

# Do Circumstances Matter For Earnings? An Empirical Evidence From Household Level Survey In Punjab (Pakistan)

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## ABSTRACT

*This study investigates the role of circumstances and efforts in determining the income differences of individuals by using household-level data from the second wave of Multiple Indicator Cluster Survey (MICS) conducted in Punjab province of Pakistan. Education and work experience of the individuals have been used as proxy of efforts while education, region of residence, and wealth status of individuals' fathers are used to indicate circumstances. Three different models have been used to estimate the effects of efforts and circumstances upon incomes of the individuals. The first model estimates the effects of indicators of efforts upon income of the individuals while the second model estimates the effects of indicators of circumstances upon income of individuals. The third model combines the indicators of efforts and circumstances into one equation and estimates their effects on individuals' incomes. To cope with the possible problem of endogeneity and omitted variable bias, Monte Carlo simulation bootstrapping technique with 500 iterations has been used. The results show that both efforts and circumstances play an important role to determine income of the people in the province of Punjab. Education and working experience of individuals are positively and significantly related with their earnings. Similarly variables related with circumstances (father's education, father's region of residence and father's wealth status) have also been found to be significantly related with income of individuals.*

**Key Words:** *Income Inequality, Intergenerational Mobility, Circumstances, Efforts, Opportunities, Socioeconomic Background, Social Exclusion*

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## 1. INTRODUCTION

Social scientists have long been interested to investigate the relationship of parental background characteristics with the socioeconomic status of their children. The measurement of such relationship has been done in literature under the theme of „intergenerational mobility“ and „inequality of opportunities“. The literature on the intergenerational mobility<sup>4</sup> investigates that how income of an individual is affected by the income of her/his parents. A strong association between the incomes of offspring and their parents indicates that there is more likelihood of transferring income inequality from one generation to the next generation. Evidence provided by this sort of literature shows that income of parents is a strong and crucial predictor of individuals“ income. It provides the support to the notion of persistence of inequality across generations. Furthermore, empirical evidence also suggests that such association is higher in countries with higher income inequality and lower in countries with lower income inequality (Corak, 2013). This may be due to the reason that more egalitarian societies provide such kind of environment where, irrespective of their social class, gender or ethno-linguistic identity, people have a fair degree of the opportunity of upward socioeconomic mobility. Conversely, such environment may be missing in more unequal societies where individuals“ ability of upward economic mobility is heavily influenced by their race, ethnicity, social class or gender. It implies that differences in the income or any other outcome such as consumption or wealth may not be solely determined by parental income and can also be a result of other socioeconomic factors.

The role of such socioeconomic factors in explaining the differences in income among individuals is the underlying theme of the literature of “inequality of opportunities“. This strand of literature distinguishes two different types of factors as a possible source of income differences among individuals. The first type of factors such as individuals“ choice between leisure and work, choice of profession and their choice of investment in their education and particularly higher education are labelled as efforts. Inequality of income arisen due to

differences in efforts may not be deemed as intrinsically unfair. In such situation, compensatory policies adopted by governments may not be very successful in mitigating inequality. The second type of factors such as race, ethnicity, region or place of birth, gender and socioeconomic background of parents are beyond the control of individuals and termed as circumstances. Income differences arisen from inequality of circumstances are considered as intrinsically unfair (Bourguignon et al., 2007; Dworkin, 1981; Roemer, 1993, 1998, 2002). Different kinds of compensatory government policies are suggested to address the issue of such kind of inequality (de Barros et al., 2010; Peragine, 2004) and equality of opportunities is advocated by development economist not only on its intrinsic grounds but also due its significant effects for economic efficiency (World Bank, 2005).

Although the empirical research on the issue of inequality of opportunities dates back to the work of Roemer (1993, 1998) yet conceptual and theoretical underpinnings of the idea can be traced in some of the earlier writings of social scientists (Dworkin, 1981; Nozick, 1974; Rawls, 1971; Sen, 1985, 1988; Sen, 1990; Sen, 2000). Since the work of Roemer (1993, 1998, 2002) different research studies have been conducted to find out the significance and contribution of circumstances and efforts in the determination of income by using parametric, non-parametric and semi-parametric approaches. These studies have been conducted in the context of different developed and developing countries of the world and report mix kind of results. The contribution of different variables related to efforts and circumstances in the determination of income significantly varies across different studies.

Pakistan is a developing country characterized by different kind of socioeconomic inequalities such as income inequality, regional inequality, educational inequality, gender inequality and severe inequality of land holdings (Akhtar, 2008; Akram, 2016; Anwar, 2009; Cheema & Sial, 2013; Gazdar, 2007; Ghaus et al., 1996; Haq & Zia, 2013; Pervaiz & Akram, 2018; Qasim & Chaudhary, 2015; Qasim et al. (2017); Tamim & Tariq, 2015). The existence of both vertical and horizontal inequalities in Pakistani society makes it an interesting case study to investigate the potential role of circumstances in the determination of income. Previously, Shehzadi et al. (2012) and Pervaiz & Akram (2018) have attempted to investigate the issue of inequality of opportunities for the case of Punjab province of Pakistan while the same exercise has been done by Shaheen et al. (2016) for the case of Pakistan. However, both of these studies have certain methodological flaws. For instance, Shehzadi et al. (2012) have used a non-parametric approach to study the role of circumstances and efforts in the determination of income of individuals. For this purpose, they have used the father's occupation status as circumstances of individuals. The occupation has been divided into two categories, i.e. agricultural and non-agricultural profession. In order to equalize circumstances, two different groups have been formed based on the occupation of individuals by assuming that people belonging to the same occupation have the same circumstances. However, agricultural and non-agricultural professions are too broader categories to equalize circumstances. Moreover, circumstances are not reflected through only parental occupations but through many other variables. Pervaiz & Akram (2018) have tried to overcome this problem by enlarging the set of variables related with circumstances. They have used parents' education, wealth status and region of residence as indicators to reflect circumstances. Shaheen et al. (2016) have used both parametric as well as non-parametric approach to study the role of circumstances to explain income differences among individuals. However, these studies completely ignored the possible role of efforts in the determination of income as they have not taken into account the variables related to efforts in their analysis. This can possibly overstate the role of circumstances to explain income differences among individuals. This study has contributed by correcting these methodological issues. We have taken into account

the variables related to efforts as well as circumstances in our analysis as possible determinants of income differences among people. Hence, this study aims to answer the research question to what extent efforts and circumstances matter for the earnings of individuals.

## **2. STATEMENT OF THE RESEARCH PROBLEM**

Gap between the rich and the poor and income differences among the people have long been debated by the economists and social scientists. Fair distribution of income and wealth is not only advocated on ethical grounds but also due to its functional importance. Egalitarian societies that have equitable distribution of income and other resources are socially and politically stable and less prone to violence and conflict. In such societies, investment in physical and human capital is expected to be higher which lead to more economic growth and development. That's why, it is important to investigate that what causes inequality in the distribution of income and wealth. The income of people is only partially affected by the efforts they put to earn money. It is also affected by the circumstances which they have in their lives such as their race or ethnicity, region of birth and socioeconomic status of their parents. People have little control over the circumstance they face in their lives. This highlights the significance of public policy interventions to correct the imbalances created by the circumstances. Hence this study aims to answer the research question that what is the role of circumstances to determine income differences in a society.

### *Objectives of the Study*

The specific objective of the present paper is to estimate the effects of people's circumstances on their income while controlling for the variables related with efforts.

### *Hypothesis of the Study*

The present paper will test the null hypothesis that people's circumstances do not affect their income.

## **3. LITERATURE REVIEW**

Different studies addressed the issue of inequality of opportunities and inequality of income from different perspectives. Studies also highlighted the role of inequality of circumstances and efforts in determining the income of individuals and households. Besides efforts, the role of circumstances can be crucial in determining the income of individuals (Roemer, 1998). Efforts depend upon individuals' preferences regarding investment in human capital and their choice between work and leisure. Circumstances, on the other hand, are beyond the control of individuals and may depend upon their race, region, gender and parental socioeconomic background (Marrero & Rodriguez, 2013). Both efforts and circumstances can play a critical role in the determination of income. People put more efforts and having favourable circumstances may earn higher incomes. To find out the role of efforts and circumstances in the determination of people's income, parametric as well as non-parametric techniques have been used in existing literature. The relative significance of efforts and circumstances varies across different countries and regions of the worlds. Some studies (Bjorklund et al., 2012; Calo-Blanco & Garcia-Perez, 2014; Checchi & Peragine, 2010; Marrero & Rodriguez, 2013; Peragine, 2004; Pistolesi, 2009; Shehzadi et al., 2012), for instance, have explored that the role of efforts is very much crucial in explaining the income differentials. Whereas some studies (Contreras et al., 2009; Marrero & Rodriguez, 2012; Nunez & Tartakowsky, 2007; Shaheen et al., 2016; Singh, 2012; Zhang & Eriksson, 2010)

highlights the significant role of circumstances to explain the income differences among individuals and groups of individuals. In fact, the role of efforts and circumstances for the explanation of income differences depends upon a number of contextual factors. Apparently, it is presumed that in societies with relatively fair opportunities, the role of circumstance would be less important as compared with the role of efforts. It means that under the provision of equal opportunity, people putting more efforts would earn a higher income, and the circumstance would not matter. Rawls (1971) views equality of opportunity as a situation where people's opportunities to attain some social position are not affected by their family background and social class. While Dworkin (1981) distinguished between a person's preferences and his resources. According to him, people's preferences such as their choice to invest in education and health and their choice between leisure and work reflect their efforts. Whereas the resources, which they own, are not necessarily the outcome of their efforts and hence represent their circumstances. Factors related to gender, ethnicity, region or place of birth, wealth inherited from parents, and parental background characteristics may be placed in this category. According to Sen (1985, 1988), equality of opportunity is achieved when nourishment, health, happiness, self-respect, etc. are equal for all the persons. The theme of equality of opportunity got fame in research after the work of Roemer (1993, 1998, 2002). According to him, people may have control over their efforts, but the circumstances which they face are generally beyond their control. He further suggested that both efforts and circumstances play an important role to determine income differences among individuals. However, the role of efforts and circumstances seems to be mostly contextual specific and significantly varies across different countries and regions of the world depending upon the fact that to what extent a specific country is egalitarian and promotes policies, which provide level playing field to all sections and segments of society. The role of efforts may be relatively more important to determine the earnings of people in a specific society, which pursues such policies, which are more egalitarian in their nature. On the other hand, the societies where certain sections of society may be excluded from different kind of opportunities due to active or passive social exclusion (Sen, 2000), circumstances may be relatively more important to determine the income, wages and social position of individuals. For instance, in a case study of Brazil, Bourguignon et al. (2007) find out that 25% to 30% variation in the earnings of individuals is due to the differences of parental occupational background. Contreras et al. (2009) have investigated the effect of inequality of opportunity on earnings in the case of Chile. The cohort-based analysis was conducted by dividing the sample into three different age groups, i.e. twenty-five to thirty-four, thirty-five to forty-four and forty-five to fifty-four. Father's education was used in the study as an indicator to represent the circumstances and was found as an essential variable to explain the inequality of earnings. The results showed that inequality of wages was the highest in third age cohort (forty-five to fifty-four) and was the lowest in the first cohort (twenty-five to thirty-four). Different factors such as gender, age, education of father and mother, age at which father and/or mother died, and region of birth were found to be an essential determinant of income in Tanzania (Zeufack et al., 2015). In a case study of an Indian state, Singh (2012) finds that social background (parental education, parental occupation, caste, religion, and place of birth) is an essential determinant of the consumption and income inequalities. The results provide further evidence that parental education is the most significant factor in explaining income and consumption differences in urban areas. In rural areas, however, caste and geographical region were found to be the important determinants of such differences. Zhang and Eriksson (2010) have conducted a study on inequality of opportunities in China. Their findings suggested that circumstances were a major source of inequality of income. Parental earnings and occupation were found the most important

variables to explain income inequality whereas the role of parental education was little. These results are contrary to many other studies where parental education plays the most significant role to explain income inequality have examined the relationship between inequality of earnings and inequality of circumstance. The variables of schooling, occupation, father's age and family size were used as circumstances. The results show that earning inequality among individuals is mainly due to differences in circumstances. Pistolesi (2009) examined the relationship of inequality of opportunities and earnings in the United States by using longitudinal data from 1968 to 2001. Opportunities were further categorised into circumstances and efforts. Inequality of circumstances was found as a crucial factor to explain the inequality of earnings.

Bjorklund et al. (2012) investigated the relationship between equality of opportunities and the distribution of long-run income in Sweden. The findings showed that less than 30 percent inequality of income was due to circumstances while up to seventy (70) per cent of earnings' inequality was the result of efforts. It reflects that Sweden is an egalitarian society where efforts primarily determine the income of people and not the circumstances. Marrero and Rodriguez (2012) studied the phenomenon of inequality of opportunity by using a homogenous database of 23 European countries. Findings showed that wages were primarily influenced by efforts and merit rather than circumstances. The finding of Shehzadi et al. (2012) showed that meritocracy (people get reward due to effort) is an important factor behind the earning inequality. Calo-Blanco and Garcia-Perez (2014) found that unequal access to the facilities of health and education and inequality of income was due to inequality of opportunities in Europe. In case of U.S.A., the role of efforts was found more important as compared with the role of circumstances for the determination of income and development (Marrero & Rodriguez, 2013, 2014; Martinez et al., 2017). By using parametric as well as non-parametric approach, Shaheen et al. (2016) have investigated the different factors responsible for income difference among people in Pakistan. Father's education, wealth status and region of residence have been explored important variables to explain the income differences among individuals by Pervaiz & Akram (2018) through the use of non-parametric approach. The relative significance of efforts and circumstances in explaining income differences contextual specific and varies across regions and countries. It is also dependent upon the set of variables used as proxy of circumstances and efforts.

#### **4. METHODOLOGY**

##### *The Model*

Our theoretical framework is based upon the earlier work of Roemer (1998), according to which income of individuals is not solely determined by their efforts which they put to earn money but also by the circumstances which they have in their lives. People living in developed regions and countries and born to affluent and educated parents have favourable circumstances. They may have better opportunities of education and employment and hence better earnings. Drawing upon Bourguignon et al. (2007), Zhang and Eriksson (2010) and Singh (2012), three econometric models of the following form have been constructed to find out the effects of efforts and circumstances on the income of the individuals. The first model estimates the effects of efforts while the second model estimates the effects of circumstances on the income of individuals. The third model combines indicators related with efforts and circumstance in one regression for estimating their effects on individuals' income. The individual's education and working experience are used to indicate the efforts. The circumstances are indicated by father's education, father's region of residence (rural/urban) and father's wealth status. Specification of our econometric models is as given below.

$$Y_i = \alpha_0 + \alpha_1 \text{Edu}_i + \alpha_2 \text{Exp}_i + u_{1i} \quad (1)$$

$$Y_i = \beta_0 + \beta_1 \text{FEdu}_i + \beta_2 \text{FReg}_i + \beta_3 \text{FWS}_i + u_{2i} \quad (2)$$

$$Y_i = \gamma_0 + \gamma_1 \text{Edu}_i + \gamma_2 \text{Exp}_i + \gamma_3 \text{FEdu}_i + \gamma_4 \text{FReg}_i + \gamma_5 \text{FWS}_i + u_{3i} \quad (3)$$

„Y<sub>i</sub>“ is the log of monthly income (measured in Pakistani rupees) of the *i*th individual. The „Edu<sub>i</sub>“ represents education of *i*th individual measured through a dummy variable with five different categories i.e. no education or less than primary education (less than five years of schooling), completed primary education (minimum five years but less than eight years of schooling), completed middle education (minimum eight years but less than ten years of schooling), completed secondary education (minimum ten but less than twelve years of schooling) and higher education (minimum twelve years of schooling). The „Exp<sub>i</sub>“ represents the working experience (measured in years) of the *i*th individual. The „FEdu<sub>i</sub>“ represents education of the father of *i*th individual as measured by years of schooling, „FReg<sub>i</sub>“ as dummy variables represents region of residence (rural/urban) of the father of *i*th individual, and „FWS<sub>i</sub>“ represents Wealth status of the father of an *i*th individual. In our data source, the measurement of wealth status is based upon the ownership of durable assets. People are considered wealthier if they own assets of more value. On the basis of their status of wealth, people have been placed into five different quintiles. These quintiles have been termed as lowest quintile, second quintile, middle quintile, fourth quintile and highest quintile. Wealthier people would fall in higher quintiles whereas poor people would be placed in lower quintiles. The variable has been used as a dummy variable. People belonging to two bottom quintiles have been regarded as poor. People falling in the third, fourth and highest quintiles of wealth are considered as rich or non-poor.

For estimating our models, OLS can be a possible option. But, there is a potential problem of endogeneity when results are obtained by using OLS (Belhaj Hassine, 2011; Bourguignon et al., 2007; Singh, 2012) One method to cope with this issue is the use of instrumental variables in the regression. However, choosing an appropriate instrumental variable in the case of our study is difficult. Therefore, to overcome this problem, Monte Carlo experiment simulation (Bourguignon et al., 2007) and Monte Carlo simulation bootstrapping technique with 500 iterations (Belhaj Hassine, 2011; Singh, 2012) have been used.

## 5. DATA

The secondary data from the second wave of Multiple Indicator Cluster Survey (MICS)<sup>5</sup> Punjab has been used in this study. This survey provides information on important social, economic, and demographic aspects of 91,075 households from 6,368 clusters residing in urban and rural parts of the Punjab province. The households for whom information on all variables of our study is available are included for analysis in the study.

## 6. RESULTS AND DISCUSSION

We have estimated the effects of individuals' efforts and circumstances on their incomes. The variables of education and experience of individuals have been used as a proxy of efforts. Their father's education, father's region of residence and father's wealth status have been used as the proxy of circumstances. Three different regression models have been used for analysis. In the first model, only variables related to efforts have been used as explanatory variables. In the second model, only variables related to circumstances have been used as explanatory variables. In the third model, variables related to efforts as well as circumstances have been used as explanatory variables. Empirical results of three regression models have been reported in table 1.

Table 1  
Efforts, Circumstances and Income  
Dependent Variable: Log of Monthly Income

Variables		Coefficients		
		1	2	3
Efforts	Education	Less than Primary education	Reference Category	Reference Category
		Primary education	0.092 [0.060] (1.52)	0.067 [0.059] (1.14)
		Middle education	0.291*** [0.055] (5.27)	0.241*** [0.057] (4.23)
		Secondary education	0.480*** [0.055] (8.71)	0.411*** [0.057] (7.28)
		Higher education	1.025*** [0.071] (14.39)	0.937*** [0.073] (12.77)
	Working Experience	0.007*** [0.002] (2.93)	0.006** [0.002] (2.45)	
Circumstances	Father's Education		0.026*** [0.004] (6.66)	-0.003 [0.004] (-0.63)



	Father's Region of Residence (Urban)		0.146*** [0.044] (3.34)	0.098** [0.041] (2.36)
	Father's Region of Residence (Rural)		-0.146*** [0.044] (-3.34)	-0.098** [0.041] (-2.36)
	Father's Wealth Status (Non-poor)		0.199*** [0.042] (4.66)	0.169*** [0.043] (3.92)
	Father's Wealth Status (poor)		-0.199*** [0.042] (-4.66)	-0.169*** [0.043] (-3.92)
Constant		8.053*** [0.075] (106.72)	8.544*** [0.049] (172.31)	8.274*** [0.085] (97.28)
R <sup>2</sup>		0.1899	0.0893	0.2064
Adjusted R <sup>2</sup>		0.1871	0.0874	0.202

\*\*\* Significance at 1% level, \*\* Significance at 5% level and \*Significance at 10% level.

Standard errors are given in square brackets and z statistics are given in parentheses.

The results of the first model indicate that education, as well as working experience, are important factors to explain income differences among individuals. The education of individuals has a positive and significant effect on their incomes. The primary level of education has a positive but insignificant effect on income. It means that the income of individuals whose education is primary is not significantly different from those people whose education is less than primary. The coefficient of middle, secondary and higher level of education is statistically significant and positively related to income. It implies that on average, people having a middle, secondary and higher level of education earn income which is significantly higher from those people who have less than primary education. Moreover, the income of individuals with middle education is significantly higher than the income of individuals with primary education; the income of people with secondary education is also significantly different from the individuals having middle education.

Similarly, individuals having higher education earn income, which is significantly higher than the income of people with secondary education. Thus, the earnings of individuals are significantly influenced by their education. Income of individuals is also significantly affected by the working experience. It means that experienced individuals would earn higher income as compared with inexperienced individuals.

Results of the second model indicate that the father's education, region of residence and wealth status is significantly associated with individuals' income. The children of educated

and affluent parents have better prospects to earn higher incomes than those of the children of less educated and poor parents. Similarly, the incomes of the children of parents living in urban areas are likely to be significantly higher than the incomes of the children of parents living in rural areas. Results of the third model suggest that out of three variables related with circumstances (father's education, region of residence and wealth status), father's education turns out to be insignificantly associated with income of individuals when variables related with circumstances as well as efforts are included in regression analysis. It may be due to the reason that instead of having a direct effect on the earnings of individuals, father's education may be important via its effects on individuals' education. A comparison of values of R square of our regression models shows that the set of variables used as proxy of efforts have higher explanatory power than the set of variables used as proxy of circumstances to explain the differences of income among individuals. It implies that though the importance of circumstances cannot be ignored in explaining income differences among individuals yet efforts seem to explain the larger variations in income of individuals. However, these results need to be interpreted with caution as the circumstances are not only limited to different parental background characteristics such as father's education, region of residence and wealth status. The effects of circumstances on earnings may become more pronounced once we extend the set of variables used as proxy of circumstances.

## **7. CONCLUSION**

Circumstances as well as efforts play important role to explain the differences of income. The findings of the study approve our proposition that circumstances matter for earnings of individuals. The effects of circumstances on the income of individuals confirm the persistence of inequality over generations in Punjab (Pakistan). It is an indication that people belonging to different social strata and having different socioeconomic backgrounds do not have equal chances of upward socioeconomic mobility.

## **8. POLICY RECOMMENDATIONS**

The relative significance of efforts and circumstances in determining the income of individuals depends upon number of factors such as public policy and institutional arrangements in a society. The role of circumstances is expected to be minimal in a society which ensures fairness and meritocracy through effective institutional arrangements. In such scenario, the income differences are largely attributed to the differences of efforts. On the other hand, the role of circumstances becomes crucial in the absence of meritocracy. Such situation requires public policy interventions to correct the imbalances created by differences in circumstances.

As our findings indicate that circumstances are important to determine the income therefore public policy intervention is recommended as an effective policy option. The significant association of region of residence with income requires that the issue of regional inequalities should be addressed to narrow down the income gaps. Similarly, positive and significant impact of education on income shows that education remains an important tool for upward socioeconomic mobility. Hence, compensatory public policies particularly aiming to provide equal access to educational facilities to people belonging to different social strata and regions are suggested as a strategy to reduce the income gaps in the society.

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