



Mother's education as a predictor of individual's opportunities to learn and earn

Shahla Akram, *National College of Business Administration & Economics, Lahore, Pakistan*, shahlaakram4@gmail.com

Dr. Zahid Pervaiz, *National College of Business Administration & Economics, Lahore, Pakistan*, ecozahid@yahoo.com

Abstract. The educated mother may be a great source to enhance child's participation and opportunities in different spheres of life. Mother's education is an essential and crucial factor in determining the income as well as education outcomes of a child. This study has investigated the effects of mother's education on child's income and education outcomes. The household level data of Multiple Indicator Cluster Surveys (MICS) conducted in Punjab province of Pakistan has been used for this purpose. The results show that mother's education, region of residence (rural/urban), and wealth status are significantly related with child's income and education outcomes. However, after controlling for an individual's own education and working experience as a determinant of his income, mother's wealth status shows statistically significant relationship with child's income but mother's education turns to be statistically insignificant. It implies that instead of having direct effects, mother's education has indirect effects on child's income and these effects are observed through the positive effects of mother's education on child's education outcomes.

Keywords: Mother's education, Income, Education, outcomes, Punjab, Pakistan, socioeconomic factor.

Received: 06.10.2020

Accepted: 18.11.2020

Published: 19.12.2020

INTRODUCTION

The question that what factors determine an individual's income and education outcomes has persistently been a matter of interest for researchers. Different studies have explored different possible determinants of such outcomes. For example, in the case of education outcomes, student's motivation (Linnenbrink, 2005), teacher's performance (Klassen & Tze, 2014) and the usage of the effective teaching strategies (Ariës, Groot, & van den Brink, 2015) have been identified some of the important factors. However, the literature has also explored the significance of the role of parents in the academic achievement of their children. Parents' involvement in the activities related with their children's studies, their communication with their children, home environment and children's birth order are important determinants of their academic achievements (Cabus & Ariës, 2017; Chase-Lansdale et al., 2019). The home environment defines a child's emotional attachment with his family, and availability of learning and motivation to him by his family. A favourable home environment provides peace of mind to children which may be helpful for their learning. However, unexpected events such as economic shock (business loss of parents or loss of employment) or accidental illness or parents' death may have adverse effects on education outcomes of children. These effects are found to be more horrible in poor societies than in rich. Moreover, female children are more affected than male by such unexpected events (Chudgar, Sakamoto, & Shen, 2019). This discrimination is also found in terms of in private and public sector school choice in poor societies (Chudgar & Creed, 2016). Extensive literature is available on the role of family background in the children's outcomes. Socioeconomic factors are held responsible for the differences of individuals' outcomes within and between societies. Parental education and wealth status are two most important factors to decide the fate of future generation Economic condition of parents is considered important for children's education outcomes not only during the period of their childhood (Erola, Jalonen, & Lehti, 2016), but also in adolescence as it can affect the choice of adolescents' education and schooling (Jæger & Holm, 2007). Parents' social capital proves to be an important factor in job searching time and children whose parents have strong social relations are more likely to find suitable jobs (Härkönen & Bihagen, 2011).

Nevertheless, parents' education may be more important factor than their wealth status because the educated parents are expected to invest more in the human capital of their children. Moreover wealth status of the parents may be affected by some shocks such as loss of jobs and loss in business. (Pronzato, 2012). Although father's education as well as mother's education matter for education of next generation but the role of mother's education may be more pronounced in this regard (Haveman & Wolfe, 1995;

Korupp, Ganzeboom, & Van Der Lippe, 2002). Erola et al. (2016) conducted a study in Finland to study the role of mother's and father's education, occupation, class and income for children's education and labour market outcomes. Mother's education was found useful for higher education achievement while father's education and other characteristics were found to be more advantageous in labour market outcomes. González et al. (2020) explore that socio-economic factors like father's and mother's occupation, class and education are important for cognitive development in childhood. Mother's education is found to be good to learn the language and for children's primary and secondary schooling. A study conducted in Germany shows that Turkish immigrant mothers with less education and income negatively affect children's psychological wellbeing (Fassbender & Leyendecker, 2018).

The role of Mother's education is associated positively and significantly with children's health, education and employment. It also helps to develop analytical skills among children (Magnuson, Sexton, Davis-Kean, & Huston, 2009). An experimental study shows that children of educated mother spend lesser time on watching TV and more time on book reading (Harding, Morris, & Hill, 2017).

The IQ level of children of educated mothers was found to be higher than the children of uneducated mothers. Educated mothers were more likely to develop higher social capital of their children which was helpful to get jobs in the labour market (Choi, Raley, Muller, & Riegle-Crumb, 2008).

The environment where children grow up has a deep-rooted impact on their personalities and achievements. Educated mothers are good sources to raise children's hidden qualities and polish them. (Harding, Morris, & Hughes, 2015).

A mother's education may be more important than father's education. It is particularly true in the case of developing countries where father spends less time with their kids due to job responsibilities. In contrast, mother is the primary caregiver to children and hence has more effects on their education (Chen & Li, 2009).

The educated mother may be more efficient to handle children's behavioural problems by giving satisfactory answers to their questions. These satisfactory answers about the problem may enhance their cognitive and analytical skills. Mother's education level has a positive and significant effect on children's education, home learning environment, and access to good books that enhance their knowledge and sharpen their learning process (Harding, 2015; Magnuson et al., 2009). Educated mothers are helpful to improve the lifestyle of their children and to develop social capital, which later helps to increase the opportunities in the lives of their children. They also have better ability to bring improvements in the financial status of their children by helping them to find employment. So, mother's education may prove a ladder on which children climb step by step towards the sky of success (Augustine, Cavanagh, & Crosnoe, 2009; Coleman, 1988). Self-regulation of kids grows before formal schooling is and it is influenced by the culture and environment at home. By using Norwegian and US samples, Lenes, Gonzales, Størksen, and McClelland (2020) argue that mother's education is important for children's self-regulation. While Adler-Baeder et al. (2018) explore that children's social development is influenced by the parents' attitudes at home. An important debate in literature is about the effects of mother's enrolment in post-secondary education after the birth of their child. Two opposing views are present about it in the literature. One point of view suggests that such enrolment helps mothers to enhance their economic, social, human, and cultural capital (Breinholt & Holm, 2020; Schochet, Johnson, & Ryan, 2020). The other point of view suggests that such mothers have less time to focus on their children's upbringing. Hence it affects negatively to children's education (Augustine & Negraia, 2018). The professional responsibilities of women can also negatively affect the child's education and nourishment (Hoque, Khanam, & Nobi, 2017). Mothers with less education and low economic status are likely to assert a negative effect on children's future literacy and economic (Mendive, Lissi, Bakeman, & Reyes, 2017) and health outcomes (Kuter & Uzel, 2020). While an increase in mother's education promotes children's health. It also has been seen that educated mothers are more concerned about their child's immunisation and nutrition (Jones-Smith, Dieckmann, Gottlieb, Chow, & Fernald, 2014; Prickett & Augustine, 2016; Schochet et al., 2020).

Female's education is important not only because it can make women a productive part of the society but also because it can generate many positive externalities such as improvement in education and health of next generation. The productivity of healthy and educated individuals is expected to be higher and they may be in a position to earn better income. Although the role of mother's education for next generation's education and health outcomes is equally important in rich as well as poor countries yet such role may be even of greater importance in the developing countries where the caring and upbringing of the children is considered a prime responsibility of mothers. Pakistan is one among the countries where women are expected to be responsible for upbringing of children. This makes the country a suitable case to study the role of mother's education for children's income and education outcome. By utilizing the household level data of Punjab province of Pakistan, this study aims to investigate that what are the effects of mother's education on the learning and earning of their children. The study aims not

only to explore the direct effects of mother's education on children's income and education but also indirect effects on children's income. The indirect effects are expected to work through the effects of mother's education on children's education which later on can affect their earnings.

Empirical Strategy And Data

In order to study the effects of mother's education on next generation's income and education outcomes, we have used the data of Multiple *Indicator Cluster Surveys* (MICS) 2007-2008 conducted by Bureau of Statistics, Government of Punjab (2009). The survey has quite a wide coverage and provides the data on different socioeconomic characteristics of households. The survey consists of a sample of 91,280 from 6,368 clusters. Out of 91,280 households, 91,075 were successfully interviewed. We have utilized the information of household head and their parents for our analysis. The comprehensive data of all indicators used in our analysis was available for lesser number of household which restricted our sample to 865. Monte Carlo experiment simulation (Bourguignon, Ferreira, & Menendez, 2007) and Monte Carlo simulation bootstrapping technique with 500 iterations (Belhaj Hassine, 2011; Singh, 2012) has been applied.

We have used four different models. First of all, we have run a Mincerian type wage regression (Mincer, 1974) where individuals' education and experience have been used as determinants of their income. This regression equation has been specified as:

$$Y_i = \alpha_1 + \beta_{11}Edu_i + \beta_{12}EXP_i + u_{i1} \quad (i)$$

Where Y_i is the log of monthly income of i th individual, Edu_i is the education of i th individual used as a multiple category variable i.e. no education, primary education (minimum five years schooling), middle education (minimum eight years of schooling), secondary education (minimum ten years schooling) and higher education (minimum twelve years of schooling). We have used multiple category variable in stead of years of schooling to find out that how different levels of education (primary, middle, secondary and higher secondary) are helpful to explain the differences of income among individuals. Exp_i is the experience of i th individual. Experience has been calculated by subtracting the sum of the years of schooling attained by the individual and five years from the individual's age (Mincer, 1974).

In second regression model, we have used mother's education, region of residence (rural/urban) and wealth status as determinants of child's (individual's) income. The following regression equation has been specified for this purpose:

$$Y_i = \alpha_2 + \beta_{21}MEdu_i + \beta_{22}MWS_i + \beta_{23}MRR_i + u_{i2} \quad (ii)$$

Where $MEdu_i$ is the education of i th individual's mother, MWS_i is the wealth status of the household of i th individual's mother. MRR_i is the region of residence (rural/urban) of i th individual's mother. Education of mother has been measured by the attained years of schooling. Wealth status has been calculated by using the ownership of tangible assets by the households. Based upon the ownership of assets, scores have been assigned to the households (detail about the construction of wealth scores can be seen in MICS 2007-2008). A higher score indicates a wealthier household. On the basis of their wealth score, households have been placed into five different quintiles. These quintiles have been named as lowest quintile, second quintile, middle quintile, fourth quintile, and highest quintile. Wealthier households would fall in the highest quintile category, whereas poor people would fall in the category of the lowest quintile. The variable has been used as a dummy variable. People belonging to the two bottom quintiles have been regarded as poor. People falling in the third, fourth, and highest quintile of wealth has been regarded as non-poor.

Our third regression model is augmented Mincerian wage equation, where in addition to individual's education and experience, mother's education, region of residence (rural/urban) and wealth status have been treated as determinants of child's (individual's) income. This regression has been specified as:

$$Y_i = \alpha_3 + \beta_{31}Edu_i + \beta_{32}EXP_i + \beta_{33}MEdu_i + \beta_{34}MWS_i + \beta_{35}MRR_i + u_{i3} \quad (iii)$$

In fourth regression, individual's education measured as attained years of schooling has been used as dependent variable whereas mother's education, region of residence (rural/urban) and wealth status have been treated as independent variables. This regression equation can be specified as:

$$Edu_i = \alpha_4 + \beta_{41}MEdu_i + \beta_{42}MWS_i + \beta_{43}MRR_i + u_{i4} \quad (iv)$$

The results of our regression models have been discussed in next section.

EMPIRICAL RESULTS

Table 1

Variables		Monthly income (Dependent Variable)			Education (Dependent variable)
		1	2	3	4
Education	Primary	0.2024***		.1972881***	
		-0.082		-0.08139	
	Middle	0.3361***		.3049847***	
		-0.0828		-0.086	
	Secondary	0.5797***		.5190383***	
		-0.0708		-0.0781	
	Higher	1.1075***		1.040986***	
		-0.0793		-0.09241	
Experience		0.0123***		.0111998***	
		-0.0031		-0.0032	
Mother's Education			.0214877***	-0.00317	.426123***
			-0.0057816	-0.00566	-0.03856
Mother's region of residence	Urban		.245296***	0.067656	0.410701
			-0.0581104	-0.0521	-0.36893
	Rural		-.245296***	-0.06766	-0.4107
			-0.0581104	-0.0521	-0.36893
Mother's wealth status	Non-poor		.1152097**	.146037***	1.6082***
			-0.058796	-0.06199	-0.39546
	Poor		-.1152097**	-.146037***	-1.6082***
			-0.058796	-0.06199	-0.39546
Constant		7.7991***		7.973161***	5.44731***
		(0.0977)	8.505523***	-0.11592	-0.48603
N		865	865	865	865
R ²		0.1923	0.0739	0.2017	0.2641
Adjusted R ²		0.1876	0.0707	0.1942	0.2616

Table 1 contains the results of our regression models. The results indicate that individual's income is statistically significantly influenced by his/her education. The reported coefficients of primary, middle, secondary and higher education show that with increase in education, the income of individuals goes on to increase. Our results are in line with some of the previous studies in the literature (Shehzadi, Muhammad Sabir, Qureshi, Shehzad, & Hussain Tahir, 2012).

In third regression, in addition to individual's own education and working experience, mother's education, region of residence and wealth status have been used as determinants of individual's income. In this regression, the coefficients of mother's education and region of residence turn out to be statistically insignificant. It implies that mother's education and region of residence do not have any direct effect on individual's income. There may be indirect effects of mother's education on the child's income. This notion seems to be proved when we see the results of fourth regression model where individual's education has been regressed on mother's education, region of residence and wealth status. All three variables i.e. mother's education, region of residence and wealth status have a statistically significant effect on child's education. It implies that despite having no direct effects, mother's education and region of residence matters for child's earning. The effects of mother's education and region of residence on child's income are through their effects on child's education.

CONCLUSION

This study has analysed the effects of mother's education on child's income and education outcomes. On the basis of our results, we can conclude that mother's education is a strong predictor of child's income and education outcomes. Children of educated mothers have better opportunities to learn and earn. Hence the spread of female education should be given priority in the formulation of public policy. Female education is important not only due to the reason that it can enhance the stock of human capital in the society but also because it carries numerous socioeconomic benefits for future generations.

REFERENCES

- Adler-Baeder, F., Garneau, C., Vaughn, B., McGill, J., Harcourt, K.T., Ketrings, S., & Smith, T. (2018). The effects of mother participation in relationship education on coparenting, parenting, and child social competence: Modeling spillover effects for low-income minority preschool children. *Family process, 57*(1), 113-130.
- Ariës, R.J., Groot, W., & van den Brink, H.M. (2015). Improving reasoning skills in secondary history education by working memory training. *British Educational Research Journal, 41*(2), 210-228.
- Augustine, J.M., Cavanagh, S.E., & Crosnoe, R. (2009). Maternal education, early child care and the reproduction of advantage. *Social Forces, 88*(1), 1-29.
- Augustine, J.M., & Negraia, D.V. (2018). Can increased educational attainment among lower-educated mothers reduce inequalities in children's skill development? *Demography, 55*(1), 59-82.
- Belhaj Hassine, N. (2011). Inequality of opportunity in Egypt. *The World Bank Economic Review, 26*(2), 265-295.
- Bourguignon, F., Ferreira, F.H., & Menendez, M. (2007). Inequality of opportunity in Brazil. *Review of income and Wealth, 53*(4), 585-618.
- Bourguignon, F., Ferreira, F.H., & Menéndez, M. (2007). Inequality of opportunity in Brazil. *Review of income and Wealth, 53*(4), 585-618.
- Breinholt, A., & Holm, A. (2020). Heterogeneous Effects of Less Educated Mothers' Further Education during Early Childhood on Children's Educational Performance in Adolescence. *Research in Social Stratification and Mobility, 100*506.
- Cabus, S J., & Ariës, R.J. (2017). What do parents teach their children?—The effects of parental involvement on student performance in Dutch compulsory education. *Educational review, 69*(3), 285-302.
- Chase-Lansdale, P.L., Sabol, T.J., Sommer, T.E., Chor, E., Cooperman, A.W., Brooks-Gunn, J., & Morris, A. (2019). Effects of a two-generation human capital program on low-income parents' education, employment, and psychological wellbeing. *Journal of Family Psychology, 33*(4), 433.
- Chen, Y., & Li, H. (2009). Mother's education and child health: is there a nurturing effect? *J Health Econ, 28*(2), 413-426. <https://doi.org/10.1016/j.jhealeco.2008.10.005>
- Choi, K.H., Raley, R.K., Muller, C., & Riegle-Crumb, C. (2008). A longitudinal analysis of contextual exposure to peers with college educated parents and students' college enrollment. *Social science quarterly, 89*(4), 846.
- Chudgar, A., & Creed, B. (2016). How are private school enrolment patterns changing across Indian districts with a growth in private school availability? *Oxford Review of Education, 42*(5), 543-560.
- Chudgar, A., Sakamoto, J., & Shen, T. (2019). Adverse family events and educational outcomes of young adults: Analysis from three waves of Young Lives Data from India: Author details. *International Journal of Educational Research, 95*, 168-175.
- Coleman, J.S. (1988). Social capital in the creation of human capital. *American journal of sociology, 94*, S95-S120.
- Erola, J., Jalonen, S., & Lehti, H. (2016). Parental education, class and income over early life course and children's achievement. *Research in Social Stratification and Mobility, 44*, 33-43.
- Fassbender, I., & Leyendecker, B. (2018). Socio-economic status and psychological well-being in a sample of Turkish immigrant mothers in Germany. *Frontiers in psychology, 9*, 1586.
- González, L., Cortés-Sancho, R., Murcia, M., Ballester, F., Rebagliato, M., & Rodríguez-Bernal, C.L. (2020). The role of parental social class, education and unemployment on child cognitive development. *Gaceta sanitaria, 34*(1), 51-60.
- Harding, J.F. (2015). Increases in maternal education and low-income children's cognitive and behavioral outcomes. *Developmental psychology, 51*(5), 583.
- Harding, J.F., Morris, P.A., & Hill, J. (2017). Understanding associations between low-income mothers' participation in education and parenting. *Journal of Research on Educational Effectiveness, 10*(4), 704-731.
- Harding, J.F., Morris, P.A., & Hughes, D. (2015). The relationship between maternal education and children's academic outcomes: A theoretical framework. *Journal of Marriage and Family, 77*(1), 60-76.
- Härkönen, J., & Bihagen, E. (2011). Occupational attainment and career progression in Sweden. *European Societies, 13*(3), 451-479.
- Haveman, R., & Wolfe, B. (1995). The determinants of children's attainments: A review of methods and findings. *Journal of economic literature, 33*(4), 1829-1878.

- Hoque, M.M., Khanam, S.T., & Nobil, M.N. (2017). The Effects of Mothers' Profession on their Children's Academic Performance: An Econometric Analysis. *Global Journal of Human-Social Science: E Economics*, 17(2).
- Jæger, M.M., & Holm, A. (2007). Does parents' economic, cultural, and social capital explain the social class effect on educational attainment in the Scandinavian mobility regime? *Social Science Research*, 36(2), 719-744.
- Jones-Smith, J. C., Dieckmann, M. G., Gottlieb, L., Chow, J., & Fernald, L.C. (2014). Socioeconomic status and trajectory of overweight from birth to mid-childhood: the early childhood longitudinal study-birth cohort. *PloS one*, 9(6), e100181.
- Klassen, R.M., & Tze, V.M. (2014). Teachers' self-efficacy, personality, and teaching effectiveness: A meta-analysis. *Educational Research Review*, 12, 59-76.
- Korupp, S.E., Ganzeboom, H.B., & Van Der Lippe, T. (2002). Do mothers matter? A comparison of models of the influence of mothers' and fathers' educational and occupational status on children's educational attainment. *Quality and Quantity*, 36(1), 17-42.
- Kuter, B., & Uzel, I. (2020). The Influence of Maternal Factors on Children's Oral Health: Mothers' Age, Education Level, Toothbrushing Habit and Socioeconomic Status. *The Journal of Pediatric Research*, 7(4), 331-336.
- Lenes, R., Gonzales, C.R., Størksen, I., & McClelland, M.M. (2020). Childrens Self-regulation in Norway and the United States: The Role of Mothers education and Child Gender across Cultural Contexts. *Frontiers in Psychology*, 11, 2563.
- Linnenbrink, E.A. (2005). The Dilemma of Performance-Approach Goals: The Use of Multiple Goal Contexts to Promote Students' Motivation and Learning. *Journal of educational psychology*, 97(2), 197.
- Magnuson, K.A., Sexton, H.R., Davis-Kean, P.E., & Huston, A.C. (2009). Increases in maternal education and young children's language skills. *Merrill-Palmer Quarterly*, 55(3), 319-350.
- Mendive, S., Lissi, M.R., Bakeman, R., & Reyes, A. (2017). Beyond mother education: Maternal practices as predictors of early literacy development in Chilean children from low-SES households. *Early Education and Development*, 28(2), 167-181.
- Piraino, P. (2015). Intergenerational earnings mobility and equality of opportunity in South Africa. *World Development*, 67, 396-405.
- Prickett, K.C., & Augustine, J.M. (2016). Maternal education and investments in children's health. *Journal of Marriage and Family*, 78(1), 7-25.
- Pronzato, C. (2012). An examination of paternal and maternal intergenerational transmission of schooling. *Journal of Population Economics*, 25(2), 591-608.
- Schochet, O.N., Johnson, A.D., & Ryan, R.M. (2020). The relationship between increases in low-income mothers' education and children's early outcomes: Variation by developmental stage and domain. *Children and Youth Services Review*, 109, 104705.
- Shehzadi, A., Muhammad Sabir, H., Qureshi, A., Shehzad, K., & Hussain Tahir, S. (2012). Outcome Inequality in Meritocracy in Urban Punjab Province. *Pakistan Journal of Social Sciences (PJSS)*, 32(2).
- Singh, A. (2012). Inequality of opportunity in earnings and consumption expenditure: The case of Indian men. *Review of Income and Wealth*, 58(1), 79-106.
- Zeufack, A.G., Hassine, N.B., & Zeufack, A. (2015). *Inequality of outcomes and inequality of opportunity in Tanzania*. Policy Research working paper 7260, Washington, DC: The World Bank.