Manufacturing Sector Employment and Multidimensional Poverty in Pakistan: A Case Study of Punjab Province

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Received: 16 December 2013 Accepted: 2 January 2014 Published: 15 January 2014

Abstract

Economic growth coupled with equitable distribution of income and low poverty levels are the prime objective of economists and policy makers. Industrial sector has been the ?engine of growth? in the process of growth and development of the developed economies of today. Pakistan economy is the sixth largest economy of the world. About 48 percent of population, in Pakistan, is living under multidimensional poverty. The industrial sector of the Pakistan economy contributes about one-fifth of shares in the GDP. It employs a large share of labor force. So these facts provided the aspirations to explore the impact of manufacturing sector employment on multidimensional poverty in Pakistan. Crosssectional data of 34 districts of Punjab province is used for the analysis. Multidimensional poverty head count index is regressed on manufacturing sector employment, healthcare, and education service. The standard OLS method is used to estimate the poverty equation. The study confirms the poverty alleviating impact of manufacturing sector employment and human capital (healthcare and education). The estimated model qualifies the diagnostic, specification error and stability tests. The study also suggests some policy recommendations for the improvement of the human capital and manufacturing sector.

Index terms— multidimensional poverty, manufacturing sector, education, healthcare, least squares, punjab, pakistan.

1 Introduction

conomic growth with equity and equality has been the prime objective of economists and policy makers. There is no developed country in the world which has moved up the ladder of its growth and development without the development of the industrial sector. Industrial development is necessary to set up of the long term growth base of the economy. Economic growth is considered to be necessary for poverty alleviation both by economic theory and policy makers. The seminal studies by Lewis, Nurkse and Rosenstein-Rodan are based on the notion of national development agenda. These theorists believed the "trickle down" effect of economic growth on the poor and deprived segments of the population **??**Lipton & Ravallion, 1995). It is argued, in the structural change model (Lewis, 1954), that there is a surplus labor in agriculture sector. The wages in the traditional sector are low. But in modern agriculture sector wages are slightly higher. This wage differential in traditional and manufacturing sector is an incentive for the mobility of surplus labor from the farms to modern sector. It is not elaborated in the Lewis model how industrialization have its impacts on relative poverty. The absorption of surplus labor in the modern sector, as suggested in Lewis model, is helpful in employing the unskilled labor and makes them earn higher income. It is believed, in some of the studies, that development of capital-intensive large scale industries would provide the basis for higher growth and sustainable development (Loveman & Sengenberger, 1991). Adelman & Robinson (1989) are of the view that, in the process of development, the development takes place in urban areas and rural areas are unable to benefit from the development. The goals of poverty

alleviation and equitable distribution can be achieved by developing the unskilled and semi-skilled labor intensive industries **??**Alderman & Robinson, 1989; **??**orld Bank, 1990). The utilization of the cheaper input (labor) may be ensured by growth in labor-intensive enterprises. During the process of growth, when there is surplus labor, the wages are high enough for poverty alleviation and low enough for business to compete in the market with competitors. Labor intensive enterprises may become competitive in international market and can be of critical importance in poverty alleviation but with the utilization of low-wage labor force in the production process. Labor-intensive industrialization is very important for poverty alleviation (Sen, 1960;Myrdal, 1968) and human capital accumulation has its important role in this process **??**World Bank, 1990). Hussain (1999) argues that capability of GDP growth to alleviate poverty and job creation is "constrained by the structure of the economy" in Pakistan. Economic growth in Pakistan could not create job opportunities and, moreover, could not help in poverty reduction. Therefore, it suggested that small scale enterprises create more jobs per unit of investment and more value added per unit of capital as compared to large scale manufacturers.

The contribution of SMEs in the economic growth and development has been recognized in theoretical and empirical studies. More labor is employed by small scale firms than that in multinational corporations **??**Mullineux, 1997). Small scale firms are sources of employment in less developed economies. The SMEs are "engine of growth" in the attainment of growth objectives (Advani, 1997). The dynamic and evolutionary nature of SMEs makes them "serve as agents of change" (Audretsch, 2000). The development of the industrial sector (especially the SMEs) contributes in the long run to the growth of the economy. It also improves the efficiency of the domestic market and productivity of the scarce resources (Kayanula & Quartey, 2000). There are large numbers of empirical studies shedding light on the importance of SMEs in growth and development of economies. Some of these studies are Feeny & Riding (1997), Cook & Nixon (2000), **??**ukras (2003), Lukas (2005), Aina & Amnes (2007).Beck & Demirgüc-Kunt (2004) do not support the argument that SMEs are helpful in promoting economic growth and poverty reduction rather it is the business environment that may affect growth in the economy. Kniivilä (2007) suggests that development of industrial sector lays down the basis for growth of the economy. Industrial development helps to promote exports, more opened trade, liberalization of the economy and improvement in the business environment in the economies. Industrial sector growth, after the early stages of development, is important for sustainable long-term growth and poverty alleviation. The development of industrial sector makes possible the creation of non-farm employment opportunities. If the manufacturing sector growth utilizes labor more intensively, the poor benefit. Growth in Korea, during certain times, has been pro-poor. But, in Mexico, skilled labor benefited more than the unskilled ones during the growth process in the late 1980s and early 1990s. The experience of Chinese economy is evident that absolute poverty decreased. Pattern of industrialization determines the extent of decline in poverty and inequality. If the industrial sector utilizes higher proportion of unskilled and semi-skilled labor, it makes use of domestic raw materials (inputs). By using laborintensive technologies, then growth would be inclusive. For instance, in early development phases, Taiwan economy made more use of unskilled labor than skilled labor. But, in Brazil and India, industrial sector growth could create relatively modest job opportunities for the unskilled.

Li and Luo (2008) discuss that promotion of labor-intensive industries and SMEs results in higher growth levels with low levels of relative poverty in Korea, Taipei China from 1950s to 1990s. The establishment of SMEs in these economies enables the absorption of rural surplus labor and decline in urban unemployment and thereby lower inequality. However, in the people's republic of China, income inequality increased despite a robust and higher growth during the last 3 decades. The authors suggested labor market unification, encouragement of SMEs, a more profound laborintensive growth policy for better inclusive growth. Ali (2013) explored the impact of small and medium enterprises on poverty in Pakistan. The author employed mostly used time series econometric techniques of unit root, cointegration and error correction analysis to examine the impact of small scale industries, income inequality, education and inflation on poverty for the period of 1972-2008 in Pakistan economy. The study suggested poverty alleviating impact of small and medium enterprises in Pakistan in long run.

2 II. The Model, Methodology and ata Sources

The present study is an attempt to examine the impact of manufacturing sector employment on multidimensional poverty in Pakistan. It is a case study of the Punjab province of Pakistan. The data of multidimensional poverty, number of employed labor in factories, number of patients treated at hospitals, and primary school enrollments in 34 districts of Punjab were obtained and used for the analysis. All of the data used in the analysis were secondary data. The data of the multidimensional poverty head count were taken from Table A-1 in Jamal (2012). The data for the number of patients treated in the hospitals and primary school enrolment were obtained from Punjab Development Statistics (PSD, 2011), published by Bureau of Statistics, Government of the Punjab, Lahore. The multiple regression model is estimated by using the Ordinary Least Squares (OLS). The model to be estimated is:P = ? 1 M + ? 2 H + ? 3 E + µ i (**1**)

Here P is multidimensional poverty head count, M is employment of workers in manufacturing sector at district level, H is the number of patients treated at hospitals in the districts of Punjab, and E is the primary school enrollment rate. µ is the white noise error term. All of the variables are taken in the natural logarithm form. After the estimation of the model (1) diagnostic and stability tests are applied to test the robustness of the model.

3 III.

4 Results and Discussions

The multiple regression model was estimated by using the classical technique of the OLS regression. The results of the OLS model are reported in the Table **??**. The coefficient of employment of workers in factories is negative. The null hypothesis that employment of workers in the factories has no effect on poverty is rejected at 6 percent (as the p-value= 0.0538) significance level. Manufacturing sector employment significantly reduces the poverty levels in Pakistan. The results are in strong agreement with the theoretical economic literature and empirical studies that development of the industrial sector increases productivity. Productivity growth is a significant factor in poverty reduction and public welfare creation.

Entrepreneurs are major teamsters of innovation and productivity growth. Innovative entrepreneurs introduce new products in the market. Large scale industries, in the economy, are complemented by small scale enterprises because small scale industries are characterized by low transaction costs and are more flexible in decision making. Large scale industries may produce through division of labor and specialize. The division of labor and specialization increases the productivity and result in an increase in growth rate. Economic growth thereby helps in poverty reduction. Furthermore, well-established industrial sector is major a source of non-farm employment opportunities. Since the Pakistan economy has agriculture nature so the establishment of agro-based industries not only increases the productivity and efficiency of agriculture sector. Moreover, development of SMEs in the economy would help in generating more job opportunities due to their labor-intensive nature. The development of SMEs reduces poverty and income inequality in Pakistan (Ali, 2013).

Increase in the better and improved health services measured by patients treated as hospitals are also concluded to have poverty decreasing impact in the economy. The health elasticity of poverty is significant at 99 percent confidence level. The economies with the higher poverty like Pakistan levels are characterized with high birth and fertility rates, people are more vulnerable to diseases like malaria, dengue fever, and typhoid. The poor have inadequate approach to social protection and health care. These people are entrapped in a miserable spiral of low incomes. The cost of healthcare is very high. Due to high birth and fertility rates the poor households have more children to take care off. There is higher dependency ratio. But they have limited resources to feed and invest in education and health facilities. The provision of better healthcare helps to increase the enrollment rate and increases their earning potential. Furthermore, increased healthcare helps to decrease the birth and fertility rates and help in reduction of dependency ratio. Better healthcare enables the family heads to be more productive. More productive workers are an incentive for the domestic and foreign investment. Increase in investment may be beneficial for inclusive growth **??**OECD, 2003).

5 Table 1 : The OLS Results

Education elasticity is also significant at 99 percent level of confidence but it has positive sign showing a poverty increasing impact in the economy. In the education process knowledge and skill is imparted to enable the individuals to function as 'active' agents of economic change. Education broadens the prospects of availing modern sector jobs and enables the individuals earn higher incomes over life time. There is a strong linkage between education and productivity. This productivity helps the low income family individual to earn living and break the cycle of 'chronic and pervasive' absolute poverty. But the results of the present analysis show that increase in enrollment rate is causing a rise in poverty. This may be due to the fact that education system in Pakistan is poor. More than 60 percent of population is living in rural areas (Economic The education facilities in rural areas are scarce. More than 48 percent of the population is living in absolute multidimensional poverty (Jamal, 2012). Punjab with the highest literacy of 60 percent amongst the provinces of Pakistan (Economic Survey, 2011-12) has 43.67 percent of the population below the poverty line (Jamal, 2012) seems to be a cause rather than a consequence. The schooling of the poor children has higher opportunity cost. They seldom have a chance to enter the school. They are the ones who drop out from school first. The poor children are malnourished (Simmons, 1974). The poor families are even unable to complete their children's' primary education. Increase in literacy rate help in stimulating economic growth in Pakistan (Ali, 2014). The estimated model is robust as adjudged by the R2 and adjusted R2 as estimated model explains about 55 percent and 53 percent variations in poverty explained by the explanatory variables included in the model. Durbin-Watson d-statistic is closer to 2 showing the error term to be uncorrelated. The testing procedure based on t-statistic is based on the assumption that the error term (μ) is normally distributed. So Jarque-Bera **??**Jarque & Bera, 1987) normality test is applied on the residuals. The normality test results, given in Table 2, show that the p-value of Jarque-Bera statistic (p-value = 0.5869) confirms the normality of the error term.

6 Source: Author

It is assumed, in the classical theory of regression, that error term is homoscedastic and uncorrelated. If the error terms are heteroscedastic and autocorrelated then the OLS estimators are linear unbiased, consistent and normally distributed but are not efficient. So to confirm the efficiency of the OLS estimators Breusch-Godfrey (Breusch, 1978;Godfrey, 1978a) Serial Correlation LM test and Breusch-Pagan-Godfrey (Breusch & Pagan, 1979;Godfrey, 1978b) heteroscedasticity test are applied. The results of these tests reported in the Table 2 are evident that error

terms are homoscedastic and serially uncorrelated. The regression specification error test (RESET) introduced by Ramsey (1969) also suggests that the estimated model has no specification bias. The estimated regression model is stable. The CUSUM and CUSUM Square tests **??**Brown, Durbin & Evans, 1975) are applied to test the stability of the coefficients. The results of the stability test are portrayed in Figure 1(a) and Figure 1(b). CUSUM and CUSUM square test confirms the stability of association between the variables included in the analysis as test statistics stay between the 5 % critical values.

7 Source: Author

8 Source: Author

IV.

9 Conclusion

There is a consensus amongst the economists and policy makers that manufacturing sector is critical setting the base for higher growth. Economic growth is important to achieve the objective of poverty reduction. Pakistan economy is one of those economies where menace of poverty is ruling supreme. The present study is an attempt to assess the impact of industrial sector on poverty. In this analysis, multidimensional poverty head count index is regressed on manufacturing sector employment, number of patients treated at hospitals and primary school enrollment. The data of 34 districts of Punjab are used for the analysis. The poverty regression equation is estimated by using the OLS method. The estimated model is statistically robust as it qualifies the diagnostic, specification and stability tests. The empirical results confirm that industrial sector employment has its poverty alleviating impact in the economy. Furthermore, it is found that improvement in the healthcare help in reducing poverty. The development of strong, productive and efficient manufacturing sector coupled with the improved human capital would be helpful in generating inclusive growth in Pakistan economy.

Political, social, macroeconomic stability, wellfunctioning institutions, and rule of law are the fundamental conditions for sustainable and inclusive growth. Moreover, any investment in the economy requires an investment-friendly environment, lower levels of corruption and red-tape, and prevalence of fair competition in the market. Furthermore, a strong and productive industrial sector cannot play its productive role in inclusive growth without the fulfillment of the energy requirements. There is an emergent need for solution of energy crises in the economy. Industrial development requires a well-functioning financial system. A well-functioning financial system channels financial resources to productive activities. Financial sector makes available the liquidity. Available credit to investor stimulates the domestic and foreign private investment. The cost of industrial production, in Pakistan, is higher due to higher gas and oil prices, higher sales taxes, and higher rates of income and corporate taxes.

There is a dire need for the simplification of regulatory and administrative procedures. The requisite requirements for investment and business should be as per economic and social standards. This would create market friendly environment in the economy and would be helpful in increasing the productivity. Though the share of agriculture sector has declined in overall economy but it is still an agrarian economy. So development of agro-based industries would greatly be fruitful in the process of poverty alleviation. The development of infrastructure and human capital formation by the government can be helpful in enhancing innovative technological advances in the economy. Education provides a corridor for socioeconomic inclusion by enabling the people to avail employment and income opportunities. The increased research and development, innovation and invention and rapid technological changes have made the competition more intense. Human capital formation has got much more importance in manufacturing sector development and broad-based growth of the economy. These changes in the modern world of knowledge warrant investment in human resources and technological development to set up long-term growth trajectory of the Pakistan economy. Human capital, in the economy, not only has its impact in stimulating growth but it also helps in poverty alleviation. Increase in education and health facilities makes the people more healthy, creative, innovative and productive. Since the small scale industries are more efficient in employment generation and growth than the large-scale manufacturers. More focus should be on the growth of the small scale industries. The small scale enterprises growth should be based on growth having its nodes in rural areas. These nodes of small scale manufactures should be linked, on one hand, to agriculture sector, and on the other hand, to the large scale industrial sector as well. These backward and forward linkages not only would increase the productivity of agriculture sector but it also would reduce the import costs of larger-scale industrial sector (Hussain, 1999). This is because the small and medium enterprises need comparatively low infrastructure and rural workers can avail jobs near their towns. Most of the population and the poor live in rural areas. Higher percentage of labor forces is employed in small and medium enterprises. The focus on the development of rural small scale industries would be beneficial for decentralized industrial sector development. So, the objective of the poverty alleviation may be achieved by establishing a strong industrial base in the economy. [1]

[1]Manufacturing Sector Employment and Multidimensional Poverty in Pakistan: A Case Study of Punjab Province

Figure 1:

Variable	Coefficient	Std. Error	t-value	p-value
Manufacturing Sector Employment (M)	-0.1488**	0.0742	-2.0049	0.0538
Patients treated at hospitals (H)	-0.5358*	0.1662	-3.2248	0.0030
Enrollment rate (E)	0.7225*	0.0893	8.0906	0.0000

Figure 2:

2

	Normality Test		
Jarque-Bera Test	1.0656	p-value	0.5869
Breusch-Godfrey Serial Correlation LM Test			
F-statistic	2.6076	Prob. F(2,29)	0.0909
Obs*R-squared	5.1814	Prob. Chi-Square(2)	0.0750
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.9826	Prob. F(3,30)	0.4141
Obs*R-squared	3.0419	Prob. Chi-Square(3)	0.3852
Scaled explained SS	1.6411	Prob. Chi-Square(3)	0.6501
	Ramsey RESET Test		
F-statistic	0.0970	Prob. F(1,30)	0.7576
Log likelihood ratio	0.1098	Prob. Chi-Square(1)	0.7404

Figure 3: Table 2 :

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