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Do Non-farm Enterprises Offer Pathways for Upward Mobility in Rural Pakistan? Evidence from Panel Dataset

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This study has analysed the dynamics of rural non-farm enterprises and their role in employment provision, equity enhancement and poverty alleviation in Pakistan. Multiple data sources have been used including cross-sectional and panel datasets. The results show that majority of the rural non-farm enterprises in Pakistan are micro-enterprises with only a limited share in manufacturing. They are informal and have poor forward and backward linkages and high closure rate. Despite the poor asset base, they are providing jobs to more than half of the rural population, contributing to reduction in poverty and equity enhancement among the rural masses. Rich households own enterprises and poor households gain employment from non-farm enterprises. Non-farm economy has a significant impact in reducing multiple deprivations and also has a significant positive impact in pulling households out of poverty with the passage of time. Pakistan, being a country where most of the population is still residing in rural areas and where rural land is not equitably distributed; such non-farm activities are highly important not only to tackle the ongoing food security challenges but also for resource diversification of households.

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Keywords: Rural Development, Non-farm Sector, Employment, Poverty, Multidimensional Poverty

1. INTRODUCTION

With the process of industrialisation, the transformation of economy from agriculture to industry has resulted in structural movement of labour, from farm to off-farm sector all around the globe, as reasoned by Lewis Dual Sector Model (1954). Such shifts, both in economy and labour commenced firstly in developed countries in the mid-20th century and later in developing countries.[1] From policy point of view, the rural non-farm economy mostly remained neglected, especially in developing countries; its importance grew overtime with rural population facing rising risks of poverty, vulnerability and food insecurity. The importance is further underlined, because these off-farm activities in rural areas could be a potential source to stimulate economic growth and rural well-being. The 'non-farm' enterprises include all the economic activities in rural areas, except agricultural activities, including livestock, forestry, fishing and hunting.

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[1]Weersink, *et al.* (1998), Oldenhanna and Oskan (2001), Lamb (2003), Joliffe (2004).

Traditional economic theories have linked up rural development primarily with agricultural growth, due to its predominance in rural life. However, during 1980s and onward various socio-demographic and economic surveys, conducted in many developing countries revealed the growing dependence of rural population on non-farm sector [Malik (2008)]. This change commenced due to positive effects of globalisation and liberalisation policies, starting from the late 1980s and early 90s in various developing countries, including the South Asian countries, which opened new economic opportunities for the private sector and foreign investors to expand domestic markets and access new markets [Haggblade, *et al.* (2007)].

Presently more than half of the rural Pakistani labourers are employed in non-farm activities. Yet, the dominant growth-centric development paradigm in Pakistan has been looking to the farm sector for rural poverty alleviation. The rural non-farm sector is important for many reasons. First, poverty in Pakistan is predominately a rural phenomenon, especially in interior Sindh, Southern Punjab, south KP and Balochistan. Second, around 63 percent of the rural households are landless; therefore the impact of the agricultural policy may be quite small on these households. Third, non-farm activities also significantly support farm households through diversification of labour, both in farm and off-farm activities [World Bank (2007)].

A considerable body of literature has discussed the issues of agriculture and poverty in Pakistan; however, majority of the studies have ignored the role of rural non-farm economy in poverty alleviation and resources diversification. A few studies have analysed the role of rural non-farm economy but with a limited focus. For example, Nasir (1999) analysed the link of poverty with employment. Arif, *et al.* (2000) viewed the level of poverty among the various farm and non-farm groups. Sur and Jian (2006), World Bank (2007) and Malik (2008) have analysed the structure of rural non-farm economy; however, no comprehensive study has been carried out to analyse its structure, employment provision, labour diversification and contribution to household welfare. In view of the growing importance of rural non-farm activities, this research is essential for policy formulation to eradicate rural poverty. The present study aims to fill this gap by examining the structure of rural non-farm enterprises in terms of business and employment provision, household livelihood strategies i.e. labour diversification and the impact of household livelihood strategies on household welfare. For household welfare, headcount poverty, multidimensional poverty index (MPI) and child school enrolment status have been taken as the welfare indicators.

The paper is divided into 7 Sections. Section 2 presents the theoretical considerations of dynamics of rural non-farm economy, followed by data sources and methodology in Section 3. Profile of Pakistani rural non-farm enterprises is given in Section 4, while its role in employment provision and poverty reduction is discussed in Sections 5 and 6. Conclusion and policy recommendations have been reported in the last section.

2. DYNAMICS OF RURAL NON-FARM ECONOMY: THEORETICAL CONSIDERATIONS

The absence of land or poor land endowments are the key push factors to initiate non-farm activities. In parallel, higher wages in non-farm sector could be the major pull

factors. Both the push and pull factors become more significant if farm income is not sufficient to fulfill family needs [Barrett, *et al.* (2001)]. Traditional rural insight is considered as a low productivity sector, as argued by Hymer and Resnick (1969). Liberalisation policies after the 1980s have resulted in new opportunities to invest in rural areas. As a result, massive foreign investment was witnessed in Asia, Africa and Latin America with rising rural non-farm activities [Haggblade, *et al.* (2007)].

Compared to agriculture sector, rural non-farm sector is growing rapidly in many developing countries, therefore, it can play a key role to alleviate rural poverty and improve equality and equity [Arif, *et al.* (2000)]. There exists a positive relationship between non-farm activity and household welfare because it provides jobs opportunities, more income and even improves agricultural productivity [Lanjouw and Lanjouw (2001)]. In addition, employment provision through non-farm sector could be a key remedy to overcome the pressure of growing rural labour force, by absorbing surplus rural labour. Besides this, it can slow down rural-urban migration and can on the whole contribute to national income and productivity [Lanjouw and Feder (2001)].

The empirical evidence from Asian countries suggests that high agricultural production also promotes rural non-farm economy. The late 1970s agricultural reforms in China gave much freedom to farmers to diversify their production strategies. Massive public investment led to establishment of Township and Village Enterprises (TVEs) and specialised households [Ravallion (2009)]. Overseas remittances also stimulate rural economy by raising rural investment, construction activities and agricultural inputs [Ellis and Freeman (2004)]. In Pakistan, the return migrants from Middle East have been establishing their small level businesses, by utilising their experience and savings.

Non-farm enterprises can potentially contribute to economic growth both directly and indirectly. The direct channel depends on its size and its receptiveness to agricultural growth and linkages with export markets, while the indirect channel largely depends on the financing, processing and marketing structure through which both the agriculture and non-agriculture growth could be reserved. The rural population can adopt these non-farm activities as a potential source to diversify their incomes and smooth their consumption in case of various agricultural shocks, including price failure, droughts, floods etc. Amid growing landlessness, poor households largely depend on non-farm earnings for their survival [Stifel (2010)].

There is growing interest to observe the role of rural non-farm enterprises as a source of employment and income provision across the developing world. The primary employment shares of rural non-farm sector in total employment emphasise the importance of this sector in various continents, as shown in Table 1, suggesting that the rural non-farm economy accounts for about 19 percent employment provision share in Africa, 30 percent in Asia and Latin America and 24 percent in West Asia and North Africa. A significant share of women in rural non-farm sector in all the continents can also be seen in Table 1. Services sector dominates in employment provision while all the continents have roughly similar role of manufacturing in employment provision. Though secondary employment could be another contribution because of seasonal pursuit, however the results reveal only primary occupation, thus they may understate the importance of rural non-farm activities.

Table 1

Composition of Rural Non-farm Employment by Continent (in %)

Employment Provision	Africa	Asia	Latin America	West Asia and North Africa
Non-farm Share in Rural Labour (%)	19	30	30	24
Women Share of Total Rural Non-farm Labour (%)	35	25	40	8
Share of Rural Non-farm Employment by Sector (% Distribution)				
Manufacturing	19	27	22	23
Commerce and Transport	31	29	23	22
Personal Financial and Community Services	35	30	34	35
Construction, Utility and Mining	15	14	21	20

Source: Haggblade, *et al.* (2007).
Note: Results are weighted by population.

Various studies found negative correlation of non-farm activities with poverty. It not only offers higher income and consumption [Lanjouw and Feder (2001)] but also better nutrition [Barett, *et al.* (2001)]. A rising trend of rural non-farm activities can be seen in South Asian countries. All this implies that not only the links between agriculture and rural poverty should be examined, but also the role of rural non-farm sector in poverty reduction should be researched. A dynamic labour-intensive agriculture, combined with a modernised non-agricultural sector in Pakistan, can provide diversified employment opportunities to the rural households, resulting in rapid growth, classless distribution, diminishing rural unemployment and underemployment and lowering the pressure on rural-urban migration. Special policy orientated attention is required to eradicate rural poverty and hunger by promoting non-farm activities in rural Pakistan. The ongoing paper explores the linkages between non-farm activities and rural welfare in Pakistan.

3. DATA SOURCES AND METHODOLOGY

The present study has used multiple data sources, including various rounds of Labour Force Survey (LFS), to analyse employment trends; Pakistan Social and Living Measurement Surveys (PSLM) 2010-11 (micro dataset), to analyse the district level concentration of non-farm enterprises and Household Integrated Economic Survey (HIES) 2013-14 (micro dataset), to observe the linkages of non-farm activities with poverty and multidimensional poverty index (MPI). It is worth mentioning that during PSLM-2010-11, a district level representative dataset provides details of non-farm activities at household level while the later rounds of 2012-13 and 2014-15 lack such information. However, HIES 2013-14 round, a provincial level representative dataset details non-agricultural activities.

Since present study aims to analyse the dynamics of role of non-farm economy and its role in upward welfare mobility of households (dynamics of poverty), therefore the study has also used two rounds of Pakistan Panel Household Survey (PPHS), 2001 and 2010, conducted by PIDE [for details over PPHS sample size, see Arif and Shujaat (2014)]. It is worth mentioning that 2004 round of PPHS lacks module on non-farm activities.

The present analysis on non-farm activities is carried out only for rural Pakistan. Clarification on three concepts is necessary: 'non-farm', 'rural' and 'poverty'. Rural non-farm activities lie on or between the boundaries of usual rural-urban and agricultural and non-agricultural categories. The ongoing study has followed the 2010 official industrial classification, where agriculture, including crops, livestock, fishery and forestry has been considered as the farm activities, while the non-farm activities include all the other activities except agriculture. Regarding 'rural' clarification, both the PSLM and LFS follow the rural-urban definition of 1998 census, in which the 'rural towns' falling under administrative status are treated as the urban areas, therefore, these towns are not included in the present analysis. Regarding 'poverty' measurement for two rounds of PPHS, we have adopted the poverty series from Arif and Shujaat (2014), they have followed the official methodology as defined by The Planning Commission of Pakistan, which can be called the Food Energy Intake (FEI) approach. Poverty line was defined to impart 2,350 calorie in-take per adult per equivalent per day with an adjustment of non-food minimal requirement (Rs 723.4 for year 2001). The official poverty line for 2010 period was inflated (it was Rs 1671.9 for year 2010) by using the Consumer Price Index and applying it on PPHS 2010 rounds to measure headcount poverty. For HIES 2013/14 dataset, the Government of Pakistan has recently updated poverty line which is Rs 3030 per adult equivalent per month, instead of Rs 2400. The new measure is named as Cost of Basic Needs (CBN) approach and it considers additional non-food expenditures on education, clothing and shelter to be part of the poverty measurement. Using the CBN approach, this study has measured headcount poverty by using Rs 3030 per adult equivalent per month and found 29.5 percent poverty (18.2 percent in urban areas and 35.6 percent in rural areas), the same number reported by the government of Pakistan.

Household welfare is defined by headcount poverty, per capita real expenditure, child school enrollment and multidimensional poverty index (MPI). Both rounds of PPHS and HIES 2013-14 survey have a detailed consumption module on which headcount poverty is calculated, while MPI is calculated by following the Alkaire and Foster methodology, taking 3 dimensions and 14 indicators, using HIES 2013-14 survey. The detailed definition along with weights of indicators is given in Appendix 1. The following equation has been estimated to measure the impact of non-farm enterprises on dynamics of poverty;

$$PD_{01\text{-}10i} = \alpha_{01i} + \alpha_1 I_{01i} + \alpha_2 Hd_{01i} + \alpha_3 NF_{01\text{-}10i} + \alpha_4 Rg_{01i} + \alpha_5 \Delta S_{i01\text{-}10} + \mu_{1i}$$

The dependent variables $PD_{01\text{-}10i}$ represent the change in poverty status between two rounds (2001 and 2010) with four outcomes (never-poor, poor in two periods, moved out of poverty, and moved into poverty). On the right-hand side, vector I_i measures the characteristics of the head of household (gender, age, education), vector Hd_i measures the household characteristics (household size, dependency ratio, household structure, agriculture, remittances and livestock ownership) and Rg_i measures the province of residence. $NF_{01\text{-}10i}$ variable measures the ownership of non-farm enterprises by households in 2001 period. All the correlated are taken from 2001 round while $\Delta S_{i01\text{-}10}$ represents the vector of change variables during 2001 and 2010, which are: change in household size, dependency ratio, education of head, land and livestock (for details on dynamics of poverty, please see the study of Arif and Shujaat (2014)). Since dependent variable has more than two outcomes, the multinomial logistic regression has been applied.

4. RURAL NON-FARM ECONOMY: PROSPECTUS AND IMPORTANCE

There is no precise number of rural non-farm enterprises in Pakistan but extrapolation from 2013-14 HIES dataset reveals that there are more than 5 million rural non-farm enterprises.[2] On average, 19 percent of the rural households own non-farm enterprises with regional variations across the provinces.[3] Remoteness and poor access to both the physical and soft infrastructure are the major hurdles for households to establish these enterprises, other than access to finance, human capital, physical capital and access to markets. Districts having higher literacy and educational rates, as well as with better access to metallic road and financial sector, have more concentration of these rural non-farm enterprises [for details see Appendix 2].

Rural non-farm enterprises in Pakistan are primarily related to trade (50 percent) and services (38 percent) activities. The share of production enterprises is quite small (12 percent) and is less than other countries of the region: 27 percent in Bangladesh and 40 percent in Sri Lanka [World Bank (2007)]. Very few of them use the modern business practices i.e. marketing, accounting, insurance and information technology [for details see Appendix 3]. Using two rounds of PPHS panel dataset, majority of the enterprises are informal, not only do they employ few workers (Table 3) but very few of them (11 percent) pay taxes. As revealed by panel survey, they are progressing by improving their operational capacity with more assets and sale returns overtime (Table 2). They are fairly young, but their average age is rising. Asset and sale base is small but it improved during 2001-10 period.

Table 2

Profile of Rural Non-farm Enterprises in Pakistan

Profile Overtime	2001	2010
Average Age of Enterprise (Years)	9.3	11.3
Enterprise Operated 12 Months (%)	61.1	86.9
Consumed Part of Commodity by HH (%)	59.6	66.1
Annual Real Profit (in 000 Rs)	29.6	63.9
Annual Real Sale (in 000 Rs)	138.3	191.4
Real Value of Inventory (in 000 Rs)	40.5	27.9
Real Value of Raw Material (in 000 Rs)	7.9	12.7
Real Value of Building and Land (in 000 Rs.)	101.3	105.1
Real Value of Capital Assets (in 000 Rs)	22.7	66.5
Have to Pay Some Debt (%)	18.3	19.9

Source: Calculated from PPHS 2001 and 2010 micro dataset.
Note: For real value, Base 2001 is used where 2010 value is deflated by consumer price index (CPI).

[2]HIES 2013-14 Survey asked question "During the last 12 months was any HH member proprietor of or partner in a non-agricultural, non-financial establishment, business or shop (fixed or mobile), which employed no more than 9 persons on any day during the last 12 months.

[3]Rural households in province KP own 19 percent, Punjab with 22 percent, Sindh with 9 percent and households in Balochsitan own 14 percent non-farm enterprises.

Table 3

Employment Size of Rural Non-farm Enterprises in Pakistan

Employment Type	Start of Business	2001	2010
Average Full-time Workers			
Family Workers (in Numbers)	0.02	0.68	1.24
Total Workers (in Numbers)	0.04	2.19	2.23
Average Part-time Workers			
Family Workers (in Numbers)	0.01	0.35	0.22
Total Workers (in Numbers)	0.02	0.52	0.94
Employment Size Distribution of Enterprise (Full Time Only)			
Less than 2 Workers	98.6	86.0	74.3
2-5 Workers	1.4	11.8	16.0
More than 5 Workers	0.0	2.2	9.7

Source: Calculated from PPHS 2001 and 2010 micro dataset.
Note: Manager is not included in employment calculation.

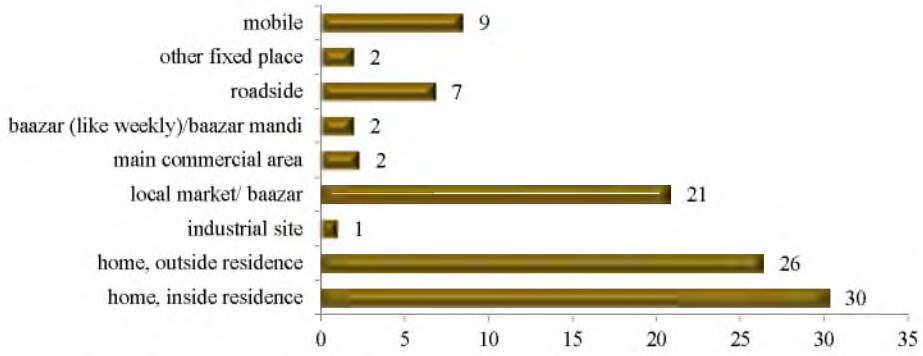
The recent Labour Survey statistics reveal that women have a very low proportion, of only 14 percent, in non-agricultural jobs in Pakistan. Though not listed here in table, women's share in the role of manager to run these enterprises, has significantly improved from 2 percent to 6 percent during 2001-10 period, as shown by 2001 and 2010 rounds of PPHS. Education of mangers also improved during 2001-10 period. Like other south Asian countries, rural non-farm enterprises in Pakistan are also primarily operated as sole-proprietorships, with more share of family and part-time workers. Table 3 shows that on average, these enterprises hire 2.2 full-time and 0.9 part-time workers, including the paid and family workers, thus totalling to 3.2 workers on average.[4] Nearly three-fourths of the rural enterprises hire only one worker, either paid or unpaid, while around 10 percent employ more than 5 workers.

With the passage of time (2001 and 2010 round), more enterprises shifted from homes to outside homes and other market places, but still more than half of the rural non-farm enterprises are located at homes, either inside or outside the residences, with a minor percentage at road side, main commercial area or industrial sites (Figure 1). PPHS 2010 survey reveals that 87 percent of the enterprises sell their products in the same village/town, followed by 6.9 percent to cities, 5.3 percent to other villages and only 0.7 percent to other provinces and countries (not listed in table).

The panel survey also reveals that 15.4 percent of rural panel households own enterprise in 2001 but not in 2010, reflecting the high closure rates. Only 5.4 percent of the households own in both the rounds. All this profile highlights that relatively fewer shares of production enterprises in Pakistan highlight the missed potential for value addition. There seems to be absence of the essential agricultural support services and linkages, necessary to stimulate the growth of non-farm sector. Poor equipment, including the human, physical and financial margins, along with regional disparities, often restricts low income households to run low productivity enterprises with higher labour intensity and lower financial returns.

[4]Paid workers can be calculated by taking the difference between total workers and paid family workers.

Fig. 1. Place of Business of Rural Non-farm Enterprises (%)



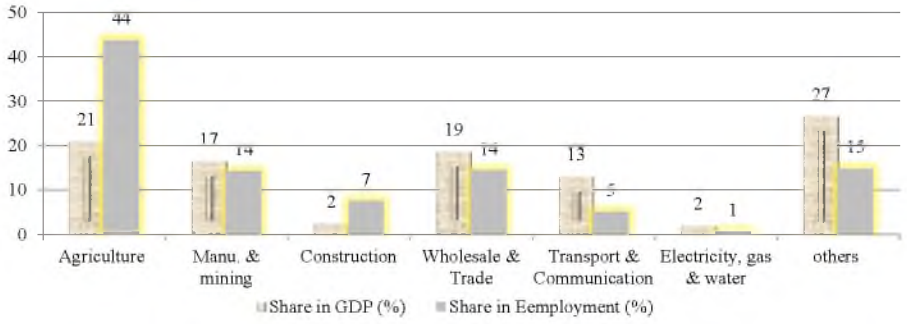
Source: Calculated from PPHS 2010 micro dataset.

5. ROLE OF NON-FARM ECONOMY IN EMPLOYMENT PROVISION

Historically, the economy of Pakistan has witnessed a sectoral shift of economy and labour from farm to off-farm by transforming agricultural share to industrial and services sector. In income share, major shift occurred only from agriculture to services sector, as share of industrial sector is almost stagnant over the last four decades. In parallel, inter-temporal labour movement also took place with more labour in non-farm activities, but still agriculture is the main source of livelihood with its employment share of 43 percent overall. One major realisation in Pakistan is that the share of labour associated with agriculture has not declined at the same pace as the share of agriculture in GDP growth has declined over time. On the other hand, despite being an agrarian country, share of non-farm employment is rising even in rural areas, especially in trade and construction activities (Appendix 4).

Within non-farm employment, four sub-sectors, including manufacturing, construction, commerce and service are more important for employment provision in rural Pakistan (Figure 2). Several reasons are considered to have contributed to this structural shift including; overseas and return migration to Middle East; unequal land distribution; stagnant agricultural productivity; rising pressures to improve the livelihoods and overall improvement in education and awareness.

Fig. 2. Share of Major Sectors in GDP and in Employment, 2015-16



Source: Government of Pakistan, 2015-16.
Note: 'others' include finance and insurance, housing, private and government services.

Both micro and macro level socio-economic factors determine the allocation of labour in farm and off-farm activities. These factors may vary across the individuals, households and regions as *per* available opportunities. Non-farm employment can further be classified into four major categories: employer, paid employed, self-employed and unpaid family helper. Paid employment category absorbs the largest share of off-farm labour (49 percent), followed by unpaid family worker (33 percent), self-employment (17 percent) and employer with only 1 percent. A significant industrial shift of employment can be observed overtime where manufacturing and wholesale activities gain shares, whereas construction and social and personal services **sector** lost **its** share during 1996-2014 periods (Table 4). During 1996-2014 periods, share of unpaid family worker has increased considerably and paid employment share drastically decreased by 25 percentage points. Within self-employed category, trade and transport are the major sources of employment sector, while manufacturing and service are other important sectors to provide jobs in this category. Services and construction activities account more than half of the rural non-farm employment for wage employees. Government employees, especially in education and health account for significant proportion of rural services sector.

Overall rural females occupy a very low share in off-farm labour and are limited to only few sectors. They also face quite different labour allocation than their male counterparts, with their major share in unpaid family worker (67 percent) category, while 27 percent are paid employed and only 6 percent fall in self-employment category. For all sorts of labour (paid, unpaid and self-employment), employment is mostly limited only to manufacturing and services sectors, except whole sale activities for unpaid family workers (Appendix 5).

Table 4

Rural Non-farm Employment in Pakistan by Employment Type and Status (in %)

	1996-97			2014-15		
Type of Industry	All Non-farm Workers	Self-employed	Paid Employees	All Non-farm Workers	Self-employed	Paid employees
Mining	0.5	0.4	2.9	0.7	0.1	0.9
Manufacturing	13.4	13.2	11.9	20.5	17.9	20.7
Electricity Gas and Water	1.5	0.1	1.9	0.9	0.1	1.3
Construction	24.1	2.5	31.7	20.0	2.4	29.6
Whole Sale and Retail Trade	16.6	53.3	4.0	21.3	46.6	7.8
Transport and Communication	12.1	12.4	12.5	11.5	16.1	10.1
Hotel and Restaurant	2.7	2.4	2.6	2.2	2.3	1.9
Professional Services	0.9	0.5	1.0	1.3	1.4	1.4
Social and Personal Services	28.3	15.2	31.4	21.7	13.2	26.3
% Share	–	20.2	73.6	–	24.3	48.5
Total	100	100	100	100	100	100

Source: Calculated from the PSLM 2014-15 micro dataset, Arif, *et al.* (2000) for 1996-97 numbers.

6. NON-FARM ECONOMY AND POVERTY ALLEVIATION

6.1. Non-farm Economy and Equity Enhancement

Wealthier households in Pakistan are more likely to own some non-farm businesses as compared to middle income and poor households, while these enterprises are the major sources of livelihood for poor households. Household's income sources have been explained in Table 5, which show that enterprise ownership tends to increase monotonically as per capita household expenditures (quintile)[5] improve. While the richest households own more enterprises, 57 percent of the poorest (lowest quintile) households obtain their income from off-farm activities, especially non-agricultural wages. This shows that non-farm income sources for the poorer reflect equity enhancing in Pakistan. In some developing countries, non-farm income sources are inequitable, as they have less contribution towards the poorer households i.e. Ecuador and Vietnam or neutral equitable i.e. India and Ethiopia [Malik (2008)].

Table 5

% of Rural Households with their Sources of Income

	Household's Per Capita Expenditure Quintile					
Ownership and Income Sources	Poorest Quintile	Quintile 2	Quintile 3	Quintile 4	Richest Quintile	Overall
Households Own Enterprise (%)	12.2	16.3	19.4	27.6	31.8	18.8
Household's Source of Income						
Agricultural Wages	11.3	8.4	5.3	4.3	1.2	7.3
Total Farm (Excl. Agric. Wages)	31.4	34.6	43.8	48.6	55.5	44.8
Net Business Income	11.1	13.1	14.6	15.6	16.2	13.8
Non-agricultural Wages	46.2	43.9	36.3	31.5	27.1	34.1
Total Non-farm	57.3	57	50.9	47.1	43.3	47.9

Source: Calculated from HIES 2013/14 micro dataset.

6.2. Role of Non-farm Economy in Household Welfare

Pakistan has not succeeded in reducing poverty on permanent basis, poverty rates fluctuated across the decades. Poverty rates in Pakistan are considerably higher in rural areas, with a gradual shift to rural areas rather than urban areas [Arif and Shujaat (2014)]. Two questions emerge here: First, *how do non-farm enterprises impact households in terms of poverty, education and multidimensional poverty (MPI)*? Second, *how do non-farm enterprises affect the movements of poverty across time*? To answer these questions, the two rounds of PPHS panel survey (conducted in 2001 and 2010) and HIES 2013-14 are used. As shown in Table 6, in both panel rounds, the incidences of headcount poverty rates are considerably lower among those households who own some non-farm enterprises. The farmer households also have higher real per capita consumption expenditures in both the rounds and their children are more enrolled in schools as well. Another interesting finding, as given in Table 6 is the incidences of MPI in rural areas, again the results of MPI support that rural households, having some enterprises, have a lower level of multidimensional poverty (17.3 percent), compared to those who don't own enterprise (26.8 percent).

[5]Using food and non-food consumption expenditures (non-food only durable good), per capita household monthly consumption expenditures (after adjusting household size were derived and five quintiles were established.

Table 6

Household Welfare by the Status of Non-farm Enterprises in Rural Areas

Household Welfare	2001	2010
Headcount Poverty (in %)		
HH Having Enterprise	21.1	19.4
HH Not having Enterprise	28.8	22.6
Overall	26.9	22.2
Real Per Capita Monthly Expenditures (in Rs)		
HH Having Enterprise	1290.3	1318.4
HH Not having Enterprise	1090.2	1121.3
Overall	1137.2	1197.7
Currently Enrolled Children of age 5-14 (in %)		
HH Having Enterprise	51.6	66.6
HH Not having Enterprise	50.8	52.8
Overall	51.2	59.6
Multidimensional Poverty Index*		
HH Having Enterprise	–	26.8
HH Not having Enterprise	–	17.3
Overall	–	25.0

Source: Calculated from the PPHS 2001 and 2010 micro dataset.
* Calculated from HIES 2013/14 micro dataset.

The question arises, how do poverty rates differ across various rural population groups, engaged in farm and off-farm labour activities? To answer, we have developed three categories of rural households: pure farm households (households where adult labour is employed only in agriculture activities), pure non-farm households (labour employed only in non-agriculture activities) and mixed households (labour employed both in agriculture and in non-agriculture activities). Table 7 shows that using various measures of household welfare (per capita consumption, headcount poverty and multidimensional poverty index (MPI)), non-farm households are comparatively better-off compared to the mixed and farm households.

Table 7

Poverty Rates among Farm and Non-farm Rural Households

Activity Type	Average per Capita Consumption (in Rs)	Headcount Poverty *(in %)*	MPI (at k=0.33) *(in %)*
Only Farm Households	3,401	40.0	32.6
Mix Households	3,298	40.2	26.7
Only Non-farm Households	3,574	35.2	18.5

Source: Calculated from HIES 2013/14 micro dataset.

Raw headcounts of multidimensional poverty index (MPI) are reported in Table 8, which can be defined as the percentage of households who are deprived in each one of the 14 indicators. Tables 6 and 7 concluded that households having non-farm enterprises and involved in non-farm labourer activities are comparatively better off than the others, while Table 8 shows that rural non-farm labour is a potential source of reducing long term deprivation on various soft and physical assets. All the indicators of raw headcount deprivation portray that non-farm households are comparatively less deprived of various assets, in terms of access to education and health of the children.

Table 8

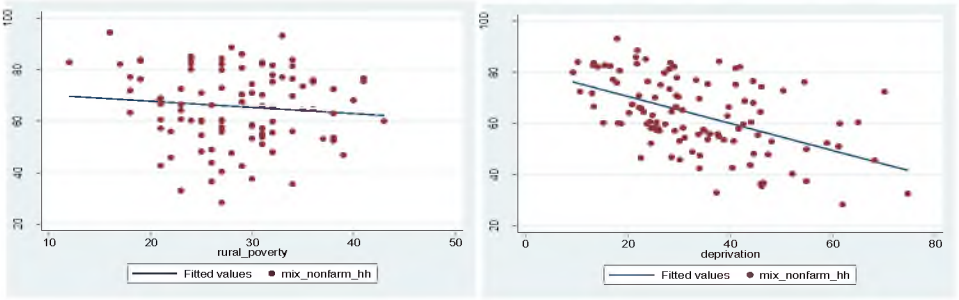
Percentage of Deprived Households in Rural Pakistan by Status of Farm and Non-farm Labour Activities

Dimension	Indicator	Only Farm Households	Mix Households	Only Non-farm Households
Education	Adult Male Schooling	47.1	30.9	27.8
	Adult Female Schooling	70.2	59.9	52.1
	Child School Attendance	25.4	25.3	15.2
	Educational Quality	18.6	18.5	9.5
Health	Access to Health Care Facility	6.5	6.1	6.0
	Immunisation	19.7	17.7	14.5
	Prenatal Care	15.4	15.9	15.0
	Institutional Delivery	5.4	6.7	5.4
Standard of Living	Overcrowding	46.5	53.7	45.9
	Water	13.2	11.3	12.0
	Sanitation	49.6	40.3	23.4
	Clean Energy	94.8	90.8	72.9
	Electricity	18.9	12.7	5.2
	Assets	57.4	52.5	52.5

Source: Estimated from HIES 2013/14 micro dataset.
Note: see Appendix 1 for detailed definition of each indicator.

Figure 3 shows that while district level poverty does not have a clear trend with the proportion of non-farm enterprises, the higher the proportion of non-farm activities, the lower the deprivation can be seen across the districts.

Fig. 3. District Level Rural Poverty and Deprivation by Share of Non-Farm Enterprises[6]



Two multinomial logit models have been estimated, using the two-wave PPHS data, whose results are presented in Table 9, covering 2001-10 period. In model 1, only 2001 correlated are used while in model 2 the changed variables between 2001 and 2010 are also added. Model 1 shows that gender of the head of household has not shown a significant association with poverty dynamics.

Table 9

Multinomial Logit Model: Effects of 2001 Socio-economic Characteristics on Rural Poverty Dynamics (2001-10)

	Model-1			Model-2		
Correlates (2001)	Chronic Poor/Non-poor	Moved out /Non-poor	Moved into /Non-poor	Chronic Poor/Non-poor	Moved out /Non-poor	Moved into /Non-poor
Sex of the Head (Male=1)	–0.95	–0.694	0.499	–1.199**	–0.813**	0.222
Age of the Head	–0.03	0.031	–0.044**	–0.007	0.036	–0.032
Age^2 of Head	0.000	0.000	0.001**	0.000	0.000	0.000
Education of the Head	–0.08*	–0.038**	–0.049*	–0.094*	–0.040**	–0.084*
HH Own Non-farm Enterprise (Yes=1)	–0.11*	–0.084	–0.133	–0.12*	0.087	–0.125
Household Size	0.14*	0.139*	0.037**	0.218*	0.123*	0.119*
Dependency Ratio	0.24*	0.084	0.133**	0.560*	0.171	0.370*
Household with One member Abroad (Yes=1)	–2.69	–0.246	–0.670	–2.823	–0.203	–1.224
House Structure (PACCA=1)	–0.94*	–0.443*	–0.451*	–0.880*	–0.454*	–0.467*
Electricity Connection (Yes=1)	–0.56*	0.096	0.161	–0.401**	0.162	0.122
Toilet facility (Yes=1)	–0.62**	–0.778*	–0.202	–0.628**	–0.766*	–0.158
Animals (Nos.)	–0.04*	–0.118*	0.002	–0.156*	–0.120*	–0.067*
Land Holdings (Acres)	–0.12*	–0.034*	–0.029*	–0.119*	–0.036*	–0.041*
Number of Rooms per Person	–2.11*	–2.295*	0.137	–3.607*	–2.402*	0.099
Presence of Disable Person (Yes=1)	0.21	0.057	–0.404	0.222	0.047	–0.491
South Punjab/North Punjab	1.55*	0.139	1.469*	1.391*	0.218	1.501*
Sindh/North Punjab	1.94*	0.744*	1.397*	1.466*	0.814*	1.140*
KP/North Punjab	–1.06**	–1.147*	–0.649**	–1.424*	–1.064*	–0.853*
Baluchistan/North Punjab	1.52*	0.993*	0.865*	1.586*	1.101*	0.780*
Constant	–1.81	–1.477**	–2.112*	–2.113**	–1.436	–2.602*
Difference in Household Size	–	–	–	0.131*	–0.031	0.139*
Difference in Dependency Ratio	–	–	–	0.373*	0.094	0.290*
Difference in Education of Head	–	–	–	0.021	–0.013	–0.074*
Difference in Land Holdings	–	–	–	–0.016	–0.006	–0.030*
Difference in Animals	–	–	–	–0.141*	0.000	–0.085*
LR chi-2		678.13 (54)			825.30 (69)	
Log Likelihood		–1827.00			–1706.83	
Pseudo R^2		0.1565			0.1947	
N		2,124			2,080	

*Denote significant at 5 percent, **denote significant at 10 percent.

Source: Authors' estimation from micro-data of PPHS 2001 and 2010.

[6]The district level rural poverty and deprivation data has been taken from Jamal (2011); deprivation includes education, health, housing quality, housing services and economic wellbeing. On y-axis, the percentage of non-farm households (pure non-farm and mixed households i.e. having agriculture and non-agricultural activities) are plotted.

Age of the head, however, has turned out to be negatively associated with poverty transit, while age^2 is positively associated with it. It suggests that an increase in the age of head of household first empowers households through his/her economic activities, not to fall into poverty but in old age this empowerment weakens and raises the probability of households to fall into poverty [Arif and Shujaat (2014)]. Education of the head of household has a significant and negative association with all the three poverty states, suggesting on the one hand that households headed by literate persons are less likely than illiterates to be in chronic poverty or falling into poverty. On the other hand, they are also less likely to escape poverty.

The results reveal that households who own non-farm enterprises in 2001 are less likely to be chronic poor or have moved into poverty. Two household-level demographic variables, family size and dependency ratio, have a positive and significant association with chronic poverty and the probability of falling into poverty. The household asset variables, including the ownership of land and livestock, housing structure *(pacca)* and availability of room have a significant and negative association with both chronic poverty and falling into poverty. But these variables also have a significant and negative association with the movement out of poverty. Though this association is also difficult to explain, possible explanation could be that households with a better economic position in terms of land, livestock and housing are less likely to be in poverty for longer duration or fall into poverty than staying in the non-poor status. In other words, they were relatively more likely to be in the non-poor status between the given two rounds (2001-10).

Regional dummies have some interesting findings. During the 2001-10 periods, the population of Southern Punjab was more likely than their counterparts in North/Central Punjab to be in the state of chronic poverty or falling into poverty. The dummies of Sindh and Balochistan provinces are similar to Southern Punjab, except that they also have a significant and positive association with making a transition out of poverty. Population of KP is less likely than North/Central Punjab to be in chronic poverty or making a transition into or out of poverty (Table 9). This supports the bivariate analysis, which has shown tremendous poverty movements in Southern Punjab and Sindh than in North/central Punjab. It further shows the vulnerable situation in Balochistan as well.

In model 2, five quantitative variables (household size, dependency ratio, education, landholding and animals), having difference between the 2001 and 2010 periods are added in the logit model. No major change was found as compared to model 1, except that the sex of the head of household now turned out to be significant in model 2; reverse is the case for the age (age^2) of the head of households. Male headed households are less likely than households headed by females to be in chronic poverty or to move out of poverty. However, all the new entered variables—different in two periods—have shown a significant and expected relation with poverty dynamics. The difference in household size has a positive impact on chronic poverty or falling into poverty. Same is the case for the dependency ratio. Difference in both the landholding and education has a negative and significant association with falling into poverty. The difference in livestock ownership has also shown a negative association with chronic poverty as well as falling into poverty. It suggests that not only the initial socio-demographic conditions of households but also a change in these conditions overtime, has a correlation with poverty dynamics. Thus, the message is that a positive change in socio-demographic and economic conditions of households can lead to some positive outcomes in

terms of improving the well-being of households. Our findings are to some extent consistent with Davis (2011), who shows that the tangible assets i.e. land and livestock are the important protective assets as compared to the less tangible assets i.e. education and social networks. The present analysis, however, shows the importance of both types of assets for poverty reduction.

7. CONCLUSION AND POLICY IMPLICATIONS

The present paper has examined the role of Pakistani rural non-farm enterprises in employment provision and household welfare, by taking a wide range of welfare indicators, including poverty, child school enrollment, multidimensional poverty index (MPI) and dynamics of poverty. The study found that majority of the rural non-farm enterprises are micro-enterprises with high closure rates. Most of the enterprises are informal and they have poor asset endowments and are highly influenced by the available soft and physical capital and infrastructure. Households, on average, own more enterprises in those districts that have good physical and human capital.

The present analysis shows that half of the rural labour is employed in non-farm activities which are the major source of livelihood for the poorest households, as the share of non-farm income for the poorest quintile is 57 percent. The availability of adequate non-farm income sources for the poorer contribute to equity enhancement in Pakistan. Non-farm enterprise households not only have high per capita real consumption, they are also less poor as suggested by both headcount poverty and multidimensional poverty. They are also more likely to send their children to school. The multivariate analysis also shows similar findings that those households who own non-farm enterprises are less likely to be chronic poor or to have plunged into poverty.

Several policy interventions are suggested here. First, inefficiency of institutions is one of the major barriers for the development of rural non-farm economy. The easy, smooth and equitable functioning of a market can be facilitated by supporting institutional mechanisms, which could help to promote economic activity, by reducing transaction costs and other hurdles. Increasing competition requires institutions for quality control, capacity building, research and development, along with reducing disputes, defining property rights and contracts and increasing healthy competition in markets. Third, public investment along with technical training is required to improve the productivity and size of this sector, especially to expand manufacturing base. Targeted policies are required to overcome the regional disparities by diverting resources towards the deprived and remote areas.

The low participation of poor households in non-farm activities can be improved through social and economic resource mobilisation. For rural development, a dynamic labour-intensive agriculture, along with a modern non-agriculture sector can provide better employment and income to rural households, with more egalitarian income distribution and elimination of rural poverty. Policy intervention to promote rural non-farm employment is also justified as a means of controlling, to some extent, migration to cities. The design of rural development and pro-agricultural policies needs to be revisited to address the needs of local non-farm activities. In particular, the growth and concentration of such activities in rural towns and villages will require adequate provision of physical and soft infrastructure services.

Appendices

Appendix 1

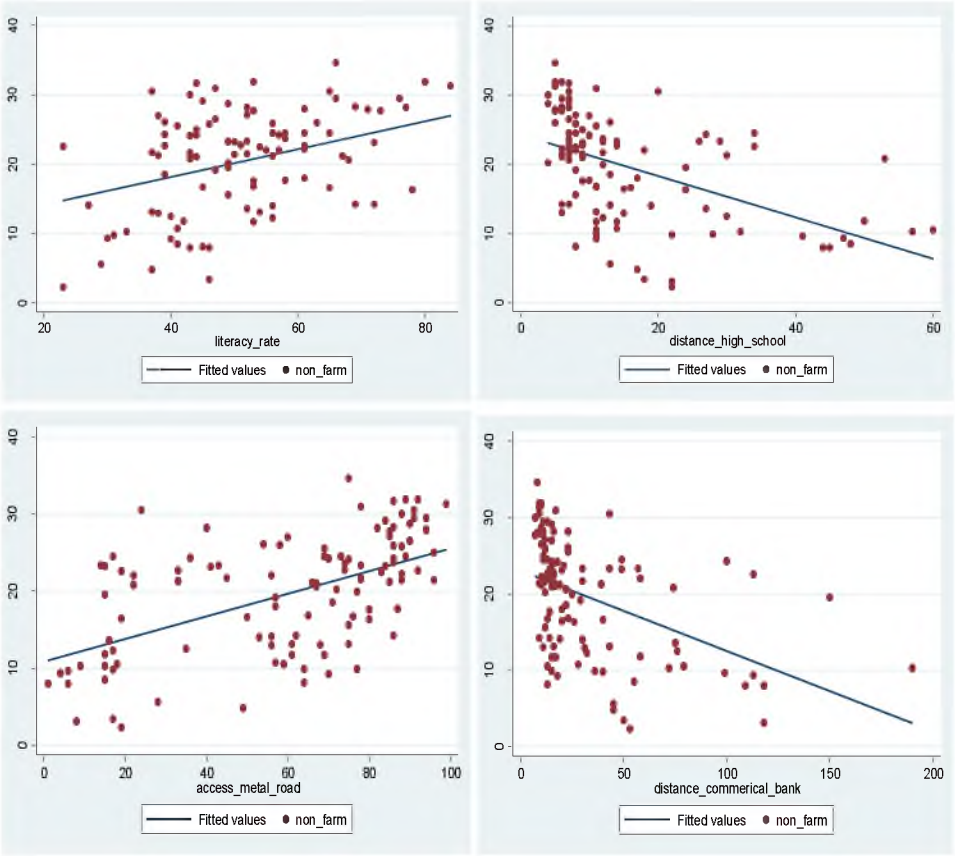
Dimensions, Indicators, Weight and Definitions

Dimension	Indicator	Weight	Definition
Education	Adult Male Schooling	1/12	No male over 11 years of age has completed 5 years and above of schooling
	Adult Female Schooling	1/12	No female over 11 years of age has completed 5 years and above of schooling
	Child School Attendance	1/8	Any school-aged child (6-11) is not attending school
	Educational Quality	1/24	If any person of age 6-16 does not attend school because of poor quality of education (too expensive, too far away, poor teaching behavior, no female staff, no male staff)
Health	Access to Health Care Facility	1/12	If any child in household of age under 5 year got diarrhea but not consulted or consulted to private due to poor government hospital facilities i.e. No Govt. facility, doctors never available, doctors not available, cannot treat complications, staff not helpful, too far away, no female staff, timing not suitable, medicines ineffective, not enough medicines OR If any child in household of age under 5 year got Malaria but not consulted or consulted to private due to poor government hospital facilities i.e. No Govt. facility, doctors never available, doctors not available, cannot treat complications, staff not helpful, too far away, no female staff, timing not suitable, medicines ineffective, not enough medicines
	Immunisation	1/12	If any child in household of age 12-59 months is not fully immunised
	Prenatal Care	1/12	If any women 15-49 who gave birth in last three years did not have antenatal care (include doctor, nurse, lady health visitor, TBA, hospital)
	Institutional Delivery	1/12	If any women 15-49 who gave birth in last three years did not have a safe delivery (born at home or is not facilitated by some skilled health person i.e. doctor, nurse, LHV and TBA)
Standard of Living	Overcrowding	1/18	If more than 3 people per room are residing
	Water	1/18	If water source does not meet MDG standards (unprotected well, surface water, tanker truck, other)
	Sanitation	1/18	If toilet facility does not meet MDG standards (digged ditch, no facility)
	Clean Energy	1/18	If household does not have gas connection Note: 2010 PSLM reported detailed source of cooking fuel i.e. wood, coal/charcoal, agricultural dung, crop residue, other, LPG, Gas etc.
	Electricity	1/18	If there is no access to electricity
	Assets	1/18	If HH doesn't have large asset motorcycle or refrigerator or car/vehicle

Source: Calculated from the HIES 2013/14 micro dataset.

Appendix 2

District Level Rural Infrastructure and Households own Non-farm Enterprise (in %)



Note: Mouza Statistics 2008 is used to calculate district level average literacy rate (%) of population age 10 and above, average distance to high school (in km), percentage of villages who have access to metallic road with less than 1 km (access to metallic road) and district level average access to commercial banks (in km). These four indicators are plotted with district level average percentage of households who own non-form enterprises. The data of non-farm district level enterprises is calculated from 2010/11 PSLM survey.

Appendix 3

Enterprises Using Modern Practice/Services (in %)

Type of Service	Retail	Wholesale	Storage	Transport	Overall
Engineering	13.4	11.8	33.2	42.4	16.7
Management	3.9	7.2	21.4	8.1	7.0
Marketing	15.5	21.0	26.5	23.2	18.7
Accounting	6.7	8.2	25.5	6.1	9.1
Legal	5.4	9.6	21.9	25.3	9.5
Insurance	3.6	3.4	12.2	21.2	5.5
Information Technology	5.1	5.2	15.3	2.0	6.1

Source: Malik (2008, Table 13).

Appendix 4

Sectoral Share in Gross Domestic Product Overtime in Pakistan

Type of Industry	1950s	1960s	1970s	1980s	1990s	2000s	2011-2015
				Sectoral Share in GDP			
Agriculture and Livestock	48.8	40.7	33.7	28.6	26.0	23.0	21.1
Industry	12.9	19.1	22.6	23.3	24.6	22.5	20.5
Services	38.4	40.2	43.7	48.2	49.3	54.4	58.4

Source: Various editions of Pakistan Economic Survey, Ministry of Finance, Islamabad.

Appendix 5

Rural Non-farm Employment in Pakistan for Females by Employment Type and Status—2014-15 (in %)

Type of Industry	All Non-farm Workers	Self-employed	Paid Workers	Unpaid Worker
Mining	0.2	–	0.2	0.3
Manufacturing	43.5	65.4	30.4	61.6
Electricity Gas and Water	0.1	0.1	0.1	0.2
Construction	1.6	0.2	2.1	1.9
Whole Sale and Retail Trade	5.5	9.5	0.8	19.6
Transport and Communication	0.9	1.0	0.8	0.9
Hotel and Restaurant	0.4	–	0.4	0.9
Professional Services	0.4	0.5	0.4	–
Social and Personal Services	47.5	23.4	64.8	14.7
% Share	–	6.2	26.5	67.2
Total	100	100	100	100

Source: Calculated from the PSLM 2014/15 micro dataset.

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