

# Livestock Development and Poverty in Pakistan: Evidence from the Punjab Province

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## ABSTRACT

Agriculture sector being an important and fundamental sector of the economy is the way of life for more than half of the Pakistan's population. Its major sector is livestock sector. Livestock sector is the source of income and a safety against the crop failures or drought. Most of the rural population earns their living from this sector. Aspired from the argument that livestock has great importance in the life of the poor households, the present study is an attempt to analyze the impact of livestock sector development on poverty in Pakistan. The cross sectional data of 34 districts of Punjab has been used for investigation. The method of ordinary least squares (OLS) has been used to confirm poverty alleviating effect of livestock sector. The results are statistically robust and the estimated model qualifies the diagnostic tests. The results of the empirical analysis confirm poverty alleviating impact of livestock sector, human capital, remittances from abroad and employment per factory in Pakistan. Household size increases poverty levels, poverty gap and poverty severity in the economy. The study also suggests some policy recommendation for the development of livestock sector in Pakistan.

**KEYWORDS:** Livestock Development, Education, Healthcare, Poverty, Ordinary Least Squares, Pakistan.

**JEL Classification:** C2, I10, I20, I3, O13, Q1

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## 1. INTRODUCTION

Economic growth is a necessary but not the sufficient condition for alleviation of menace of poverty. Economic growth coupled with equitable distribution of income makes possible the participation of the poor in economic activities that experience progress and expansion. The focus should be on lessening of inequalities in the process of aggregate growth. Presences of inequalities limit the access and capacity of the strived to exploit the economic growth. It is necessary for the growth process to be inclusive and pro-poor by increasing the income gains for the low income households, increase the demand and market involvement for activities that are labor-intensive. Since most of the poor are located in rural areas of agrarian economies so acceleration of economic activity in these areas can be helpful for poverty alleviating effect of growth. It is the agriculture sector from which most of the poor hound their livelihood. Agriculture sector has a central role in the process of growth and providing the livelihood. A strong agriculture sector is source of accelerated growth but also has its robust poverty alleviating impact in the economy. But this impact of agriculture sector on growth and poverty can be more effective if there is a strong production and consumption link between agriculture and other economic sectors. Agriculture sector development accelerates output, generates employment and income multipliers from farm sector to rural non-farm economic activities and for the overall economy [1].

Agriculture sector is one of the major sectors of Pakistan economy. More than 60 percent of rural population earns its livelihood from this very sector in Pakistan. Agriculture sector contributes more than one fifth of the GDP. More than 45 percent employment is generated by agriculture sector. Agriculture sector has very fundamental role in ensuring food security, building the agriculture orientated industrial base, setting the growth trajectory and alleviating poverty. Livestock sector has its own importance in the process of development of Pakistan economy. The livestock sector, in Pakistan, has been subsistent one. It is characterized by domination of landless poor and small farmers. Livestock sector contributes about 11.6 percent in economy's GDP and, in terms of foreign exchange earnings; it constitutes more than 8.5 percent of exports of Pakistan economy. About 55.1 percent of agriculture value added comes from the livestock sector [2]. Livestock is essential and predominant part of agriculture system. Productivity and income growth in livestock has robust income multiplier and poverty alleviating outcomes [1]. Livestock makes, directly and indirectly, contributes to human food and nutrition. Livestock sector works as a

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cushion in moderating the ebb and flow in crop yield on food availability for consumption by stabilizing the food supply. Moreover, a developed livestock sector augments total household labor productivity.

## 2. LITERATURE REVIEW

A number of studies, in economic literature, shed light on the relationship between economic growth and poverty. Furthermore, economic growth helps alleviate poverty. Dollar and Kraay [3] conclude average income of the poorest quintile, in an economy, increase or decrease with same rate as that of the overall average income. Adams [4] analyzing the association between economic growth and poverty, and economic growth and income inequality, suggests that relationship between economic growth and poverty is inverse but study fails to confirm Kuznets hypothesis. Ravallion [5] investigate the association among growth, income distribution and poverty. The author suggests on the average distribution-neutral impact of growth. Wider benefits of economic growth should be focused and the development policies should take into account the circumstances of the poor. Some of the studies argue growth to be pro-poor if it results in a decline in income inequality. The argument of Klasen [6] is beyond the theoretical argument that growth track maximizing income earnings of the poor and thus moving towards achieving the MDG-1 can be pro-poor. A large proportion of poor is related to agriculture to pursue livelihood. The extent of reliance on agriculture sector varies among and within the developing economies [7]. Livestock sector is an important subsector of agriculture sector in the agrarian and developing economies. The development in livestock subsector increases growth in agriculture sector and therefore results in stimulated national economic growth. Livestock sector development is very important in stimulating overall economic growth [1]. Growth in livestock sector effects growth of the economy directly increasing the income of livestock rearing household. It also has its impacts on growth through indirect horizontal and vertical multiplier linkages.

Livestock is very important for the livelihood of the poor in developing economies [1, 8, 9]. Livestock is a major source of income for the poor. It provides them food security as the poor household can exchange livestock and livestock products for grain [1, 10,11]. Kristjanson et al. [12] analyze the utility of livestock by examining the movements out of and into poverty in 20 villages of two western districts of Kenya. The diversification into livestock helped about 24 percent of all families to move out of poverty situation in last two decades or so. The livestock is the third important alleyway to move out of poverty. Furthermore, the authors also observe the loss of livestock to be the secondary cause to fall into poverty. The study reveals that livestock development, in western districts of Kenya, can help the poor families to move out of the vicious cycle of poverty. Heffernan [13] stresses the need of effective projects to develop diversity of livestock producers at local, national and global levels. The programs should focus on the needs of livestock rearing. New approaches to develop livestock would result in better impacts on the livelihood of the poor. Machethe [14] argues that growth in small-holder agriculture is the useful arrangement for the alleviation of rural poverty and income inequality. The development of small-holder agriculture increases the agriculture productivity and income in rural areas. Suitable investments in human capita, research in agriculture, formation of biophysical capital and development of rural institutions would help to enhance the agriculture development.

Hollmann et al. [15] interviewed with 143 farmers that did not owned cattle in five selected regions of Colombia to understand the role of livestock in poverty alleviation. The findings of the study are that small-holder farmers sale out their cattle and use that money to pay off their debts, make payment for healthcare and hold cash to survive if there is any crop failure due to "drought or frost damage". One of the major reasons to own cattle for a household is to develop their savings and build capital. The owning of cattle makes possible the availability of milk and beef for the family itself. Small-holder famers consider that livestock contributes to their quality of life. Ali [16] is of the opinion that, in rural areas, there is positive and significant of livestock in equitable income and employment generation and poverty alleviation. Moreover, the distribution of livestock is likely to be of more egalitarian nature than the land distribution in India. The author finds out that more than 70 percent of small, marginal and landless rural families own livestock. Since low initial investments and operational cost is low for small animals so these families keep small animals like goats, sheep, poultry and pigs. Livestock sector would not only become the growth engine for agriculture sector but also it would act as a potential sector for export earnings, generated growth and lower poverty levels. Millar and Photakoun [17] review livestock sector in Lao PFR conclude that development of livestock sector not only helps lessening levels of poverty but also makes possible the fulfillment of domestic requirement. The study also suggests some policy recommendations for the development of livestock sector.

Pica, Pica-Ciamarra and Otte [18] conclude a positive and statistically significant association between livestock sector progress and economic growth. The authors use a panel data set of 66 economies from 1961 to 2003 and suggest that most of these economies are agrarian and emerging. Livestock sector is important source of growth in per capital in 33 of the 36 economies. They find bidirectional causality between livestock development and growth

in 9 countries of the panel. Moreover, in 3 out of 66 economies, GDP growth causes livestock sector productivity. Whereas, Otte et al. [19] is of the opinion that agriculture is basic and important livelihood source for the absolute poor of the world. Most of the poor households rear livestock and keep the cattle in their agriculture portfolio. Since the population of the world is growing rapidly and the demand for livestock food sources is growing day by day. Investment in the livestock sector would be beneficial for growth in agriculture and poverty alleviation. SA PPLPP[20] conclude that a large number of rural families obtain their livelihood from small scale poultry farming in Bangladesh, Bhutan and India. These households keep small flocks and generate food and cash from them. Though the benefits from small scale poultry in these economies are small yet the potential contributions of small scale poultry are exploitative due to animal diseases, unfavorable husbandry practices, lack of suitable policies and encouraging institutions. The government of these south Asian economies should support small scale poultry rural farmers so that contribution of livelihood may increase.

Rota and Sidahmed [21] argue that livestock supplies source of revenue and security, in terms of natural, financial and social capital, to more than 800 poor small-holders. Livestock provides high quality nutrition to the poor women to improve the cognitive skills and mental growth of their children. Livestock being a fundamental asset for socio-economic and cultural system, in rural areas, makes possible the efficient use of unutilized resources. The development of livestock does not unavoidably alleviate poverty until the fundamental sources of poverty such as food shortages, lack of social security, education, housing and better healthcare are addressed. Ali et al. [22] attempted to explore the impact of agriculture value added on income inequality in Pakistan. The authors also explored the effects of service sector value added, exports and foreign direct investment on income inequality in the economy. Johansen cointegration technique and error correction model were applied to find out long run and short run association between dependent and independent variables. In this study, agriculture value added, exports of goods and services and foreign direct investment were found to have income inequality reducing impact in the economy. However, service sector value added showed positive relationship with income inequality.

### 3. MODEL, DATA AND METHODOLOGY

The study is aimed to assess the impact of livestock sector on poverty in Pakistan. The cross-sectional data of 34 districts of Punjab province has been used for the analysis. The data for the multidimensional poverty, poverty gap and poverty severity has been taken from Jamal [23]. Whereas, the data for livestock variable (sheep, goats and work animals), infant mortality rate, literacy rate, land ownership, percentage of population receiving remittances from abroad, employment per factory, and household size has been is taken from the Punjab Development Statistics [24] and Statistical Pocket Book of the Punjab [25] published by Bureau of Statistics, Government of the Punjab, Lahore. The models to be estimated are:

$$P = \alpha_0 + \alpha_1L + \alpha_2H + \alpha_3E + \alpha_4LO + \alpha_5WR + \alpha_6EM + \alpha_7HH + \mu_1 \tag{1}$$

$$PG = \beta_0 + \beta_1L + \beta_2H + \beta_3E + \beta_4LO + \beta_5WR + \beta_6EM + \beta_7HH + \mu_2 \tag{2}$$

$$PS = \gamma_0 + \gamma_1L + \gamma_2H + \gamma_3E + \gamma_4LO + \gamma_5WR + \gamma_6EM + \gamma_7HH + \mu_2 \tag{3}$$

Here P, PG and PS are the multidimensional poverty headcount index, poverty gap and poverty severity, respectively. L stands for work animal as percentage of total animals as proxy variable for livestock. H and E are the infant mortality rate and literacy rate, respectively. LO, WR and EM are percentage of land ownership, percentage of population receiving remittances from abroad and number of employment per factory respectively. HH is average household size. All of the variables are in natural log form. The method of Ordinary Least Squares (OLS) was applied to tests the impact of explanatory variables on poverty, poverty gap and poverty severity. The diagnostic tests such as Jarque-Bera Normality test, Breusch-Godfrey Serial Correlation LM test and Breusch-Pagan-Godfrey heteroskedasticity test were also applied to check the robustness of the model. Multicollinearity may be a serious issue if one or more explanatory variables are perfect or less than perfectly linear combination of other explanatory variables. Each of the independent variable is regressed on remaining explanatory variables included in the model as:

$$L = \Phi_{10} + \Phi_{11}H + \Phi_{12}E + \Phi_{13}LO + \Phi_{14}WR + \Phi_{15}EM + \Phi_{16}HH + \varepsilon_1 \tag{4}$$

$$H = \Phi_{20} + \Phi_{21}L + \Phi_{22}E + \Phi_{23}LO + \Phi_{24}WR + \Phi_{25}EM + \Phi_{26}HH + \varepsilon_2 \tag{5}$$

$$E = \Phi_{30} + \Phi_{31}H + \Phi_{32}L + \Phi_{33}LO + \Phi_{34}WR + \Phi_{35}EM + \Phi_{36}HH + \varepsilon_3 \tag{6}$$

$$LO = \Phi_{40} + \Phi_{41}H + \Phi_{42}L + \Phi_{43}E + \Phi_{44}WR + \Phi_{45}EM + \Phi_{46}HH + \varepsilon_4 \tag{7}$$

$$WR = \Phi_{50} + \Phi_{51}H + \Phi_{52}L + \Phi_{53}E + \Phi_{54}LO + \Phi_{55}EM + \Phi_{56}HH + \varepsilon_5 \tag{8}$$

$$EM = \Phi_{60} + \Phi_{61}H + \Phi_{62}L + \Phi_{63}E + \Phi_{64}LO + \Phi_{65}WR + \Phi_{66}HH + \varepsilon_6 \tag{9}$$

$$HH = \Phi_{70} + \Phi_{71}H + \Phi_{72}L + \Phi_{73}E + \Phi_{74}LO + \Phi_{75}WR + \Phi_{76}EM + \varepsilon_7 \tag{10}$$

The regression (4)-(10) are auxiliary regressions. We have estimated these regressions and  $R^2$  of each regression is also estimated. Klein's rule of thumb states that if the value of  $R^2$  estimated from the auxiliary regression is more than the  $R^2$  value of original regression (model 1, 2 and 3 in our case) then multicollinearity may be a serious issue[35]. Moreover, Tolerance (TOL) and Variance Inflating Factor (VIF) calculated from the auxiliary regression  $R^2$ 's are also the indicators of multicollinearity. As an indicator of multicollinearity, TOL having value closer to zero implies less multicollinearity. If the value of VIF exceeds 10 then multicollinearity is a serious problem.

#### 4. RESULTS AND DISCUSSION

The results of the poverty, poverty gap and poverty severity models estimated by the method of OLS are reported in Table 1. The coefficients of livestock variable are negative and statistically significant in poverty gap and poverty severity model but it is not significant in poverty model. It implies that development of livestock sector has poverty alleviating impact in Pakistan economy. The poverty lessening impact of livestock is due to the fact that most of the population lives in rural areas of Pakistan. Agriculture sector is the one of the major sectors of Pakistan economy. More than 60 percent of rural population earns its livelihood from this very sector in Pakistan. Agriculture sector contributes more than one fifth of the GDP. More than 45 percent employment is generated by agriculture sector. Agriculture sector has very fundamental role in setting the growth trajectory, ensuring the food security, building the industrial base and alleviating poverty. Livestock sector has its own importance in the process of development of Pakistan economy. The livestock sector, in Pakistan, has been subsistent one. It is characterized by domination of landless poor and small farmers. Livestock sector contributes about 11.6 percent in economy's GDP. About 55.1 percent of agriculture value added comes from the livestock sector [2]. Majority of the poor lives in rural areas of Pakistan. Livestock sector development makes possible increase in income of the rural households.

**Table 1: Results of the Empirical Analysis**

Independent Variables	Poverty (Model 1)	Poverty Gap (Model 2)	Poverty Severity (Model 3)
Livestock (L)	-0.047 [0.476]	-0.229** [0.046]	-0.386** [0.018]
Healthcare (H)	0.712* [0.008]	1.110** [0.013]	1.386** [0.028]
Education (E)	-0.444*** [0.063]	-1.349* [0.002]	-1.958* [0.001]
Land Ownership (LO)	0.594* [0.000]	0.531** [0.022]	0.510 [0.107]
Population Receiving Remittances from Abroad (WR)	-0.124*** [0.050]	-0.169 [0.109]	-0.201 [0.170]
Employment per Factory (EM)	-0.001 [0.989]	-0.025 [0.817]	-0.044 [0.767]
Average Household Size (HH)	0.292 [0.724]	0.849 [0.542]	1.264 [0.517]
$R^2$	0.866	0.820	0.850
Adjusted $R^2$	0.836	0.810	0.817
S.E. of regression	0.362	0.390	0.506
Sum squared resid.	3.539	4.72	6.926
Durbin-Watson d-value	2.559	2.42	2.544
<i>Source: Author</i>			
<i>Note: The values in [ ] are p-values.</i>			
<i>*(**) indicate significance at 0.01(0.05) level. *** show significance at 0.10 level.</i>			

Health expenditure is found to have poverty increasing impact in the economy and it is statistically significant. Economic theory states that better health services and nutrition improves health and productivity of the individuals and households. But, in Pakistan, health services are not properly available to the majority of masses. The quality of the available health services is also very poor. The Poor and strived have no access or limited access to the better health services due their income constraints. Health care system of Pakistan is curative rather than preventive in nature. Education has significant poverty alleviating impact in the economy. Education, trained, and skilled individuals and households are likely to earn more income than the uneducated, untrained and unskilled individuals or households. Better health care services also help the poor children to make them healthy to go to schools. The poor children are more likely to drop out from the schools due bad health. The arguments of our study about the

impacts of education and health care (human capital) are in strong agreement with the results in Ali et al. [26] and Ali & Ahmad [27].

Landownership elasticity of poverty, poverty gap and poverty severity is positive but elasticity in poverty severity model is insignificant. This may be due to the fact that percentage of population with landownership is measured in absolute terms. It may be skewed while considered in relative in the Pakistan. Moreover, majority of the poor is living in rural areas of Pakistan. The poverty gap and poverty severity is found in rural areas. The already poor people cannot afford the higher costs of cropping. The poor face financial constraints. They have little access to credit facilities. They cannot use better, improved and hybrid seeds, fertilizer, tractors, other modern instruments to be used in agriculture, irrigation facilities like electric pumps, tube-well etc. As a result they are unable to obtain higher yields from their fields and remain poor despite ownership of land.

The remittances received from abroad have poverty alleviating impact in the economy. The families that receive remitted money from their household members working in the rest of the world are more likely to spend this received money on education, healthcare and better nutrition of their family members especially their children. This is an investment in human capital. This investment in human resources results in improved ability, capability, efficiency and productivity of the individuals. This increases the income of the individuals and helps the poor come out of the abyss of poverty. The present result is supported by Admas Jr. & Page [28] that international migration and workers remittances have significant impact on poverty level, its depth and severity in developing countries. Remittances has poverty alleviating impact in Pakistan economy [29] The results are in strong agreement to that of Ali [30] and Ali et al.[31] that remittances increases domestic investment in Pakistan. Increased investment increases growth, employment and income of the households.

**Table 2: Multicollinearity Test Results**

Auxiliary Regression	R-squared	TOL	VIF
Model (4)	0.45	0.55	1.82
Model (5)	0.74	0.26	3.68
Model (6)	0.79	0.21	4.80
Model (7)	0.39	0.61	1.65
Model (8)	0.59	0.41	2.44
Model (9)	0.30	0.70	1.43
Model (10)	0.35	0.65	1.54
Source: Author			
TOL = Tolerance, VIF = Variance Inflating Factor			

The average factory employment shows negative, though insignificant, impact on poverty levels in Pakistan. Per factory employment elasticity has negative sign on all of three poverty models of our analysis. The results of the present study are in accordance with theoretical and empirical studies that growth in the industrial sector increases the growth in the economy and therefore help reducing the poverty levels. Moreover, in the agrarian economies there is large a large number of disguised unemployed labor. Growth in the industrial sector, especially the small scale enterprises due their characteristic to be of labor intensive nature, creates the employment opportunities in the economy. Employment in the manufacturing sector is one of the major sources of non-farm income sources. Small scale enterprises reduce poverty in Pakistan [32-33].

Average household size is another important factor that may cause the presence of higher poverty levels. In our analysis, average household size elasticity has positive sign in all of the estimated models. Each of the household elasticity is insignificant. The results show that higher population and population growth rate may be the cause of poverty. More number of children in a family means higher number of dependents. In capital-starved and poor country like Pakistan household have lower financial resources for the access to education facilities, healthcare and nutrition. Larger household size coupled with lack of financial resources push the household in the abyss of chronic poverty. Meenakshi & Ray [34] found that household size affects poverty estimates in Indian states.

The results of the diagnostic test for multicollinearity are reported in Table 2. Each of the predictor is regressed on other remaining predictors and  $R^2$  values of each auxiliary regression are estimated. Their respective TOL and VIF are also estimated. VIF value for each of the auxiliary regression is less than 10. So it is conclude that multicollinearity is not a serious problem in our estimated poverty, poverty gap and poverty severity models (Model 1, 2, and 3). If  $R^2$  value estimated from the auxiliary regression is less than the  $R^2$  value estimated in original regression (in our case model 1, 2 and 3) then multicollinearity is not a serious problem [35]. Since none of the  $R^2$  value from the auxiliary regression exceed the  $R^2$  value of model (1)-(3) so, using Klein' Rule of thumb, we conclude that there is no severe multicollinearity among the regressors.

**Table 3: Diagnostic Test Results**

<b>Model 1: Poverty</b>			
<b>Jarque-Bera</b>	1.722	prob.	0.423
<b>Breusch-Godfrey Serial Correlation LM Test</b>			
<b>Obs*R-squared</b>	1.230	Prob. Chi-Square(2)	0.541
<b>Breusch-Pagan-Godfrey Heteroskedasticity Test</b>			
<b>Obs*R-squared</b>	8.997	Prob. Chi-Square(3)	0.253
<b>Model 2: Poverty Gap</b>			
<b>Jarque-Bera</b>	1.303	prob.	0.521
<b>Breusch-Godfrey Serial Correlation LM Test</b>			
<b>Obs*R-squared</b>	4.656	Prob. Chi-Square(2)	0.098
<b>Breusch-Pagan-Godfrey Heteroskedasticity Test</b>			
<b>Obs*R-squared</b>	5.082	Prob. Chi-Square(3)	0.650
<b>Model 3: Poverty Severity</b>			
<b>Jarque-Bera</b>	2.275	prob.	0.321
<b>Breusch-Godfrey Serial Correlation LM Test</b>			
<b>Obs*R-squared</b>	5.012	Prob. Chi-Square(2)	0.082
<b>Breusch-Pagan-Godfrey Heteroskedasticity Test</b>			
<b>Obs*R-squared</b>	4.71	Prob. Chi-Square(3)	0.695
<b>Source: Author</b>			

Results of normality, autocorrelation and heteroskedasticity tests for the error terms are displayed in Table 3. The estimated models (1), (2) and (3) are robust as adjudged by the  $R^2$  and adjusted  $R^2$ . The Durbin-Watson  $d$ -statistic is closer to 2 showing that the error terms of the model are serially uncorrelated (see Table 1). The econometric theory requires that error term of the regression estimations should be normally distributed, serially uncorrelated and homoskedastic. It can be seen from the results of the Jarque-Bera normality test, Breusch-Pagan Serial correlation LM test and Breusch-Pagan-Godfrey heteroskedasticity test that error term is normally distributed, uncorrelated and have constant variance (see Table 3).

## 5. CONCLUSION

Pakistan economy is characterized as an agrarian economy. Agriculture sector provides the base for economic growth and generation of employment to about half of the labor forces. Livestock is one of the essential sub-sectors of the agriculture sector in Pakistan. This sector has the key role in the economic activities in rural areas of Pakistan. Moreover, results of the present study also confirm that development of livestock helps in poverty alleviating in Pakistan. The simple OLS has been applied to test the impact of livestock on poverty, poverty gap and poverty severity by using the cross sectional data of 34 districts of the Punjab province, Pakistan. The results of the estimated model are significant and the estimated model also qualifies the diagnostic tests. The results of the study suggest planning in the scientific development of resources. A large size of population in Pakistan is related directly or indirectly to livestock sector so the strengthening of livestock subsector would be helpful for the economic growth and poverty alleviation in Pakistan. Expansion of livestock sector can be helpful to exploit and manage the local resources, and develop agricultural based industries in the country. This would help in creating a regional balance between the urban and rural sectors. An integrated livestock development program can make possible the development of the livestock sector in Pakistan.

Increase in number of animals is important but increase in livestock yield through adaptation of improved genetic technology, cattle healthcare, availability of well-nourished feed for animals should be the key policy imperative. The people living in rural and remote areas are more involved in activities regarding livestock but there is a lack of veterinary services in these areas. There is a need to pay attention to extend veterinary services in the remote areas. The objective of the developed livestock cannot be achieved without increased production of green fodder. Availability of high-quality seeds and high yield multi-cut varieties of green fodder would help to increase green fodder supply. There is a dire need of credit facilities for land-less and smallholders. Growing of high yield varieties and use of latest agronomic techniques would increase the green fodder production. This cannot be done unless there is education and training facilities regarding agriculture and livestock sector development techniques. The provision of advisory services and training to village people would help the rural people to manage their livestock by improving their breeds, feed and health. Increase in education facilities in remote areas would help the masses to understand modern techniques of agriculture and livestock care.

An equitable distribution of landownership is prerequisite for the poverty alleviation from the Pakistan economy. A strong and pragmatic land reform agenda focused on redistribution of land ownership amongst the

small landowners and landless rural people would help to reduce the inequality in the economy. Socioeconomic policies focused on the reduction of poverty levels in the economy would greatly be fruitful for lower higher fertility rates in Pakistan. Poverty itself is one of the major causes of higher population growth rates in the developing economies. There is a dire need of expanded education and health facilities especially for female part of the population. Generated employment opportunities both for men and women, provision of clean drinking water and improved sanitation facilities, improvement in maternal and child health through nourished food and nutrition would be helpful in lowering infant mortality rates in the economy. Creation of employment opportunities is not possible unless a strong and broad-based industrial sector is established.

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