

Impact of Global Financial Crisis in a Small Open Economy: The case of Pakistan¹

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Final Report

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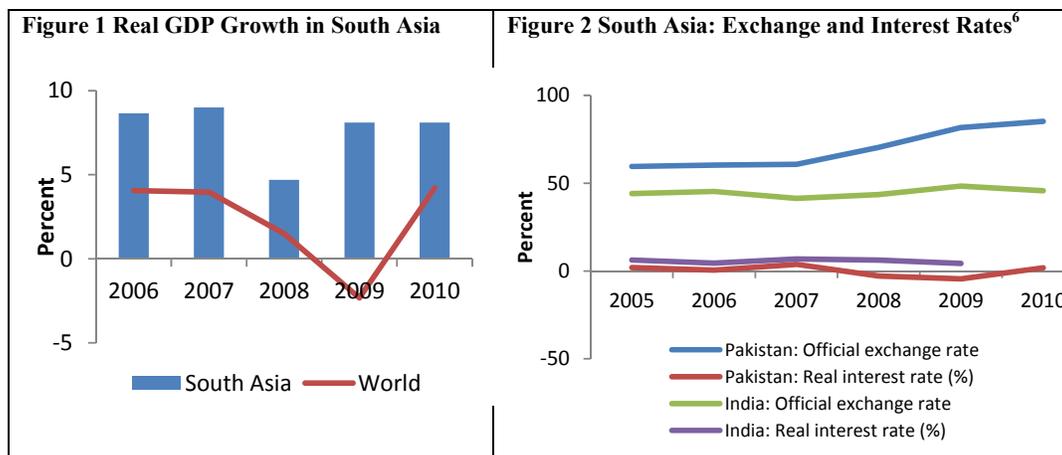
I. Introduction

The global financial crisis has impacted the developing economies mainly through trade, aid, migration, remittances and investment channels. The precise magnitude of effect across countries differed, depending upon their level of integration with the world economy. As the crisis deepened national governments came forward with home grown fiscal bailout strategies in order to protect some level of economic activity in turn minimizing job losses and safeguarding the vulnerable segment of population (Nabli 2010).

The crisis was preceded by a booming growth period for developing economies that had made impressive gains towards the achievement of Millennium Development Goals (MDGs). The emerging markets absorbed the concept of inclusive growth and tried to incorporate pro-poor policies at the institutional level. While the private sector remained the engine of growth globally, it was the public sector whose intervention particularly in the developing economies led to gains in education, health and related aspects of social welfare. The integration of smaller economies in global trade and finance also led to wealth and technology spillovers. The former is particularly seen in rising remittances from abroad (Ahmed *et al.* 2010).

How was this crisis different from economic turbulences seen in recent past? The East Asian crisis was characterized by a decline in domestic demand, credit crunch, rise in input costs due to currency depreciation, and increase in interest rates. The 2008 global financial crisis again witnessed a credit crunch and declining domestic demand but this time combined with falling global demand (Figure 1), currency appreciation⁵, and lower interest rates (Figure 2). While the Asian crisis started from the emerging markets, the global financial crisis was triggered by the collapse of the financial sector in developed economies.

⁵ In case of Pakistan currency in fact depreciated for reasons mentioned later in this section.



In the wake of the crisis the medium term strategies that national governments in developing countries implemented were in fact three pronged. The first phase was to focus on macroeconomic stabilization which was all the more important given that several countries were running unprecedented trade and fiscal deficits (Planning Commission 2009).

The second phase then focused on recovery from crisis – where the world witnessed the national governments favoring an increase in credit to private sector, loosening of monetary policy and bringing investor friendly tax regimes. These reforms were complemented with a restructuring and regulation of the financial sector. The realization grew that in order to protect the purity of the free market system – regulatory framework must evolve with the markets.

In the third phase it was planned that stabilization and recovery should be followed by growth policies in order to bring the developing economies back to the pre-crisis growth trajectory. Traditionally the neo-classical growth model has been suggested where foreign savings play an instrumental role in putting the developing countries on the high growth path – also illustrated in the convergence phenomenon. However due to the ongoing global financial crunch and fears regarding double dip recession, this option has been slow to materialize for many economies. The alternative is the domestic demand, which may be possible in economies with large population and a rising middle income group. An example of this may be China and India. However

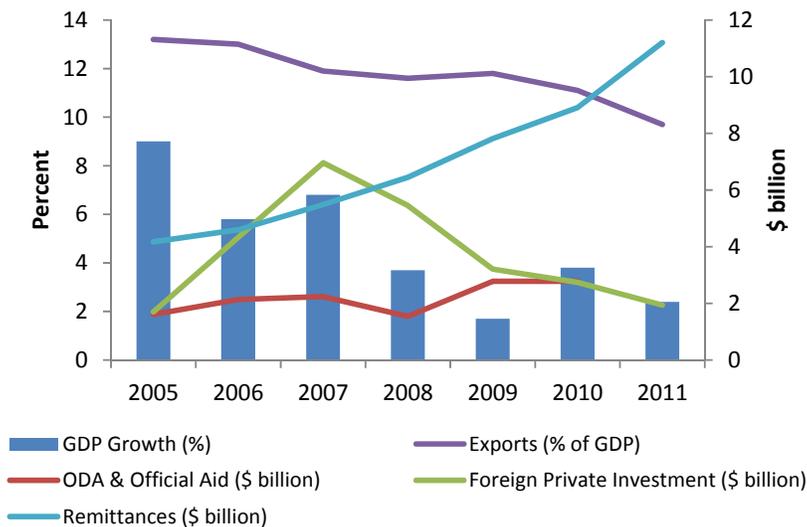
⁶ Exchange rate is represented in local currency per US\$, period average.

domestic demand may not be possible for many developing economies that are themselves facing a domestic credit crunch.

It was under this milieu that a small open economy like Pakistan found itself trapped in the low growth equilibrium and resorted to a growth-curbing option i.e. IMF stand-by arrangement in order to rescue the balance of payments. Pakistan economy which had otherwise remained in the league of countries with leading economic growth rates since 2000 found itself struggling to keep the growth rate from turning negative by end 2009 (Figure 3).

While the overall economic growth after 2007 remained on a downward trend, the pattern was followed by declining foreign aid, foreign private investment and diminished growth in exports. Some relief was seen through rising remittances from abroad and pick up in foreign assistance for flood affected areas.

Figure 3 Pakistan: Changes in Macroeconomic Indicators



Source: Economic Survey of Pakistan 2010-11

With severe macroeconomic imbalances and infrastructure shortages⁷ (that led to more than 7 percent decline in the industrial sector's growth in 2009) the government embarked upon a medium term strategy focusing on reduction in twin deficits, protecting exports, reforms in energy sector, tax administration reforms (in order to

⁷ Electricity and gas shortages faced by both households and industrial sector.

increase domestic resource mobilization), vigilant monetary policy and social protection for the poor⁸.

Table 1 Pakistan - Macroeconomic Situation 1999 – 2010 [\$ billion]

Indicators	2005	2007	2008	2009	2010	% Δ 2007-2009
Exports	14.4	17.0	19.1	17.7	19.3	4.1
Imports	20.6	30.5	40.0	34.8	34.7	14.1
Remittances	4.2	5.5	6.5	7.8	8.9	16.4
Private Capital Inflow	1.2	7.1	6.2	3.1	2.9	-56.3
Official Capital Inflow	1.3	2.2	1.8	1.0		-54.5
Official Assistance	0.5	1.8	1.2	0.04		-97.8
Foreign Direct Investment	1.5	5.1	5.4	3.7	2.3	-27.5
Inflation (CPI %)	9.3	7.8	12	22.4	10.1	
Pro-poor Expenditure	5.3	7.0		3.8		-45.7
Poverty headcount (%)	23.9			35		

Source: Economic Survey of Pakistan, State Bank of Pakistan - Annual Report

Many have attributed Pakistan's economic problems to the food and fuel price shocks, and energy crisis that preceded financial crisis. However we can observe in Table 1 that between 2007 and 2009 while remittances remained resilient, it was the decline in trade, private and official capital inflow, official development assistance and foreign direct investment that led to the slowdown in economic growth and sharp decline in pro-poor budgetary expenditure (Table 2).

Table 2 Cut in Public Sector Development Programme (2007-09)

Expenditure Categories	% Change
Health	-26.4
Education	-33.6
Higher Education Commission	-30.0
Social Welfare & Special Education	-30.5
Environment	-49.3
Women Development	-66.2
Population Welfare	-30.5
Youth Affairs	-34.5

*Source: Planning Commission, Government of Pakistan.

⁸ This included the Benazir Income Support Programme. Increased donor support was also sought for meeting development objectives in the terror-stricken areas.

This paper estimates the magnitude of impact of global financial crisis on Pakistan economy. The next section will identify the caveats in Pakistan-specific literature that tries to explain the impact of financial crisis followed by a brief literature review that links financial crisis with poverty and welfare. In section 4 we explain our methodology followed by a description of macro – micro data. The next two sections then explain the design of our simulations and results. Finally we conclude with policy recommendations.

II. Global Financial Crisis and Pakistan

There is still very scanty literature on socio-economic impact analysis of global financial crisis on Pakistan's economy. A number of studies which are available fail to decompose the effects of food, fuel and financial crisis. The first two were prolonged in case of Pakistan due to the slow implementation of adjustment policies. It is also explained in literature that the then political environment in Pakistan prevented an adjustment to the terms of trade shocks (World Bank 2009). Pakistan's economy is still relatively less integrated with the global economy in comparison to some of its neighbors such as China and India. This low level of integration kept the economy insulated to some extent (Draz 2011).

Latif *et al.* (2011) show that the financial crisis negatively impacted trade growth in Pakistan. The exports fell mainly because of a drop in world trade prices. This also led to some increase in agriculture imports. The government had acted on these risks and threats. Some policy responses are given in Ali (2009). See also Usman (2010) and Din (2009).

Saleem (2009) explained how slowdown in the US economy affected Pakistan. Nearly 30 percent of pre-crisis Pakistan's exports went to US and later remains the only country where Pakistan enjoys a trade surplus. The share of US investors in FDI in Pakistan was nearly 30 percent before the crisis. However this too has now declined to unprecedented levels.

Taylor (2009) showed how the impact of crisis (including an increase in unemployment due to layoffs in export-oriented industries) led to increased malnutrition particularly amongst children. With 36 percent of children already underweight, thousands of families were left stranded with minimum or no coping strategy but to cut down expenses on food, health and education.

Shaikh *et al.* (2011) using data from textile sector firms explained that financial crisis led to a decrease in exports of textile-related products by almost 20 percent. Also see Alam (2011). The changes in world price of cotton (and cotton-based products) directly impact farm wages and returns to land. For Pakistan's case this has been studied by Cororaton and Orden (2009).

Mukherjee and Pratap (2010) show how the crisis impacted investment in infrastructure and particularly power sector which in turn aggravated the energy crisis in Pakistan. To some extent the reduced investment inflows were responsible for slowdown in the independent power plant projects. These negative shocks were also exacerbated by the increase in country's risk premium owing to worsening law and order situation. There was high risk aversion by commercial lenders and the domestic money market rate along with local benchmark rates such as 6 months KIBOR sharply increased.

This increased cost of capital also led to domestic investors deferring their plans for entering into infrastructure sectors. During this financial crunch, the authors have highlighted the importance of three important instruments: a) reforms for public private partnerships in financing infrastructure, b) luring multinational institutions (Asian Development Bank has already been supporting Pakistan's energy sector), and c) export credits. It is worth mentioning at this point that energy shortages are now costing the Pakistan economy over 4 percent of GDP annually.

In order to overcome the balance of payments difficulties posed by the food, fuel and financial crises, Pakistan was forced to request \$7.6 billion loan from International Monetary Fund (IMF). This loan was mainly aimed at stabilizing the macroeconomic balances particularly the volatile exchange rate and inflation. This in turn implied that Pakistan followed IMF's contractionary fiscal policies. Such conditionalities also meant a reduction in pro-poor expenditures. Some implications of reduced

expenditure on social protection are discussed in UNICEF (2009), Ahmed *et al.* (2009) and Khawaja *et al.* (2010).

There remains a dire need to study in detail the macro-micro impacts of the crisis in an economy-wide framework. Such a model should then be able to capture three key issues that Pakistan economy faced during the crisis period, namely: decline in foreign savings, *Dutch disease* phenomenon posed by rising remittances, and declining world prices of manufactured exports.

III. Crisis and Poverty

There have been several attempts to trace the impacts of external shocks such as a global financial crisis on poverty and inequality. Robilliard *et al.* (2001) using a CGE model simulated the impact of Indonesia's financial crisis of 1997 through real devaluation, foreign and domestic credit crunch. The results indicate a decline in the wages for skilled and unskilled labour. Poverty and Inequality rose by 93 and 5.5 percent respectively. Similarly for Indonesia, Bourguignon *et al.* (2003) show that a decrease in foreign savings under savings-driven investment and flexible government spending leads to a decline in skilled and unskilled wages of around 11 and 25 percent respectively. Poverty and inequality also deteriorate by 37 and 2 percent respectively. For Indonesia also see Friedman and Levinsohn (2001).

Block *et al.* (2004) explained that despite a rise in food prices which significantly altered the nutrition profile, the child weight-for-age remained constant throughout the crisis. This was primarily because within the households, children's caloric intake was buffered by mothers which in turn resulted in increased maternal wasting. Bhutta *et al.* (2008) also show food and economic crisis in Pakistan leading to a significant deterioration of health and nutrition among mothers and children in poor communities in the short term. See also Chapman-Novakofski 2009, Chen and Ravallion (2009), Ferreira and Schady (2008), Friedman and Schady (2009).

Such a scenario makes the transition towards the achievement of MDGs more difficult. It has been discussed in Haddad *et al.* (2003) that income growth alone will not be sufficient to halve the prevalence of underweight children by 2015 and

investments in direct interventions will be required (See also Alderman *et al.* 2006). Martin-Prével *et al.* (2000) while discussing the effects of the 1994 devaluation of the African Financial Community (CFA) franc on the nutritional status of the populations in two districts of Brazzaville, Congo show deterioration in nutritional status with greater levels of stunting and wasting among children, mothers with lower body mass index, and infants with reduced birth weights.

Remittances from abroad have worked as a buffer during difficult times domestically. Martin (2009) explains that remittances should be less sensitive to recession than deployments. This is because remittances to developing countries depend more on the stock of migrants abroad than the flow. During and following the crisis, new deployments of migrants are likely to slow down. Under a prolonged crisis increased lay offs can ultimately decrease remittances and reverse migration. See Abella and Ducanes (2009) for the effect of crisis on Asian migrant workers, and Wilson (2009) for crisis leading to declining remittances in Mexico.

Appropriate policy response in times of crisis can play a very important role in protecting the lives of the poorest. Lokshin and Ravallion (2002) studied the welfare impacts of the 1998 financial crisis in Russia and the response of the public safety net. The response of safety net fell short of what was needed to preserve living standards particularly for the poor. The targeting of safety net is instrumental in the success of these programmes, however authors indicate that even without better targeting, an increase in cash benefits would have avoided higher income poverty. The role of safety net programmes has also been discussed in Ravallion (2009) and Suci (2006). See also Lin (2009).

IV. Methodology

In the past, impact of crises has been studied across literature using various quantitative techniques. For CGE approach see (Robilliard *et al.* 2001, Bourguignon *et al.* 2003). For macroeconometric methods sees (Weeks 2009). The CGE models have extensively been used to study the impact of price shocks, supply constraints and economic crises. See Yeldan (1998) on structural source of the 1994 Turkish crisis,

Robilliard *et al.* (2001) and Bourguignon *et al.* (2003) on the impact of Indonesia's financial crisis of 1997, Valenzuela (2007) on assessing global CGE model validity using agricultural price volatility, Storm (1999) on using variable trade levies on agricultural trade to stabilize food grain prices in India in response to exogenous shocks, Nouve and Woden (2008) on the impact of rising rice prices in Mali. For this study we use a CGE model which provides us insights to economy-wide impacts of financial crisis. We briefly explain this model below.

CGE Model

The basic specifications of the CGE model are from Decaluwé *et al.* (2010) where firms are assumed to operate in a perfectly competitive environment. Each industry's representative firm in the model maximizes profits subject to its technology. Due to the price taking behaviour in the model prices of factors, goods and services are given. In the nested production structure, the sectoral output of each activity is obtained through combination of value added and intermediate consumption (Leontief function).

At the next level each industry's value added consists of composite labour and capital. This is specified using constant elasticity of substitution (CES). Firms maximize profits through employing factors of production up to the level where price of factors equals the value of marginal product of each factor. The bottom level value added is obtained through combining various categories of labour and capital using a CES technology. In case of both labour and capital it is assumed that various categories are imperfect substitutes. On the intermediate consumption side, perfect complementarity is observed between inputs which are combined using a Leontief function. Hence no substitution is possible.

On the incomes side the household income comes from three sources namely labour, capital and proceeds from other agents in the model. Out of the total direct taxes and transfers to government are subtracted to obtain disposable income. The savings of households are treated as a linear function of their disposable income. The income of firms come from their share of capital income and transfers from other agents. The corporate taxes are deducted from overall firm incomes to obtain disposable proceeds

of each firm type. The savings of firms are then calculated after subtracting transfers to other agents out of disposable income.

The government in the model receives revenue from direct taxes, taxes on production, and indirect taxes on goods, services and imports. The government is also receiving its share of capital income and transfers. The income taxes received by government are linear function of incomes of households and firms. The government savings are then the difference between revenue and expenditures.

The rest of the world (RoW) receives import payments, share in income from capital and transfers from other agents. Similarly RoW pays for exports and transfers to in-country agents. The current account balance then represents the difference between RoWs receipts and expenditures.

On the consumption side the goods and services are demanded for consumption, investment and public administration. Besides these there is also demand in the form of margins for transport and trade. The households have Stone-Geary utility functions (linear expenditure system). Total investment demand comprises of gross fixed capital formation and any changes in stocks.

On the production side constant elasticity of transformation (CET) is used to define the product mix. The outputs are allocated by producers in a manner that maximizes firm's total revenue. The production is considered market-specific however CET function used to describe imperfect substitutability represents the ease with which production can be re-appropriated from one market to another. The supply behaviour at the upper level allocates aggregate output into various goods and on the lower level the supply is allocated between domestic and export use. The demand behaviour has been specified as symmetrical to supply behaviour and local products are imperfect substitutes of imports. The buyers minimize expenses using CES function.

The closure rules in our model are such that current account balance, minimum consumption of households, government's current consumption, labour supply, changes in inventories, prices of exports and imports are fixed. Capital is sector-specific. The nominal exchange rate is the numéraire.

Microsimulation Model

Following Alatas and Bourguignon (2000) we estimate the wage income as a function of personal characteristics of earning members of the households thus allowing for heterogeneity of earnings within the wage groups. We retain the same wage grouping as explained above in the CGE model. The heterogeneity may be due to differences in for example educational profile, area of residence and experience.

The self employment income of the households is estimated as a function of household members associated with the business activity as well as the household characteristics such as region, type of experience, size of land ownership, and schooling of head of households. Using an accounting identity we sum the wage income of households members, earnings of members involved in self employment and the non-labour income of household which in Pakistan's case may include remittances, Zakat⁹, and miscellaneous. Any direct taxes paid by the household may be deducted. In order to obtain the real household income we deflate the amount with a household specific consumer price index. This index is calculated as the sum of all budget shares multiplied by the price of goods.

The occupational choice available with an individual is then determined in a discrete fashion (using a multi-logit model). The value for inactivity is set to zero and the values for wage or self employment are functions of household characteristics. The individual will choose for example self employment if the value associated with this choice is greater than other alternatives.

The total expenditure is obtained by subtracting household savings from total nominal income. This expenditure multiplied by the observed budget shares gives us the monetary value of commodity-wise consumption. For the calculation of caloric intake it is essential to divide the value of consumption of food items with their unit consumer prices to get the quantity of each item¹⁰. Finally we divide these total quantities with the number of households to get the per capita quantity consumed for each food item.

From the quantitative aspect three main approaches for linking CGE and microsimulation models can be identified in the literature namely: a) Integrating real

⁹ An obligatory contribution which every wealthy Muslim is required to pay to the state, or to distribute amongst the poor.

¹⁰ Alatas and Boruguignon (2000) did not focus on the nutritional aspects.

households from micro data into a CGE model (see Cockburn 2005), b) sequential (top-down) linkage (see Bourguignon *et al.* 2003), and c) iterative (top-down / bottom-up) approach (see Savard 2003). In this paper we use the top-down approach for linking the macro-micro models. Thus for example to transmit incomes from macro to micro model, we changed the wage intercept terms for labour in various categories namely: skilled, unskilled – farm labour, unskilled – workers in industry, unskilled – workers in margin services, and self employed.¹¹

V. Data Sources and Parameterization

The Social Accounting Matrix (SAM) 2007-8 for Pakistan has been used for the CGE model. This SAM represents the economic structure given in Table 3. The GDP at current factor cost in 2007-08 amounted to Rs. 10242 billion¹² contributed by Rs. 2017 billion from agriculture, Rs. 2658 billion from industry and Rs. 5246 billion from services sector. From the expenditure side this GDP was contributed by Rs. 9131 billion of consumption and Rs. 2258 billion of investment. Net exports amounted to negative Rs. 1130 billion.

The growth rate fell from 6.8 percent in 2006-07 to 3.7 percent in 2007-08 which further declined to 1.7 percent in 2008-09. The agriculture sector in 2007-08 contributed 21.3 percent while industry and services sectors contributed 25.8 and 52.9 percent respectively. Similar trend is seen in sectoral share in gross fixed capital formation where 48.5 percent of capital formation is in services sectors followed by industry (27.7 percent). As percentage of GDP exports and imports amounted to 16.8 and 18 percent respectively.

Table 3 Structure of Pakistan Economy

Indicators	2007-08	2008-09	2010-11
GDP Growth (%)	3.7	1.7	2.4
Sectoral Share in Output(%)			

¹¹ The process of transmitting wages, prices and employment is done after ensuring data consistency between macro and micro data.

¹² Inclusive of net indirect taxes.

Agriculture	21.3	21.8	20.9
Industry	25.8	25.3	25.8
Services	52.9	52.9	53.3
Sectoral Share in investment (%)			
Agriculture	7.0	8.0	9.4
Industry	27.7	30.6	27.4
Services	48.5	43.6	44.4
Trade % of GDP			
Exports	16.8	15.7	14.6
Imports	18.0	14.8	15.3
Fiscal Indicators (% of GDP)			
Government Revenue	14.6	14.5	14.3
Government Expenditure	22.2	19.9	18
Development Expenditure	4.4	3.8	3.4
Overall Deficit	7.6	5.3	4
Money Supply (M2) % Growth	15.3	9.6	9.6
Consumer Price Index (% Growth)	12	20.8	14.1
Foreign Savings (% of GDP)	8.5	5.7	-0.4

*Source: SAM 2007-08 and Economic Survey of Pakistan. The benchmark year for SAM is 2007-08. The latter year's are given for reader's reference.

The main parameters used in the CGE model have been derived from existing general equilibrium studies on Pakistan. The main reference for us was Ahmed and O'Donoghue (2010). A list of these parameters is given in Table 4.

Table 4: List of Parameters

Parameters	Values
CES - composite capital	0.60
CES - composite labor	0.60
CES - composite commodity	1.13
CES - value added	1.50
CET - exports and local sales	1.20
CET - total output	1.20
Price elasticity of the world demand for exports	1.50
Frisch parameter	-2.00
Income elasticity (agriculture)	0.60
Income elasticity (Industry-food)	0.70
Income elasticity (Industry-other)	0.63
Income elasticity (Private services)	0.78
Income elasticity (Public services)	1.05

The household-level data is from Pakistan Social and Living Standards Measurement Survey 2007-08. The sample size of this survey included 15512 households from

urban and rural areas of Pakistan. The key descriptive results from this survey indicate that average household size in Pakistan stands at 6.58 and average number of earners per households is 2 compared with 2.07 in 2005-06. Out of the total number of earners 51 percent are paid employees, 24.5 are self-employed, 21.4 are unpaid helpers, and 2.3 percent are inactive. The average monthly consumption expenditure per household is Rs. 12660 and average monthly income per household is Rs. 14456. The per-capita monthly consumption expenditure is Rs. 1923. A disaggregation of income sources reveals that 39.6 percent are wage earners followed by 15.7 percent in non-agriculture activities, 13.3 percent in crop sector, 6.1 percent in livestock (while the residual represents rest of the sources). It is important to note here that remittances from abroad represent 4.3 percent of household incomes. The main consumption items in household budget include food (44.2 percent), housing including rent (15.1 percent), fuel and lighting (7.6 percent), transport and communication (6.2 percent) and apparel (5.5 percent).

VI. Simulations

Between the period 2007-08 to 2008-09, Pakistan's balance of payments witnessed four key changes. First was the negative growth of exports (-6.4 percent). Second was almost 26 percent decline in value of currency despite of 21 percent increase in remittances from abroad. Third was 31 percent decline in net foreign direct investment. Finally the new aid pledges disappeared almost completely. In order to simulate the somewhat collective impact of the above situation we have for this paper our first experiment in which we shock the foreign savings with the magnitude actually seen during this time period.

However in order to take precise account of terms of trade changes we also separately simulate the global decline in prices of Pakistan's manufactured exports. In this case as well the actual change has been simulated. We summarize our simulations below:

- FSAV: 33 percent decline in foreign savings
- EXP: 4.2 percent decline in world price of manufactured exports

VII. Results

As a result of decline in external resource inflow (foreign savings) the real GDP declines by 1.2 percent (Table 5). The sectoral output is mainly impacted through investment which declines for agriculture (7 percent share in gross fixed capital formation - GFCF) by 15 percent, industry (28 percent share in GFCF) by over 16 percent and services by almost 16 percent. The largest decline in value added is seen of 5.5 percent in case of industry (having implication for labour demand). In consumption terms the worst hit are urban poor whose consumption declines by 11 percent while all other categories lose in the vicinity of 8 percent. The government faces a decline in its revenues whereby tariff revenues decline by around 10 percent for non-food industry, indirect tax revenues decline across the board however the magnitude is greater for non-food industry and agriculture (which includes crop sector and livestock). The direct taxes decline by almost 8 percent. At a time when government was supposed to pursue expansionary fiscal policy such decline in tax revenues eroded government's capacity to sustain pro-poor expenditures and this hindered the drive towards MDGs.

Table 5 Macroeconomic Impact (% Change over base)

	FSAV	EXP
Real GDP	-1.17	-0.40
Change in Value Added		
Agriculture	-0.10	-0.06
Industry	-0.96	-0.19
Private Services	0.54	0.13
Public Services	5.46	1.07
Fixed Investment		
Agriculture	-14.93	-0.44
Services	-15.64	-0.68
Industry - Food	-16.06	-0.76
Industry - Other	-16.66	-1.17
Consumption		
Rural Poor	-7.88	-1.68
Urban Poor	-11.08	-2.59
Rural Rich	-8.23	-1.80
Urban Rich	-7.90	-1.79
Government Revenue		

Income Tax	-7.90	-1.79
Indirect Tax		
Agriculture	-8.66	-1.93
Services	-7.51	-1.55
Industry - Food	-7.99	-1.76
Industry - Other	-10.05	-1.45
Tariff		
Industry - Food	-8.83	-1.95
Industry - Other	-10.80	-1.58

On the trade side while imports decline due to pressures on exchange rate, the lower value of currency now makes exports attractive which see an increase in their value (Table 6). The highest increase is seen for exports of agriculture sector (6 percent) while for industry the exports increase by 4.7 percent. While these changes point towards the narrowing down of trade gap however it may be pointed out here that import decline in traditional intermediate activities is not necessarily a pro-growth change. It needs mention that over 50 percent of Pakistan's exports have imported content. Therefore a decline in capacity to afford these imports directly impacts productive capacity particularly in non-food industry.

Table 6 Impact on Trade (% Change over base)

	FSAV	EXP
Exports		
Agriculture	5.96	1.21
Industry - Food	4.70	0.92
Industry - Other	4.73	-1.93
Services	5.60	1.12
Imports		
Agriculture	-9.66	-2.16
Services	-8.42	-1.75
Industry - Food	-8.83	-1.95
Industry - Other	-10.80	-1.58

The domestic prices decline across the board and particularly for agriculture produce. As explained above the falling domestic prices improved export competitiveness – an

effect that can readily be seen for all export categories. The export of agricultural items is helped by both falling prices of farm labour and land (Table 7). The falling domestic prices partly explain the slump in the returns to factors of production where rents to capital and land decline by 8.6 and 9.5 percent respectively. The wage rate declines for skilled and unskilled labour by 9.2 and 5.2 percent respectively.

Table 7 Impact on Factor and Goods Prices (% Change over base)

	FSAV	EXP
Wage Rate		
Skilled	-9.17	-2.03
Unskilled	-5.22	-1.18
Capital Income	-8.59	-1.91
Land Income	-9.48	-2.22
Domestic Prices		
Agriculture	-8.46	-1.85
Private Services	-7.67	-1.61
Public Services	-6.27	-1.32
Industry - Food	-7.24	-1.54
Industry - Other	-8.11	-1.38

The demand for skilled and unskilled labour declines in agriculture and industry however increases for services sector (Table 8). This can be partly explained through the manner in which reallocation has taken place in sectoral value added where services sector has seen an increase in both private and public services. While in case of agriculture it is skilled labour whose demand declines relatively more than unskilled labour, in case of industry however unskilled labour faces a greater decline in demand. The limitations of a full employment model can be seen here as the results indicate that unemployed skilled and unskilled labour gets absorbed in the services sector. In reality such labour mobility may not be as smooth.

Table 8 Impact on Labour Demand (% Change over base)

Labour Type	FSAV	EXP
Unskilled		
Agriculture	-0.52	-0.29
Industry	-1.17	-0.22
Services	2.01	0.46
Skilled		
Agriculture	-3.66	-0.73

Industry	-0.57	-0.06
Services	5.46	1.07

While a weakening value of currency represents increased (price) competitiveness of exports, it is important to note here that two other sub-channels of transmission were studied for this paper where in the first case we simulated increase in remittances from abroad which indicated some evidence of Dutch disease. For details see companion paper Ahmed *et al.* (2011). The second simulation which is explained below captures the 4.2 percent fall in world prices of Pakistan’s manufactured exports during the period under consideration.

In this simulation while the direction of our results is similar to the first simulation where we exhibited changes due to decline in foreign savings, however the magnitude of change is smaller. The real GDP declines by 0.4 percent and investment in industry (over 70 percent of Pakistan’s exports fall under ‘manufactured’ category) declines by almost 1 percent.

There is a decline in household consumption for both rich and poor households. Despite the weakening of exchange rate position the non-food industrial exports decline by almost 2 percent. Subsequently the domestic prices and returns to factors also face a decline. In case of former the fall in domestic prices is mainly due to greater availability of inputs now domestically used goods and services. In case of latter returns of those factors particularly decline which are more intensively used in industrial sector.

We now turn to poverty and inequality impact of our simulations (Table 9). Due to reduction in foreign savings poverty headcount increases by 7.4 percent with the highest increase seen in Sindh and Punjab provinces. The inequality as measured by Gini coefficient also shows slight deterioration of 0.03 percent with greater incidence seen for Sindh and KPK. The direction of results is similar in case of change in world price of manufactured exports from Pakistan however the magnitude is lower. It seems that urban region and industrial sector are the worst hit due to both simulations which are primarily balance of payments shocks. As seen in the structure of economy

above the industrial sector particularly large scale manufacturing is more liberalized and exposed to terms of trade shocks. It may be pointed out here that Punjab and Sindh face the highest increase in poverty and these provinces are already home to highest number of poor in Pakistan.

Table 9: Impact on Poverty & Inequality (% Change over base)

	FGT(a=1)	FGT(a=2)	FGT(a=3)	Gini
Pakistan				
EXP	2.9	0.7	0.3	0.001
FSAV	7.4	3.3	1.7	0.032
Punjab				
EXP	4.4	1.7	1.1	0.022
FSAV	12.9	8.5	5.5	0.099
Sindh				
EXP	10.7	3.6	1.9	0.022
FSAV	24.7	17.8	10.2	0.100
KPK				
EXP	4.5	1.3	0.8	0.031
FSAV	10.6	6.4	4.1	0.147
Balochistan				
EXP	7.8	1.3	0.6	0.020
FSAV	12.1	6.3	3.1	0.092

* FGT (a=1) Headcount Ratio (proportion poor), FGT(a=2) average normalized poverty gap, FGT(a=3) average squared normalized poverty gap.

VIII. Conclusion

In this paper, we have tried to show the impact of the global financial crisis on Pakistan's socio-economy. Dealing with the crisis was difficult for Pakistan due to already present fiscal constraints. Balance of payments weaknesses forced the country to resort to an IMF stand-by arrangement, which imposed further conditionalities on the budget. Subsidies on wheat, electricity, fertilizer and oil had to be phased out, which in turn increased the inflationary burden on the consumer. While there are some social safety nets at the federal and provincial level access to these have generally been difficult. Better targeting of these social programs is also need of the hour.

With help of a linked CGE-microsimulation model we show how a reduction in foreign savings adversely impacted overall GDP, poverty and inequality levels. In terms of value added while decline was seen in agriculture and industry, the services sector in particular domestic services witnessed an increase. The investment and consumption levels decreased across the board and urban poor faced the highest decline in consumption. As external resource inflow declined and due to pressures on the exchange rate, imports become expensive and see a decline in their value. Through similar channel the price competitiveness of exports increases. In the labour market there is a movement away from agriculture and industry and towards services sectors (due to increased value addition). As goods and factor prices decline across the board, poverty and inequality deteriorate particularly for the two most populous provinces of Pakistan. The paper also carries a sub-set of first simulation where we experiment with actual decline in world price of Pakistan's manufactured exports. While the direction of change is same in this simulation the magnitude is relatively lower.

Given the foreign aid inflows have been on a decline for the past several years, emphasis should now be on improving domestic resource mobilization. This may be supplemented by the rising remittances from abroad, which can be helpful going forward if channeled towards investment instead of meeting short term consumption needs. For this both the government and banking system must develop a wide range of savings instruments for corporate and household sector. Incentives such as the Pakistan Remittance Initiative (PRI) should be widened.

Finally volatile global export prices pose a threat to the terms of trade in countries which have a dominate commodities export base. Pakistan has been slow to diversify its export structure in terms of the commodities it produces and markets abroad. The regional diversification has also been slow as most of the exports are destined to US and EU (regions hardest hit in the global financial crisis). The future trade policies of Pakistan should focus on both export sophistication and diversification.

References

Ahmed, V., G. Sugiyarto, and S. Jha. *Remittances and Household Welfare: A Case Study of Pakistan*. Journal of Social and Policy Sciences, December 2010 1(1) 125-190.

Ahmed, S., Vaqar Ahmed, C. O'Donoghue (2009) Food and Financial Crises in Pakistan: Impact Assessment and Policy Response. SDPI's 12th Sustainable Development Conference, 21 – 23 December 2009.

Ahmed, V. and C. O' Donoghue (2010) External Shocks in a Small Open Economy: A CGE-microsimulation analysis. The Lahore Journal of Economics, 15:1(Summer 2010) 45-90.

Ahmed, S., V. Ahmed, A. Abbas (2011) Macro-Micro Impact of Global Financial Crisis in Pakistan. Poverty and Economic Policy Research Network. 9th General Meeting, Cambodia, December 3-9 2011.

Alatas, V., & Bourguignon, F. (2004). The Evolution of the Distribution of Income During Indonesian Fast Growth: 1980 – 1996. In F. Bourguignon, F. H. Ferreira, & N. Lustig (Eds.). World Bank.

Alam, I. (2011) Impact of Financial Crisis on Textile Industry of Pakistan: Evidence from Faisalabad. SANEI Working Paper Series No. 11-02.

Ali, M. M. (2009) Global Financial Crisis: Impact on Pakistan and Policy Response. Regional high level workshop on 'Strengthening the Response to the Global Financial Crisis in Asia-Pacific: The Role of Monetary, Fiscal and External Debt Policies'. UNESCAP, 27-30 July 2009, Dhaka.

Bhutta, Z. A., Bawany, F. A., Feroz, A., & Rizvi, A. (2009). The Impact of Economic Crisis on Child Health and Nutrition. *UNICEF East Asia and the Pacific Regional Office Conference*.

Block, S. A., Kiess, L., Webb, P., & Kosen, S. (2004). Macro shocks and micro outcomes: child nutrition during Indonesia's crisis. *Economics & Human Biology*, 2 (1), 21 - 44.

Bourguignon, F., Robilliard, A.-S., & Robinson, S. (2003). Representative versus real households in the macroeconomic modelling of inequality. *DIAL DOCUMENT DE TRAVAIL DT/2003-10*.

Chen, S., & Ravallion, M. (2009). *The impact of global financial crisis on the world's poorest*. World Bank.

Cockburn, J. (2005). *The Case of Nepal: A CGE Microsimulation Analysis in John Cockburn, Bernard Decaluwé and Véronique Robichaud (eds.), Trade Liberalization and Poverty: A CGE Analysis of the 1990s Experience*. Québec, Canada: Poverty and Economic Policy Research Network.

Cororaton, C. and D. Orden (2007) *Inter-sectoral and Poverty implications of cotton and textile policies: A CGE analysis*. Working Paper, IFPRI, Washington DC.

- Cororaton, C. and D. Orden (2009) Pakistan's Cotton and Textile Economy. Research Report Abstract 158. IFPRI, Washington DC.
- Decaluwé, B., Lemelin, A., Maisonnave, H., & Robichaud, V. (2009). *PEP-1-1 Standard PEP Model, Single-Country, Static Version*. Poverty and Economic Policy Network.
- Din, M.U. (2009) Global Financial Crisis: Implications for Macroeconomic and Development Policies in Pakistan. Pakistan Institute of Development Economics, Islamabad.
- Dorosh, P., Niazi, M. K., & Nazli, H. (2006). *Social Accounting Matrix for Pakistan, 2001-02: Methodology and Results*. Pakistan Institute of Development Economics.
- Draz, M. U. (2011) Impact of Financial Crises on Pakistan and China: A Comparative Study of Six Decades. 2nd International Conference on Business And Economic Research 2011, Malaysia.
- Ferreira, F., & Schady, N. (2008). *Aggregate Economic Shocks, Child Schooling and Child Health*. Policy Research Working Paper 4701, World Bank, Washington D.C. .
- Friedman, J., & Levinsohn, J. (2001). *The Distributional Impacts of Indonesia's Financial Crisis on Household Welfare: A Rapid Response Methodology*. National Bureau of Economic Research, Inc.
- Friedman, J., & Schady, N. (2009). *How Many More Infants are Likely to Die in Africa as a Result of the Global Financial Crisis*. Policy Research Working Paper, World Bank.
- Haddad, L., Alderman, H., Appleton, S., Song, L., & Yohannes, Y. (2003). Reducing Child Malnutrition: How Far does Income Growth Take Us? *The World Bank Economic Review*, 17 (1), 107-131.
- Idrees, K., T. Mahmood, and U. Qadir (2010) Social Impact of Global Recession on Pakistan. *Pakistan Economic and Social Review*, Volume 48, No. 2 (Winter 2010), pp. 261-278.
- Latif, A., S. Nazar, M. Z. Shah, F. M. Shaikh (2011) Global Financial Crisis: Macroeconomic Linkages to Pakistan's Agriculture. *Asian Social Science*, Vol. 7, No. 7, July 2011.
- Martin, P. (2009). Recession and Migration: A New Era for Labor Migration? *International Migration Review*, 43 (3), 671-691.
- Mukherjee, M. and K. V. Pratap (2010) The Impact of the Global Financial Crisis on Investments in the Electric Power Sector. Co-published by Energy Sector Management Assistance Program (ESMAP) and the World Bank.
- Nabli, M. K. (2010) The Great Recession and Developing Countries. World Bank

- Nouve, K., & Wodon, Q. (2008). *Impact of Rising Rice Prices and Policy Responses in Mali: Simulations with a Dynamic CGE Model*. Policy Research Working Paper 4739, The World Bank.
- Planning Commission (2009) Economic Stabilization with a Human Face. Taskforce report submitted by Advisory Panel of Economists. Government of Pakistan, Islamabad.
- Ravallion, M. (2009). Bailing Out the World's Poorest. *Challenge* , 52 (2), 55-80.
- Robilliard, A.-S., Bourguignon, F., & Robinson, S. (2001). Crisis and Income Distribution: A Micro - Macro Model for Indonesia. *DIAL Working Paper*.
- Saleem, F. (2009) Pakistan and the Global Financial Crisis. Centre for Research and Security Studies, Islamabad.
- Shaikh, F.M., N. A. Gopang, K. Shafiq (2011) Global Financial Crisis and its Impact on Textile Industry in Pakistan. *Journal of Business Case Studies*, May/June 2011, Vol. 7, No. 3.
- Storm, S. (1999). Foodgrain Price Stabilisation in an Open Economy: A CGE Analysis of Variable Trade Levies for India. *The Journal of Development Studies* , 36 (2), 136-159.
- Taylor, S. (2009) Pakistan reels as global financial crisis hits poor families hard. Blog post at: http://www.unicef.org/emerg/pakistan_49842.html
- UNICEF (2009) The Impact of the Economic Crisis on Women and Children in South Asia. UNICEF Regional Office South Asia, Kathmandu.
- Usman, M. (2010) Global Financial Crisis: Impact on Developing Countries and Lessons for Pakistan. *IPRI Journal X*, no.1 (Winter 2010): 93-118.
- Valenzuela, E., Hertel, T. W., Keeney, R., & Reimer, J. J. (2007). Assessing Global Computable General Equilibrium Model Validity Using Agricultural Price Volatility. *Amer. J. Agr. Econ.* , 89 (2), 383–397.
- Weeks, J. (2009). *The impact of the global financial crisis on the economy of Sierra Leone*.
- Wilson, T. D. (2009). Economic Crisis and the Decline of Remittances to Mexico. *Anthropological Quarterly* , 82 (2), 587–598.
- World Bank (2009) Impact of Global Financial Crisis on South Asia. Mimeo, South Asia Region, The World Bank Group.
- Yeldan, E. (1998). On structural sources of the 1994 Turkish Crisis: A CGE modelling analysis. *International Review of Applied Economics* , 12 (3), 397-414.