

Child Education and Economic Empowerment of Women in Heterogeneous Family Structure: An empirical evidence from Pakistan

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ABSTRACT

Child education is the most essential aspect of human development. It is one of the key feature for altering the prevailing state of an economy into a renowned position worldwide. There is huge literature that exhibits women empowerment affects households outcomes like especially education. However, there is no comprehensive approach to measure the impact of economic women empowerment on child education. Family structure may affect her influence in household decision. The current study uses Pakistan demographic health survey 2017-18 to analyze the impact of family structure on child education through the channel of economic empowerment of women. We use two-step IV Linear Probability Model to test the hypothesis. And the estimated results indicate that woman living in nuclear family is more empowered and have strong impact on child education while on the other hand woman who is living in an extended family is less empowered as she has to compromise on her decision making power with extended family members regarding household matters and child education. Father's presence and parental skilled occupation has significant influence over child education.

Keywords: Child education, economic empowerment of women, family structure

INTRODUCTION

Child education has been the subject of research and policy discussions both in developed and developing countries. It is a worldwide human right and an essential element of opportunities. In 2015, the Sustainable Development Goals (SDGs) were revised and access to early childhood development (ECD) was incorporated in it. Numerous initiatives have been adopted at federal and provincial levels to promote the standard of quality education to achieve Goal of SDGs. These initiatives include improvement in learning

environment by providing fundamental educational facilities, establishment of new schools to enhance access to education and improvement in hiring of teachers. Currently, Education Completion Rate (ECR) of Primary, lower Secondary and upper secondary is 67 %, 47 % and 23 % respectively. Early Childhood Education (ECE) is increased in the recent years and increased by 14 million, primary education 25.7 million, secondary education 4.2 million by the year 2020-21. Trend in overall literacy rate of Pakistan is 62.8 % in 2020-21 whereas, region wise literacy rate are increased in 2020-21 which is as followed; in Punjab it is 66.3 percent, Sindh 61.8 percent, Khyber Pakhtunkhwa 55.1 percent and Balochistan 54.5 percent (PES 2020-21). Various studies have been conducted to explore the determinants of child education worldwide and Pakistan.

We undertake a successive nature of economic empowerment and child education. Family structure determines woman empowerment in her own family. Moreover, when her empowerment is influenced by family structure, the education of her children will also be affected. Across time and countries, there is highly positive association between women empowerment in society and human development like child wellbeing in Pakistan and other developing countries (Thomas, 1994; Karl, 1995; Duflo, 2003; 2012; Doepke, 2012, 2016; Tura and Gebremariam, 2008). Based on this association, women empowerment would not only be a valuable target, but could also work as a pathway to accelerate human development. Women are responsible for bringing up their children and organizing domestic matters (Tura & Gebremariam, 2008).

But most of the existing literature suffers from two significant flaws. Firstly, much of the direct and indirect proxies for women empowerment have been used. Though, any precise measure for women empowerment is difficult to use because of its specific context nature. In this respect, frequently used proxies include of unearned income earned (Browning et al., 1994; Schultz, 1990; Thomas, 1990), current assets (Quisumbing and De La Briere, 2000) inherited assets (Quisumbing, 1994). Though, these measures are likely to capture different features of household. So keeping in view this, present study has used employment status of women as a proxy for economic empowerment of women to capture its impact on child education. The second important flaw in existing studies is the failure of consideration of potential endogeneity of women empowerment in analyzing its influence on child education. Many research studies have explored women empowerment as an endogenous variable (Lundberg and Pollak 2003; Basu 2006). Premarital educational investment, social interactions, social norms and other variables are used as instrumental variables to solve endogeneity issues (Doepke and Tertilt, 2009). It is affected by many socio-economic and demographic factors prevailing in the country like women's education level, labor force participation, husband's characteristics, area of residence, religion, social norms, culture, family structure and many others (Doepke and Tertilt, 2009).

We have used the instrumental variable (IV) method to evaluate the determining factors of women empowerment; the selection of IV for the endogenous variable depends upon the literature. The results identify number of sons, household asset, gender of firstborn child, distance to health care center, contraceptive use, exposure to mass media, social norms, family structure and education of women and their spouses as significant determinants of women empowerment. Though, determinants such as family structure can affect school enrollment of children through the channel of women empowerment. It is a residential structure of post marriage where married couples use to live with their husband's family.

Number of Anthropological literature exhibit that the likelihood of practicing patrilocality as a culture is more than 70% of the world's cultures (Burton et al., 1996). Few research studies concluded that family structure have significant impact over women's empowerment (Malhotra and Mather, 1997; kabeer, 1999; Rahman, 2009; S Kundu and Chakraborty A, 2012; Batool and Batool, 2020; Doss et al, 2022). The major lacking in the existing literature is that the potential endogeneity of women empowerment and its impact on child education is not taken into consideration. Specifically few studies show that some direct measures of women empowerment in household level are available, but sometimes these are likely to be associated with other unobservable factors or variables that influence child education and henceforth estimated results would be biased. Women empowerment or the decision making power is the most important element affecting child wellbeing, as women is that important household member who is mainly responsible for child development. The objective of the study is to explore the determinants of child education and the path through which family structure affects to child education.

Literature review:

There is widespread literature on the socio-economic determining factors like parental education, empowerment, other individual and household characteristics have strong influence over schooling of children in Mexico, China, USA, Peru and other countries (Parker, 2000; Zhao and Glewwe, 2010; Conlisk, 1969; Psacharopoulos, 1997). Deopak and tertilt (2011) investigated the role of women empowerment on human development and suggested that sources controlled by mothers enhances expenditures on their children. They found that women even with lower wages may spend more on their children. Women source of income or her employment status enhance Attanasio and Kaufmann (2014) analyzed the role of expected returns to schooling and perceived risk as per the determining factors of schooling decision in Mexico. There is a huge body of literature that explored the direct impact of family structure on child education. Abuya et al. (2019) examined the role of family structure in the educational attainment of children in Kenya. They concluded that household structure, area of residence, household educational level, number of siblings in a household, household wealth index, gender of household head, gender of child and type of school (private or public) have positive impact over educational attainment. Heuveline and Savet (2017) analyzed the impact of family structure on child's education in Cambodia. Their estimated results show that children living with both of their biological parents are relatively more enrolled in school than children living with one parent. A massive literature has estimated that children's education has been influenced by their family structure, parental migration through the channel of women empowerment. These factors are considered to be related with child's outcomes and their well-being (Buchman, 2000; Hao et al, 2002; Khun, 2006).

In Pakistan, a limited amount of research work has been done about attainment of child education. Most of the previous studies are conducted about the determinants of child enrollment in Pakistan (Baluch and Shahid, 2008; Sajid and Khan, 2016; Pervaiz, 2012). Research studies show the positive and significant impact of child age and sex of the child on child education (Ngware et al., 2011; Khan and Khan, 2016). Furthermore, the existing research studies have explored limited features of Pakistan. Most important factors are wealth status of household, residential area. Parental characteristics, women empowerment

and family residential area which affect child education. The current study explores the impact of family structure on child education through the channel of women empowerment.

Data source and variables:

Data which is used in the study is collected from the Pakistan Demographic Health Survey (PDHS) for 2017/18, which covers just about 16,240 of households. The 2017/18 Pakistan Demographic and Health Survey (PDHS) was executed by the National Institute of Population Studies (NIPS) under the guidance of the Ministry of National Health Services Regulations and Coordination (MNHSRC). The principal objective of the 2017/18 PDHS is to make available latest estimations of exclusively used demographic and health measures. The survey delivers an exclusive summary of population, child and maternal health concerning issues in Pakistan. It particularly gives basic demographic indicators, particularly child mortality, contraceptive use, fertility decision, child feeding practices and household member's vaccines (PDHS, 2017-18).

Following measures are used for the variables:

- Child enrollment in school is used as a measure of child education for the age group of 5-14 years. It is used as a binary variable: 0 = if child is not enrolled 1 = if child is enrolled
- Women's employment status is used as a proxy for economic empowerment of women. It is used as a binary variable: 0 = if women is currently unemployed 1 = if women is currently employed
- Family structure is a categorical variable: 1 = single parent 2 = nuclear family 3 = extended family
- Wealth index of household is used as a measure of income level of household. It is used as a categorical variable: 1 = poorer 2 = poorest 3 = middle 4 = richer 5 = richest
- Area of residence is a binary variable: 1 = urban 2 = rural
- Father has skilled/unskilled employment is used as a measure of Father's occupation. It is used as a binary variable. 0 = unskilled 1 = skilled
- Mother has skilled/unskilled employment is used as a measure of mother's occupation. It is used as a binary variable. 0 = unskilled 1 = skilled
- Co-resident spouse is used as a binary variable: 0 = if husband is not living with women 1 = if husband is living with women
- Presence of father is used a binary variable: 0 = father is not alive 1 = father is alive
- Father's education level is a categorical variable: 1 = no education 2 = upto secondary education 3 = higher education
- Women's age, husband's age, age of household head and number of sons are used as continuous variable.

Table 1: Descriptive statistics of variables

variables	Mean	Std. Dev.
School enrollment	.36	.48
Father alive	.96	.17
Father's occupation	.77	.42
Mother occupation	.72	.44
Area of residence	.48	.49
Region of residence		
Kpk	.013	.11
Sindh	.036	.18
Punjab	.208	.40
Wealth index	4.15	1.06
Father's educational level	1.4	.68
Women's employment status / Women Empowerment	.09	.29
Family structure	1.55	.58

Conceptual framework and Methodology:

As the objective of the study is to explore the impact of family structure on child education through the channel of economic empowerment of women in Pakistan. Becker (1964) introduced the Educational Attainment model in Human Capital Theory. According to the theory, education is considered as an investment and people invest their resources in education. The sufficient level of investment in education depends upon the cost of education and returns of schooling. Later on Becker (1965) extended the human capital model of educational attainment of child into the household production model and claimed that educational attainment is a basic aspect of household behavior instead of individual behavior. And education is considered as a commodity. The child's education depends upon parent's decision making by time and resource allocation. And sometimes they indirectly affect through the decisions regarding family structure.

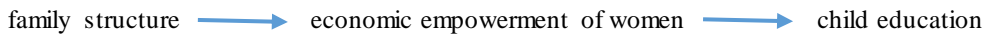
The family structure in Pakistan involves a wide range of relationships. Extended relatives live in multigenerational households whereby three or sometimes four generations reside together (including grandparents, uncles, siblings and cousins). And sometimes women are solely handling their families due to divorce, separation or widowhood. Traditionally, families in Pakistan are patriarchal. The senior male is considered the household head and followed by the senior female. Usually men are the main source of income in the households all over Pakistan. In case both husband and wife are working, woman's income

is spent on her children's wellbeing. Ultimately, women empowerment differs significantly depending on the attitude of her husband or other relatives living in household. To classify the socio-economic factors of child education in Pakistan, we initiate with a simple model:

$$CEdu = \beta_0 + \beta_1 WEMP + \beta_2 IC + \beta_3 HC + \beta_4 CC + e \quad (1)$$

Where CEdu is child education, IC symbolizes a vector comprising child individual characteristics, HC represents a vector of household characteristics, and CC is a vector of community characteristics.

The key household characteristics that may affect educational outcomes of children are education level of mother, fathers educational level, fathers occupation, others occupation, wealth index, area of residence, women empowerment, region of residence and family structure (Bhalotra, 2003). Equation (1) assumes that has a direct effect of women empowerment on their children's school enrollment. Empowered women can influence their children's education by making best decision regarding resource allocation or by giving their education priority (Bhalotra, 2003; Miluka and Dabalén, 2008). This study incorporates the following channel of women empowerment for child education:



In order to estimate the predicted probabilities of the binary outcome variables OLS cannot be used, we use IV Probit model to explore the impact of family structure on women empowerment and then its impact on child education. Since women empowerment is endogenous, Instrumental Variable technique will be utilized for estimation. Two stage least squares (2SLS) estimate the model in two stages; first stage involves an IV Probit model to estimate the probability of women empowerment. And the second stage of the model is estimated by using an ordinary least squares (OLS). Following are the equations used in the model:

$$WEMP = \beta_0 + \beta_1 FR + \beta_2 IC + \beta_3 HC + \beta_4 CC + e \quad (2)$$

$$CEdu = \beta_0 + \beta_1 WEMP + \beta_2 IC + \beta_3 HC + \beta_4 CC + e \quad (3)$$

Equation (2) represents first stage of the model while equation (3) showing stage two of the model. Where vector IC represents individual characteristics, FR is showing family structure, HC is showing household characteristics and CC is indicating community level characteristics.

Table 1: Robustness check test for Endogeneity of women empowerment and IV

Tests	Score	P-value
First stage F-test	67.55	0.000

Endogeneity test	9.9044	0.0016
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Table 2: IVPROBIT Model for the two stage

Explanatory variables	β	S.E
Women employment status *	.2908***	(0.001)
Mother has skilled employment	.1333***	(0.001)
Father has skilled employment	.1380***	(0.004)
Father alive	.1725***	(0.000)
Father's educational status		
No education	ref	
Secondary education	-.0488	(0.193)
Higher education	.07087	(0.128)
Region of residence		
kpk	-.05455	(0.464)
sindh	.02279	(0.668)
punjab	.0520	(0.169)
Wealth index		
Poorest	ref	
poorer	-.1789***	(0.009)
middle	.1642**	(0.015)
richer	.2497***	(0.001)
richest	-.3177***	0.000
Area of residence		
urban	ref	
rural	.0021	(0.864)
constant	.7557***	(0.000)
Observations	5546	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors are given in third column.

*is the estimated value of women employment status obtained from the first stage of the IV Probit Model.

Results:

To confirm the family structure as an instrumental variable, the value of Angrist-Prischke F-test is 67.55 which rejects the null hypothesis that instrumental variable, family structure has no explanatory power. Secondly, test of endogeneity is also significant. According to the result of endogeneity test we reject the null hypothesis and accepts that women empowerment is endogenous.

In two-step linear probability model the endogenous variable is regressed upon Instrumental variable by using the IV

Probit estimation technique (Table 3 in Appendix). Results in first stage indicate that family structure (IV) has significant impact over women empowerment. It is also noted in the estimated results that nuclear family systems empowers women and on the other hand, extended family restricts women to empower themselves. In extended family the women has to negotiate family matters rigorously with other family members. Thus the decision making power or the empowerment is shared with other family members. Results are lined with the literature (Harry, 2016; Acharya et al., 2010) show that here is an inverse impact of the extended family over women employment status. While on the other hand, nuclear family has a positive impact on women empowerment. Henceforth, it is appropriate to conclude that family structure has a significant explanatory power to influence the women empowerment. Coefficient of women age in regression results is a significant indicator and consistent with the literature (Khan and Awan, 2011; Acharya et al., 2010).

For the estimation of second stage of the model we use OLS method and its results are given in table 2. Here we have simply used the predicted women empowerment obtained from the first stage as an explanatory variable, with other individual, community, and household level characteristics to explore the determining factors of child education. In second stage, results of IV probit model are deliberated. Table 2 explains the factors which influence the child education in Pakistan. Child education is taken as a binary variable is results show that children of empowered women have more tendency of school enrollment relative to the disempowered women. Because they have more decision making power and influence over their children's wellbeing. Results show that children's whose fathers have higher education and with skilled employment are more likely to enroll in educational institutions. The coefficient of rural areas is negative and insignificant also, indicating the obstacles for children in rural areas to attain education. Father's education in positively related with school enrollment, children of educated fathers are most likely to get education. These results are supported by the studies of following researches (Ilon and Mooock, 1991; Maitra, 2001; Olaniyan, 2011). Coefficient of wealth index for middle and richer class is significantly positive while for richest and poor is negative. Which may be due to the fact that children in middle and richer household spend more in education as compared to the poor households (Hashmi et al., 2008; Kaffle et al., 2017). The positive impact for Punjab and Sindh represents that children belongs to these two regions get education regardless of the region they belongs to. The findings are matched with (Holmes, 2003). Coefficient for father alive has positive impact over child education. Different research studies also analyzed that orphan hood does have a negative impact over child educational attainment (Beegle et al., 2006; Case & Ardington, 2006; Evans & Miguel, 2007). Paternal skilled occupation has incredible potential to enhance the educational

performance of children (Memo et al., 2010). Our regression are significant and positive, also match with the literature regarding parental occupation.

Suggestion for further research:

Across time and regions, migration from rural to urban areas is increasing and apparently it shows an increasing trend in education but in context of Pakistan this area of study is not analyzed yet. Researchers may explore this area of literature. Impact of potential household and community characteristics like parental migration, parental income, and income of extended family on child's schooling is also required to explore. Further, the role of older family member's education for the quality education of child is also needed to examine.

Conclusion:

The study confirms a significant influence of women empowerment and child's school enrollment. Our attempt to regulate for unobservable variation in instrumental variables approach, we conclude that instrument variable which is used in the study, family structure is strong according to the results. Extended family disempowers women as in the presence of extended family members woman has to share her empowerment because of the involvement of extended family members. Rather, nuclear family system empowers women as it is easy for her to make decisions herself about her household matters. Other household individual and household characteristics like her age, her husband's age, gender of household head, and number of sons also have significant impact over economic women empowerment. Father's presence, area of residence, region, parental education, parental skilled occupation and wealth status are also key factors in increasing school enrollment of children according to the two-step model.

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Appendix

Table A1: First-stage regression results of Economic Women Empowerment (endogenous covariate)

Explanatory variables	β	S.E
Family structure		
Single	ref	
nuclear	.1347***	(0.000)
extended	-.0104	(0.642)
Women's age	.04433***	(0.000)
Husband age	-.04094***	(0.000)
Residing with husband	-.18115***	(0.000)
Gender of household head	-.2886***	(0.000)
Age of household head	.00714***	(0.000)
Number of sons	.0825***	(0.000)
Area of residence		
Urban (ref)		
Rural	-.0053	(0.401)
constant	-.2932	(0.000)

Note: *** p < 0.01, ** p < 0.05, * p < 0.10. Standard errors are given in third column.