



## Impact of Education and Employment on Poverty

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### Abstract

Poverty is a major threat to the existence of humanity in modern times especially in the developing countries. Education is considered to be one of the basic factors of achieving sustainable economic development through investment in human capital. Education improves quality of lives and raises people's productivity and eradicates poverty rate by being employed with job opportunities. This paper is aimed to examine the impact of education and employment opportunities on poverty reduction in both rural and urban areas in Uzbekistan using the Probit model. The study used the micro dataset of the L2CU collected by World Bank in 2018.

**Keywords:** Poverty; Education; Employment opportunities

### 1. Introduction

The concept of reducing the poverty has been one of the main goals of Millennium Development Goals (MDG) and after implementing the strategy, extreme poverty rate has been cut by more than half since 1990. In 2015, 195 nations decided to change the world for the better with United Nations and adopted Sustainable Development Goals. The first goal of the 2030 Agenda acknowledges that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. In this regard, government officials are taking number of measures to battle the poverty among population both in rural and urban areas. According to international specialists (Ban, Ki Moon, 2015), in order to fight against the poverty all leaders of the society need to take actions along with strategy.

Like a tree, poverty has many roots. However, one such factor stands out from other reasons – that is education. Indeed, not everyone who has no education lives in poverty. However, the vast majority of people living in extreme poverty do not have a basic education (Giovetti, 2020). Poor families are more likely to isolate their children from school, which means it is a repetitive process that increases the chances of their children falling into poverty as well. Education often acts as a connective bridge, meaning that families can not only survive, but also have access to the jobs, resources, and life skills they need to thrive. High-quality of primary education and financial support for children are recognized worldwide as a solution for the poverty elimination. Because higher education provides an opportunity to find a high-paying job and get out of poverty. Numerous studies have been conducted on the positive role of education in poverty reduction and have been proven through empirical analysis (Awan, 2011; Mihai, 2015; Nassar, 2016).

On the other hand, higher education does not always guarantee employment in the labor market (UN, 2014), for example, in Brazil and Argentina, the unemployment rate is high among citizens with higher education. High unemployment rate in the labor market are brought as one of the reasons why educated people remain unemployed. However, in Haiti and Kenya, where the unemployment rate is higher than 40%, and 60% and 36% of the population live in poverty, respectively, even having a primary education is more likely to lead to paid employment increasing the probability of being wage employed by 170% in Haiti and 35% in Kenya.

The President of Uzbekistan Shavkat Mirziyoyev chaired a video conference on February 27, 2020 on measures to reduce poverty through entrepreneurship. At the meeting, he stated that 12-15% or 4-5 million people lives below national poverty line according to preliminary estimates. This means that their daily income does not exceed 10-13 thousand UZS per capita. Or a family may have both a car and a pet, but if a person is seriously ill, at least 70 percent of the family income goes to treating him. At the meeting he further added: "Poverty reduction does not mean an increase in monthly or pension benefits, mass lending. To do this, first of all, it is necessary to introduce vocational training, financial literacy, entrepreneurship, infrastructure, education of children, quality treatment, targeted benefits", – said the President. Furthermore, proportion of employed population below \$1.9 PPP a day accounts for 22.2% and 16.0% by male and female respectively. In this regard, we try to answer the question what affects the poverty? – being employed or being educated. For this analysis, we will use L2CU micro dataset collected by World Bank in 2018 by employing the Probit regression model.

## **2 Literature review**

It is a general belief that education is the necessary and important component of human capital which make their standards of living. Hence, Roberts (2011) confirms that government's ability to prosper in developing and employing the skills and knowledge by improving learning outcomes of its citizens is strongly related to standard living conditions of population. World has not witnessed any nation has gained stable economic growth and poverty reduction without making extensive investment in education system and human capital (Ozturk, 2011). Many researchers have been accompanied to study the relationship between education returns and poverty (Nicholas, 2010). There are a variety of outcomes and variation in the literature on the theoretical and empirical context of returns to education analysis. Along with education, earnings play significant role in the direct linear relationship with learning.

In the human capital literature, whose pioneers are Schultz (1961) and Becker (1965), education is seen as an investment of present resources (time opportunity cost and direct costs) in order to obtain future returns. As for Becker (1965), he assumes that individuals choose education to maximize the present value of expected future incomes before retirement, net of the costs of education. Investing in education corresponding to the opportunity cost of spending money and time on education instead of working to increase current income and production. The influence of education in reducing poverty goes beyond its impact on income and wages. As the level of education increases, certain decisions and behaviors of people also change and this in turn reduces the likelihood of people falling into poverty. It increases the probability of success needed to reach their basic needs, such as health, housing, water and sanitation, and other services (Sen, 1985, 1999). However, the vulnerable households fall deeper into poverty due to lack of health services, illness, high fertility and malnutrition. The study conducted by (Awan, 2011) shows that the education attainment and poverty are negatively associated. The study also shows that the higher the level of education there will be higher chances of escaping poverty. The findings of study also suggest that education is the primary and most essential determinant of incidence of poverty and it should be included in poverty reduction programs. The study further determined that the women are much more deprived compared to men regarding the poverty. Haq (2015) points out that in rural areas private returns to male education are found to have an upward trend due to higher levels of education in labor markets for non-agricultural work. However, wages to the farm-workers, who hired for the unskilled, manual work on the farm, are shown to be not responsive to educational attainment. Wages and productivity in non-farm activities rise with education at an increasing rate as education rises.

The high quality of learning outcomes gained by human capital leads to higher overall productivity of nation's capital due to the fact that highly educated individuals are more likely to innovate, therefore, positively affect others' productivity whom they interact (Lucas (2008), Perotti (2008)). Especially, the education and skills of human capital in developing nations positively affect the nature of its production and subsequently influence the composition of its trade. Wood (2009) argue that even 'unqualified' employees in contemporary plants basically require the literacy, numeracy, and discipline, which are obtained in primary and lower secondary school.

In the post-pandemic era, innovation and digitalization have significantly impacted the education sector. The shift to online learning, blended learning models, personalized experiences, global connections, and educational technology innovation have revolutionized teaching and learning, providing flexibility, access to quality education, and collaborative opportunities for students while requiring adaptation to address challenges such as the digital divide and student engagement (Balbaa M., et al. 2021).

Rutkowski (2015) analyzes labor market performance in Philippine from the perspective of workers' welfare. The author argues that pervasive in-work poverty is the main challenge facing labor policy. Poverty is found to be primarily due to low earning capacity of the poor and to their limited access to regular and productive jobs. Behind these are the two interrelated root causes of in-work poverty - low education of the poor, and the scarcity of productive job opportunities. Due to low job opportunities in rural areas, even better educated workers are often forced to take unskilled jobs and work as low-paid laborers. Therefore, targeted training programs is suggested to address the problem of low skills among the poor workers, especially the young ones. Another study by Pernia (2003) reveals that investment in rural infrastructure will lead to higher productivity level in rural areas, thus it will improve the employment, income earning opportunities, and increasing the availability of goods thus as a result reducing poverty to a large extent. Such as building roads will not only increase the agricultural productivity but also the non-agricultural activity and this will reduce poverty faster than income distributions.

## 2. Methodology

This study examines the impact of education and the presence employment opportunities on the probability of being poverty in both rural and urban areas in Uzbekistan based on the household dataset of the L2CU collected by World Bank in 2018. Listening to the Citizens of Uzbekistan (L2CU) designs to broadly monitor the thoughts and living standards of representative group of individuals, since Uzbekistan has been experiencing an embarking social and economic reforms focusing on every citizen and enterprises. This consists of 4000 households that covering all entire population of Uzbekistan over regions, based on a monthly "panel" survey of a subset of 1,500 households from the baseline survey.

The fact that we analyze the determinants of falling the poverty, our outcome variable is the being poor based on daily \$1.9 expenditure per capita. Therefore, the dependent variable is a binary which takes 1 when household's daily expenditure is less than \$1.9 per capita. Since the expenditure is in national currency in the dataset, we base World Bank estimations in poverty level that is set at 5 600 UZS per capita. If household daily per capita expenditure is less than 5 600 UZS, this household is taken as poor. Given the dichotomous nature of this study and to achieve the objectives of this study, we will apply Probit model that incorporates the probability of falling poverty of people in the model. The Logit and Probit models tend to be the most frequently applied models given the binary response variable and they share similar characteristics, both techniques are appropriate for dummy dependent variable. So that we use Probit model approach. The model for this study is as follows:

$$Pov_i = \beta_0 + \beta_1 Unemp_i + \beta_2 Educ_i + \delta X_i + \varepsilon_i$$

Where  $Pov_i$  is our dependent variable takes one if a household lies in poverty line otherwise zero,  $Unemp_i$  is also dummy variable takes one when the head of household is unemployed otherwise zero,  $Educ_i$  is the education level of household head from no level to PhD degree, and  $X_i$  is the set of variables that describes the characteristics of the household. Detailed descriptive analysis and statistics of the variables is provided in the table 1 and table 2 respectively.

## 3. Descriptive analysis

**Table 1: Description of variables**

Variable name	Description
Poor	Dummy variable takes one if daily expenditure of household per capita is less than 5600 UZS otherwise zero
Education level	Categorical variable to shows the level of education of household head (None, Primary, Secondary general, Secondary special, Higher, Graduated)
Unemployed	Dummy variable takes one if household head is unemployed otherwise zero
Unemployed educated	Dummy variable takes one if household head is educated and searching for work otherwise zero

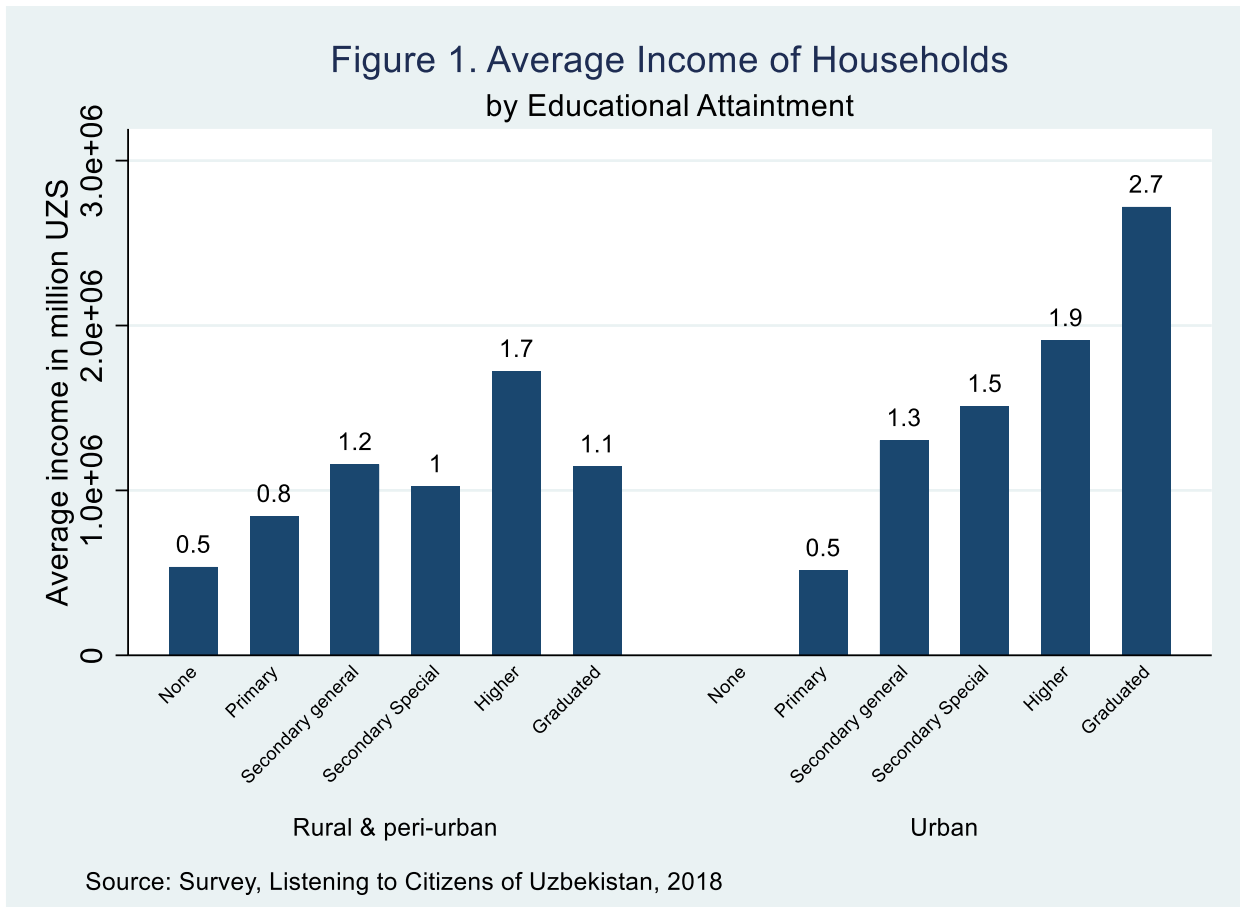
Gender	Dummy variable shows the gender of household head takes on if household head gender is female otherwise zero
HH size	Continuous variable shows the number of household members
Urban	Dummy variable shows the residency of household whether urban or rural
Migrant family	Dummy variable shows whether the household has a migrant working abroad
Married	Dummy variable shows the marriage status of household head
Nochild6	Continuous variable shows the number of children younger than 6-year-old
Nochild16	Continuous variable shows the number of children younger than 16-year-old

**Table 2: Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max	
Income	180	1,263,385.3	2,437,576.9	0	5,500,000	
Poor	5	401	0.275	0.447	0	1
Urban	7	401	0.225	0.418	0	1
Hhsize	7	401	5.232	2.144	1	15
Gender	7	401	1.199	0.400	1	2
Age	7	401	51.196	13.131	21	94
Married	7	401	0.809	0.393	0	1
nchild6	7	401	0.828	0.988	0	6
nchild16	7	401	1.741	1.324	0	9
migfamily	7	401	0.176	0.381	0	1
working	7	401	0.487	0.500	0	1
unemployed	7	401	0.518	0.500	0	1
outoffl	7	401	0.065	0.247	0	1
jobsearch	4	177	1.947	0.224	1	2
edprim	7	401	0.064	0.244	0	1
edsecgen	7	401	0.381	0.486	0	1
edsecspec	7	401	0.402	0.490	0	1
edhigh	7	401	0.137	0.344	0	1
edgrad	7	401	0.010	0.098	0	1

**4. Descriptive analysis**

We analyze the average income of households by educational attainment in rural and urban areas. According to preliminary results of L2CU survey (2018) in figure 1, the income inequality is more prevalent in urban areas than rural does. Distribution of income in rural areas toward education attainment is very close whereas it gets increased as the level of education rises in urban areas. Specifically, the income of graduated people is 2.7 million UZS on average when it accounts for 1.1 million UZS in rural areas. The income of people with higher education is 1.7 million and 1.9 million in rural and urban areas. This tendency is diminishing as the level of education decreases both in rural and urban areas.



**Figure 1: Average Income of Households**

The figure 2 shows the information about the incidence of poverty towards educational level in Uzbekistan. The statistics show that the incidence of poverty is prevalent in rural areas with the secondary school attainment. In other words, nearly 74% of poor people corresponds to the group of people with secondary general and secondary special education. In urban areas, this figure is very negligible less than 10%. Poverty incidence among high educated people is 4.61% and 1.36% in rural and urban areas respectively. These statistics suggests that the target people to reduce poverty should start from rural areas since a large portion of Uzbekistan’s population is settle in rural areas.

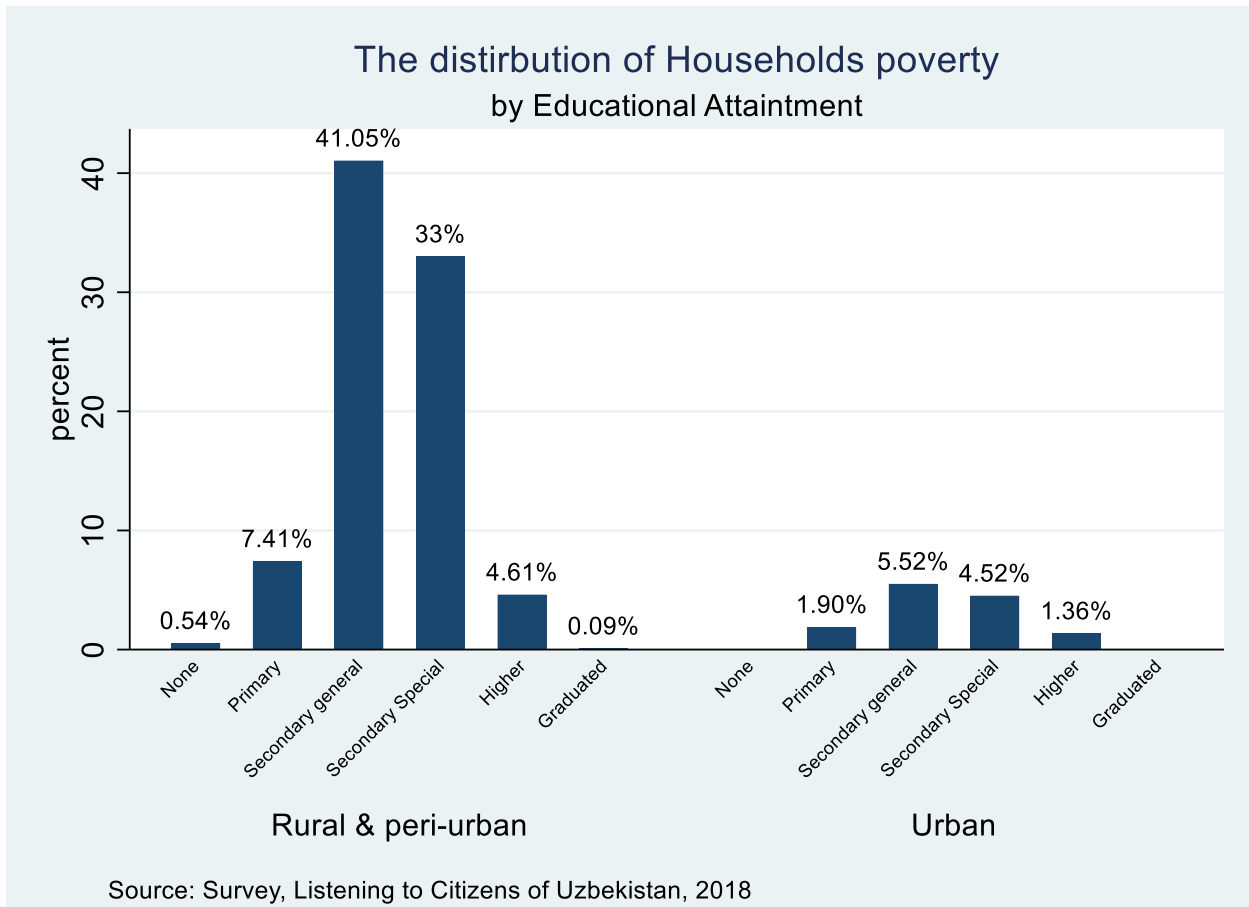


Figure 2: The distribution of household poverty

5. Results

Table 3: Regression results

VARIABLES	(Probit model, marginal effects) Poverty	(Probit model, marginal effects) Poverty
Unemployed	0.0399** (0.0157)	0.0661*** (0.0160)
Unemployed educated		-0.180*** (0.0352)
Primary Education	0.255*** (0.0354)	
Secondary General	0.175*** (0.0196)	
Secondary Special	0.121*** (0.0189)	
Master or PhD	-0.0899** (0.0399)	
Gender	0.00752	0.0124

	(0.0297)	(0.0299)
HH size	0.00899*	0.00872*
	(0.00479)	(0.00482)
Urban	-0.0995***	-0.116***
	(0.0191)	(0.0190)
Migrant family	0.0810***	0.0912***
	(0.0184)	(0.0184)
Married	-0.00503	-0.00817
	(0.0295)	(0.0298)
Nochild6	0.00227	0.000604
	(0.00915)	(0.00922)
Nochild16	0.0724***	0.0760***
	(0.00800)	(0.00803)
Constant		
Observations	3,994	3,994

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In this part, we provide the results obtained from Probit regression model. In this model, the effect of factors that affect for the probability of being poor in Uzbekistan case are shown in the table 1. According to results in column 1, being unemployed increases the chances of lying on poverty line by 3.99% and this result is statistically significant. In terms of educational attainment perspective, achieving only primary education increase the probability of being poor by 25.5%. This possibility of being poor decreases as educational level increase and it is 17.5% and 12.1% in general and secondary education. Importantly, achieving PhD degree decreases the incidence of poverty by 9% more than higher education does.

According to secondary determinants of poverty, there is no exact difference between genders in terms of being poor. One additional household member contributes to the chance of being poor by 0.9%. But this significance turns out to be insignificant in the number of children whose age less than 6 whereas having more children whose age less than 16 increase corresponds to 7.2% increase in the chances of being poverty. The households who lives in urban areas experience the incidence of poverty by 10% less than the individuals who lives in rural areas. With respect to the migrant families, they are more likely to be poor than non-migrant families, by 8.1%. Being married has no effect on the chance of lying on poverty line. To check the magnitude between being employed and educational levels on poverty in Uzbekistan, we add the new variable that shows the educated person who stays unemployed. These results are provided in column 2. In terms of effects of being unemployed, the effect of that variable increases accounts for 6.6% when we take into account the unemployed educated people into the model. It is important to note that even being an educated people who is unemployed appears to decrease the chances of facing poverty by 18% and it is statistically significant at 1% level.

## 7 Conclusion and policy recommendation

This paper analyzed the impact of education and employment opportunities on poverty reduction in both rural and urban areas in Uzbekistan in 2018 using the Probit model.

The education plays an important role for any country's development process and economic growth. A country with higher education rate will not only have the higher level of income but it will improve the socio-economic condition of the country. Indeed, poor families or people who are not financially well-off are more likely to be effective in reducing poverty in a country if they are educated rather than to those who are in a good stable economic situation. Improving poverty in countries with high unemployment requires huge initiatives. In such an environment, the introduction of social incentive packages often does not help, as the lack of experience in such areas does not allow for the effective use of packages. Thus, in economic regions with high unemployment rates, the educational level of poor people is important. It is the fact that even someone with education may not be able to find a job. But if a person uses education properly, he or she can grow in his or her business using personal and educational skills. For instance, a person who graduates as an engineer can then make huge profits by using the websites freelance software and e-shop software to make a profit. The lack of jobs in the country does not tends to lead to the unemployment of educated people and falling them on poverty. Because an educated person uses his skills to make money and at least

become a business owner. As a result, it also has a spillover effects by employing others in the society. It is clear that the education of one person plays a major role in providing employment and lifting many people out of poverty. The truth is that our country needs higher education, and when people have enough education, they can develop their own solutions to the problems they face. World Bank experts often emphasize the need for effective mechanisms to eradicate poverty and achieve prosperity, and these mechanisms can only be achieved through education. Education is important because it has the ability to solve vital problems, because without knowledge, without thinking, development will be difficult.

In conclusion, the government should invest in rural areas to improve the education level especially in agricultural rural areas where the educating the farmers will lead to the efficient utilization of resources and the higher level of productivity will increase their level of income, as a result the overall living standards will improve and the poverty will significantly.

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