An Empirical Analysis of Male Labour Force Participation in District Lahore

Durdana Qaiser Gillani * *& Kalsoom Zulfiqar* ***

Abstract
The present study examines the determinants of male labour force participation in district Lahore, Pakistan. The authors have collected data from age cohort 18-64 years by primary source. The results are tested by using logit model. The results show that age, increasing educational levels, parents' level of education, presence of assets and marital status contribute significantly to higher male participation rate in the workforce.

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Introduction
The special percentage of the workforce at work that is engaged actively in the labour market is known to be the labour force participation rate. This working age inhabitants might either be working or searching for the job. Considering in the macroeconomic sense, the labour force participation rate indicates the supply of labour willing or available to participate in the production process. The transition of economy, from agriculture to industrial, first reduces the need of labour force; participation thereby decreases. In the next phase of the transition economy, the need of educated and skilled labour arises out of the dynamics of economic activity and its betterment.

According to the modernization and developmental theories, active participation of labour force, with the required skills and education, leads to economic development and growth of the nation. The process of modernization is linked with the demand of labour, employment opportunities and high skill and education development. Being a demographic transition economy, Pakistan is facing increasing need for productive youngsters. It has one of the largest man power in the world. The need is to upgrade the labour force by providing them good health, education and development skills so that they could participate in the development of the country.

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*   Dr Durdana Qaiser Gillani, Assistant Professor, Department of Economics, University of Lahore.
**   Dr Kalsoom Zulfiqar, Assistant Professor, Department of Economics, University of the Punjab, Lahore

Societal development is highly affected by both male and female human resource quality. As discussed above, labour supply has been one of the key elements for the development of society and economy. It helps reduce poverty, generate income and distribute it among the stake holders. Being bread winners, the males have to struggle more and contribute significantly in the society; however, there is an increasing trend of female participants in the economy. Increase in the productive labour market is highly affected by the quality of education, experience, skill development and better trainings at jobs.[1] A labour force loaded with the above discussed facilities have more chance to affect the market and able to capture the market from the less skilled ones. Some other demographic factors as age, size of the household, family setup and education of the household also play their part.

The changing population growth rates influence the development and policy decisions of a country to a large extent. Population size and structure influence a country's economy if it has the ability to facilitate social protections and access to human capital facilities. As an imperative factor, population growth strongly affects Pakistan's performance regarding economic development. The dependency ratio of young people has also increased which has hampered the productive growth of the economy. Thus, more efforts are required to achieve development goals when population growth is very high. The government has recognized these concerns and a lot of initiatives are being taken by the government to control population growth.

Demography also influences development. The skilled youth is an asset of a country or of a region. A decreasing part of children and increasing segment of youth and working-age adult population, decreases dependency ratios and provides an opportunity for economic growth. This 'demographic dividend' can be gained through sound policies which makes sure that, when they come in the labour market, the youth should have education and decent jobs.[2]

Human capital is defined as attainable human characteristics which lead to increase income. It usually must take into account knowledge and skills of the people, attained to some level by education with their strength and vitality, found on their health and nutrition. Educational developments, a social investment, is at least as profitable, if not more, as investment in physical capital. The significance of human

1   J. Mincer, "Investment in U.S Education and Training", National Bureau of Economic Research, *Working Paper No.4844* (1994).
2   *Pakistan Economic Survey 2014-15*, Finance Division, Government of Pakistan.

capital can also be seen as social rates of return on educational investment that are more than the traditional 'yardstick' of 10 per cent.[3] Education leads to enhanced productivity of the workers

> …by informing the basic skills and knowledge, by providing that highly vocational pre-packaged skills and techniques that can be applied directly and immediately to a specific job and by teaching appropriate values, desirable work habits, agility and clarity of mind, ability to solve and adapt to change.[4]

Education is usually considered as an important investment in human resources. It improves learners' quality of life by elevating their intellect to produce useful things by improving their efficiency. It essentially increases and guarantees social and economic progress.[5]

Literacy is the right of every individual. It leads to a number of benefits to the individual, its family and the economy as a whole. Simply literacy refers to the ability of person either male or female to read and write. However, modern societies consider literacy with a broader view. They consider literacy skills essential for informed decision making, empowerment of the individual, and individual's contribution in the local as well as global community.[6]

An educated or literate person is better able to determine his/her income and professional insight and making it one of the important determinants of socio-economic growth. The economic growth and prosperity is directly related to economic and human resources available to the nation. A well-developed human resource impacts the economy positively. A variety of literature exists showing the positivity of high literacy rate associated with the increasing economic growth. However, considering the gender disparity in literacy, impacts on growth show greater impact of female literacy.

Pakistan has not shown an adequate performance in education. The literacy rate in Pakistan is 58 per cent. However, 42 per cent of the population cannot read or write. During the past decade, the budgetary funds allocated for this purpose has remained static around 2.0 per cent of GDP. The labour force has increased from 59.74 million in 2012-13 to

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[3]   G. Psacharopoulos, and M. Woodhall, *Education for Development* (New York: Oxford University Press, 1985).

[4]   L.R. Magien, "Challenging the Human Capital Orthodoxy: The Education-Productivity Link Re-examined", *Economic Record* 66,195 (1990): 281-94.

[5]   United Nations Economic Commission for Africa, *Handbook of Hanpower,* United Nations, *Report on the World Social Situation*, 1997.

[6]   P.N. Stromquist, "The Political Benefits of Adult Literacy", *United Nations Educational, Scientific and Cultural Organization Report 2006*.

60.0 million in 2013-14. The volume of labour force increased in the case of Punjab (1.09 million) and Balochistan (0.27 million), while it decreased in Sindh (0.74 million) and Khyber Pukhtunkhwa (KP) (0.27 million).[7]

The present study analyses the diverse socio-economic and other variables which affect the male workers' involvement in different economic activities in district Lahore. The issue of female labour force participation is discussed in various studies. However, this study focuses on the issue of male labour force participation. The study is organized as follows: Section I shows introduction, literature review is explained in section II, section III shows data and methodology. Results and discussion are explained in section IV and section V reveals conclusion and suggestions.

Literature review

The various aspects of male labour force participation have been proposed in the existing literature on labor force participation. The economic theory of household has been analyzed by a number of scholars and researchers. Becker[8] and Gronau[9] have laid the foundation in the respective field introducing time allocation behavior of the household. Gitter[10] examined the factors affecting labour force participation rate of prime age males by using data from cross-section aggregates. The prime age males showed a small labour supply response because of changed wage rate. A negative relationship was found with participation rate and unemployment and education. The results also showed that race variable negatively influenced the participation rate. Furthermore, marital status and net migration affected participation positively. The study concluded that highly educated married males were more determined to participate in economic activities.

A great deal of literature on the basis of empirical analysis of advanced and developing countries is available. These survey based empirical analyses are directed by different researchers in different

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[7]   *Labour Force Survey 2013-14,* Federal Bureau of Statistics, Government of Pakistan, Islamabad.

[8]   G.S. Becker, "A Theory of Allocation of Time", *The Economic Journal 75,* 299 (1965): 493-517.

[9]   R. Gronau, "Leisure, Home Production and Work: The Theory of Allocation of Time Revisited", *Journal of Political Economy 85*, 61 (1977): 1099-23.

[10]   Robert J. Gitter, "The Determinants of Labour Force Participation Rate of Prime Age Males: A Study Across Economies", *The American Economist 26*, 2 (1982): 11-16.

countries. Personal and household factors are major reasons for work involvement and decisions of labour supply in Pakistan. Some regression estimates indicated that education influenced the wages of workers in Pakistan. Further, family structure also affected the wages of male workers. It concluded that expansion in expected earnings increased the spirit to work more.[11]

Though, Ghayur[12] focused on the employment pattern and man power utilization situation in Pakistan by using a survey based data. The under-utilization of human skills was found in the analysis. The regression results showed that about half of the employed were employed in lesser productive and irregular work. The results also indicated that a third of the employed found their work out of the village. This empirical research showed the deteriorated condition of workers involved in economic activities due to their low basic skills.

The factors which determined labor force participation of females in the economy were investigated by Malik et al.[13] The authors collected primary data and applied regression techniques in this study. The results showed that educated married females were involved in earning activities. Moreover, the household variables determined their employment decisions. Hill and King[14] worked on how gender differences affected education in an empirical growth framework. The authors focused on levels of GDP to gender gap relationship in education. The empirical results confirmed that female-male ratio was low and it was related with the low level of GDP per capita.

However, the importance of family size in employment decisions was analyzed by Barridone.[15] The data was collected from 300 female staff of Shell (University of Port Harcourt and Port Harcourt metropolis).

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[11] V. Kozel and H. Alderman. "Factors Determining Workshop at Labour Supply Decision in Pakistan's Urban Areas", *The Pakistan Development Review 29*, 11 (1990): 1-18.

[12] S. Ghayur, S, "Employment Pattern and Extent of the Under-utilization of Manpower in Rural Barani Areas of Pakistan", *The Pakistan Development Review 30*, 4 (1993): 1225-33.

[13] N. Sultana, H.S.J. Nazli, Malik and S. Kazi, "Determining of Women Time Allocation in Selected Districts of Rural Pakistan", *The Pakistan Development Review 33*, 4 (1994): 1141-53.

[14] M.N. Hill, "Female Labour Force Participation in Developed and Developing Countries: Consideration of the Informal Sector". *Review of Economics and Statistics 65* (1982): 459-68.

[15] M. Don, Barridon, "Determinants of Female Labour Force Participation and Family Size in Nigeria", *Journal of Industrial Relations 33*, 2 (1996): 204-15.

The regression results showed that the economic gains and love for children were the major factors which forced participants to work. To sum up, study concluded that female labour force participation did not seriously affect the family size.

Anht[16] examined the factors affecting immigrant self-employment by using primary data. The result showed that individual, job-related and group characteristics were worthwhile to elucidate the work choice of individuals. The results also showed that married and employed individuals having own homes preferred to be self-employed. Additionally, highly educated reduced the propensity to be self-employed.

Barton[17] focused on returns of self-employment and used primary data and regression techniques. It was found that self-employment played an important role in the growing labour force. The study results found that many entrepreneurs' earnings were low. The study concluded that the wages of self-employed and entrepreneurs were not significantly different from the earnings of other employers. Azid et al.[18] focused on some variables that influenced females' work involvement in cottage industry of Pakistan. The authors used logit model in this survey based study. These findings highlighted that more educated and aged females preferred to work in cottage industry. Moreover, females having high number of children decided to work in the industry. The study concluded that females were forced to work due to household poverty.

Similarly, female workers' contribution in the labour force was of great importance. For this purpose, Naqvi and Shahnaz[19] examined the influence of some factors on females' involvement in economic activities by using a survey data. The logit models were used in order to estimate the parameters. It was also found that personal and household variables were negatively associated with women's decision to partake in economic activities.

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[16]   Anht Le, "The Determinants of Immigrant Self-employment in Australia", *International Migration 34*, 1 (2000): 183-214.

[17]   H. Hamilton Barton, "Does Entrepreneurship Pay? An Empirical Analysis of the Returns to Self-Employment", *Journal of Political Economy 108*, 3 (2000): 604-31.

[18]   T. Azid, M. Aslam and M.O. Chaudary, "Poverty, Female Labour Force Participation, and Cottage Industry: A Case Study of Cloth Embroidery in Rural Multan", *The Pakistan Development Review 40*, 4 (2001): 1105-118.

[19]   Zareen Naqvi and Shahnaz Lubna, "How do Women Decide to Work in Pakistan?", Part II, *The Pakistan Development Review 41*, 4 (2002): 495-513.

Asiedu[20] focused on determinants of affiliates of U.S multinationals entrepreneurs. The author used a panel data for this analysis. The study results showed that a good infrastructure, higher income, trade openness and an educated labour force positively and significantly affected employment. Overall, the spirit to work among the workers was found high. Likewise, Marshall and Oliver[21] analysed that the human, financial, and social capital affected entrepreneurship by using primary data. The binomial logistic regression results showed that human capital was a key factor to determine entrepreneurship in Indiana. Result also indicated that highly educated preferred to become entrepreneurs. Moreover, value of net worth was most important to determine the entrepreneurship.

Similarly, Faridi et al.[22] focused on male labour force participation by using primary data from district Bahawalpur. The results highlighted that different education levels and presence of assets increased males' involvement in the labour force. Furthermore, the dependency burden and location also increased male labour participation in different employment status.

Primary data and a binomial logit model results reveal that some socio-economic factors also forced people to take part in rural labour market. On the contrary, household variables decreased labour force participation in rural area. The study suggested for a serious need to improve rural infrastructure and educational facilities.[23]

Considering the significance of male employment, Anyanwu[24] investigated the driving factors of male employment in Africa by using cross-sectional data. The study results revealed that quadratic levels of

[20]   E. Asiedu, "The Determinants of Employment of Affiliates of US Multination Enterprises in Africa", *Development Policy Review 22*, 4 (2004): 371-79.

[21]   M.I. Marshall and W.N. Oliver, "The Effects of Human, Financial, and Social Capital on the Entrepreneurial Process for Entrepreneurs for Indiana" (paper prepared for presentation at the Allied Social Science Associations annual meeting Philadelphia, Pennsy LAVAMA, January 7-9, 2005).

[22]   M.Z. Faridi, I.S. Chaudhry and A.B. Basit, "An Analysis of the Determinants of Male Labour Force Participation and Employment Status in Pakistan: The Case of Bahawalpur District", *Pakistan Journal of Social Sciences 29*, 2 (2009): 189-208.

[23]   M.Z. Faridi, and A.B. Basit, "Factors Determining Rural Labour Supply: A Macro Analysis", *Pakistan Economic and Social Review, 49*, 1 (2011): 91-108.

[24]   C. John Anyanwu, "Driving Factors of Male Employment in African Countries", *African Statistical Journal 16* (2013): 1-35.

real per capita GDP, superior access to credit by the private sector, higher education, and higher male participation in the work force led to increase male employment. However, Mahapatro[25] investigated the decreasing trend of female participation in labour market in India. The OLS regression was used by the author and the data were drawn from NSSO rounds. The results highlighted that age and period change were the major factors which declined the participation level in labor market.

Some studies on aspects of labour force participation reviewed found that labour market is sufficiently expert to fascinate the growing labour force and the entrepreneurship also contributes a lot to absorb such an increasing labour force and to reduce unemployment.

Data and methodology

Data collection: Primary data is gathered in this section. A household survey is conducted during the year 2015. The data is selected randomly for research purpose. Simple and stratified random sampling technique is used. A sample of 236 workers is drawn randomly from households. The different factors are added to examine the determinants of male labour force participation in district Lahore.

Methodology and model specification: As dependent variable is a qualitative variable having value of one and zero and it is based on being involved in labor force or not, it is found that:

$Y_i = 1$ if $Y_i^* > 0$
$Y_i = 0$ if $Y_i^* \leq 0$
Where,
$Y_i^* = \beta_0 + \beta_I X_i + \mu_i$ (1)

Eq.(1) indicates probability of male labor force participation Yi*.The probability of male worker can be explained as:
$Pr(y_i = 1 | X) = Pr(y_i > 0 | X) = Pr[\mu_i > -(\beta_0 + \beta_I X_i) | X] = F(\beta_0 + \beta_I X_i)$
Hence, the regression equation is as follows:
$LFP_i = \alpha + \beta_I X_i + \mu_i$
Where LFPi is probability of participant.

Model specification: The model for labour force participation is presented as:

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[25]   R. Sandhya Mahapatro, "Declining Trends in Female Labour Participation in India: Evidence from NSSO". *MPRA paper 44373* (2013). Available at http://mpra.ub.uni-muenchen.de/44373/.

Model I
The Labour Force Participation Model
Here, three dummy variables of education are used to see the effect of various education levels on male labour force participation.

$$\text{MLFP} = f(\alpha_0 + \alpha_1 \text{BMLED} + \alpha_2 \text{MLED} + \alpha_3 \text{AMLED} + \alpha_4 \text{CYAGE} + \alpha_5 \text{MRS} + \alpha_6 \text{FLED} + \alpha_7 \text{MLED} + \alpha_8 \text{NDP} + \alpha_9 \text{FSTP} + \alpha_{10} \text{PASTS} + \mu_i)$$

Model II
The Labor Force Participation Model
$$\text{MLFP} = f(\beta_0 + \beta_1 \text{CYEDU} + \beta_2 \text{CYAGE} + \beta_3 \text{MRS} + \beta_4 \text{FLED} + \beta_5 \text{MLED} + \beta_6 \text{NDP} + \beta_7 \text{FSP} + \beta_8 \text{PASTS} + \mu_i)$$

In the above equations of male labour force participation of the model, the explanatory variables are below matric, matric and above matric level education, complete years of education, age, marital status, father's and mother's education level, family set up and presence of assets are used.

Results and discussion
Statistical analysis: Here, we provide descriptive analysis. The study depends on the empirical analysis. Firstly, we have made a comprehensive statistical analysis of the working male participants of labour market. Secondly, we have done an empirical analysis of the working force in different socio-economic activities.

Table 1: Basic Statistics

Explanatory Variables	Mean	Standard Deviation	Minimum	Maximum
BMLED	0.1675	0.3744	0	1
MLED	0.2304	0.4222	0	1
AMLED	0.5131	0.5011	0	1
CYEDU	11.27	3.8752	0	1
CYAGE	45.94	11.3112	18	64
MRS	0.7434	0.4379	0	1
FLED	0.6073	0.4896	0	1
MLED	0.4031	0.4918	0	1

FSTP	0.6911	0.4633	0	1
NDP	3.16	1.7947	0	1
PASTS	0.5393	0.4998	0	1

Table indicates the basic statistics of some independent variables of workers participating in the labour force. These variables have a greater influence on participants of male labour force in district Lahore. Average age of participants is about 46. On average, participants have above matric level education. Males form majority in labour force. The majority of workers is married and have educated fathers. The number of dependents of the male participants of the labour force is 3.16 persons.

Empirical analysis: The results are shown here. The influence of some factors is observed on probability of male labour force participation by using logit model.

Table 2: Logit Regressions (Average Marginal Effects)

Explanatory Variables	Model 1	Model 2
BMLED (yes=1, no=0)	0.0476 (0.99)	-----
MLED (yes=1 ,no=0)	0.1540** (2.48)	------
AMLED (yes=1, no=0)	0.0568 (1.18)	-----
CYEDU	-----	0.0065* (1.70)
CYAGE	0.0027** (1.98)	0.0027** (1.94)
MRS(Yes=1 if married, no=0)	0.0679* (1.74)	0.0809** (1.94)
FLED(yes=1, no=0)	0.0618 (1.59)	0.0604 (1.53)

MLED(yes=1, no=0)	0.1428**	0.1449**
	(2.42)	(2.38)
NDP	0.1411***	0.0360**
	(2.75)	(2.39)
FSTP(=1 if joint family, otherwise=0)	-0.0277	-0.1257
	(-0.72)	(-0.32)
PASTS (yes=1, no=0)	0.1317***	3.36***
	(3.12)	(3.15)
Pseudo R2	0.53	0.51
Number of Observation	236	236

Note: Numbers in the parenthesis are z-values.***, ** and * indicate at 1%, 5% and 10% level of significance.

Table 2 explains results of male labour force participation in district Lahore. Column (1) explains the results with different levels of education and column (2) shows results with number of complete years of education. Education basically influences males' decision to partake in labour force. It is also argued that highly educated people work more efficiently. The coefficient of matric level education is significantly positive. The reason can be that highly qualified workers are more willing to work in some economic activities. Findings show that male employment increases with an increase in education level in district Lahore. It is proved that having education enhances the incentive to work more. The higher education level increases male employment.[26]

Age of the male workers also motivates them to be a part of the labour force. Workers prefer to work with their increasing age. The coefficients of the age variable are positive and influence significantly male labour force participation in district Lahore. The results reveal that workers prefer to work in some economic activities to fulfil their financial household expenditures. Moreover, workers with some skills and experience are preferred in the labour market.

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[26]   M.Z Faridi and A.B. Basit, "Factors Determining…", 91-108.

It is also argued that married people have to work more to fulfil their family expenses. In this way, married workers participate more in the labour force and work more as compared to unmarried workers. The study results highlight that marital status is significant in both the models. The positive sign may indicate that marital status enhances the male workers' participation in the urban labour market. The study results conclude that male married workers opt to involve in the labour force in district Lahore. The empirical research highlights that marital status can enhance the participation of male workers in economic activities to fulfil their household responsibilities. Results are consistent with Anht's results.[27]

In this study, we have also tried to explore parent's level of education in determining worker's employment decision. Parents' level of education also motivates workers to be involved in the labour market. In this connection the role of mothers' cannot be ignored. Mothers provide best care to their children and help them in getting quality education. The coefficients of mother's education level variable are positive in both the models. The positive sign may highlight that workers are indulged in economic activities with an increase in mother's education level in district Lahore. Because persons with highly educated mothers are participating more in the productive employment. Parents prefer that their children get involved in work for better earnings.[28] The results also reveal that father's education level is insignificant in both the models in this analysis. The reason may be that mothers are the best trainers of their children. Moreover, males having education are inclined to be employed to fulfil their needs because of insufficient jobs and tough competition in the labour market.

Dependency burden is another imperative factor which determines the decision of male labour force participation decision. It is hypothesized that dependency burden forces the workers to indulge in economic activities. As an important variable, number of dependents positively influences employment decision in both models. Both the coefficients are positively significant. This can be because low educated household heads with high education prefer to be employed in the labour force due to family financial responsibilities.

The coefficient of joint family setup is insignificant. It is because the female heads with low education and high family size opt to work. The study results are consistent with Kozel and Alderman's[29] study results.

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27   Anht Le, 183-214.
28   M.Z Faridi and A.B. Basit, 91-108.
29   V. Kozel and H. Alderman, 1-18.

        Financially strong people having assets can be involved in some productive work. The variable presence of assets has also an influence on male labour force participation. The coefficients of presence of assets are highly significant at 1 per cent level. This indicates that with assets, male participants can run business and also can be involved in work activities. In this way, they can fulfil their household consumption expenditures.[30]

Conclusion and policy suggestions

The present study portrays male workers' participation in economic activities in district Lahore. The regression estimates show that matric level education, marital status, parental education and number of dependents have significant influence on male labour force participation decision. A positive relationship between male workers' decision to work and presence of assets is found in district Lahore.

        This suggestion is being made that there is a serious need for higher and free of cost educational opportunities for maximum labour absorption in economic activities. This high and free of cost educational facility can help the participants to work more efficiently and to earn more. There is a serious need to provide educational facilities to people at all levels. High and appropriate employment opportunities must be created to decrease unemployment. It will help to reduce poverty level of the participants and improve the economic conditions of the participants. Moreover, it will also contribute to the overall economic development. The parents should aim at giving more higher education to their children. Moreover, government should make possible access for greater job options equally to men and women and should provide more credit facilities to the workers.

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[30] Ragui Assaad et al., *The Determinants of Employment Status in Egypt* (FCND Discussion Paper No.88, Food Consumption and Nutrition Division, International Food Policy Research Institute, Washington DC, 2000, 1-107).