Impact of Shocks and Dynamics of Poverty on Child Labour and Schooling in Pakistan: A Panel Analysis

Usman Ahmad*, Prof Pritam Singh**, Shujaat Farooq***

Abstract

The current study has explored the impact of shocks, poverty and dynamics of poverty on child labour and schooling in Pakistan. Three rounds of Pakistan Panel Household Survey (PPHS) are used and analysis is carried out on sampled children of age 5-14 years. The findings reveal that shocks have a positive impact on child labour. The dynamics of poverty shows that households who succeeded to move out of poverty or remained non-poor, are more likely to send their children in educational institutes. Policy focus is required to mitigate the adverse impacts of shocks and poverty.

Keywords: Shocks; poverty; dynamics of poverty; child labour; child schooling

Introduction

Inadequate school enrolment and child labour havebeen recognised a challenge and policy issue in less developed countries. The issue is more pervasive among lower income groups, having risks of poverty and other forms of vulnerabilities. Child labour is reflection of socio-economic vulnerabilities, institutional barriers, labour market imperfections, social inequities and a low-quality educational system. The effects of poverty and dynamics of poverty on child labour and/or schooling must be viewed in terms of human capital formation and intergenerational poverty. At micro level, high poverty restricts the parents to send their children in school, whereas at the macro level, countries, facing high poverty, are not capable to invest more on education and skills.

Both the poverty and shocks can be considered as exposures that can reduce child schooling and push households to send their children in labour market. To avoid the adverse impact of shocks, poor households usually opt coping strategies including stopping or delaying the education of their children or compromising the quality of education (Beegle et al., 2006). Though impact of shock on chid schooling is expected to be negative, it could be positive during recession period of economy when labour market lacks job opportunities. In such circumstances, achild may continue the education due to reduction in the relative price of schooling (Ferreira and Schady, 2008).

Since its independence, Pakistan has been experiencing frequent alterations in educational policies, and overall these policies remained fail to provide a good quality education, as coherent to the needs of labour market. Many schools in remote areas are not well equipped and are facing multiple issues includinguntrained teachers, outdated contents, lack of financial resources, and even non-existence of schools as well(Farooq, 2015). Despite of various commitments as reflected in MDGs and subsequently SDGs, the country has failed to achieve universal primary education.Besides supply side issues, demand side issues also prevail including affordability, dynamics of poverty and persistence shocks, natural, business and inflationary.

*Senior Research Economist, Pakistan Institute of Development, Economics (PIDE), Islamabad
** Oxford School of Global and Area Studies, University of Oxford, UK
*** Assistant Professor, Pakistan Institute of Development Economics (PIDE), Islamabad

Poor households usually face the affordability issues and have to fulfil basic needs, they may prefer to send child in labour market rather than focusing on education. The statistics from 2014/15 LFS shows that 9.6 percent of the children (age 10-14 years) are part of labour force, with more percentage among males (11.2%) than females (7.7%).Dynamics of poverty is another apprehension in Pakistan as movements of poverty are much greater than net changes in poverty ratios. Using three-round panel survey, Arif and Shujaat(2014) found that around half of the households witnessed at least one episode of poverty during 2001-2010 periods. Shocks are another reason as it adversely impacts the resource opportunities. During the initial phases of a child life, shocks might have a considerable impact over the creation of human capital formation of a child including education and health. The impacts may lead to decline in human capital formation and can have long-term effects to next generation. Since 2005, Pakistan has witnessed various natural and economic shocks including 2005 earthquake, 2010 floods, elevated inflation during 2007-12 periods, war against terror and sluggish economic growth. However analysis is missing to link dynamics of poverty and shocks with child schooling as most of the studies have attempted to analyze by using cross-sectional survey.

A number of studies in Pakistan were conducted on poverty, child labour and child schooling on cross-sectional datasets; however, impacts of shocks and dynamism of poverty on child labour and schooling is never analyzed (Sarkar and Sarkar 2012).The present study is the unique to fill the literature gap by using 3 rounds of thepanel dataset in which impact of household'scurrent and previous wellbeing history (as measured through headcount poverty and dynamics of poverty) and shocks are observed that how they can influence the child labour and schooling behaviour.

The rest of the paper is organized as follows. Section 2 explains literature review, while section 3 discusses the data and methodological framework of the study. Section 4 explains the quantitative findings followed by qualitative findings in section 5. Conclusion and policy implications are given in last section.

A Review Note on Child Labour and Schooling

Poverty and income constraints play an important role in the decision to send childeither to work or school (Cockburn, 2001). Poor familiesrequire supplementary income for their survival, therefore parents prefer to send children on work rather than in school (Patrinos, 1997).The incidence of child labour falls with rise in income and other financial resources (Admassie, 2002).Besides other factors, child labour is an outcome of poverty (Basu, 1999; Emerson and Souza, 2000). Ample job opportunities and wages also inspire the children to work rather than go in school (Bhalotra, 2007).

Delap (2001) anticipated that income instability and household poverty are the key determinants of child labour in slum areas of Bangladesh. Awan et al. (2011) argued that low family income, low head of household education and large family size pushed children into work. As countries become richer, child labour may decline. According to Basu "*the overall growth of an economy is by no means the only factor, nor for that matter the most important factor, in the mitigation of child labour. Changes in technology, improvement in the conditions of the adult labour market, and the availability of decent schooling can all lead to children being voluntarily withdrawn from the labour force*" (Basu, 1999).

Escobal (2012) analyzed the impact of economic shock in Peru and found adverse impacts on quality of education. Kazianga (2010) estimated income uncertainty

impacts on schooling decision in rural Burkina Faso and found that households having volatile income had usually accumulated buffer stocks in order to cope with the unforeseen shocks, for this reason they preferred to send their children to labour market for higher family earning.Glick et al. (2010) found that poor household used child labour participation as the coping strategy to avoid shocks in Madagascar.

In designing a policy to reduce child labour and to promote child schooling, it is essential to start with an appropriate theoretical and empirical understanding of the issue. Children from poor households work because of poverty or non-availability of (quality) schooling. Theoretically, labour participation of a child is the result of household decisions that are influenced by poverty, lack of current and future opportunities etc., but the complexity of the issue requires exploring different perspectives tolessen the adverse impacts.

Data and Methodology

Data Description

To analyze the impacts of headcount poverty, dynamics of poverty and shcoks on child labour and schooling, we have used three rounds of Pakistan Panel Household Survey (PPHS), conducted in 2001, 2004 and 2010. The sample size for each round is shown in Table 1 that varies from 2721 households in 2001 to 4142 households in 2010. The 2001 round was conducted from 2721 households and only from rural areas of 16 districts in four provinces. Out of them, 1614 households were followed in 2004, only from province Punjab and Sindh. Panel households were re-interviewed in 2010 round with addition of urban sample, thus totalling the sample to 4142 households (for further details on sample size, see Arif and Shujaat, 2014).

A logical concern in panel dataset involves whether the attrition is random or not as a skewed attrition might generate biased estimates. Nayab and Arif (2012) found that attrition is random in PPHS panel survey. All the rounds of panel survey have detailed information on consumption (both food and non-food), child school enrolment and various other socio-demographic and economic aspects. The 2010 round has captured detailed information on shocks and coping strategies in case if household has faced the shock over the last 5 years or not. As detailed earlier that unit of analysis for current study is children of aged 5-14 years, the 2010 rounds show that targeted sample is 7349 children. Out of them, more than half are male (3,825) and 30.7 percent belongs to urban areas.

Table 1: Sample Size of Pakistan Panel Household Survey (PPHS)

Province	2001 Round	2004 Round			2010 Round				
		Panel house-holds	Split house-holds	Total	Panel house-holds	Split house-holds	Total Rural house-holds	Urban house-holds	Total
Punjab	1,071	933	146	1,079	893	328	1,221	657	1,878
Sindh	808	681	147	828	663	189	852	359	1,211
KPK	447	-	-	-	377	58	435	166	601
Baluchistan	395	-	-	-	265	27	292	160	452
Total	2,721	1,614	293	1,907	2,198	602	2,800	1,342	4,142

Source: Arif and Shujaat (2014)

Methods of Analysis

Before explaining methodology, four variables used in present study are worth to explain; status of child labour and schooling, shocks, headcount poverty and dynamics of poverty. We have developed variable 'child labour and schooling' by using both the education and labour information as PPHS hascaptured the school enrolment and employment status from all sampled individuals of age5 years and above. Using information either a child is currently going school or not and/or a child is currently employed or not,[13]we have established 4 categories:study only (going school and not working), work only (working and not attending school), both study and work (going school and working) and do nothing (neither going school nor working in labour market). Regarding the second variable "shocks", PPHS 2010 questionnaire covers detailed module on 'Shocks and Coping Strategies' in which households were asked to report the type of shock faced by them over the last 5 years (2006-2010) as well as coping strategy they adopted. We have developed two sort of variables on shock: first a dummy whether a household has faced shock during last five years or not, and in second variable, shock variable is further divided into three categories: natural shock (flood, drought, earthquake, crop failure), economic shock (business failure, job loss) and inflationary shock.

Regarding thethirdand fourth variable, headcount poverty and dynamics of poverty, the study has followed the methodology of Arif and Shujaat (2014), where official headcount poverty is used to estimate poverty for all the three rounds.[14] For two rounds panel dataset, the dynamics of poverty is defined by four categories of change in poverty status between two periods: chronic poor (poor in two periods), moved out of poverty, moved into poverty and non-poor. For three roundsof panel dataset, the dynamics of poverty is defined as; poor in all three periods (chronic poor), poor in two periods, poor in one period and non-poor.

Both the bi-variate and multivariate analysis were carried out.In multivariate analysis,the following equations are estimated:

$$Csl_i=\alpha_0+ \alpha_1 I_i+ \alpha_2 Hd_i+ \alpha_3 Par_i+ \alpha_4 Pov_i+ \alpha_5 Reg_i+ u_i \quad (1)$$

$$Csl_i = \alpha_0+ \alpha_1 I_i+ \alpha_2 Hd_i+ \alpha_3 Par_i + \alpha_4 Pov_i + \alpha_5 Shock_i+ \alpha_6 Reg_i+ u_i \quad (2)$$

$$Csl_i = \alpha_0+ \alpha_1 I_i+ \alpha_2 Hd_i+ \alpha_3 Par_i + \alpha_4 Pov_i + \alpha_5 Shock_i+ \alpha_6 (shock*pov) + \alpha_7 Reg_i + u_i \quad (3)$$

$$Std_i= \alpha_0+ \alpha_1 I_i+ \alpha_2 Hd_i+ \alpha_3 Par_i + \alpha_4 DP_i + \alpha_5 Reg_i + u_i \quad (4)$$

The first 3 equations are estimated by using cross-sectional data of 2010 round where the dependent variableCsl_ihas four outcomes: study only, work only, both study and work and do nothing. Since dependent variable has 4 outcomes, therefore multinomial logit model is applied. 'Study only' serves as reference category. On right hand side, vector I_i shows the individual characteristics of children, age and gender of the children. Vector Hd_i shows the household characteristics like household size, dependency ratio, land and livestock ownership, while vector Par_i represents the parental education including the education of father and mother. Reg_i represent the region (urban/rural) and province dummies. In first equation, Pov_i represents the poverty status of household. In second equation, $shock_i$represents above stated three types of shock variables (3 separate models were estimated). In equation 2, shock and poverty variables are used in additive form, whereas in

[13]Employment is defined as if a child has worked in economy activity during last week at least one hour.

[14]The Planning Commission of Pakistan measured official poverty line by using the Pakistan Integrated Household Survey (PIHS) 1998-99 dataset, based on 2,350 calories per adult equivalent per day.

equation 3 both the variables are used in multiplicative form to observe that how interaction of the both impacts the child labour and schooling.

Equation 4 is used to estimate the impact of dynamics of poverty on child schooling for panel households only in which 2 rounds of panel dataset (2004 and 2010) and three rounds of panel dataset (2001, 2004 and 2010) are used. The dependent variable Std_i in 4th equation has two outcomes: 1 if child is studying and 0 otherwise. The logistic regression model is applied.[15] On the right-hand side of equation 4, DPi represents the dynamics of poverty with 4 outcomes both for two and three rounds of panel dataset. In two rounds of panel dataset (2004 & 2010), the outcomes of dynamics of poverty are: chronic poor, moving out of poverty, falling into poverty, non-poor. In three rounds of panel dataset (2001, 2004 & 2010), the outcomes are: chronic poor (poor in 3 rounds), 2-period poor, 1-period poor and non-poor.

Results

Empirical evidencessuggest that the probability of a child for attending school is the response of various demand and supply side factors. Though not listed in table, the findings reveal that 59 percent of the sampled children were found currently enrolled in educational institutes, higher enrolment rates (65%) among male children than female children(54%) in 2010. Regarding the employment status of sampled children, 6 percent of the children were found currently employed, with slightly more employment rates among male children.

Table 2: Status of Child labour and schooling by Gender and Age of children (% Distribution)

Gender	Child Labour/Schooling	Age of the Children		Overall
		5-9 years	10-14 years	
Male Children	Study Only	55.9	64.1	60.4
	Work Only	1.7	6.1	3.9
	Both study and work	0.9	3.8	2.4
	Do nothing	41.3	25.7	33.1
Female Children	Study Only	49.2	54.2	52.3
	Work Only	2.4	7.3	4.9
	Both study and work	0.4	1.3	1.0
	Do nothing	47.8	37.0	41.6
Both Sexes	Study Only	52.7	59.3	56.5
	Work Only	2.1	6.7	4.4
	Both study and work	0.7	2.6	1.7
	Do nothing	44.4	31.2	37.2

*Source:*Estimated from the PPHS2010 micro dataset

Table 2 shows that among the both sexes, 57 percent of the children are engaged in '*study only*' category with more male children who are engaged in '*studyonly*' (60%) compared to female children (52%). While dividing the children into two age groups, 5-9 years and 10-14 years, the results reveal that age of children has also a positive impact to be engaged in school enrolment as more children having age 10-14 years fall in '*studyonly*' category. More than one-third of the children (37%) fall in '*do nothing category*', though more percentage of female children fall in this category (42%) as compared to their male counterparts (33%). Contrary to '*study*

[15]Being limited number of observation in panel data, the 4 categories of child labour and schooling were merged into two categories.

only' category, this category decreases as children become elder both for male and female. PPHS 2010 data shows that 6 percent of the children were found to be worked in labour activities, a slight more percentage of child labour among male as compared to female children. Out of the children who involved in labour activities, around 2 percent are those who are enrolled in schools as well, thus doing both the study and work simultaneously. This proportion of '*work only*' and '*both study and wor*k' show a positive trend with age of the children (Table 2). Parental education plays a vital role in improving child education and reducing the practices of child labour. Table 3 shows similar findingswith an inverse relationship between parental education and child labour. It can be seen that as the education of father and mother rises, more children of educated fathers and mothers go in school and percentage of children who falls in '*do nothing*' category also falls. In similar, child labour, either 'work only' or '*both study and wor*k' significantly declines among the educated parents. An interesting element is the impact of mother's education as the results show that mother's education has amuchmore impact on child education as compared to the father's education.Even children with mothers having fewer grades education (1-5 grades) have a higherpercentage of enrolment in schools as compared to father's education with similar grades. The positive difference for child schooling on '*study only'* category, educated parents (11 and above grades)is around 12 percentage points. The findings suggest that children, having less educated parents, are more likely to *do nothing* or go in labour market.

Table 3: % Distribution of Child Schooling/Labour by Parental Education

Parental Education	Study only	Work only	Study and work	Do nothing	Total
Education of mother (in grades)					
Illiterate	51.6	5.1	1.8	41.5	100
1-5	77.6	1.5	3.3	17.6	100
6-8	82.1	0.0	1.5	16.4	100
9-10	89.9	0.4	0.0	9.7	100
11 and above	91.5	0.0	0.0	8.5	100
Education of father (in grades)					
Illiterate	45.7	6.6	1.9	45.9	100
1-5	56.1	3.6	1.7	38.6	100
6-8	68.7	2.5	2.3	26.5	100
9-10	73.0	1.6	1.5	24.0	100
11 and above	80.2	0.3	1.3	18.3	100

*Source:*Estimated from the PPHS 2010 micro dataset

The impact of shock and poverty status on thestatus of child labour and schooling is discussed in Table 4 which showsminor differences on '*study only*' category among the households who have faced shock during past 5 years (55.7%) compared to those who have not faced shock (59.9%). However, the difference is quite evident on poverty status of the households as 40 percent of the children of poor households fall in '*study only*' category; this percentage is 62 among the non-poor households. The results also show that both the shock and poverty has also a positive impact on child labour as the percentage of children in '*work only*' category is more among both the shock and poverty facing households. Interestingly more children fall in '*do nothing'*category from those households who have faced shocks or in poverty trap.

Table 4: % Distribution of Child Schooling/Labour by Shock and Poverty Status

Shocks and Poverty	Study only	Work only	Study and work	Do nothing	Total
Shocks faced by households in past 5 years					
Yes	55.7	4.7	1.7	37.8	100
No	59.9	3.2	1.9	35.0	100
Poverty Status					
Yes	39.6	5.7	1.3	53.5	100
No	61.8	4.1	2.0	32.1	100

*Source:*Estimated from the PPHS 2010 micro dataset

Using two rounds (2004 & 2010) and three rounds (2001, 2004 & 2010) ofpanel datasets, the results over the status of child labour and schoolingare displayed with dynamics of poverty in Table 5.It is worth mentioning that status of child labour and schooling is estimated only from 2010 round and previous two rounds were not considered. The analysis on two and three rounds of panel dataset shows that children among the chronic poor households have half of the schooling (*study only*) than the non-poor households. Falling into poverty is another factor to make children away from education (two rounds). Annexure Table 1 shows that enrolment rates are much lower among the children of chronic poor households. A gradual improvement in enrolment rates can be seen as households move from three-period poor to non-poor category.

Table 5: Status of Child Labour and Schooling by Dynamics of Poverty (in %)

Poverty Dynamics	Study only	Work only	Study and work	Do nothing	Total
Dynamics of Poverty (2004 and 2010 rounds)					
Chronic poor	30.4	8.4	1.8	59.2	100
Moving out of poverty	41.6	10.5	3.3	44.4	100
Falling into poverty	38.3	4.8	0.7	44.4	100
Non-poor	62.9	3.5	2.5	30.9	100
Dynamics of Poverty (2001, 2004 and 2010 rounds)					
3-period poor	31.3	10.4	2.9	55.2	100
2-period poor	36.3	19.8	3.4	40.4	100
1-period poor	38.7	4.2	0.9	56.1	100
Non-poor	61.5	4.9	3.3	30.1	100

*Source:*Estimated from the 3 rounds of PPHS micro dataset

As detailed in methodology, multinomial logit models are estimated (consistent to first three equations) where dependent variable 'status of child labour and schooling' has four outcomes. The results are discussed in Table 6 by using 2010 PPHS cross-sectional dataset in which the impact of poverty, shocks and multiplicative of poverty and shocks are used as explanatory variables besides other control factors. In Model 1, only poverty variable is used, whereas the shock dummy is added in Model 2 and multiplicative term of both the poverty and shocks is used in Model 3. Annex Table 2 also details the results in which types of shocks is used as the explanatory variable and again two models are estimated. Relative Risk Ratio (RRR) is reported in Table 6.The results shows that poverty has a positive impact to push achild into work and *do nothing*.. The results in Model 2 shows thesignificant positive impact of thepresence of shocks on child labour (*work only*).The multiplicative term of both the poverty and shocks in Model 3 showsthe positive impact on *do nothing*.

Table 6: Impact of Poverty and Shocks on Child labour and schooling--Multinomial Logit Model

Correlates	Model- 1			Model- 2			Model- 3		
	Work only	Both study and work	Do nothing	Work only	Both study and work	Do nothing	Work only	Both study and work	Do nothing
	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
Gender (male =1)	1.650***	2.015***	0.592***	1.662***	2.245***	0.587***	1.649***	2.278***	0.587***
Age (in years)	1.283***	1.227***	0.889***	1.279***	1.229***	0.888***	1.277***	1.230***	0.888***
Father Education (Up to Primary as ref.)									
6-9 grades	0.406***	0.937	0.554***	0.390***	0.972	0.540***	0.400***	0.973	0.542***
10 and above grades	0.045***	0.611	0.355***	0.046***	0.659	0.339***	0.045***	0.666	0.336***
Mother Education (Up to Primary as ref.)									
6-9 grades	0.113***	0.443	0.444***	0.112***	0.537	0.432***	0.117***	0.482	0.432***
10 and above grades	0.000***	0.000	0.262***	0.000***	0.000	0.270***	0.000***	0.000	0.271***
Dependency Ratio (Low as ref.)									
Middle	1.302	1.083	1.305***	1.305	1.216	1.303***	1.273	1.235	1.300***
High	1.420**	0.915	1.171*	1.376*	1.111	1.140*	1.368*	1.088	1.134*
Agricultural household (yes=1)	1.580***	1.787***	1.030	1.674***	1.871**	1.029	1.611***	1.865**	1.028
Poverty (poor =1)	1.151*	0.793	1.769***	1.218*	0.715	1.707***	1.405*	0.258	1.235**
Shock (yes = 1)	-	-	-	1.402*	1.059	1.088	1.440*	0.997	1.016
Poverty*Shock	-	-	-	-	-	-	0.784	3.422	1.434*
Provinces (North and Central Punjab as ref.)									
South Punjab	2.414***	0.309***	4.996***	2.234***	2.386***	5.123***	2.373***	0.261***	5.121***
Sindh	3.539***	1.678*	6.258***	0.037***	0.568*	6.408***	3.595***	1.492*	6.463***
KPK	0.060***	0.381***	2.046***	0.125***	0.184***	2.058***	0.059***	0.360***	2.047***
Baluchistan	0.198***	0.119***	10.472***	0.343***	0.165***	10.271***	0.198***	0.114***	10.244***
Region (Urban=1)	0.311***	0.272***	0.665***	0.005***	0.156***	0.716***	0.354***	0.159***	0.717***
Constant	0.004***	0.003***	0.630***	0.003***	0.002***	0.606***	0.003***	0.002***	0.641**
N	7234			7043			7043		

Note: Study only serves as reference category

*** denote significant at 1%, ** significant at 5%, * significant at 10%

*Source:*Estimated from the PPHS2010 micro dataset

Annex Table 2 shows the impact of various types of shocks on thestatus of child labour and schooling in which presence of shock is divided into three categories; natural shock, business shock and inflationary shock. The results show that all categories of shocks have a significant positive impact on work only. Households, facing the inflationary shocks, are more likely to involve their children both in education and work. In addition, natural shocks are more likely to push households out of school and in absence of labour opportunities, they are more likely to do nothing, neither education nor work.

Table 6 shows that gender of thechildhas shown a significant association with thestatus of child labour and schooling. Male children are more likely to be engaged in child labour activities (*work only*) and lesslikely to *do nothing* as compared to their female colleagues. However, they are also more likely to be engaged in *study and work* simultaneously. Age has a positive association with work only and also with both work and study, and a negative association with '*do nothing'*. The education of both the father and mother is a restraint on children for both to engage in labour activities and *do nothing* (Table 6). Households, who are facing high dependency, are more likely to engage their children in labour activities and *do nothing*, the impact is not significant in*study and work*. Similarly, children among agricultural households are more likely to engage in labourer activities or concurrently engage in both the study and work.

Regional dummies have some interesting features. Holding other things constant, the children of southern Punjab are more likely than their counterparts in north/central Punjab to be worked as child labour by 2.4 times. They are also 5.5 times more likely to *do nothing*, which could be due to less economic opportunities in south Punjab as compared to north and central Punjab. The dummies of Sindh province are similar to southern Punjab except that they also have more significant and stronger positive association with child labour and do nothing. Children in KP and Baluchistan provinces are less likely to be engaged in child labour, they are also more likely to *do nothing*. Urban children are less likely to engage in all the three outcomes including work only, both study and work and do nothing as compared to the rural children (Table 6).

Using the two and three rounds of panel dataset, the impact of dynamics of poverty on child current enrolment status is estimated through logistic regression model. The analysis based on two (2004 & 2010) and three rounds panel (2001, 2004 & 2010) is reported in Table 7 where the dependent variable has two outcomes: child is currently enrolled or not. It is worth mentioning that analysis is carried out only for panel households. The results shows that households who succeeded to move out of poverty or remained non-poor in both rounds of panel survey, are more likely to send their children in educational institutes as compared to the chronic poor households. The findings on three rounds of panel survey shows that child enrolment significantly improves among the households who faced one-time poverty and no poverty as compared to those households who remained poor in all the three rounds. The coefficient of two-period poor is not significant.

Regarding the other control variables, male children are more likely to enroll in school than their female counterparts by 2 times, as reflected through odd ratios. Age of child has a postive imapct on enrolment trends, both in two and three rounds of panel survey. Parental education, education of father and mother, has a signficicant postive impact on enrollment. However, households who are facing more dependency burden (medium or high) are less likey to enroll their children in school compared to the low dependency households. The coefficient of agricultural

households dummy turns insigfnciant. The regional dummies shows that children belong to south Punjab and rural Sindh are less likely to be enrolled in education as compared to the north Punjab (Table 7).

Table 7: Impact of Dynamics of Poverty on Child Current Enrolment Status — Logit Model

Correlate	Poverty dynamics (2004 & 2010)		Poverty dynamics (2001, 2004 & 2010)	
	Odd Ratio	Std. Error	Odd Ratio	Std. Error
Gender (male =1)	2.126***	0.185	2.145***	0.186
Age (in years)	1.073***	0.016	1.078***	0.017
Father Education (Up to Primary as ref.)				
6-9 grades	2.015***	0.234	1.931***	0.225
10 and above grades	3.995***	0.754	4.007***	0.756
Mother Education (Up to Primary as ref.)				
6-9 grades	2.535***	0.945	2.638***	0.992
10 and above grades	3.099***	1.645	2.906***	1.537
Dependency Ratio (Low as ref.)				
Middle	0.742*	0.100	0.742*	0.101
High	0.824***	0.108	0.805***	0.105
Agricultural households (yes=1)	1.070	0.121	1.050	0.119
Dynamics of poverty (2004-2010) (chronic as ref)				
Moving out of poverty	1.379*	0.242	-	-
Falling into poverty	1.078	0.175	-	-
Non-poor	1.889***	0.277	-	-
Dynamics of poverty (2001, 2004 and 2010) (chronic as ref)				
2-period poor	-	-	1.190	0.260
1-period poor	-	-	1.667**	0.348
Non-poor	-	-	2.324***	0.487
Provinces (North and Central Punjab as ref.)				
South Punjab	0.192***	0.029	0.186***	0.028
Sindh	0.154***	0.021	0.160***	0.022
Constant	1.045	0.288	0.872	0.273
N	2719		2719	

*** denote significant at 1%, ** significant at 5%, * significant at 10%

*Source:*Estimated from 2 and three rounds of PPHS micro dataset

Conclusion and Policy Implications

The present study has observed impact of headcount poverty, dynamics of poverty and shocks on child labour and schooling. We used three rounds of panel survey, conducted in 2001, 2004 and 2010. The analysis reveals that out of the sampled children of age 5-14 years, 59 percent were currently enrolled in educational institutes and 6 percent fell in child labour as they were employed. Using schooling and work information, we have established 4 categories: *study only*, *work only*, *both*

study and work and *do nothing*. Out of the total children, a significant proportion of children (37%) fall in '*do nothing'* category.

Using two rounds of panel dataset, the results show that the lowest child education was found among chronic poor households while falling into poverty is another factor to make children away from education. Using three rounds of panel dataset, the findings reveal that as the incidences of vulnerability decline (moving from 3-period to non-poor), the percentage of enrolment in schools increase consistently. The child enrolment is almost double (62%) among the households who have not faced poverty during 2001-2010 period compared to those who remained poor as identified by all the three rounds (31%). Child labour is also the highest among 3-periods (chronic) and 2-periods poor. The study can help policy-makers and stakeholders to make necessary changes in ongoing policies and formulate new policies to achieve universal primary education and overcome child labour. The following recommendations can be made in this regard;

- Following Constitution of Pakistan and Sustainable Development Goals (SDGs), the state should firmly make it compulsory for a child to enroll and attain primary education at least. It requires supporting conveniences of well-managed educational infrastructure that can be achieved through micro supply capacity assessment of educational system and bridging the demand and supply gaps, especially in rural and remote regions.
- Child labour may be a curse near researchers and development partners but it is reality and a financing source for poor families. It may also a source of cheap labour for the employer. It cannot be eliminated until the whole society declares it a malicious. Various social mobilization related institutes (both govt. and non-govt.) are working throughout the country for various programmes, many of them have village and union council level social mobilization setups i.e. AKRSP in GB province, NRSP, Aurot Foundation and BISP. These institutes can assist the state by integrating child labour related campaigns in their various programmes, though they may not directly link but can convey the message to community effectively.
- Since child labour is a source of financing for many poor households and abolition may reduce their income. Mostly children have been working in an informal sector where low skilled are required. The government should formalize the child labour through technical and vocational institutes by yielding vocational training and stipend to these children working in labour market. It will not only enhance their level of awareness but also will improve their future income through better skills
- Following the findings of the study, the prevalence of lower school enrollment and child labour is mostly among poor and vulnerable households who have been facing persistent poverty and hosts of shocks in their lives. A universal social safety net system, both unconditional and conditional (stipend is fixed with school attendance) can smooth household consumption and school enrollment rate. BISP Waseela-e-Taleem programme is currently implemented in 32 districts of Pakistan by providing Rs. 250 education stipends to poor families. Similar stipends are framed by provinces up to limited level. A joint venture, federal and provincial, should be initiated to promote education for all the vulnerable households up to secondary level education.
- Last but not least, the data on child labour is quite limited. The national survey i.e. PSLM, MICS, Labour Force Survey (LFS) etc. should gather information on child labour in details. Quality of education should also be captured by these survey(s) to offset supply side constraints.

References

Admassie A. 2002, Explaining the high incidence of child labour in Sub-Saharan Africa, African Development Review, 14(2), 251-75.

Arif G. M, Shujaat F., 2014, Rural Poverty Dynamics in Pakistan: Evidence from Three Waves of the Panel Survey, Pakistan Development Review, 53(2): 71–98.

Awan MS, Waqas M, and Aslam M.A. 2011, Why do Parents make their Children Work? Evidence from Multiple Indicator Cluster Survey, International Journal of Academic Research, 3(2): 545-9.

Basu K. 1999, Child Labour: Cause, Consequence, and Cure with Remarks on International Labour Standards, Journal of Economic Literature, 37: 1083-1119.

Beegle K, Dehejia R, and Gatti R., 2006, Child Labour and Agricultural Shocks, Journal of Development Economics, 81(1): 80-96.

Bhalotra S. 2007, Is child work necessary?, Oxford Bulletin of Economics and Statistics, 69(1): 29-55.

Cockburn J., 2001, Child labour versus Education: Poverty contraints or innomé opportunistes, Cahier de recherche no. 01-17, Centre de recherche en économie et finance appliquées, Université Laval, Québec.

Delap E. 2001, Economic and Cultural Forces in the Child Labour Debate: Evidence from Urban Bangladesh, Journal of Development Studies, 37: 1-22.

Emerson PM, Souza AP. 2003, Is there a Child Labour Trap? Intergenerational persistence of child labour in Brazil. *Economic Development and Cultural Change*, 51(2): 375-98.

Escobal, Saavedra and Suárez 2012, Economic Shocks and Changes in School Attendance Levels and Education Expenditure in Peru, MPRA Paper 56481, University Library of Munich, Germany.

Farooq Shujaat, 2015, Job Mismatches in Pakistan: Is there Some Wage Penalty to Graduates? Pakistan Development Review, vol 54(2).

Ferreira, Francisco H.G. Schady, Norbert. 2008, Aggregate Economic Shocks, Child Schooling and Child Health, Policy Research Working Paper No. 4701, World Bank, Washington, DC.

Glick, Sahn and Walker, 2014, Household Shocks and Education Investment in Madagascar, IZA DP No. 8731.

Kazianga, 2012, Income Risk and Household Schooling Decisions in Burkina Faso. Oklahoma State University, World Development, 40(8): 1647-1662.

Nayyab-e-Duree and G. M. Arif, 2012, Pakistan Panel Household Survey Sample Size, Attrition and Socio-demographic Dynamics, PSDPS Working Paper Series. Pakistan Institute of Development Economics (PIDE). Islamabad.

Sarkar J, D Sarkar, 2012, Why Does Child Labour Persist with Declining Poverty?, NCER Working Paper Series No. 84.

Annex Table 1: Status of Child Schooling by Dynamics of Poverty (% distribution)

Poverty Dynamics	Currently Not Studying	Currently Studying	Total
Dynamics of Poverty (2004 and 2010 Rounds)			
Chronic poor	63.1	36.9	100
Moving out of poverty	52.3	47.7	100
Falling into poverty	61.8	38.2	100
Non-poor	37.6	62.4	100
Dynamics of Poverty (2001, 2004 and 2010 Rounds)			
3-period poor	65.7	34.3	100
2-period poor	62.7	37.3	100
1-period poor	52.3	47.7	100
Non-poor	34.1	65.9	100

*Source:*Estimated from the 3 rounds of PPHS micro dataset

Annex Table 2: Impact of Types of Shocks on Child labour and schooling--Multinomial Logit Model

Correlates	Excluding Poverty			Including Poverty		
	Work only	Both study and work	Do nothing	Work only	Both study and work	Do nothing
	RRR	RRR	RRR	RRR	RRR	RRR
Gender (male =1)	1.653***	2.028***	0.589***	1.651***	1.994***	0.593***
Age (in years)	1.286***	1.227***	0.888***	1.286***	1.227***	0.889***
Father Education (Up to Primary as ref.)						
6-9 grades	0.402***	0.915	0.539***	0.409***	0.923	0.555***
10 and above	0.046***	0.623	0.331***	0.046***	0.609	0.355***
Mother Education (Up to Primary as ref.)						
6-9 grades	0.110***	0.459	0.408***	0.113***	0.445	0.445***
10 and above grades	0.000***	0.000	0.254***	0.000***	0.000	0.265***
Dependency Ratio (Low as ref.)						
Middle	1.289	1.104	1.332***	1.286	1.105	1.307***
High	1.426**	0.892	1.248***	1.406**	0.923	1.178***
Agricultural households (yes=1)	1.519***	1.858***	0.990	1.565***	1.819**	1.036
Poverty (yes=1)	-	-	-	1.185*	0.752	1.764***
Types of shocks (no shock as ref)						
Natural shock	2.272***	0.505	1.177**	2.216***	0.496	1.250**
Inflationary shock	1.476**	1.131**	1.168	1.410*	1.136**	1.151*
Business shock	2.727***	0.771	1.163	2.614***	0.802	1.160
Provinces (North and Central Punjab as ref.)						
South Punjab	2.046***	0.336***	5.492***	2.035***	0.354***	4.889***
Sindh	3.506***	1.664***	6.905***	3.504***	1.715***	6.310***
KPK	0.048***	0.492**	1.975***	0.049***	0.484**	2.016***
Baluchistan	0.194***	0.115***	10.469***	0.198***	0.115***	10.635***
Region (Urban=1)	0.323***	0.264***	0.619***	0.331***	0.256***	0.678***
Constant	0.003***	0.003***	0.633***	0.003***	0.003***	0.549***
N	7283			7043		

Note: 'Study only' serves as reference category

*** denote significant at 1%, ** denote significant at 5%, * denote significant at 10%

Source: Estimated from the PPHS-2010 micro dataset