0.57m 0.52nm 0.53m 0.48nm 0.026m 0.03 nm
		52.1 6.99(0.55) 57% (99)
		5.9 11.04
		14.2 33.13/20.73
		15.6 6.12/225.24
		35.1 M/NM=75/39 Asset Ownership
		Year= 1981 5.41(6.65)=transport equipment, total invest=3.61
		29.5 13.42/2.20
		loan=4.3%, Jewellery =5.1 Education = 2.4, Health=5.9
		loan=23.54, Jewellery=0.26 Loan=2.6%(99), Jewellery=26.8(99) Other saving = 5.1%

Sources: 1. Adams (1998), 2. Amjad (1986), 3. Amjad (1988), 4. Arif (1999), 5. Burney (1988) 6. Iqbal and Sattar (2005), 7. Gilani, *et al.* (1981), 8. Kazi (1988), 9. Malik and Sarwar (1993), 10. Maqsood and Sirajeldin (1994), 11. Nishat and Bilgrami (1993), 12. Siddiqui and Kemal (2006), 13. Hyun (1988), 14. Jongwanich (2007), 15. Mahmud (1988), 16. Nayar (1988) 17. Quisumbing and McNiven (2007), 18. Rodrigo and Jayatissa (1988), 19. Tan and Canlas (1988), 20. Tingsabad (1988), 21. Aggarwal, *et al.* (2006), Jongwanich (2007).

Note: Number in parentheses in the first and second column indicates reference study described below.

Table 6

Table 7

APPENDIX II

Histograms Before and After Propensity Score Matching

Figure 1: Histogram of RTH before PSM

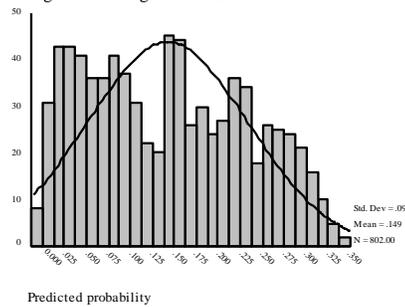


Figure 3: Histogram of TRH after PSM

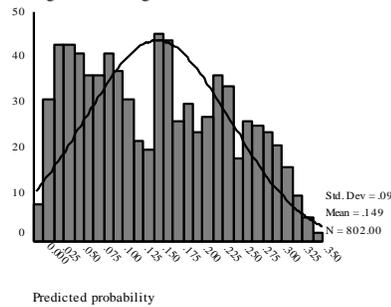


Figure 2: Histogram of NRCH before PSM

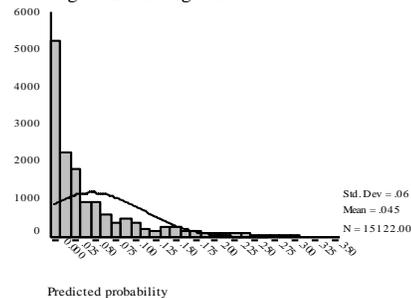
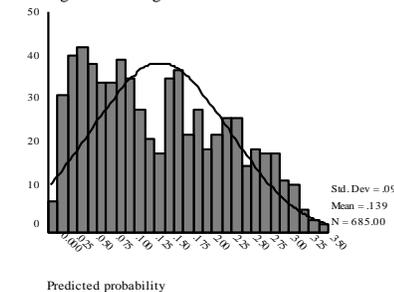


Figure 4: Histogram of NRCH After PSM



Note: Author's Construction.

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Intergovernmental Transfers: An Evaluation of Mechanism and Design of Transfers in Pakistan

IDREES KHAWAJA and MUSLEH UD DIN

The 7th National Finance Commission (NFC) Award has seemingly put an end to the deadlock over revenue distribution among the constituents of the federation in Pakistan. This paper argues that though the 7th NFC Award's use of multiple indicator criteria for the distribution of resources is a step forward in the right direction, the distribution design still falls short on various counts. For example, the weight of 82 percent for the population share is on the higher side whereas the demographic structure of the population, an important indicator of the expenditure needs, does not figure up in the distribution design. Also, the basis of weights assigned to the four elements of the revenue distribution criteria is unknown and no rigorous exercise seems to have been undertaken to determine these weights. Similarly, matching grants, which are a key element of the distribution design elsewhere, are altogether absent in Pakistan. Furthermore, provinces still rely on large transfers from the centre which undermines the incentives of the provinces to generate their own revenues. The paper emphasises that there is a need to rethink the mechanisms for resource sharing as well as the institutional structure of the NFC itself.

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1. INTRODUCTION

Pakistan is a federal country with two constitutional tiers of the government—the federal government and the provincial governments; moreover there are some Federally Administered Tribal Areas (FATA) and the State of Azad Kashmir. As in many other countries, the federal government in Pakistan generates more revenues than its needs. Correspondingly, the provinces generate only a small percentage of the revenue required to meet their expenditure needs. This calls for transfers from the federal government to enable the provinces to carry out their functional responsibilities. The National Finance Commission is the institution responsible for devising the revenue sharing arrangement between the federal government and the provinces. The Commission recommends the sharing of the federal revenue with the four provinces namely Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan.¹ The Commission is constituted every five years and has

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¹The province of Gilgit-Baltistan was created after the latest Award (i.e., 7th NFC Award) had been announced and at present its expenditure needs are being directly met by the federal government.

representation (official as well as non-governmental) of all the stakeholders. The Commission does not have a permanent existence, however, it is allowed adequate time to work on the Award (i.e., announcement of revenue sharing arrangement). The provincial ministers of finance and other experts in the areas of finance and fiscal management typically man the NFC which is headed by the federal minister for finance. The ‘Unanimity rule’—all the provinces and the federal government must agree—is the principle that the Commission follows in making its recommendations to the government. Several previous Commissions either faced deadlock or were forced to adopt the sharing arrangement prevailing at the time due to the failure to develop a consensus on any new sharing arrangement. The ‘divisible pool’ i.e., the revenue sources available for sharing is specified in the constitution and the President can add revenue sources to the divisible pool while notifying the establishment of the Commission. Two kinds of conflicts have often marred the proceedings of the Commissions. One, what should be the share of the federal government in the divisible pool? Two, what should be the elements of the criteria to be used for sharing the divisible pool among the provinces.

The seventh NFC Award was announced in December 2009 and became effective on July 01, 2010. The Award is seen as a landmark in the sense that it broke the deadlock that had constrained the National Finance Commissions, constituted in 2001 and 2006, to announce the awards. Two major changes contributed to ending the deadlock: reduction in the share of the federal government in the divisible pool by 10 percentage points and the introduction of a multiple indicator criteria (MIC) for the distribution of the divisible pool in place of the earlier criterion that was solely based on population. The distribution criteria prescribed by the 7th NFC is given in Table 1. For comparison, the criterion used by the immediately preceding Award has also been included in the table.

Table 1

Criteria for Distribution of National Revenue

	Presidential Order 2006	7th NFC Award
Provincial Share in Divisible Pool	46.25%	56% increasing to 57.5%
Grants and Subventions	3.75%	–
Indicators and Weights		
Population	100%	82.0%
Poverty		10.3%
Revenue Generation		5.0%
Inverse Population Density		2.7%
Given the Weights indicated above, the provincial share in the Divisible Pool works out as follows:		
Punjab	53.01%	51.74%
Sindh	24.94%	24.55%
Khyber Pakhtunkhwa	14.88%	14.62%
Balochistan	7.17%	9.01%

Source: Adapted from “Pulling Back from the Abyss: Third Annual Report”, Institute of Public Policy, Beaconhouse National University.

At present the divisible pool includes the following revenue sources:

- Personal Income Tax
- Tax on corporate income
- Wealth Tax
- Capital Value Tax
- Taxes on sales and purchase of goods
- Custom duties
- Federal Excise Duty (excluding on Gas)

The reduction in the share of the federal government in the divisible pool has enabled the NFC to recommend transfer of greater funds to all the provinces. Even the province of Punjab, which in the past had shown preference for the retention of the population share criterion, has not been a loser despite the change in the distribution formula. The end of the deadlock coupled with the transfer of more funds to all the provinces have earned the award almost universal appreciation. This study aims at a critical evaluation of the 7th NFC Award in particular and the distribution design in general. The analysis will primarily focus upon the institutional arrangement for the distribution of funds and the formula for the distribution of available resources among the provinces.

2. INSTITUTIONAL ARRANGEMENT FOR DISTRIBUTION OF RESOURCES

Though the 7th NFC Award has managed to break the deadlock that marred the proceedings of the previous two commissions, an important question that arises is: will the institutional structure of the NFC prevent deadlocks in the future? To answer this question it is important to put in perspective the reasons that led to previous deadlocks and the factors that helped to break out of the stalemate.

2.1. The Deadlock

Historically the divisible pool has been shared among the provinces on per capita basis. However since 1996 three out of four provinces have been demanding the inclusion of more elements in the distribution criteria. Each province demanded the inclusion of such elements that would entitle it to greater transfers from the divisible pool. With Karachi being the country's hub of business activities and the provincial capital, Sindh demanded that revenue generation effort be made a part of the distribution criteria. On the other hand, Balochistan, the largest province in terms of geographic area, contended that its cost of public service delivery was relatively high due to low population density, therefore the element of geographic area (reflected in inverse population density) must be included in the criteria. Both Khyber Pakhtunkhwa and Balochistan argued that the higher poverty levels prevailing in the two provinces required greater transfers to alleviate their poverty. Punjab, the largest province in terms of population housed more than 60 percent of the country's population when the deadlock arose in 1996. The province stood to gain from the distribution solely on per capita basis and understandably argued for the retention of this criterion. With each province insisting on including a

different element in the distribution criteria a deadlock in the proceedings of the Commissions was imminent especially when the Commissions followed the ‘unanimity rule’.

When the 6th NFC Award was being negotiated in 1996, objections were raised on the distribution criteria prevailing then, but these objections were not responded to and the Award remained pegged to the old formula. This was mainly due to the fact that the political party then in power at the centre drew its strength from the Punjab which was adamant on retaining the prevailing formula. The objections that were raised at the time of the negotiation of the 6th Award surfaced again with such intensity later on that these caused deadlocks over the NFCs of 2001 and 2006. Perhaps even the 6th award reflected the strength of the political party in power at the centre and the Punjab over the preferences of the other provinces. It is also noteworthy that the four Commissions that failed to announce the awards (or adopted the previous awards without any changes) were constituted during the military regimes (1979, 1985, 2001 and 2006) which demonstrates the capability of democratic regimes which provide a better environment for striking a compromise in situations where interests conflict.

2.1.1. *How the Deadlock Ended?*

Under the 7th NFC Award, each province is to get more transfers from the federal government than what it would have received under the previous distribution criteria. This was the key to opening the deadlock: with each province getting more funds, all the provinces were willing to go along even if some structural issues remained unaddressed. Moreover the 7th NFC Award accepted the long standing demand of the three smaller provinces for inclusion of their preferred elements in the distribution criteria. The 7th NFC Award managed to placate the province of Punjab by introducing a minimal change in the weight of the population share—82 percent, down from 100 percent. Moreover, this time around, the smaller provinces which had been demanding a change in the distribution criteria were a part of the ruling coalition at the centre. Efforts to keep the otherwise fragile coalition intact would also have played some role in putting the deadlock to an end. Finally, given the previous failures, all the stakeholders were under pressure to resolve the conflict. All these factors together helped to resolve the long standing conflict over the revenue sharing arrangement. Though the 7th NFC Award has ended the stalemate and moved forward, a key structural issue namely the ‘unanimity rule’ remains unaddressed making deadlocks in the future possible.

2.1.2. *The Unanimity Rule*

As mentioned earlier, the National Finance Commissions constituted in 2001 and 2006 failed to reach a consensus over the distribution formula and, perhaps, over the magnitude of the federal share in the divisible pool. The problem apparently lies in ‘the unanimity rule’ that the Commission follows in adopting its recommendations. What is the solution? Will the ‘majority rule’ solve the decision making problem. Perhaps not. The majority vote can avoid the deadlock in a narrow legal or administrative perspective but this may raise problems for the federation. Smaller provinces may complain of being the victim of federal hegemony. Alternatively, if the smaller provinces get together as a group in the NFC, then the federal government or the larger province (i.e. the Punjab)

may feel deprived of their respective share in the resources. Therefore the ‘unanimity rule’ under the present institutional arrangement is not a choice but a necessity. The point is that notwithstanding the spirit of compromise shown by the federal government and the provinces while negotiating the 6th and the 7th NFC awards, the structure of the NFC itself has no mechanism to prevent a deadlock. As discussed later in the study, it is possible to address this problem by devising an appropriate institutional mechanism.

2.2. The Need to Rethink the Institutional Arrangement for the Distribution of Resources

The NFCs have a history of failures. Even though the constitution requires that there be an NFC Award every five years, only 8 Awards have been announced since independence. The 5th NFC Award, due in 1979 came in 1990—12 years after it should have been announced; similarly the 7th Award due in 2001 was delayed by 9 years. The Commissions were duly constituted in the intervening periods but these failed to reach a consensus over the recommendations. Clearly, something needs to be done to avoid possible deadlocks in the future. In this respect, useful insights can be gained from research on subjects like assignment of revenue resources to different tiers of the government and determination of weights for the different elements of the distribution criteria. There is not much evidence to suggest that overtime the NFCs in Pakistan have either conducted research on the questions at hand or have made enough use of research available on the subject.

The present institutional set-up of the NFC lacking the mechanism to prevent a deadlock situation and the need for research on the issues involved in designing a suitable distribution mechanism call for revisiting the institutional structure of the body which is responsible for declaring the Award. The next section reviews the institutional arrangements used in different countries for making resource transfers to the sub-nationals with a view to drawing guidelines for devising an appropriate institutional arrangement for resource sharing among federal units in Pakistan.

2.3. Institutional Arrangements Used in Different Countries

Institutional arrangements used in different countries for devising the distribution criteria and making transfers from the federal government to the constituent units can be broadly classified into the following three categories:

- (i) Central agency (central government’s ministry),
- (ii) Intergovernmental Forum,
- (iii) Independent Agency.

2.3.1. Central Agency

The federal government on its own takes the decision regarding the distribution of revenue resources among the constituent units. Typically, the office of the president or prime minister or the ministry of home affairs or the ministry of finance assumes the sole or partial responsibility for the fiscal transfers to the constituent units. Countries that are relying upon a central agency to determine the amount of transfers include Kyrgyz Republic, Tanzania, China, Italy, Kazakhstan, Netherlands, Poland, Switzerland,

Ukraine, Ghana, Zambia and Japan. The rationale for the central agency is that as the federal government is responsible for managing the national objectives, therefore the transfer decisions should be taken by the federal government. However, this approach negates the essence of decentralisation. Shah (2007) suggests that the constitutional restrictions on the ability of the federal government to override provincial preferences can limit the negative effects of this approach. Shah further suggests that as an alternative to the federal government's direct role in the distribution of federal revenues, a separate body could be entrusted the task of designing the fiscal relations among the various tiers of the government. The proposed body could either be independent or an intergovernmental forum or may be an intergovernmental-cum-civil society forum. Pakistan has such a forum. It is appointed by the President every five years.

2.3.2. Intergovernmental Forums

The intergovernmental forums are formed to recommend the distribution of the federal revenue among the federal government and the constituent units. These forums typically enjoy representation from all the stakeholders and provide room for some bargaining over the distribution criteria. The limits of the bargaining are defined by the constitution e.g., in Pakistan the revenue sources available for distribution are defined by the constitution. Shah (2007) prefers a simple distribution criterion which may render only approximate justice to each constituent unit over a complex criterion with complete justice. The study argues that quite often the constituent units have conflicting interests and a forum with conflicting interests cannot handle a complex distribution criterion. Countries that rely solely on intergovernmental forums include Germany, Indonesia and Nigeria. Pakistan also relies on such a intergovernmental forum with the difference that the Commission members also include experts from the civil society of each province. Countries like South Africa and India make use of an independent agency in addition to the intergovernmental forum.

2.3.3. Independent Agency

An independent agency is established by the central government to make recommendations to the government or the legislature on resource transfers to the constituent units. The members of the agency are experts in fiscal management. Some countries, for example India, draw a member from the judiciary as well. Typically, this kind of agency has an advisory position. Australia was the first to establish an agency for recommending resource transfers in 1933. Since then this institution has become popular in a number of countries including India and South Africa. The independent agency was established in Australia after some states had expressed dissatisfaction with the process of bilateral negotiations with the federal government on requests for special grants. A secession threat by Western Australia proved instrumental in the decision to set up an independent agency. Thus the origin of the independent agency has lessons for countries where one of the constituent units is dissatisfied with the resource distribution.

The objective of setting up an independent agency is to let the experts recommend the distribution criteria based on professional knowledge and rigorous analysis of the prevailing economic environment. The rationale for an independent agency is that it can disengage the distribution criteria from politics. Shah (2007), however, does not favour

the independent agency on the ground that it tends to offer a complex solution to an otherwise simple task thus increasing the cost of devising the resource distribution criteria. Moreover, given the complexity of the distribution formula it becomes difficult for the ordinary citizens to monitor the performance of the agency.

2.4. Proposed Institutional Arrangement for Distribution of Revenues

The foregoing suggests that both the intergovernmental forum as well the independent agency have their merits and demerits. With the regional representatives on board, the intergovernmental forums can protect the regional interests more effectively but if these forums follow the unanimity rule then their proceedings are prone to deadlock. The independent agencies, comprising experts, can bring the required rigour into the revenue sharing exercise but these agencies tend to complicate problems that may have a simple solution. A better institutional structure for revenue sharing would be one where the two can supplement each other. Therefore we suggest that a two-tier institutional structure may be set-up in Pakistan to design revenue sharing among the constituents of the federation. The proposed two tiers are: (i) an independent body of experts and (ii) an intergovernmental forum.

An independent body, comprising fiscal experts, practitioners as well as academicians, would constitute the first layer of this two-tier structure. Experts will be selected without regard to provincial affiliations and they would be full time/part time employees of the independent agency. The agency would have the mandate to recommend not only the sharing of the divisible pool but also to determine the revenue sources that should comprise the divisible pool. The agency would also have the mandate to recommend assignment of specific revenue sources to the federal or provincial government. The agency would have resources to conduct or commission research on the issues under consideration as well as to make use of existing research available on the subjects. The agency will commence its task two years before an Award is due and will have 16-18 months to conduct research, deliberate upon possible options and then make its recommendations. The agency will send its recommendations to the upper tier, the intergovernmental forum. The recommendations of the agency would carry detailed justification in their support especially if the advice deviates from the established formula. The recommendations would also be made public to encourage debate on the subject. The independent agency will not insist on arriving at a unanimous set of recommendations, a principle which in the past has caused deadlock in NFC proceedings. The notes of the dissenting members would form part of the independent agency's report.

The upper tier, the intergovernmental forum, will comprise the federal and provincial ministers of finance only. The experts need not be on the forum because the expert work has already been done by the independent agency. The forum would review the recommendation of the independent agency and may or may not accept all or some of these. The forum would pay due regard to the political factors and other sensibilities that the independent agency would not have taken into account. Moreover the forum will also take into consideration the public debate on the recommendations of the independent agency. If the forum decides not to accept some or all of the recommendations of the independent agency, the forum and its individual members would have to offer their reasons or justifications for their point of views. The

intergovernmental forum will then send its recommendation to the government for final approval and announcement of the Award.

This two step approach is likely to put an end to the deadlocks which have beset revenue distribution among constituent units in Pakistan. The proposed two-tier institutional structure is an improvement over the existing one for the following reasons:

- The experts drawn from the profession and the academia without regard to provincial affiliations and put in the position of a ‘judge’ are less likely to take a biased position.
- The experts being paid employees of the independent agency would do their assigned work according to the charter of the body rather than work as a lobby for a particular constituent unit.
- The knowledge that the recommendations of the agency will be debated publicly will induce the members to offer sound and practical recommendations.
- The experts’ reliance on research will:
 - enable the independent agency to offer sound and practical recommendations.
 - make it difficult for the agency or the individual members to take unjustified positions.
- It would not be possible for the intergovernmental forum to easily ignore the recommendations of the independent body for the following reasons:
 - These would have the backing of eminent experts.
 - The recommendations would have attracted sufficient public debate by the time intergovernmental forum takes a decision on these.
 - The forum and its individual members will have to record reasons if they decide not to accept the recommendations of the independent agency.

3. DISTRIBUTION OF REVENUE RESOURCES

The federal revenues available for distribution among provinces have historically been distributed on a per capita basis. The 7th NFC Award accepted a long standing demand of the three provinces for the introduction of a multiple indicator criteria. The rest of this study examines the new distribution design in the light of the revenue distribution practices followed in other countries.

3.1. Resource Distribution Practices Adopted Internationally

Transfers from federal government to the sub-nationals take several forms. These are formula-based as well as discretionary and could be block unconditional, conditional or matching. The transfer programmes often aim at fiscal equalisation among the constituent units i.e., to enable the constituent units to provide the same kind of service with comparable level of taxation.

In Canada, transfers from the federal to provincial governments are unconditional and are given to only those provinces whose revenue raising capacity is below the national average. It is noteworthy here that revenue generation is highly decentralised

with the share of provincial own-source revenue standing close to 80 percent of the total national revenue. It is only under this kind of revenue decentralisation that some provinces can manage to function without any equalisation transfers. The Indian system essentially involves distribution of funds on the basis of estimated expenditure needs and, to an extent, on the potential of the subnationals to generate revenues from their own sources. The finance commission of India primarily uses the gap filling approach for equalisation of fiscal capacity across states. The states are allocated shares in central taxes based on a formula and the difference between a state's budgetary expenditures and its revenues is filled through the grants-in-aid. It is argued that the gap filling methodology not only acts as a disincentive for the subnationals to raise own-source revenue but is a source of inequity as well. In Australia, the comprehensive nature of equalisation allows assessment of all the circumstances that affect the relative cost differences a state is faced with in delivering standard services. These include additional costs faced by a sub-national government in meeting requirements of large cities as well as in providing services in rural areas and remote locations. If a state's differential per capita revenue or expenditures is considered beyond the control of the state, for example, due to geography, it is compensated for that. The Australian approach to equalisation requires voluminous data across states at a high level of disaggregation. The Australian equalisation programme has been criticised on the grounds of efficiency, complexity and reliance on internal standards rather than best practices. It is argued that reliance on average internal standards in a sense rewards some states for maintaining lower standards. However, by and large, there is a general acceptance of the system. It is precisely because of carrying out a very thorough equalisation programme that federal government (known as the Commonwealth government) has been able to keep the states satisfied despite continuing with the large vertical fiscal imbalance (difference between revenue generated by the federal government and states).

In the United States, unlike other federal countries, there is no general form of revenue sharing. However around 600 grant programmes exist for state and local governments. The different forms in which grants are provided include project, categorical, and block grants. While some grants have matching component, others have structured formulas. Barring federal transfers for some specific purposes, the overall grant system is small relative to other countries. Though a degree of equalisation is built into grant programmes, however, in general, the intergovernmental transfers do not aim at equalisation despite wide differences in taxable capacity across states.

In Germany, the intergovernmental transfer system is highly egalitarian. The unique feature of the German system is that richer states transfer money to the poorer states. In practice, the states, whose taxable capacity is below the national average, receive transfers from the states with taxable capacity above the national average. The transfer programme is designed in a manner that fiscal capacity of the below-average state is brought to 90 percent of the national average. These interstate transfers are unconditional.

The transfers from the federal governments to the provinces typically attempt to equalise fiscal capacity and in some cases fiscal needs as well (United States is an exception). The amount of transfers in a number of countries is determined on the basis of some formula. Indicators like population share, poverty, demographics, fiscal effort

and population density are typically used to determine fiscal needs and capacities. 'Population share' is not considered a good indicator of fiscal needs and is used only in a handful of countries. Even the countries that use population share as the criterion for revenue distribution typically accord a rather low weight to it in the distribution formula e.g., India. Nigeria, with transfers based solely on the basis of population, is an exception. Pakistan, with 82 percent weight for population share, stands close to Nigeria.

Transfers are also used to achieve certain national objectives, for example, education and healthcare for all. One of the typical characteristic features of the transfer programmes is the use of conditional and matching transfers for the provision of healthcare, education and social security. The use of conditional/matching transfers for these services reflects the importance attached nationally to the provision of these services. The aim is to provide the specified services to all up to a certain minimum level defined by the society. Such choices are made through a variety of collective choice mechanisms such as voting for electoral promises of the political parties/candidates.

In Canada, besides the equalisation transfers, the other major forms of transfers are the equal per capita transfers which are nominally divided into two components—the Canada Health Transfer (CHT) and the Canada Social Transfer (CST) which include welfare and post secondary education. Only minimal conditions are attached to the payments. To be eligible, the provinces cannot impose residency condition on welfare payments and health insurance programmes have to follow general criteria including access, affordability and comprehensiveness.

In Australia, huge transfers from the federal government to the states are made under the special purpose programmes (SPPs). These SPPs are intended to support the implementation of some national priority and these are in addition to the transfers from the united pool of funds determined in the manner described earlier. The largest SPPs are in the areas of education, health, social security, transportation and housing. SPPs constitute a significant proportion of the total assistance from the federal government to the states. This proportion has varied from 25 percent of the total federal assistance in early 1970s to 50 percent in 1990s. The majority of the SPPs are subject to conditions—the conditions designed to ensure the achievement of national objectives. These conditions include general policy conditions that the amounts so transferred be spent on designated purposes only. Sometimes the transfers require matching expenditures from the state's own sources for the same purpose. Such grants are determined through bilateral negotiations between the federal government and the concerned state as well as negotiations at some forum where all states are represented. In the United States, grants for health and income security constitute the major purposes for which transfers are made to the state and local governments. These grant programmes are discretionary at the national level and are determined through the annual budget process. The interstate highway system is financed jointly by the federal and state governments with federal government typically funding 90 percent of the construction cost. Other major grant categories include education and transportation. In South Africa, in recent years the share of conditional specific purpose grants, which are discretionary in nature, have exhibited sizable growth in the total transfers to the provinces. The discretionary nature of the conditional grants has made the transfers system less transparent.

3.2. Analysis of the Revenue Distribution Design

3.2.1. *Fiscal Equalisation: What Method to Use?*

The subnationals typically encounter a fiscal gap—the difference between expenditure needs and the revenue means. The gap may arise either because a region does not inherently enjoy the potential to generate revenues or because the taxing powers are centralised with the federal government. Whatever the reason for the fiscal gap, leaving the gap unattended has economic as well as political ramifications. The gap may cause large fiscal disparities among the regions which could be politically divisive for the federation. This threat cannot be taken lightly. Since 1975 more than 40 countries have been created and a deeper analysis of the independence/liberation movements would reveal that fiscal disparity, among the regions of a nation, was at the heart of many if not all movements. Evidence suggests that addressing the fiscal gap helps curb the feeling of deprivation and therefore forestalls cessation threats. Australia and Canada have successfully thwarted cessation attempts by bridging the fiscal gap of the sub-nationals and through various autonomy measures. The primary tool of fiscal equalization, are intergovernmental transfers, in the form of revenue sharing and grants [Bilin (2005)]. The typical methods of determining the size of transfers from the federation to the sub-nationals include:

- (1) Equalisation of fiscal capacities and fiscal needs,
- (2) Fiscal capacity equalisation,
- (3) Need criterion,
- (4) Population share criterion.

The method of equalising the fiscal needs as well as the fiscal capacity recognises that both may vary across regions. This method of equalisation seeks to address the net variation in the fiscal need and fiscal capacities of the regions. The method of equalising fiscal capacity only assumes that the per capita fiscal needs are more or less equal across regions. This method aims to transfer more funds to the region whose fiscal capacity is below the national average. Both these methods require voluminous data on revenue generation, actual as well as potential, as well as minute details of the expenditure needs. The two methods are therefore difficult to use in developing countries.

The need indicator criterion recognises that fiscal needs may vary across regions. This criterion seeks to estimate the expenditures of the subnationals on certain major fiscal needs using statistical and econometric techniques. These estimates are then used to compute the total fiscal need of the region. To estimate the expenditure on a certain need, say healthcare, the need index is developed using possible factors that may influence the healthcare such as the demographic profile of the region, the historical evidence on common ailments and the expenditures thereon. A certain weight is then assigned to healthcare needs keeping in view the value of the index and the historical share of the healthcare expenditure in the total expenditure. Need indicators typically used to estimate fiscal needs of the subnationals include: population, per capita income, unemployment rate, population density, geographical area, infant mortality, life expectancy, school enrolment rate and infrastructure. The multiple indicator criterion (MIC) adopted by the 7th NFC is similar in spirit to the need indicator criterion. However the MIC includes

fewer indicators than are typically included in the criterion. The weight determination exercise for the individual elements of the MIC does not seem to be supported by a detailed and rigorous exercise and the weight of the population share is too large.

The last of the four fiscal equalisation methods mentioned above is the population share criterion which has been in vogue in Pakistan until 2009. Ma (1997) argues that the use of population share criterion is least effective at securing equalisation of fiscal needs across regions. The population share criterion assumes that per capita expenditure needs are equal across regions. However, in practice, the per capita expenditure needs may vary, due to differences in population density, geography, history, resource endowments and the level of development. Moreover, the remote location or the difficult terrain of an area may increase the cost of delivering public services. The metropolitan character of a city may also call for incurring above average expenditures.

3.2.2. The Absence of Matching Grants from the Distribution Design

The provinces in Pakistan are free to use the transfers from the federal government in the manner they deem fit. Such block unconditional transfers, though in accord with the spirit of the provincial autonomy, do not provide any guarantee that funds will be used to provide a minimum level of public service, especially in respect of essential needs like healthcare and education. Thus, with unconditional block transfers the level of public service in respect of essential needs may vary across jurisdictions. The question then is, what is more important?—provincial autonomy or homogeneous minimum national standards across provinces for essential social services.

The merits of provincial autonomy notwithstanding, there are strong arguments for setting uniform minimum national standards for essential social services like healthcare and education. The conventional wisdom that inequality is essential for economic growth [Kuznets (1955), Lewis (1954)] has been convincingly challenged in recent decades [Galor and Zeira (1993); Easterly (2007)]. Raising the living standards of lagging regions is now considered important for aggregate economic prosperity as well as for political stability. Moreover the homogeneous national standards encourage mobility of goods, services, labour and capital across jurisdictions. The uniform standards also increase the market for the goods of any region and allow the regions to gain from their respective comparative advantage. Establishing relatively homogeneous standards calls for incurring greater expenditures in regions that are below the national average. Conditional or matching grants can be used to achieve uniform standards across jurisdictions. A region that lags behind, say on healthcare indicators, can be induced by the federal government to improve healthcare services by conditioning the transfers with the kind of measurable improvement that is desired.

Conditional or matching grants, especially for social needs like healthcare and education, are a key element of the transfer programme in the developed countries. This is despite the fact that the revenue mobilisation is fairly decentralised in these countries—United States, Canada and a number of other countries. The rationale for conditional transfers, besides the uniform national standards, is that the subnationals in an effort to woo businesses into their jurisdiction may impose lower tax burden on them. This may ultimately result in under provision of essential public services. Conditional grants ensure that essential services will be provided to the required minimum level.

Conditional grants could be administered in a variety of ways. Conditions may be imposed on the subnationals either with respect to inputs (i.e. expenditures) or outputs (i.e. desired results). The input grants may encourage the sub-nationals to engage in wasteful expenditure to show higher numbers. This kind of adverse incentive cannot be related to output based grants. Therefore the output based grants are preferable unless the measurement of output is highly difficult. Conditions would be imposed not on the specific use of grants but on attainment of standards in quality, access and level of service. Matching grants allow the subnationals to access transfers if they spend a certain specified percentage on a specific service from their own sources. Such grants are termed open-ended when there is no limit to transfers from the federal government on this count. Close-ended programmes, on the other hand, put a maximum cap on matching transfers. The close-ended programmes are favoured over open-ended grants because these can be designed while taking into account the budget constraint of the federal government.

The literacy rate of Khyber Pakhtunkhwa and Balochistan is significantly lower than that of Punjab and Sindh (Table 2). It is obvious that the two lagging provinces need to spend more on education to bring their literacy rate closer to the other two provinces.

Table 2

<i>Literacy Rate (Provincial Profile)</i>				
Age	Punjab	Sindh	KP	Balochistan
Literacy Rate	59	59	50	45

Source: Demographic and Health Survey of Pakistan (2006).

The use of elements like poverty and inverse population density as indicators in the distribution formula is based on the fact that some provinces lag behind others in the level of development. Greater funds have been transferred to the provinces under the 7th NFC Award on grounds of higher cost of delivery (reflected by Inverse Population Density) and poverty. Increase in literacy could be an ideal way to alleviate poverty on a long term basis. The block unconditional transfers do not guarantee that the additional funds will be used to alleviate poverty or, for example, will be spent on increasing access to education in the sparsely populated Balochistan. The two provinces could have been made to spend more on social services had the incremental transfers been conditioned upon certain improvement in literacy rate, enrolment rate or the patient-doctor ratio. A mix of general purpose and matching grants would better serve the cause of development in Pakistan.

3.2.3. Demographic Structure and Distribution Criteria

The demand for public services for different age groups is different. For example, the population aged 5-20 needs education while the elderly require greater healthcare. If the age structure of the population varies across regions then, to provide equal level of services, the expenditure will vary across regions. The estimated province-wise age structure of population in Pakistan, as of 2006, shown in Table 3, depicts that the school age population is relatively greater in the provinces of Khyber Pakhtunkhwa (KP) and Balochistan while elderly population is greater in Punjab and Sindh.

Table 3

School/College Age Population (Percent)

Age	Punjab	Sindh	KP	Balochistan
School Age (5–19 Years)	38.2	39.1	41.8	41.7
Elderly (60 Years and Above)	7.0	5.0	5.8	4.3

Source: Demographic and Health Survey of Pakistan (2006).

Given the province-wise demographic structure of the population, it is clear that the need to spend on education is greater in KP and Balochistan while the need to spend on healthcare is greater in the remaining two provinces. This will be true even if we assume equal per capita expenditure on these services across provinces. The foregoing suggests that to provide more accurately for the expenditure needs of the provinces the demographic structure should be accounted for in the distribution formula. However, the demographic structure is not an element of the multiple indicator distribution criteria adopted by the 7th NFC Award.

3.2.4. Weights of the Multiple Indicator Criteria

The 7th NFC Award has assigned certain weights to the four elements of the multiple indicator criteria. There could be no two opinions that the methodology for the determination of weights should be widely known in the interest of transparency and public debate. However, this is not the case. It is unknown what role the historical expenditure patterns, statistical tools and research have played in the weight determination exercise and to what extent rough calculations and political manoeuvres have influenced the weights. The weights influenced by political compromises are likely to prove less stable as there could be a demand for revision with the change in the power configuration.

To illustrate how the weights should be computed one could compute the per pupil cost of education for a school located in some remote area of Balochistan and compare this with the corresponding cost for some school located in the central Punjab. The difference in the two costs could form the basis for the weight of inverse population density. This example is only illustrative and of course the cost differential would have to be examined in greater detail to construct the weight. Similar exercises could be undertaken to compute the weights of other elements of the criteria.

3.2.5. Weight of Population Share

The previous distribution criterion was criticised primarily on the ground of revenue sharing solely on the basis of population. With the assignment of 82 percent weight to the population share no major change has been effected in the distribution formula. Thus all the arguments put forth to criticise the previous formula are still valid. Very few countries make transfers to subnationals on the basis of population share and the ones that do accord it a small weight, for example 10-20 percent in India. A problem with the use of population share criterion is that the provinces may question the credibility of the population census. Nigeria, where transfers are solely on the basis of population, has encountered such problems. Perhaps in an effort to avoid the problems of the sort, India is still using the population figures of 1971 to distribute revenue according to weightage assigned to population.

3.2.6. Poverty as an Element of Multiple Indicator Criteria

It is generally argued that revenue distribution should not be based on indicators that are likely to generate perverse incentives. Poverty level is one such indicator. The use of poverty as an indicator acts as a disincentive for the provinces to alleviate poverty because the poorer a province, the greater its entitlement under the NFC Award. Moreover, the estimates of poverty levels in Pakistan have been questioned for accuracy. This has prompted the 7th NFC to use the average of the estimates generated by the three different agencies. Including ‘poverty’ as an element in the revenue distribution criteria will make the provinces stakeholders in the poverty estimation exercise. How this would influence the estimates is difficult to tell. It may add to the controversy about the accuracy of the estimates but, on a positive note, the possibility is that the estimation exercise may become more transparent and less questionable, given the potential gains and losses of the different stakeholders.

3.2.7. Provincial Resource Mobilisation

The National Finance Commission presently does not enjoy the mandate to offer advice on the provincial revenue generation but still designing the revenue distribution mechanisms hinges on the extent of own-source revenue generated by the provinces—if the provinces generate more own-source revenues the reliance on federal transfers decreases.

The intergovernmental fiscal relationship in Pakistan is highly imbalanced. The provinces account for around 35 percent of all government expenditures but they generate merely 8 percent of the consolidated national total tax revenue which is only 0.5 percent of the GDP. The need to improve provincial resource mobilisation is but obvious. (A comparison of the intergovernmental fiscal imbalance is given in Table 4. Though six years old the comparison still shows that decentralised revenue generation in Pakistan is among the lowest in the world).

Table 4

*Imbalance between Revenue and Expenditure in Countries
at the Sub-national level*

	Revenue	Expenditure
Australia	31	46
Brazil	31	46
Canada	56	63
India	34	55
South Korea	5	50
Germany	35	63
Pakistan	8	28

Source: Adapted from Watts (2005), cited in Beaconhouse National University (2010).

In the context of fiscal relationship between the federal government and the provinces the primary issue is how the fiscal needs of the provinces should be met? Whether the federal government should collect a larger part of the revenue and then transfer it to the provinces through some transfer mechanism or the provinces should be allowed to generate more revenues on their own and rely on the federal government only

to cover the shortfall. The latter approach may have several advantages as discussed below.²

The low revenue mobilisation on the part of the provinces should be viewed in the perspective of the national tax effort. The aggregate tax-to-GDP ratio in 2009-10 was 10.5 percent and has been on the decline for over a decade (it was 12.5 percent in 1996). This is significantly lower than the average for developing countries (15 percent) as well as developed countries (35 percent). The tax-to-GDP ratio is much better even in the South Asian countries like Sri Lanka (16 percent) and India (14.5 percent) [Nabi and Shaikh (2011)]. According to Bhal, *et al.* (2008), the present state of revenue decentralisation and its future prospects present a dismal picture. Though the provinces have access to as many as 15 tax bases, the effective yields are very low. The tax bases are considerably eroded due to exemptions and are undervalued, incomplete and dated. Moreover, while the broad based taxes like personal income tax, tax on corporate profits, sales tax on goods and custom duties are with the federal government, the hard to collect taxes are with the provinces: sales tax on services and the tax on agricultural income—the former is administratively difficult and the latter is politically sensitive.

Though most of the broad based taxes have been assigned to the federal government but the incentive to mobilise revenue at the central level may not be as much as it could be at the provincial level. The fact that 57 percent of what is collected does not remain with the federal government may dampen its incentive to increase collection from the revenue sources that are to be shared with provinces. Moreover, with access to money creation and foreign aid, the federal government may not be as hard pressed for cash as the provinces are—provinces cannot create money and they have only recently been allowed to borrow abroad, but only under restrictive conditions.

Though the conventional wisdom suggests that broad based taxes like the personal income tax and the tax on corporate profits should be with the federal government, some federal governments in developed countries are successfully sharing these taxes with the subnationals. The federal government in Pakistan shares the tax revenue with the provinces but only through the NFC Award, not the tax bases.

The devolution of taxes has several advantages. If the provinces are allowed to share the broad based tax bases like personal income tax and tax on corporate profits with the federal government this would solve the free rider problem. The provinces would make an effort to generate more from the two tax bases because the revenue would belong to them. Moreover, better revenue generation by one province can generate a strong demonstration effect, encouraging other provinces to emulate the example set by the high revenue generating province. To accomplish the sharing of the tax bases, the federal government may reduce its tax rate on corporate profits and personal income to make room for the provinces to levy tax on these bases. For example, a reduction of 10 percentage point in corporate tax rate will allow the provinces to tax corporate profits at the rate of 10 percent. The revenue loss that federal government will incur would be offset by the reduced transfers to the provinces under the NFC Award. Overall the national tax revenue is likely to increase due to this kind of sharing because of the greater incentive of the provincial governments to collect more taxes.

²This discussion draws on the chapter on 'Provincial Resource Mobilisation' in Fiscal Decentralisation in Pakistan, Pakistan Institute of Development Economics.

The devolution of taxes like income tax to the provinces in Pakistan is criticised on the ground that the provinces do not have the requisite administrative capacity for the purpose, which with all its machinery and power even the federation finds difficult to collect. Increase in collection cost due to the loss of scale economies is yet another argument against decentralisation of revenue generation. Here one can learn from the Canadian example. In Canada though the taxes have been devolved in the sense that the provinces are free to set their own rate structure, a single Canadian Revenue Agency collects the income tax on behalf of the provinces [Boadway (2007)]. A system on these lines can also be developed in Pakistan. The collection of provincial revenue against the tax bases being shared with the federal government can be assigned to the federal government for a certain charge. The collection of taxes by the Federal Board of Revenue, on behalf of the provinces will take care of the supposedly low collection capacity in the provinces and a higher aggregate collection cost under the devolution.

3.2.8. Revenue Generation Effort

The 7th NFC has included revenue generation (more commonly known as tax effort) as an element of the resource distribution criteria. This is a welcome development. However, the 10 percent weight assigned to revenue generation is not enough to induce the provinces to increase their tax effort. The effort made by the provinces to generate tax revenue is accounted for in a number of countries while determining the size of transfers. The objective is to encourage the provinces to generate more own-source revenue by rewarding the existing revenue generation. Own-source revenue generation has a number of advantages. It reduces dependency on the federal government and improves governance at the regional level. Moreover, each province can levy taxes in accordance with the preferences of the electorate for the level and kind of public service required.

Moore (2000) argues that nations that mostly rely on unearned income (defined as foreign aid or income from natural resources) are typically poorly governed. The reason is simple: with easy access to money the rulers do not have to enter into a ‘bargain with the citizens’—taxation revenues in return for good governance and better service delivery. Unconditional transfers from the federal government to the subnational governments are like aid to a country from a foreign nation—this reduces the need to raise revenue from the citizens and thus saves the rulers from a more difficult task—providing good governance and better service delivery.³ If the federal government conditions the transfers to the provinces with sufficient demonstration of own-source revenue generation effort, then the provinces would have no choice but to mobilise more own-source revenue.

3.2.9. Revenue Generation Effort as Element of Distribution Criteria

Though the inclusion of revenue generation as an element of the distribution criteria is a step in the right direction, there are some issues in its implementation. Revenue generation as an element of distribution criteria means the total tax revenue generated in a province i.e., the tax collected in a province against the tax bases assigned

³One reason why very meagre amount of agricultural income tax is collected in Pakistan is that the tax lies in the domain of the provinces which have little incentive to mobilise own revenues owing to their reliance on transfers from the federation.

to the federal government as well as to the provinces. As argued below, a better approach for this purpose would be to consider only the revenue generated against provincial tax bases (own-source revenue).

If the objective of the inclusion of 'revenue generation effort' in the distribution criteria is to encourage generation of own-source revenue by the provinces, then it is not clear how distribution on the basis of federal revenue generated in a province would encourage generation of own-source revenue. Moreover, collection of revenues by the provinces against tax bases assigned to the federal government would not yield (and has not so far yielded) the benefits of own-source revenue generation for two reasons. First, the machinery for tax collection is federal rather than provincial and secondly, the citizens do not expect the provincial governments to provide better services in return for federal taxes. Thus the improvement in governance at the provincial level would not result merely because more federal revenue is being generated by a province.

Another problem with the use of the revenue collected in a province against federal tax bases is that numerous firms do business and generate income in more than one province. Logically, the tax should be payable in the province where the income is generated. However, for administrative convenience the firms are required to pay tax on their consolidated national income in the province where the head office of the firm is located. Since the income tax is a federal tax, therefore the provinces, as well as the federal government, were till now indifferent to whether the tax payable from income generated in province X is actually deposited in province X or province Y. However now, that the revenue generation is an element of the distribution criteria, the administrative convenience referred to above gives an undue advantage to the province that might be host to head offices of a greater number of firms. For example the banking sector—the largest tax payer, generates income from all over the country, but pays income tax mostly in Sindh on its consolidated income in the country. The reason is that the head offices of most of the banks are located in Karachi—the capital city of Sindh. A more realistic approach therefore would be to include only the revenue generated against provincial tax bases for determining the tax effort of the province.

If at all it is essential to include the revenue generated against federal tax bases then the income generated by multi-provincial firms in each province should be estimated so that the tax liability against the province-wise income of the firm can be assessed for the purpose of the distribution criteria. Whereas estimating regional profits for a multi-provincial firm may be a difficult exercise, the practices adopted by different countries can be examined to estimate the regional earnings.

If the changes discussed above are incorporated in the distribution design, then the weight of 5 percent assigned to revenue generation should be increased significantly to encourage own-source revenue generation by the provinces. This would encourage the provinces to increase revenue generation from the provincial tax bases. It may be mentioned here that some important tax bases assigned to the provinces include property tax, tax on agricultural income and GST on services.

3.2.10. Specification of the Divisible Pool: A Disincentive for Resource Mobilisation

The process of distribution of revenues between the federal government and the provinces begins with the specification of the divisible pool—the revenue sources which

the federal government can share with the provinces. Most but not all revenue sources are included in the divisible pool, for example personal and corporate taxes are a part of the divisible pool while Petroleum Development Levy (PDL) is not. Exclusion of some revenue sources from the divisible pool encourages the federal government to concentrate on increasing revenues from the excluded sources because the revenue from these does not have to be shared with the provinces. The specification of divisible pool creates a disincentive for the federal government to increase revenues from the sources which comprise the divisible pool. To illustrate, suppose that the federal government wants to raise its own revenue by Rs 100. To raise the required amount through tax on corporate profits the federal government would have to increase the corporate tax rate by such percentage that an additional amount of Rs 236 is mobilised. The federal government needs to mobilise more than the revenue that it requires because 57.5 percent of the additional revenue i.e. Rs 136 would go to the provinces, leaving the federal government with the required Rs 100. An alternative for the federal government is to increase the PDL by such percentage so as needed raise an additional Rs 100 only. The PDL requires lesser increase because it is not a part of the divisible pool i.e. the revenues from PDL are not to be shared with the provinces.

How can these disincentives be avoided? Table 5 provides the answer. At present 44 percent of the gross national revenue is being transferred to the provinces. Instead of specifying an elaborate list of revenue sources which would form the divisible pool, it can be simply stated that 44 percent of the gross federal revenue would constitute the pool of resources divisible among the provinces. This would take care of the federal disincentive to increase revenue from the sources that are divisible. This of course would have to be qualified with details like excluding royalties from oil and gas, which are to be transferred in full to the province concerned.

Table 5

Revenue Transferred to Provinces

NFC	Financial Year	Revenue Transferred to Provinces as Percentage of Gross Total Revenue of Federal Government (%)
NFC 1991	1991-92	26.0
	1992-93	26.1
	1993-94	27.9
	1994-95	30.1
	1995-96	31.8
NFC 1996	1996-97	33.8
	1997-98	26.3
	1998-99	24.2
	1999-00	27.4
	2000-01	30.4
	2001-02	27.7
	2002-03	27.5
	2003-04	27.8
	2004-05	28.0
2005-06	29.5	
NFC 2006	2006-07	
	2007-08	
	2008-09	31.4
	2009-10	31.9
NFC 2009	2010-11	44.6
	2011-12*	44.0

3.2.11. Evaluation of Distribution Design Against Best Practice

The broad principles of resource distribution design derived from the review of relevant literature are given in Box 1.

Box 1

Autonomy: The transfers should allow the subnational governments to determine their own expenditure priorities.

Predictability: The amount transfers should be known well in advance so that the provinces may budget their expenditures with a modicum of certainty.

Simplicity: The transfer criteria should be objective and be fairly easy to understand.

Equity: The transfers should take care of the fiscal needs of each subnational government.

Revenue Adequacy: Transfers should take care of the imbalance in resource availability between the federation and the provinces as well as amongst the provinces.

Incentives: transfers should encourage constituent units to raise revenues and control expenditures.

Accountability: The grantor must be accountable for the design and operation of the programme. The recipients must be accountable to the grantor and the citizens for financial integrity and better utilisation.

Source: Primarily Adapted from Pulling Back from the Abyss: Third Annual Report, Institute of Public Policy, Beaconhouse National University. (The last point 'Accountability' is an addition to the criteria included in the report.)

The revenue distribution design in Pakistan fares well on the yardsticks of autonomy and simplicity. Predictability is not complete but not bad either. However, it scores poorly on the scales of 'incentives' and 'accountability' whereas it is too early to assess it in terms of 'revenue adequacy' and 'equity'. The performance of the distribution design is discussed below in some detail.

The subnationals enjoy complete autonomy as to the use of the funds available, the criteria is simple enough—the weights assigned to the elements of the criteria are known in advance and one has to know only, for example, the population of a province to figure out the grant entitlement of the province against the population share. The absolute amounts of transfers that a province is to receive are partially predictable. The criterion describes the transfers in terms of percentage share of the divisible pool. The absolute size of the divisible pool in a financial year depends upon the revenue that the federal government is able to generate against the sources included in the divisible pool. The transfers are predictable in the sense that the federal government sets the target for collection against each tax source, thus the targeted amount of the divisible pool and the targeted provincial shares are known at the beginning of the financial year. However, the transfers are unpredictable in the sense that in recent years the federal government has been missing the revenue target by a significant margin. This introduces an element of uncertainty regarding the size of the divisible pool and hence the provincial share of transfers. More time is required to grade the new distribution design on the criteria of 'revenue adequacy' and 'equity'. On the one hand, a large number of new functions have been transferred to the provinces under the 18th amendment, while greater funds are

being transferred under the 7th NFC Award. With more functions to perform, and greater financial resources at the disposal of the provinces, only time will tell whether the resources are enough to meet the financial needs of the provinces and if these are equitably distributed across provinces.

The revenue distribution design fares poorly in terms of ‘incentives’ to raise own-source revenue and ‘accountability’ for the appropriate use of the transfers. As discussed in section 3.2.8, the 7th Award in fact had a dampening effect on own-source revenue generation. The reason of course is greater transfers from the federal government. Lesser transfers from the federal government coupled with perhaps partial allocation of some attractive tax bases, like income tax, to the provinces will encourage the provinces to increase revenue generation from their own tax sources. This is also likely to make the provinces more accountable to their own electorate as successful taxation is essentially a bargain between the citizens and the government.

To conclude, the distribution design is simple, allows autonomy to the provinces as to the use of funds and the amount of transfers is predictable, though with a degree of uncertainty. However, the distribution design offers no encouragement to the provinces to raise own-source revenue. The two principles, namely ‘autonomy’ and ‘incentives to raise own-source revenue’ may at times conflict—the distribution design that offers greater incentive for own-source revenue generation may not always allow complete autonomy to the constituents as to the use of transfers. For example, the use of matching grants in some developed countries restricts the use of transfers for certain specific purposes but at the same time encourages own-source revenue generation because the subnationals have to spend a part of the amount from own sources. It is society in general and the policy makers in particular who choose between greater provincial autonomy in the use of transfers and more incentives to generate own-source revenue. The latter has more benefits from the perspective of economic development and good governance.

4. CONCLUSION

The 7th NFC Award in December 2009 ended a prolonged deadlock over the design of the distribution of revenue resources. Yet the present institutional structure of the NFC remains prone to potential deadlocks in the future. The two-tier institutional structure proposed in this study can be helpful in smooth functioning of the NFC with better distribution mechanisms. Though the new distribution design is an improvement over the previous one but still it does not come close to the international best practices. For example, the population share—which is not a part of the distribution design in developed countries and carries a small weight in some developing countries—has a large weight of 82 percent in Pakistan. A good design should encourage own-source revenue generation by the provinces as against the potential dampening effect of the 7th NFC Award in this respect. The distribution design, on its own, can only partially encourage own-source revenue generation e.g., by including the revenue effort and matching grants in the distribution design. While the weight of the revenue effort is not large enough, the matching grants do not figure at all in the prevailing distribution design. To further encourage own-source revenue generation, the federal government needs to share broad base tax bases, like the income and corporate taxes, with the provinces rather than transferring the revenue from these through the distribution design.

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Changing Gender Relations and Its Influence on Female Migration Decision in India

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This paper is an attempt to understand the position of Indian women in the family and its influence on their migration decision. The migration-empowerment relation can be explained through relative measures like intra-household decision making indicators, and age and educational differences. The data for the purpose of the study has been drawn from the various rounds of NSSO and NFHS and it has been analysed at the state level due to data limitations for explanatory variables at the household level. The bi-variate findings show economic decision making related to large household purchases, decisions on mobility and spousal educational differences which exhibit a linear relation with the women's migration decision. The empirical findings suggest the women's greater involvement on own health care, spousal age and educational differences significantly influence their migration decision. This suggests that women's empowerment influences their migration decision.

JEL Classification: J10, J16

Keywords: Empowerment, Migration, Women, India, Relative Measures

1. INTRODUCTION

India, like the other South Asian countries, is a patriarchal society, implying that gender relations within a household are determined by patriarchy¹. The persisting cultural norms and practices which strongly embody the ideology of patriarchy influence the roles, responsibilities and rights of women within a family. Thus, gender relations are unequal and it is the household that determines women's status and their role in decision making aspects. Since, migration is a function of the household decision making process, the relative status of females within the household has a significant influence on it. In this regard, Lim (1993) argues that women's economic and social position relative to men is a crucial determinant of female migration. The patriarchal model of family relations assumes that the true migrants are the males who migrate in search of their economic betterment, leaving women as merely accompanying wives of their husbands and families [Houstounand

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¹“A system of social structures and practices in which men dominate, oppress and exploit women” [Walby (1990)].

Barrett (1984)] and hence, their actual motivations to migrate remain unexplored. Thus, despite its increasing trend over time female migration in the Indian context is largely an understudied aspect in the country's migration studies. However, recent studies on migration and gender do not agree with the assumption that women are mainly the tied movers in the migratory process [Chattopadhyaya (1997); Hiller (2007)] but in fact are independent movers in search of socio-economic betterment.

The progressive development of the country in social and economic spheres is expected to bring a degree of flexibility in patriarchal norms and influence the gender relations within the household. Such transformations enlarge the scope of women for accessing more resources and hence, bring changes in gender relations that are reflected in their decision making aspects including migration.. Studies indicate that women who are more independent, resourceful and have a say in the family decisions are more likely to migrate; thus, the act of migration itself has been described as a challenge to patriarchy [Hondagneu-Sotelo (1992, 1994)]. In this context, it is interesting to look at the intra-household dynamics and its implications for female migration. Although it has been recognised that migration by itself has an empowering impact on the gender relations, the present study seeks to highlight women's position and status within a household and their role in the migration decision making.

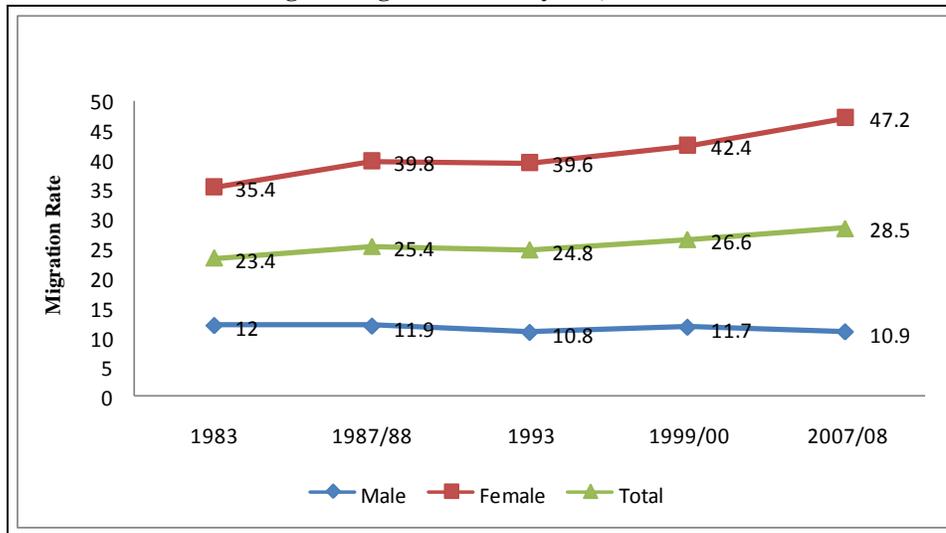
The main objective of this paper is to understand the relative position of women in a family and its relation to their role in migration decision making process. In other words, this paper emphasises women's empowerment (as a result of changes in gender relations) and its influence on their migration decision making.

Given this objective, the rest part of the paper is organised in the following manner: The second section discusses trends in female migration, and its dynamics. Perhaps this may help understand and establish how female migration and its changing pattern can explain women empowerment. In the third section, the concept and measurement indicators of women empowerment are explained. The operationalisation of the concept of empowerment (changes in gender relation) and its relation to migration is discussed in section four. Data and methodology used are outlined in section five. The bivariate and econometric results are presented in section six. The last section discusses the summary of findings.

2. FEMALE MIGRATION IN INDIA: TREND, FLOW AND REASONS

This section argues female migration apart from being an economic incentive is a response to the socio-cultural changes. In other words, this section attempts to address like other socio-economic and cultural factors, the changes in women's migration pattern explained through women empowerment.

Estimates drawn from National Sample Survey reveal a continuous increase in migration over the years especially among females. The data presented in Figure 1 depicts that migration rate increased from 23 percent in 1983 to 29 percent in 2007-08 and the increase is mainly due to the increasing share of the women. The figure clearly shows that there is a substantial increase in female mobility from 35 percent in 1983 to 47 percent in 2007-08. This is a reflection of not only increase in female migration but also the persisting gender difference in migration as well.

Fig. 1. Migration Rate by Sex, 1983–08

Source: Calculated from NSSO.

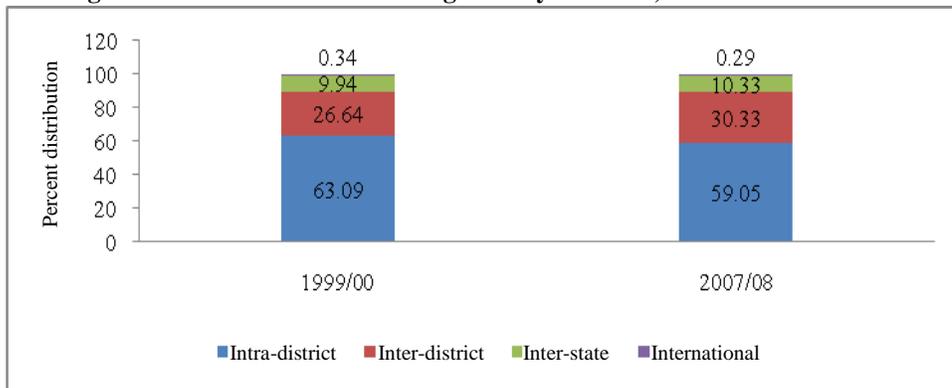
In the Indian context female migration and its increasing trend is mostly attributed to marriage and as associational mover suggesting they have no role in migration decision making. This perception is largely due to the prevailing patriarchal norms that keep a woman's position subordinate to men with respect to various decision making aspects within a household.

Nevertheless, the socio-economic and cultural transformations that are occurring in the country affect the gender processes. Women migrate not only for marriage but also move for better employment opportunities and for attaining higher education. This can be also be an indication of changes in gender relations in the household and reduction in gender inequalities that persuade women to migrate for reasons other than marriage.

The changing flow of women from short distance to long distance or the increasing mobility of women over time for education perhaps helps in understanding that besides changes in women's motivations, their role in migration decision making is changing.

Flow of Female Migration by Distance

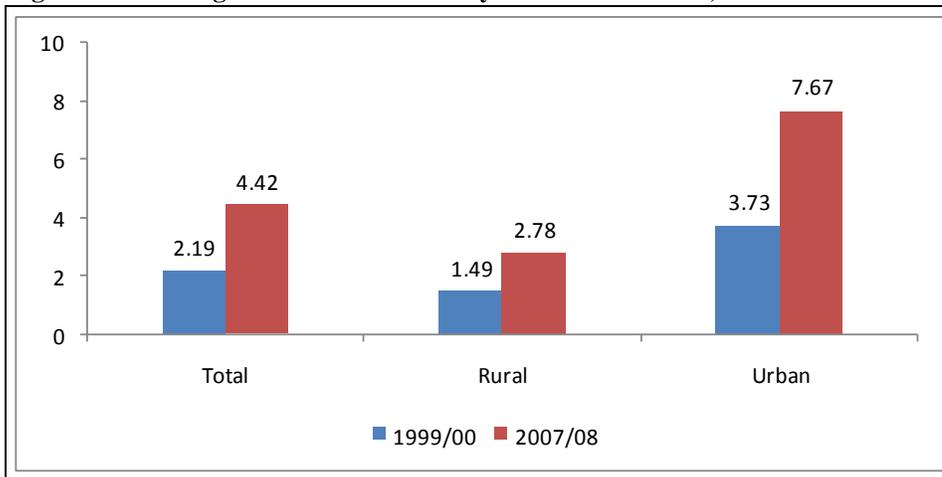
There is overwhelming evidence that internal mobility in India is largely short distance and for women it is mainly identified with marriage. Of late, this pattern is undergoing changes. (Figure 2). An inter-temporal analysis of migrants distance-wise shows a number of changes in the pattern of migration. A decrease in intra-state mobility accompanied by an increase in inter-district and inter-state movements has been observed whereas the share of intra-district migration has declined. Such a change in migration pattern, as pointed out in studies, is occurring due to the opening up of the gender segregated labour market, urbanisation, higher education, changing agricultural practices, environmental hazards etc. [Jayweera, *et al.* (1994); Gracia (2000); Sundari (2005)].

Fig. 2. Distribution of Female Migrants by Distance, 1999-00 and 2007-08

Source: Calculated from NSSO.

All these suggest that macro level transformation also brings changes at household level. In order to improve the livelihood conditions, and to enhance the socio-economic status in terms of acquiring higher education, to get employment etc., women decide to migrate independently or with the family. As a result they move out from rural to urban areas of the same or other districts or states.

At this juncture, the increasing mobility of women from short distance to medium or long distance also indicates that with the process of modernisation, the role and responsibilities of women have assumed new definitions and perspectives. In other words, the gender relations within household are slowly changing and are mediated through increasing participation of females in medium or long distance mobility as well. To grab the benefits of higher education and motivated by increasing employment opportunities women are increasingly taking the decision to migrate. The increasing percentage of female migration for education purposes further confirms this. Female reporting education as the major reason for migration is presented in Figure 3 by place of residence.

Fig. 3. Female Migration for Education by Place of Residence, 1999-00 and 2007-08

Source: Calculated from NSSO 1999-00 and 2007-08.

From Figure 3 it is clear that there is increasing percentage of female migrants seeking education irrespective of place of residence especially in urban area. For instance, for the year 1999-00 female migrating for education was 3.73 percent while in 2007-08 it increases to 7.6 percent. The increasing percentage of female migrants seeking education is observed irrespective of place of residence. The increasing mobility in recent years for education is an encouraging trend as it reflects a fair degree of supply of future skilled workers, social development and also an indication of the change in the role of women in migration process as associational movers. From this, one can also expect that the role of women in the household is also changing in response to changes in social and economic development of the society. In this connection, studies show changes in the role and status of women as a result of increased participation in formal education are a major causal factor for increased level of female migration in low developed countries [Hugo (2000)].

Earlier, women migrated due to marriage which is now slowly gravitating towards economic pursuit. Women are no longer passive movers, rather they are also actively involved in migration process for employment, education etc. In this process, the gender relations in the household are expected to undergo changes and women should be able to take their own decision for migration. Accordingly studies show that patriarchal norms are getting flexible over time in response to changes in socio-economic structures and are influencing power relations in the household [Kandiyoti (1988); Ray (2006)]. The expansion of the infrastructure like mass communication, education, economics, and healthcare services has elevated the position of women within families by increasing their access to various resources [Orepesa (1997)]. All these changes have enhanced women's ability to make their own choices in their lives and empowered them to take strategic decisions with respect to household matters including migration. In other words, women empowerment at the household level also gives women a say in the matter of migration decision for reasons other than marriage. Hence, it is significant to understand how women's empowerment acts as a significant predictor of female migration.

The following section deals with conceptualisation of empowerment, measurement indicators and their relation to migration.

3. WOMEN EMPOWERMENT, MEASUREMENT INDICATORS AND THEIR RELATION TO MIGRATION

Changes in gender relations within the household are analysed in this study through conceptualisation of the empowerment of women. Women's empowerment is a multi-dimensional process and defined differently in literature. Given the challenging nature of the concept, women empowerment in the present paper is conceptualised in terms of their active involvement in decision making in the domestic sphere. Women empowerment in the context of household dynamics can be defined as "the power of females to make as well as participate positively in the decision making process concerning family issues". Recent studies on migration explain that decision-making on migration is more often a household strategy and hence, women empowerment and its relation to migration needs to be understood in terms of gender which plays an important role in this matter. Given the patriarchal structure, it can be presumed that most of the household decisions are a prerogative of men, and hence, prevent women from participating in the household decision making process. Conversely, with social and economic changes, the patriarchal attitudes are also transforming favourably towards the women folk. Therefore, it can be expected that

women over time have become more empowered to have a say in household related decision making including migration. To examine the relationship between empowerment and migration, it is necessary to explain the indicators that measure empowerment and how they are operationalised in the present context.

To capture the different nuances of empowerment, a variety of indicators are identified in the literature. These indicators tend to fall under two broad sets of measures: Absolute and Relative. The absolute resources possessed by women such as education, employment etc., are significant drivers of empowerment as pointed out by many studies [Dighe (1998), Oropesa (1997); UNFPA (2005); Sharma (1983); England (2000)].

On the contrary, in recent years, it has been widely discussed that the relative status of women in the household plays a critical role in bringing about their empowerment. The human capital endowments do not always enhance women's empowerment until and unless they utilise the resources they possess for their own well being [Vijayalakshmi (1997); Balk (1997); Malhotra and Mather (1997); Malhotra (2003)]. Hence, there has been a shift in demographic studies from absolute measures to relative measures of empowerment.

The relative position of women can be understood in terms of their participation at various levels in the household decision making process. Greater involvement of women at different levels in the household decision making process like control over income, health, child care etc., indicates a greater degree of equality in gender relations within the household and hence, reflects their empowerment [Lawrence (1999)]. At the same time, the position of women is likely to be influenced by the status of other members in the household, especially the husband. The age and educational differences between partners reflect a differential command over resources within a family. Having a partner who is much older or much better educated tends to reduce a woman's overall position in the relationship as well as diminishing her bargaining power [Wolf, *et al.* (2000)]. Besides, women's attitude towards their role and rights in the household also determines their status in the household. Women's self-perception of what they are plays a greater role in bringing about their empowerment relative to their economic independence [Sridevi (2005)].

The following section discusses the household level indicators that explain the role of women in the migration decision making process.

4. OPERATIONALISATION OF EMPOWERMENT IN MIGRATION

The migration-empowerment relationship at the household level can be explained through indicators (relative measures) that reflect women's position in the household. The indicators falling under this category represent the position of females *vis-à-vis* males within a family. All the relative measures that influence women's participation in the household decision making process are classified into two types: Intra-household decision making indicators and proximate indicators.

4.1. Intra-household Decision Making Indicators

The role of women in household decisions largely reflects the existing gender norms and power structure within a household. The decision making indicators also reflect the existence of power relations within a household. It is, therefore, possible that females having the power to participate in the decision making matters within the family

also play an important role in the migration decision. The increased role of women in the household decision-making enable them to improve their self-determination, bargaining power, control over resources, self-esteem, autonomy, status and power relations within a household context [Shahnaj, *et al.* (2004)].

Studies show that empowerment of women indicates their ability to involve in household decisions like major household purchases, their own health care, purchase of household daily necessities, and visits to family and friends [Desai, *et al.* (2005), Roy, *et al.* (2004)]. Decisions to spend one's own earning indicate not only their economic independence but also their freedom of choice [Sridevi (2005)]. Studies show that women taking decisions with respect to obtaining health care for themselves and their going and staying with parents or siblings are of strategic significance to individual women because these decisions are particular to their own specific needs [Gupta and Kishore (2004)].

Women's decision on economic matters, health care, mobility etc., implies they are able to participate in migration since they have the decision making power over other aspects of their life. Thus, it can be hypothesised here that women who are having decision making power over various household strategic matters may also play an important role in migration decision as well. In the context of migration at least, women's participation in decision making is paramount, and hence, in this study, women who take decisions autonomously or jointly with their husbands are taken into consideration rather than only those women who are the lone final decision makers.

4.2. Proximate Indicators

The proximate indicators of empowerment explain the relative status of women in a household besides acting as the determinants of direct decision making indicators. Although these indicators do not directly measure empowerment, they influence the gender role and enhance their ability to participate in household decisions. For instance, women's attitude towards wife beating shows the ability to express their opinion with regard to the existing gender inequality and discrimination against them within the household. Studies show that women justifying wife beating by husbands on certain grounds, are less empowered to participate in the household decisions [Sen and Batilwala (1997); United Nations (1995)]. Women justifying wife beating are a classic case of how social norms and values shape the conception of freedom and choice [Mishra and Tripathy (2011)]. While many women may not personally approve of such a controlling behaviour, their acceptance of it or inability to reject indicates that they are not autonomous within marital homes [Visaria (2008)]. Besides, other indicators like spousal age and education difference show the relative status of women in terms of power relations in respect of marital relationship [Dev, *et al.* (2010)]. It is often mentioned in studies that women who are married to men much older or with significant educational differences are likely to be at a greater disadvantage. A study by Sridevi (2005) on PGT teachers in Chennai, India, finds that as age advances, the chances of women getting empowered come down; however, when the educational levels are nearly equal then women empowerment tends to get strengthened.

Taking these household level decision making factors and other proximate indicators as measures of empowerment, in the present paper it is hypothesised that women having greater control over household decision making aspects are more empowered and are able to participate in migration decision-making also.

5. DATA AND METHODOLOGY

The data for the purpose of the study is drawn from the National Sample Survey (NSSO) as well as National Family Health Survey (NFHS). The last two rounds of NSSO i.e., 55th (1999-00) and 64th (2007-08) as well as NFHS-II (1998-99) and NFHS-III (2005-06) have been used for the purpose of analysis. The issue of women empowerment and its implications for migration behaviour can be better understood at the household level. The National Sample Survey is the only data source which provides information on migrants at the household level. However, NSSO does not provide information on the household decision making variables which have a greater explanatory power on empowerment. Hence, the study remains handicapped by non-availability of household level data. Due to these data limitations, the explanatory variables (decision making and proximate variable of empowerment) are taken from NFHS. The analysis has had to be carried out at the state level, even though the level of aggregation is too high.

For the regression analysis, the pooled data from two time periods of NSSO (1999-00 and 2007-08) and NFHS (1998-99 and 2005-06) are taken into consideration. The dependent variable is female in-migration rate (after excluding marriage and family moved). Migration has been defined according to NSSO as a “member of the sample household if he/she had stayed continuously for at least six months or more in a place (village/town) other than the village/town where he/she was enumerated”. For the purpose of study migrated females in all streams of migration (Rural-Rural, Rural-Urban, Urban-Rural, Urban-Urban) within the country have been considered except those moving on account of marriage or family movement.

Empowerment in this study is measured on the basis of the proportion of women taking decision on their own or jointly with husband. The direct and proximate indicators of decision making are taken for the purpose of analysis. Out of a number of questions addressed in NFHS to measure empowerment of women, the most important direct indicators of women empowerment that measure the household decision making process include:

- (1) Control over money earned by women.
- (2) Decision on purchasing large household durables.
- (3) Decision regarding women's own health care.
- (4) Decision regarding visits to friends and relatives.

The other decision making indicators relate to what food to be cooked each day and what household items to be purchased. These decisions come largely under the domain of females. Therefore, in the present context, we have excluded this type of decision making indicators from the analysis. The other aforementioned indicators are crucial to determining women's empowerment.

We have considered the most commonly used proxy measures of empowerment for analysis in the present study. They include:

- (1) Attitude towards gender role (wife beating justified).
- (2) Age differences between spouses.
- (3) Educational differences between spouses.

The distribution of women in different autonomy indicators has been analysed (Presented in Appendix I and II). There are a large number of variables that are important for the analysis, but the number of states is few (32), and hence, at first, a correlation matrix has been crafted to see the relationship between female migration and the various empowerment indicators (reference Appendix-III).

On the basis of the significance of the indicators, the states are classified into high, moderate and low empowered states for each of the indicators. Similarly, the states are also classified into high, moderate and low migration states on the basis of variations in the migration rate. The ranking of the states in respect of each of the indicators as well as their migration rates are analysed (presented in Appendix-IV). It is difficult to establish a relationship between migration and empowerment on the basis of this table. Hence, the migration-empowerment relation is established by way of distributing states into (3x3) tables for each of the indicators.

In order to check the consistency of the parameters used in the two data sets, the Chow-test has been carried out. The F-value of Chow test shows that the parameters are consistent for both the time periods, and hence, a pooled OLS regression analysis by combining both the time periods is carried out. The regression model takes on the following form

$$\gamma_i = \alpha + \beta_1 \chi_{1i} + \dots + \beta_k \chi_{ki} + \mu \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

Where,

γ_i explains the female migration rate (excluding marriage and family moved) at the state level.

$\chi_1 \dots \chi_k$ are the explanatory variables measuring women empowerment in terms of their migration decision making.

A description of variables used and summary statistics are presented in Appendices V.

6. ANALYSIS OF THE STUDY (FINDINGS FROM BIVARIATE AND REGRESSION RESULTS)

To examine the potential pathways through which women’s empowerment could influence migration, a correlation analysis is carried out. The Pearson correlation coefficient(r) shows that, out of many covariates, the mean educational difference between spouses, spousal age difference, decision on mobility, large household purchases are significantly related to female migration. These indicators are used for establishing a relationship between women’s empowerment and their migration behaviour. The magnitude of average spousal age difference does not vary significantly across the states. Hence, this indicator has not been presented in Table1.

The analysis here addresses the question of whether there is a linear relationship between female migration and empowerment across the major states. If a cluster of states falls under High migration-High empowerment, Moderate migration-Moderate empowerment and low migration-low empowerment categories, then it can be said that women’s empowerment plays a major role in explaining their migration decision making. This is because of the expectation that females enjoying a high degree of empowerment

are able to participate in the migration decision making and hence, migrate at a higher rate and so on. The migration-empowerment relation for each of the indicators is explained below.

Table1

*Distribution of States by Migration Rate (Excluding Marriage and Family Moved)
By Level of Empowerment, 2005-06 and 2007-08*

Empowerment Indicators	Empowerment Migration	→ High Empowerment(HE)	Moderate Empowerment(ME)	Low Empowerment(LE)
	Range values	(50+)	(40-50)	(<40)
Decision on mobility	High Migration (HM) (2.8+)	Kerala, Maharashtra (2)	AP, Karnataka, HP, Chhattisgarh (4)	0
	Moderate Migration (MM) (1.75-2.75)	Tamil Nadu, Gujarat, Haryana(3)	Orissa, Punjab(2)	WB, Uttaranchal(2)
	Low Migration(LM) (1.75)	Jharkhand(1)	Bihar(1)	Rajasthan, MP,UP, J&K (4)
Spousal educational difference	Range values	(<2.5)	(2.5-3.5)	(3.5+)
	High Migration(HM) (2.8+)	Kerala, Karnataka, AP, Maharashtra(4)	HP(1)	Chhattisgarh(1)
	Moderate Migration (MM) (1.75-2.75)	Tamil Nadu, Punjab(2)	WB, Uttaranchal, Orissa, Gujarat, Haryana(5)	0
	Low Migration(LM) (1.75)	0	MP(1)	Rajasthan,UP,Bihar, J&K,Jharkhand(4)
Large HH purchase		(<4.25)	4.25-7.0	7 & above
	High Migration(HM) (2.8+)	Kerala, AP, Karnataka (3)	HP (1)	Maharashtra,Chattisgarh (2)
	Moderate Migration (MM) (1.75-2.75)	Tamil Nadu, WB(2)	Orissa, Punjab, Gujarat, Uttaranchal (4)	Hararyana (1)
	Low Migration(LM) (1.75)	Bihar(1)	Rajasthan(1)	MP, UP, Jharkhand, J&K(4)

Source: Calculated from NSSO and NFHS.

6.1. Physical Mobility and Migration

Physical mobility in the present study refers to the freedom of women to visit their friends and relatives. Constraints on women's physical mobility in many parts of the world restrict their ability to make independent decisions. Women in countries such as India, Egypt, and Bangladesh are governed by social norms that restrict their physical mobility, and are referred to in the literature as female seclusion. This seclusion involves the veiling of head and face in some instances, as well as restrictions on unaccompanied

travel to such places as shops, pharmacies, or hospitals, and limits on direct contact with unrelated males [Bruce, *et al.* (1995)]. Several studies reveal that the promotion of women's freedom of movement is necessary so as to enable them to make their own choices, to change their attitudes, to improve their social networks and so on [Haque, *et al.* (2011)]. Hence, women who are able to take decisions on their visits to friends and relatives can also be expected to take decisions on migration. The figures presented in Appendix-VII show that, on an average, the decisions taken by women themselves regarding their freedom of movement constitute 10.7 percent. However, there exist considerable variations across the states in this respect. The proportion of women having the ability to take decisions on their own or with husbands with respect to visiting their friends and relatives ranges from 27 percent for Jammu to 57 percent for Kerala. However, the migration-empowerment relationship with respect to decision on mobility shows that an equal number of states fall under each category. Hence, a clear pattern has not emerged from the analysis with respect to this indicator.

6.2. Large Household Related Purchases and Migration

One of the economic decision making indicators to measure the status of women is women's role in the household related purchases. The empowerment of women in respect of domestic financial matters reflects their control over financial resources. Evidence shows that women's control over financial matters leads to greater empowerment, which in turn increases their participation in the household decision making [Safdar, *et al.* (2011)]. The distribution of states as presented in Table 1 reflects that the migration-empowerment relation is direct in the case of large household related purchases. Of the 19 states, 11 states fall under the categories where migration-empowerment relation is direct. Most of the southern states like Kerala, Karnataka and Andhra Pradesh where the migration rate is found high are able to participate in purchases of household durables. Like other indicators, moderate migration-moderate empowerment holds true for Orissa, Punjab, Uttaranchal and Gujarat. In states like Uttar Pradesh, Madhya Pradesh, Jharkhand, Jammu and Kashmir, the migration rate as well as the level of empowerment are low. From these, it clearly emerges that the economic decision making indicator of a household exerts a significant influence on the migration decision making of women.

6.3. Spousal Educational Difference and Migration

The educational difference between husband and wife determines the relative position of woman within a household. It is believed that if spousal educational differences are high, females have less say in making choices compared to their husbands. Since migration is a household strategy, a higher spousal educational difference is also expected to be a significant predictor of female migration. It is clearly apparent from the table that the relationship between migration and empowerment is linear with respect to this indicator. In this study, the mean educational difference has been estimated to establish the relationship. There is a concentration of most of the states observed where migration and empowerment relation is direct. An equal number of states fall under each of the cells where migration-empowerment relation is direct, that is, high migration-high empowerment, moderate migration-moderate empowerment and low migration-low empowerment as presented in Table 1.

Kerala, Karnataka, AP and Maharashtra are the states falling under high migration-high empowerment category. These are the states where the migration rate is high and the average educational difference between spouses is less than 2.5. Five states namely West Bengal, Uttaranchal, Orissa, Gujarat and Haryana show a moderate migration rate and the spousal educational difference is also moderate (2.5-3.5). Similarly most of the under developed states like Rajasthan, Bihar, UP, Jharkhand and Jammu & Kashmir where the migration rate is low show a high spousal educational difference, that is, more than 3.5. This shows that a substantial number of states are equally distributed where migration-empowerment relationship is found to be linear. On the other hand, there are no states that fall under the category of low migration-high empowerment. Hence, a clear pattern of migration-empowerment relationship has emerged with regard to this indicator.

Moreover, it is noticed from the table that though there is a variation in migration-empowerment relation across the states, there are a few states whose position is consistent in respect of all the indicators of empowerment. The broad findings emerging from the discussion are as follows:

- Kerala ranks first in respect of all the indicators followed by Maharashtra and Karnataka. This finding clearly indicates the empowerment-migration relation holds good for these states. This is so because in terms of socio-economic advancement these states perform well which in turn influences household level variables and brings changes in gender relations. For instance, in terms of literacy, Kerala ranks first which influences their decision making power in the household. Hence, higher migration of women in this state could also be the result of their status in the household.
- Orissa, Uttaranchal and Gujarat are the three states where migration rates as well as the level of empowerment are moderate consistently across all indicators.
- In Rajasthan, UP, MP and J&K, migration and empowerment relation is low for most of the indicators. The result is quite obvious. Low social and economic development of the state provide less scope for women's development and hence keeps women's position low that is reflected in their migration rate as well.
- Tamil Nadu is the state which follows a common pattern in respect of all the indicators in terms of high empowerment and moderate migration relationship.
- Punjab, Haryana and West Bengal sometimes follow moderate migration-moderate empowerment and moderate migration-high empowerment relationship.
- The relationship between migration and empowerment also varies for Bihar and Jharkhand with respect to some of the indicators. Although both the states show low migration rates sometimes, their rankings with regard to empowerment indicators vary from low to moderate to high. For e.g., Bihar, in the case of spousal educational difference, ranks low whereas, in respect of household purchases ranks first.

6.4. Findings from Regression Analysis

To confirm whether women empowerment is a predictor of female migration an Ordinary Least Square(OLS) regression analysis was carried out taking the state as the

unit of analysis. The findings are presented in Table 2. In this study, it is hypothesised that greater involvement of women at different levels of household decision making reflects their self-confidence and ability to participate in migration decision making as well.

Of all the decision making indicators, the decision on one's own health care has a positive and significant impact on the female migration rate. Studies show that gender based power inequalities restrict open communication between partners about reproductive health decisions as well as women's access to health services which in turn contribute to poor health outcomes [Population Council (2001)]. In such a situation, women taking decisions regarding their own health care either on their own or with their partner show their awareness regarding their rights and their capability to take part in household decisions. Thus, the impact of one's own health care on female migration may be expected to significant. At the same time it can also be possible that after migration women have more access to health care facilities which results in positive impact on female migration. Hence, the relative difference in age and education between spouses can throw more light on the empowerment-migration relationship as explained below:

A significant impact of spousal age difference on female migration indicates that if the spousal age gap is low, it has a positive impact on migration and with an increase in age gap, the migration rate for females declines. Age indicates the experience of both men and women. It has been discussed in studies that the age gap between husbands and wives suggest inequalities of power in marital relationship. If the age difference between spouses is low, women also have an equal voice in the family matters.

Table 2

Estimates of OLS Results on Female Migration by Different Empowerment Measures, 1998-99, 2005-06, 1999-00 and 2007-08

Female Migration Rate (Excluding Marriage and Family Moved)			
Indicators	B-coefficient	Standard Error	t-value
Time	1.10*	0.62	1.76
Control over own earning	-0.01	0.05	-0.16
Decision on large household purchase	0.03	0.06	0.43
Decision on own health	0.05***	0.02	2.83
Decision on Mobility	-0.02	0.03	-0.94
Attitude towards independence	0.01	0.02	0.57
Spousal Age difference(5-9) year	0.20***	0.05	3.8
Spousal Age difference at least 10 year	-0.08***	0.05	-1.46
Wives education higher than husband	0.08**	0.04	2.25
Both have same education	-0.13***	0.05	-2.84
Spousal educational difference 5 year	0	0.06	-0.02
Constant	-3.48	2.28	-1.53
F-value	10.14		
R-square	0.78		
VIF	5.31		
N	32		

Source: Estimated from NFHS and NSSO data.

* p<0.1, ** p<0.05, *** p< 0.01.

On the other hand if the age gap is large, women are not allowed to take major decisions, since they are considered inexperienced with poor knowledge. Studies show that when the husband-wife age gap is large, the greater experience and self confidence of the husband as compared to the wife's deprive her of empowerment [Cain (1993)]. A study on the southern states of India finds that with an increase in the age difference between spouses there is a decrease in the decision making power of wives [Vijayalaxmi (1997)]. Hence, a high age gap shows the patriarchal dominance of the decision making process. The results show that if the age difference between husband and wife is below 10 years, it has a positive and significant impact on the migration rate. On the other hand, a spousal age gap of more than 10 years has a significant and negative impact on the migration rate. Thus, spousal age difference, as an empowerment indicator, has a significant impact on the female migration decision making.

Another decision making indicator that affects women's empowerment is spousal educational difference. The results show that women with more education relative to males show a positively high migration rate. Higher educational attainment of women in the household increases their overall status as they are aware of their own rights, and of the unfair power relations they face. Besides higher education emboldens them to challenge the gender based inequalities. According to Dighe (1998) education has the strength to enable women to think critically and to question their disempowerment in society governed by biases and inequality towards them. Women with higher education relative to their spouses have better opportunities and also their economic contribution may be higher than their spouses. This increases their self-confidence to participate in the migration decision making. However, having equal level of education between spouses has a negative impact on the migration of females. In this regard, it can be argued that the spousal educational difference, as an empowerment indicator has a significant impact on the migration rate of females.

7. SUMMARY

The present discussion is an attempt to understand the relationship between women empowerment and the female migration process. The findings of the study suggest that most of the relative measures of empowerment play a greater role in explaining female migration decision making. Women's migration is interlinked with many of the empowerment indicators like economic decision and educational difference and establishes a linear relationship as evident from the bi-variate findings. The results of the regression analysis highlight that greater involvement of women in their own health care decision making has a significant influence on their migration decision. Similarly, the findings also confirm that the relative status of women measured in terms of age and educational difference is also a significant predictor of female migration. This indicates that women who are empowered in different dimensions of the household decision making aspects also exert a significant influence on their migration decision making.

Over time, improvements in the socio-economic and cultural spheres of human life point towards an enhancement in status of women within the household context and hence, influence gender relations. These changes empower women to take strategic decisions in respect of various household matters including migration. A major implication drawn in this context is that gender plays a critical role in the migration

decision making process. Thus, there is a need for understanding the migration decision making process in the backdrop of the existing gender-based power relations in the context of the household. This is because understanding women's participation in household decisions including migration holds an array of welfare implications for the 'family'. Many researchers argue that women's empowerment is closely linked to the positive outcomes for families and societies [Presser and Sen (2000)]. Following this line of argument, one can observe that migration of women, as an outcome of their empowerment, also holds few implications for the aggregate family well-being besides being an indicator of gender equality.

The Indian society has been undergoing significant structural changes in the post reforms period encompassing gender relations especially the relatively newly emerging feminist oriented concerns-women's empowerment and gender equality- with far-reaching implications for the society as a whole. Empowerment of women, as a developmental indicator, may trigger changes in many other indicators. It reduces the gender gap in all major socio-economic indicators and enhances the status of women. In other words, women empowerment as an agency apart from increasing the socio-economic condition of women itself, also enhances well being of other household members in terms of influencing the health, nutrition, education etc. In this way it helps to achieve the Millennium Development Goals which focus on and stress health and education. Besides it also has economic implications by facilitating migration of females for enhancing their socio-economic status. Thus, empowering women is a crucial pathway for achieving development by reducing gender disparities in human development indicators and hence may ensure the achievement of all-round development of the society.

Although the centrality of women empowerment and its relation to migration can be best understood at the household level, the data limitations have restricted the analysis to the aggregate level, that is the state. Further investigation is required for exploring the causal relationship between women's empowerment and their migration decision making process in greater details.

APPENDIX-I

Percentage of Ever Married Women Aged 15-49 by the Proximate Measures, 2007-08

Proximate Indicators: Attitude Towards Gender Role (Wife Beating Justified (NO) if she)	
Goes without informing	69.8(86876)
Argues with him	68.1(84651)
Refuses sex	81.7(101584)
Age difference between Spouse	
Wife's Age higher than Husband	2.1(1187)
Both have same Age	2.4(2218)
Age difference(1-5yr)	39.5(37745)
Age difference(5-9yr)	40.5(37899)
Age difference(10+)	12.0(14939)
Educational Difference	
Wife has more education	11.9(14284)
Both have same education	25.8(32092)
Educational difference(1-5yr)	25.1(31194)
Educational difference(5+)	37.2(46276)

Source: Calculated from NFHS-3 data.

APPENDIX-II

Distribution of Ever Married Women Age 15-49 in Different Household Decisions, 2005-06

Decision-making (Direct) Indicators	Respondent Alone	With Husband	Others
Decision on how to spend own earning	24.8(6256)	57.3(14465)	17.9(4516)
Decision on own health	27.1(25246)	35.1(32694)	37.7(35081)
Decision on large household purchase	8.5(7896)	44.4(41330)	47(43797)
Decision on Small household Purchase	32.4(30165)	27.7(25761)	39.9(37094)
Decision on visiting to family or relatives	10.7(9974)	49.8(46332)	39.4(36715)

Source: Calculated from NFHS-3 data.

APPENDIX-III

Correlation between Female Migration and Various Empowerment Indicators by Types of Migration, 2005-06

Variables	Female Migrant Excluding Marriage and Family Moved
Mean Age difference	0.46***
Mean Educational difference	-0.69***
Decision on spending money	0.20
Decision on own health	0.33
Decision on mobility	0.43*
Decision on large household purchase	0.42*
Attitude towards independence	-0.09
Attitude towards voice in family	0.21
Attitude towards control over body	-0.04

* p< 0.1, **p< 0.05, ***p< 0.01.

APPENDIX-IV

Ranking of States in Different Empowerment Indicators, 1998-99, 2005-06, 1999-00 and 2007-08

State	Migration Rate	Spousal						Employment	Large Hhld			
		Mean Age Difference	Mean Age Difference	Educational Difference	Educational Difference	Mobility	Mobility		Purchase	Purchase		
Kerala	6.66	1	1.89	17	0.74	1	57.53	1	15.29	1	9.55	3
HP	4.41	2	1.59	7	2.89	10	41.55	12	5.55	16	6.45	7
Maharashtra	4.02	3	1.86	15	2.24	5	54.27	2	11.86	3	3.99	15
AP	3.76	4	1.84	13	2.29	6	50.19	7	8.77	8	10.40	2
Karnataka	3.16	5	2.01	19	1.88	4	40.41	13	9.24	6	9.33	4
Chhattisgarh	3.07	6	1.62	8	4.17	17	44.17	10	5.63	15	2.84	19
Tamil Nadu	2.74	7	1.88	16	1.30	2	54.15	3	12.32	2	15.05	1
WB	2.60	8	2.01	18	2.71	7	37.31	17	10.10	5	7.02	6
Uttaranchal	2.38	9	1.63	9	3.26	12	39.42	14	7.10	9	4.90	9
Orissa	2.24	10	1.85	14	3.35	13	46.12	9	5.74	12	4.87	10
Punjab	2.10	11	1.46	1	1.84	3	49.00	8	10.75	4	4.52	11
Gujarat	1.89	12	1.46	2	2.81	8	53.39	4	9.22	7	5.84	8
Haryana	1.81	13	1.51	5	2.88	9	52.84	5	5.70	13	3.28	18
Rajasthan	1.78	14	1.50	3	4.13	15	34.65	18	5.77	11	4.26	13
MP	1.47	15	1.52	6	2.99	11	39.20	15	5.08	17	3.64	17
UP	1.34	16	1.51	4	4.89	18	37.74	16	4.53	18	4.23	14
Bihar	1.33	17	1.69	11	4.15	16	44.05	11	3.36	19	7.93	5
J&K	1.28	18	1.66	10	3.63	14	27.07	19	5.66	14	4.27	12
Jharkhand	0.91	19	1.76	12	5.316	19	51.27	6	6.19	10	3.98	16

Source: Calculated from NFHS & NSSO data.

APPENDIX-V*Summary Statistics and Description of Variables Used in Regression Model,
1998-99, 2005-06, 1999-00 and 2007-08*

Variables	Mean	Std. Deviation	Minimum	Maximum
Female Migration rate (excluding marriage and family moved)	2.74	1.39	0.52	6.66
Time	0.50	0.51	0.00	1.00
Decision on control over own earning (either by respondent or jointly with husband)	16.00	6.66	6.32	30.77
Decision on large household purchases (either by respondent or jointly with husband)	8.32	4.42	3.28	20.71
Decision on own health care (either by respondent or jointly with husband)	46.88	10.08	27.07	67.89
Decision on Physical mobility (either by respondent or jointly with husband)	35.36	14.93	7.90	57.53
Attitude towards independence	67.39	14.77	41.45	95.25
Spousal age difference (5-9 year)	34.57	6.46	22.21	45.86
Spousal age difference (at least ten years)	16.83	8.80	5.18	37.54
Wife's education is higher than husband	17.73	8.95	4.21	37.54
Equal level of education between Spouse	29.30	6.94	18.34	44.84
Spousal educational difference at least 5 year	24.19	5.15	14.43	33.55

Source: Calculated from NFHS & NSSO data.

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Book Reviews

Abhijit Banerjee and Esther Duflo. *Poor Economics: Rethinking Poverty and the Ways to End it.* Gurgaon, India: Random House. 2011. 499 pages. Indian Rupees 279.00

In “Poor Economics”, Abhijit Banerjee and Esther Duflo have put forward an interesting perspective on how to view the issue of poverty and innovative ways for its alleviation. The lessons in the book are rooted in the 15 years of authors’ research in different developing countries across the globe. They advance the debate initiated by Jeffrey Sachs and William Easterly and prudently bring out the way the poor think and behave. Based on randomised controlled trials, Banerjee and Duflo have enriched this compelling piece of work and shed light on the truth of the poverty trap.

The book is divided into two main sections. The first section deals with the private lives of poor and sheds light on the ground realities. This section discusses topics like consumption, health, education and reproduction from the perspective of the poor. It addresses, in detail, questions like why poor people, when they do not have enough to eat, splurge on luxuries like television, DVD players, mobile phones etc. Although the poor do send their kids to schools but it makes no difference to their mental capacity. The authors also show that the poor do not care about medicines but they often indulge in drugs.

The second section talks about institutions and institutional structures. It takes into account the risks that poor people encounter and their saving behaviour, lack of information and market distortions that leads to the failure of small entrepreneurs, and microfinance and its related issues. The book very effectively addresses the rationality behind the decision making process of the poor people. The book argues that poor are the same as the other people living on this planet. Although rich and poor, both share same desires, the difference lies in the resources they own.

“Poor Economics” starts with the discussion about policies. The authors argue that most of the policies are based on different ideologies and they often meet failure due to lack of information and ignorance on the part of implementers. There is a need to understand the choices made by the poor at the micro level rather than exploring the causes of poverty, aptness of democracy and free markets, and effectiveness of foreign aid at macro level. It would be more appropriate to answer small issues rather than dealing with big questions with no concrete solutions in general. It creates confusions among the policy circles when we have “supply wallahs” (Jeffrey Sachs) and “demand wallahs” (William Easterly). Advocates of foreign aid consider foreign aid as a big help that can assist in fighting poverty while the critics consider it as a curse rather than a blessing. To whom should we listen? Sadly, according to the authors, we probably do not have a definitive answer. Rather, it would be more useful to conduct large-scale experiments and analyse the impact of policy interventions. In this way, it might be

possible for us to find out the policies that work and those that do not, and the reasons behind policies' failure. They give the example of a farmer, Kennedy, who was given a sack of fertiliser that increased the productivity of his fields twenty times and yet he did not use the fertiliser during the next plantation. If policies are properly evaluated then even small interventions can make gigantic difference. This book neither advocates nor rejects the foreign aid as a way to fight poverty but evaluates its efficacy in individual contexts.

The book also analyses the ever-important issue of the consumption behaviour and attitude of the poor toward health issues. The authors dig deeper into the puzzling habits of the poor. They examine why the poor ignore free medications available to them and opt for luscious but less nutrient food and spend more on tobacco and alcohol. They argue that perhaps the poor give less value to the health issues and spend lavishly on weddings, funerals and local festivals etc. due to social pressures. They go on to suggest that we should provide such kind of food that is not only good in taste but is also full of essential micronutrients so that poor can enjoy the taste and health in one package. Poor people, by and large, do not pick low hanging fruit and spend a lot on ineffective cures. Scant information, unreliable health service delivery and lack of trust are among those few things that do not allow people to come out of health-based poverty trap. While formulating population control policy it must be considered that it is not the availability of contraception that controls the fertility but social norms, discrimination against girls and economic considerations also play a key role. Due to low quality of education, the poor believe that little future benefits will accrue out of schooling and so they pay little thought to raising the standard.

Health shocks, agriculture shocks due to excess or lack of rain or any other crises push the poor back into poverty trap and they are unable to tackle these risks well in time. In order to avoid risk, they opt for those crops that are less profitable but bear low risk. Banerjee and Duflo are among the proponents of microcredit and consider it as a big hope to eradicate poverty and misery. According to them, it works brilliantly and produces positive results where government efforts have gone in vain. Billions of people do small businesses or work on their small farms because they have no other option. In this situation, microcredit can play enormously important role and keep them out of poverty. It is widely believed that the poor do not save because they do not have anything at hand. But this book shows that poor do save but they do not put their savings in banks and for this reason, microcredit is very important. It is vastly desirable to narrow down the wide gap between the true intension and its implementation. It does not matter how much good policies you are planning for the wellbeing of commons if they are not going to be implemented properly. Here political economy comes into picture that distorts the whole scenario. According to the authors, extractive colonial institutions, low quality governance, corruption, among other things, make the state of affairs more complex.

To conclude, "Poor Economics" comes up with five main messages. First, it shows that it is the lack of information that leads to wrong decisions. Secondly, the poor, in most of the cases, have to take on too many responsibilities for their existence. Thirdly, the absence of markets further places burdens on the shoulders of the innocent people. Fourthly, the book clearly shows that without understanding the ground realities of the poor, governments implement policies that most often encounter failures. Finally, the

book highlights that it all boils down to the expectations regarding what can and what cannot be done. In short, this book provides a new sense that call for a closer look into all these issues.

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Paul Krugman. *End This Depression Now!* New York, USA: W. W. Norton & Company. 2012. 288 pages. U.S. \$ 15.95.

In “End This Depression Now!” Krugman has tackled the economic recession that has plagued countries across the globe in the aftermath of the 2008 financial crisis. In contrast to other books on the subject, however, the focus of the author is not on how the crisis and the resultant recession happened, but rather on the more pertinent question of what to do now and how to recover from the slump. Krugman is of the view that the aim should not be merely to avoid a complete collapse, as several economists and policy-makers seem content to do, but to address the “chronic condition of subnormal activity” of this recession and pursue a complete recovery.

The author sets the stage by painting a bleak picture of the impact of the recession on the citizens of developed countries, countries rich in natural and human resources. There is a lack of jobs in these countries, as represented by a rising involuntary employment rate, and the author feels that lives have been ruined because the recession is lingering on, and because of that, unemployment is following suit. While temporary unemployment is a feature of a complex, dynamic economy, persistent unemployment erodes the employment prospects of workers in the post-recession period. Moreover, low business investment in the private sector and government investment in the public sector will have a detrimental effect on productive capacity in future years as older scrapped machinery is not replaced, and public sector programmes in education and health are scaled back.

Krugman goes on to argue that the core of the problem lies simply in the “magneto trouble” or “software crash” the economy is suffering from and not in a more complex issue. In other words, the issue is one of organisational and coordination of failure of managing a technical problem. These issues can be fixed relatively easily if the reality of the situation is understood by policy-makers. The solution proposed by the author, however, is one that contradicts people’s instinctive response, i.e., to spend more, rather than to curtail spending and investment. Krugman believes a shortfall in demand is what is causing the software crash with the result that companies end up with unsold inventories and thus will be unwilling to produce more goods until their inventories are drawn down.

According to Krugman, conventional wisdom suggests that overall lack of demand cannot occur in the economy and since the supply of money in the economy is finite the only way to increase government spending is by first taxing or borrowing more from the economy. According to the author, this reasoning that new demand will not be created and instead existing demand will be transferred from one group to another is flawed, as is the policy recommendation of simply reducing interest rates to encourage investment and thus raise spending levels. To the contrary, with businesses, government and consumers saving more now and reducing their demand in the hope of buffering their revenue stream for the future, the author believes there is a shortfall in demand and this gap needs to be covered for production levels in the economy to rise. Moreover, zero or close to zero interest rates have not succeeded in raising the employment levels and economies attempting do so are finding themselves caught in a liquidity trap. Krugman cites an interesting example of a baby-sitting co-op to justify his criticism of conventional

wisdom and in support of his belief that increased demand is required to bring the economy out of recession.

The author suggests that the wonders of modern finance are what brought the financial system to the verge of collapse in less than three years. “Asset-backed securities” or sale of mortgages and loans by banks to investors encouraged reckless lending, bad debt was converted into collateralised loan obligations and widespread use of credit default swap weakened the financial system so collapse was inevitable when the rules and regulations put in place in the 1930s, to ensure banking crises did not occur, were dismantled. Income growth was limited to the select few in this time of deregulation and growing debt, giving rising to rising income inequalities. These income inequalities helped create an environment that harmed the intellectual and political ability to respond effectively to the crisis.

The author has reviewed the developments leading up to the crisis in the United States; a credit crunch and run on the banks that necessitated a bailout package for troubled banks to buy stakes and improve their capitalisation. Krugman believes the bailout package, though successful was badly handled and rather than demanding a higher stake in banks in exchange for emergency aid, the government effectively provided a subsidy to stakeholders so they would not lose, even if someone else did.

Krugman further points that for the recovery to work, the real sector also needed to be rescued; however the stimulus package failed on two fronts. One, it was woefully inadequate of what was needed to restore the economy to full employment or near full employment levels. Two, the limited success of the package damaged the concept of government spending as a means to create jobs. In terms of the design of the stimulus package, the author highlights the fact that the bulk of increased government spending was on unemployment benefits and Medicare, and not on building roads, infrastructure and associated projects. The author also believes that the shift in focus from unemployment to the deficit in the United States was a mistake and that the warnings about inflation were over-rated.

In conclusion, it can be seen that “End This Depression Now!” is a work supporting Krugman’s view that fiscal stimulus and not economic austerity is what is required to bring countries, and the world economy out of the Great Recession. Krugman has advocated this view based on a Keynesian analysis of the prolonged recession resulting from a liquidity trap which itself was the result of a housing price bubble that burst in 2006. The author has argued that the recession has been prolonged by a deficiency in aggregate demand which has resulted in falling investment and a corresponding fall in productive capacity of the economy as old machinery and equipment is not replaced when it is worn out since there is not enough demand to justify the expansion. The author has convincingly argued that the shift of focus from dealing with unemployment to dealing with the deficit is a mistake, and warnings about excessive inflation and the damage it could do have turned out to be unfounded.

The limitations of this book include the fact that the focus of the author has been on the United States, but Europe also plays a role in the analysis, in particular, the failed austerity measures of England serve as an example of what not to do. Also, the author does not appear to have dwelt in any great detail on the consequences of his proposed

policies; other than simply quoting Keynes' famous saying that "in the long run we are all dead".

Bearing in mind the highlights, the contribution and the limitation of this book, it is safe to say that Krugman has succeeded in making a well-reasoned and fairly convincing case against austerity and in favour of a more pro-active stance of the government with regard to spending and investment that will boost demand in the economy and help push countries out of the persisting recession.

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Shorter Notices

United Nations Development Programme (UNDP). *Human Development Report 2013.* The Rise of the South: Human Progress in a Diverse World. New York, USA: UNDP. X+203.

The 2013 Human Development Report shows that despite the developed world growing at a slow pace during the past few years, the developing countries have grown at an admirable rate. The Report calls it the “rise of the South”, with not only big countries, such as Brazil, India, China, and Mexico growing rapidly but the smaller countries, including Bangladesh, Ghana and Rwanda also showing considerable improvements in their human development indicators. The drivers of growth in these countries include a proactive developmental state, tapping of global markets, and determined social policy and innovation. Nevertheless, the Report warns that rapid growth of the developing world not only presents opportunities, it also poses challenges as there is more to be achieved yet, especially in terms of human development. Interestingly, the Report argues that the growth experience of the South shows that neither collectivist, central management approach works nor the unbridled liberalisation advocated by the Washington Consensus. The Human Development Report, 2013 however warns that future success is not guaranteed, not even for the high achievers. The Report suggests four areas to keep the momentum going in economic growth and facilitate more progress in human development. These areas are greater equity not only between men and women but also across groups, peoples’ participation in the events and processes that shape their lives, tackling environmental challenges, and managing demographic change. It is projected that in near future, the combined output of Brazil, China, and India will overtake the combined output of Canada, France, Germany, Italy, and the United States. Furthermore, the share of Brazil, China, and India in the total global output will rise from 10 percent in 1950 to over 40 percent by 2050. The rise in the economic importance of the South and with changing developmental structures, the challenge is now to shape the global institutions so that the progress becomes sustainable. The Report calls for reforms in the global institutions and stronger regional cooperation. The success of the emerging economies of the South at multiple fronts can be beneficial for other less developed countries as there are many lessons to be learnt from the South’s experience. At the end, the Report argues that global issues, such as climate change, international financial instability, terrorism, nuclear proliferation, etc. have proliferated and the global response has been sluggish. But, according to the Report, the rise of the South presents new opportunities for the provision of public goods at the global level and breaking the stalemate on the global issues. (*Ahmed Waqar Qasim*).

Kahnemann, Daniel. *Thinking, Fast and Slow*. New York, USA: Farrar, Straus, and Giroux. 2011. 512 pages. US \$ 16.00.

Thinking, Fast and Slow is a fascinating book by the psychologist and Nobel Laureate in Economics, Daniel Kahnemann. The book draws on his lifelong research carried out with his longtime collaborator, Amos Tversky. The author argues that our beliefs, preferences, and actions are usually justified. But sometimes there are biases in human intuition and this is what the book is about. The idea is not to belittle human intelligence but to show how systematic errors in our judgments—the biases—arise. Drawing on the research in cognitive and social psychology, this book attempts to explain how the mind works. The book is divided into five parts. The first part discusses the rich and complex, often unconscious, process of intuitive thinking leading to judgments. Part 2 deals with the problems we have with thinking statistically even though we can think associatively, metaphorically, and causally quite easily. The problem perhaps lies in the fact that statistical thinking requires thinking about many things at once, which our mind is not designed to do. In the third part, Kahnemann argues that our overconfidence in what we know and believe contributes to our inability to think statistically. In reality, we do not know as much as we would like to believe about the uncertainty surrounding us. Part 4 deals with the decision-making in economics, with the focus on the assumption of rationality. This part draws on the prospect theory, put forth jointly by Kahnemann and Amos Tversky in 1970s. The fifth part of the book discusses conflict between our two selves—the experiencing self and the remembering self. The two selves do not have the same interests. The discussion is important because it explores a difficult question of how to pursue happiness for an individual and the society at large. The existence of two selves in a single body makes the pursuance of happiness difficult. In the concluding chapter, Kahnemann draws implications from discussion on the concepts explored in first five parts of the book. (*Omer Siddique*).