



# MODELING THE SUPPLY OF LABOR IN THE RURAL LABOR MARKET

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## ABSTRACT

*The article proposes econometric models that can be effectively used to determine the future parameters of labor supply in the rural labor market. Along with the demo-social models of labor supply, forms of self-employment in various sectors of the economy are also taken into account.*

**KEYWORDS:** *economic theory, labor market, labor supply, econometrics, self-employment.*

## INTRODUCTION

One of the most important issues in economic theory is to balance the demand for labor in the labor market with the help of wages. The theoretical foundations of economic relations in the labor market, its balance and competition are elaborated in the works of J.M Keynes, M. Friedman and others, whose views later became Keynesian, monetarist and institutionalized economy [7,16,17].

## MATERIALS AND THEIR DISCUSSIONS

Mathematical modeling of labor supply in the rural labor market in the context of global economic development requires extensive use of economic-mathematical methods and models used in the analysis of economic systems. The scientific works of a number of scientists of the Commonwealth of Independent States are devoted to the study of the formation and development of the labor market in a separate area, including Abdurahmanova K.H, Darmanyany A.P, Sarych A.P, Sarych. Gorelova G.V, Kachalkina A.V, Korovkin A.G, Tuktamysheva L.M and others may be included. [2,3,4,9,11,12, 14].

An analysis of the work devoted to the study of the mathematical modeling of the rural labor market suggests that these studies pay more attention to determining their prospects on the basis of retrospective statistics. Scientists of our country Kholmuminov Sh.R., Arabov N.U, Tashpulatov A. on the study of econometric models of forecasting the rural labor market. In scientific research, it has been overlooked that the labor market, like other markets, is regulated by prices, and that the concept of consumer demand and aggregate demand is the main criterion for regulating supply and demand for labor [1,13,15].

The set of econometric models developed and proposed during the research complements and enriches the content of the models in the above-mentioned scientific works.

It is advisable to econometrically study the demo-social sources of the rural population before developing future models of labor supply. Demographic modeling is based on the method of age change of the population, in which the able-bodied population is stratified according to the same age group and skill level. A number of scientific works of our country's scientists are devoted to the development of economic-mathematical models of demo-social sources of labor supply. These studies take into account changes in the amount of labor supply in the forecast of labor market indicators in accordance with the estimate of the workforce, as well as changes and approaches in the training of the new generation in the Republic of Uzbekistan in 2017-2019. Therefore, we believe that it is necessary to develop econometric models that reflect the current conditions and directions of employment, appropriate to the segments of the rural labor market at the regional level.



The following models can be used to predict the quantitative parameters of labor supply in the rural labor market:

- a) Model of labor supply by gender of the population:

$$S_{\text{жcm}j}(t) = S_{\alpha_1j}(t) + S_{\alpha_2j}(t) \quad (1)$$

Here,  $S_{\alpha_1j}(t)$  and  $S_{\alpha_2j}(t)$  – in  $t$ -year the number of workers in the professions offered by men and women;

- b) Model of labor supply by age groups:

$$S_j(t) = \sum_{b_1=16}^{17} S_{b_1j}(t) + \sum_{b_2=18}^{59} S_{b_2j}(t) + \sum_{b_3=60}^{70} S_{b_3j}(t) \quad (2)$$

Here,  $S_j(t)$  – age group labor force in  $t$ -year, thousand people;

$S_{b_1j}(t)$  – the number of able-bodied but underage teenagers, a thousand;

$S_{b_2j}(t)$  – the number of able-bodied people of working age, a thousand;

$S_{b_3j}(t)$  – the number of retired people who want to work, a thousand people.

- c) Model of labor supply by qualification

$$S_{\text{м.}j}(t) = \sum_{\gamma=1}^7 S_{\gamma j}(t) \quad (3)$$

Here,  $S_{\gamma j}$  – Number of job offers by level of education (unfinished secondary, secondary, secondary special, vocational, bachelor, master, adjunct), thousand people;

- d) Model of labor supply by professional training

$$S_{\text{каc}o_j}(t) = S_{\kappa_1j}(t) + S_{\kappa_2j}(t) + S_{\kappa_3j}(t) \quad (4)$$

Here:  $\kappa_1, \kappa_2, \kappa_3$  – appropriately trained workers, employees and unskilled workers

- e) Model of labor supply in the rural labor market, which is in need of social protection and is not competitive:

$$S_{\text{sp.}j}(t) = S_{\lambda_1j}(t) + S_{\lambda_2j}(t) + S_{\lambda_3j}(t) + S_{\lambda_4j}(t) + S_{\lambda_5j}(t) + S_{\lambda_6j}(t) \quad (5)$$

Here,  $S_{\lambda_1j}(t)$  – young people under the age of 30, a thousand people;

$S_{\lambda_2j}(t)$  – the number of retired people who want to work, a thousand people;

$S_{\lambda_3j}(t)$  – the number of able-bodied disabled people, a thousand people;

$S_{\lambda_4j}(t)$  – mothers of many children, thousands of people;

$S_{\lambda_5j}(t)$  – the number of those released from penitentiary institutions, one thousand;

$S_{\lambda_6j}(t)$  – the number of others who are not competitive in the rural labor market, thousands.

- f) Model of labor supply by sectors of the labor force:

$$S_{\text{c.}j}(t) = S_{c_1j}(t) + S_{c_2j}(t) + S_{c_3j}(t) + S_{c_4j}(t) \quad (6)$$

Here,  $S_{c_1j}(t)$  – the number of labor supply in the agricultural sector in  $t$ -year, thousand people;

$S_{c_2j}(t)$  – the number of people who want to work in the processing sector of the economy, thousand people;



$S_{c_3j}(t)$  – the number of employees in service enterprises in t-year, thousand people;

$S_{c_4j}(t)$  – the number of workers in the areas related to the self-employment sectors in t year, thousand.

## CONCLUSION

The use of the above-mentioned models in determining the prospects for the supply of labor serves to determine the number of employees in the rural labor market.

The use of the above-mentioned models in determining the prospects for the supply of labor will serve to determine the near-term number of employees in the rural labor market.

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