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Employable beneficiaries of conditional cash assistance in Kazakhstan: labor market statuses and activation measures

Abstract. In this research, we evaluate the impact of the initial status of beneficiaries in the labor market and in employment promotion projects on the total number of employable applicants entering the conditional cash assistance program in Kazakhstan. The authors applied the economic and statistical method of structure analysis and the ordinary least squares (OLS) to construct a multiple regression, which showed that the influence of the initial status at the entrance to the program has a stronger impact on the total number of employable beneficiaries of assistance than the efforts made by employment services to send applicants to employment promotion projects. It was proved that applicants who register in the program as unemployed eventually decrease, and job seekers who have jobs increase the total number of employable participants in the program. In accordance with the results obtained, directions for further research and measures to improve the effectiveness of the conditional cash assistance program were proposed.

Keywords: Conditional Cash Transfers; Employable Beneficiaries; Regression Method; Employees; Unemployed; Employment Projects
JEL Classification: I31; I38
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1. Introduction

The issue of social assistance from the state and jobs for its applicants is of significant relevance for the modern world, and international methodologists consider this topic as fundamental for overcoming poverty through equality of opportunity. Since the object of social assistance in

the vast majority of cases is the household, and the highest degree of social vulnerability is characteristic of children, in this case the problem of poverty shifts to a wider range of people with potentially adverse consequences (Lindert et al., 2020).

Employment is one of the «appropriate» mechanisms for overcoming poverty, as it involves the labor activity of an individual who finds himself in a risky situation of low household income, which does not allow its members to form or develop their human capital. An employable citizen in modern countries is considered as having the right to receive vocational training services and employment promotion through employment in a workplace or entrepreneurial activity, which will allow him to increase his income and exit the social assistance program (Grosh et al., 2022).

At the same time, since social assistance is a passive support measure, incentives are applied in the form of conditional cash transfers (hereinafter referred to as CCT) aimed at overcoming the risks of long-term stay of beneficiaries in the system (Béland et al., 2018, Barrientos & Malerba, 2020; Matteo et al., 2023). The mechanisms of withdrawal from the social assistance system for employable citizens are primarily related to participation in employment projects.

The purpose of our study is a general and comparative assessment of the impact of initial statuses in the labor market (stage 1 of the CCT program) and statuses in employment promotion projects (stage 2 of the CCT program) on the final result of the program «number of employable applicants» entering the CCT program, which acts as a dependent variable (Y).

The object of the study was the target group of beneficiaries of conditional cash assistance, which requires employable family members who are not engaged in caring for children or the elderly to participate in active employment measures in accordance with the relevant regulatory legal act (Law No246-II, 2001).

2. Brief Literature Review

Originating in Latin America in the 1990s, CCTs have become a widespread tool for supporting low-income families, providing for applicants to fulfill various conditions, mainly related to the development of human capital, such as ensuring that children attend school, undergo medical examinations and others (Lagarde et al., 2007; Fiszbein et al., 2009; Baird et al., 2014). Since CCT programs have had significant success in many countries around the world, the specifics of their implementation and effects have been the subject of numerous studies. Thus, their impact on household well-being and the formation of human capital was studied by Fiszbein et al. (2009), Glewwe and Kassouf (2012), Baird et al. (2014), Kabeer and Waddington (2015), Millan et al. (2019); methods of implementation of CCT, including the effect of different approaches to ensuring access for the poor program, presented in the works Coady and Parker (2009), Baird et al. (2013), Bah et al. (2019), Grosh et al. (2022); structural modeling and determination of the optimal policy of CCT programs studied Bourguignon, Ferreira and Leite (2003), Attanasio, Meghir and Santiago (2005); Todd and Wolpin (2006). It was determined that the same tools may have different results depending on the territory of their application and the characteristics of the beneficiaries. In this regard, ensuring the employment of the poor requires significant efforts on the part of employment services, especially in terms of targeting the assistance provided (de Janvry & Sadoulet, 2006).

To a certain extent, CCT programs contribute to the formation of the local labor market, ensuring the growth of formal employment (Gerard et al., 2021). However, some beneficiaries may prefer informal employment due to concerns that they will not be able to re-participate in the program if they leave it (Levy & Cruces, 2021).

A separate block of research is devoted to the problem of finding a balance between the number of payments and the preservation of work incentives, and consequently, the issues of the duration of the beneficiaries' stay in the program. Many authors have identified the positive impact of CCT programs on the level of employment and the rate of exit of beneficiaries from them.

The beneficiary's status, level of education and work experience are factors determining the length of stay in the system according to Ayala and Rodrıguez (2007), Backman and Bergmark (2011), Morgandi et al. (2023). Thus, it was determined that a high level of education and work experience in the formal sector contribute to a rapid exit from the program, while as the number of children increases, the exit rate decreases.

Königs (2018) in his study found significant differences in the length of stay in the beneficiary program in four European countries: in Norway and Sweden, unlike Luxembourg and the Netherlands, long-term benefits are a rare exception. The factors contributing to the rapid return of beneficiaries to the program after leaving it were also identified.

Our study is a continuation of a series of studies aimed at studying the characteristics of beneficiaries that affect the duration of assistance and the effectiveness of CCT programs. In recent years, Kazakhstan has seen a significant increase in the share of employable beneficiaries of social assistance with a low exit rate from the program, which requires an assessment of the effects caused by this phenomenon. A distinctive feature of this approach is that the results of the study will reveal not the duration of the beneficiary's stay in the program, but the projected value of the number of applicants for CCT in order to develop appropriate measures to solve poverty problems in the country.

3. Methodology

We adhere to the methodology of the World Bank (Grosh et al., 2022), which uses an expansive interpretation of the term «program» and consider a program to be a system of measures of influence to achieve political goals, even if a specific regulatory act does not use the term «program». In this case, the system of measures supports the population in a situation of underconsumption, risks of declining well-being and entering chronic poverty.

The study uses the economic and statistical method of structure analysis and the ordinary least squares (OLS) to construct multiple regression (Linnik, 1963). This method extends the OLS principle used in simple linear regression to the case of multidimensional data. In the case of multiple regression, the equation can be represented as:

$$Y = b_0 + b_1X_1 + b_2X_2 + \ldots + b_kX_k + \varepsilon\ , \tag{1}$$

where:
Y - dependent variable,
b_0 - free member,
$b_1, b_2, \ldots, b_k$ - regression coefficients,
$X_1, X_2, \ldots, X_k$ - independent variables,
ε - random error.

The goal of OLS in multiple regression is to minimize the sum of squared errors (ε) between the actual values of the dependent variable and the values predicted by the model. This sum of squared errors is called the «sum of squared residuals» and is represented as:

$$SSE = \sum_{i=1}^{n} (Y_i - \hat{Y}_i)^2\ , \tag{2}$$

where:
n - number of observations,
Y_i - the actual value of the dependent variable,
$\hat{Y}_i$ - predicted value.

The OLS solves a system of equations to find the optimal values of the coefficients, minimizing the sum of the squares of the residuals. This ensures an optimal fit of the multiple regression line to the data.

To verify the statistical significance of the model, such diagnostic tests for the normality of residues as the Omnibus test (Barry & Hartigan, 1990), the Jarque-Bera test (Gujarati, 2004), Asymmetry (Skew) and Kurtosis (Joanes & Gill, 1998) were performed.

Root Mean Square Error (RMSE) measures the prediction error of the model, and indicates how well the Lasso regression model works, with lower values indicating a better match.

The study used data on the parameters of social groups in the official information base of the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan for 2018-2023, since over a longer period the data are not comparable due to changes in monitoring and evaluation indicators.

4. Results and Discussion

A significant feature of the current institutional version of the conditional cash transfer program is a significant proportion of employable persons registering in the program, applicants who already have a job at the time of application.

The structure of the official statuses of employable job seekers in the labor market is presented in Table 1.

Table 1:
Structure of CCT applicants with official status in the labor market, %

	Unemployed	Self-employed	Employees	The share of employable applicants in the group, %
2018	5.8	13.2	42.0	61.0
2019	4.6	7.2	48.9	60.7
2020	7.1	4.1	58.4	69.5
2021	4.1	4.3	65.5	73.9
2022	6.1	0.3	60.7	67.2
2023	6.8	0.3	58.3	65.4

Source: Compiled by the authors according to the data of the Ministry of Labor and Social Protection of the Republic of Kazakhstan

Starting in 2020, the share of employees of all forms of employment (temporary, partial, standard, platform, seasonal) in the group of employable applicants averages 60.7%.

Despite the institutional changes regarding the right to enter the program, the share of persons with official labor market status in the group of employable applicants does not fall below 60%, and the average for the period under review is 66.3%.

The parameters of employable applicants in the database of beneficiaries of conditional cash transfers are of particular interest because the main criterion for entering the program is the presence of at least one employable member in the household.

The average household of a Kazakhstani beneficiary in 2023 consists of 5.7 people, whose composition is determined as follows:

- 3.7 children under 18 years of age,
- 0.02 persons with disabilities of all groups,
- 0.01 pensioners,
- 0.19 full-time students (except doctoral studies),
- 1.73 employable citizens,
- 0.03 others.

Employable citizens who register in the program have different characteristics in terms of age, family composition, education, and place of residence. But we will be interested in the status of applicants in the labor market, since the withdrawal of beneficiaries from the program for a long time is possible, first of all, through a change in the income level in the labor market.

Since the instrument of the CCT regarding the support of an employable applicant in a risky situation is active employment measures, ideally it is assumed that after providing him with the service of participation in employment projects, he can change his status in the labor market and find a new quality of workplace with a higher salary or entrepreneurial income. Moving up the income level in the labor market will allow the applicant to ensure for his household the level of average per capita income in the amount of the poverty line or higher and switch to self-sufficiency of the family.

At the entrance to the program and registration in the database, an employable applicant can receive the following statuses:

- unemployed,
- self - employed,
- an employee, including employment of a non-standard nature (temporary, partial, platform, seasonal).

Persons of working age who are engaged in caring for children and the elderly are assigned the status of «caregiver» and a targeted budget transfer is paid.

The result of the work of the employment assistance program will be the following statuses:

- employed for a permanent job;
- employed in a social (state-subsidized) workplace;
- employed in vocational training courses;
- employed in community service;
- employed in the Youth Practice project;
- a participant in business training courses.

Thus, the following factors are included in the model: dependent variable Y - employable CCT applicants (Employable), independent variables - unemployed job seekers (Unemployed), employees (Having a job), social jobs (Socialworkplace), vocational training (Retraining).

The model identified the statuses «Unemployed», «Having a job» at the registration stage, and «Socialworkplace» and «Retraining» at the stage of providing employment assistance services as significant independent variables. All other indicators turned out to be insignificant for the number of employable CCT applicants (Y).

Table 2 shows the results of the regression analysis.

Table 2:
OLS Regression Results

Dep. Variable:	Employable	R-squared:	0.95
Model:	OLS Adj.	R-squared:	0.90
Method:	Least Squares	F-statistic:	8.857e+04
Date:	Fri, 08 Mar 2024	Prob (F-statistic):	1.20e-30
Time:	16:48:58	Log-Likelihood:	80.762
No. Observations:	72	AIC:	11.5
Df Residuals:	14	BIC:	16.8
Df Model:	4	Covariance Type:	nonrobust

Source: Compiled by the authors

In general, regression analysis demonstrates a fairly reliable and adequate model.

The coefficient of determination (R-squared) has a value of 0.95, that is, approximately 95% of the variability of the variable «Employable» is explained by the independent variables included in the model. This is an indicator of how well the model fits the data.

The adjusted R-squared is a modified version of the R-squared, which takes into account the number of predictors in the model. In our case, it is 0.90, which is a good indicator of the «fit» of the model.

The F-statistic is a measure of the overall significance of the regression model. A higher F-statistic (8.857e+04) suggests that at least one independent variable is significantly related to the dependent variable. A close to zero P-value (1.20e-30) indicates that the overall regression model is statistically significant. The results of the regression analysis indicate the correspondence of the model and its statistical significance.

The results of the analysis of the regression coefficients are presented in Table 3.

Table 3 shows the results of the analysis: coefficients, standard errors, t-statistics and P-values for each variable in the constructed regression model. A zero P-value indicates the statistical significance of all regression coefficients included in the model.

Table 3:
Factors affecting the number of employable applicants

Dependent variable	**Employable**			
Method	OLS Adj.			
The number of observations included	72			
Variable	**Ratio**	**The standard error**	**t-statistics**	**P-value**
Constant	1.6975	0.045	37.442	0.000
Unemployed	**-0.0291**	0.007	-4.276	0.001
Having a job	**0.7599**	0.005	141.99	0.000
Social workplace	**0.1904**	0.005	36.680	0.000
Retraining	**0.1035**	0.001	73.991	0.000

Source: Compiled by the authors

Feedback was revealed between the predictors of Unemployed and Employable. This means that for every unit increase in the «Unemployed» variable, the «Employable» variable will decrease by 0.0291 units. For all other factors, a low value of P (0.000) and high t-statistics indicate that the variables have high statistical significance and have a significant positive effect on the «Employable» variable.

The conducted tests for the normality of the residues showed fairly good results, which are within the established criteria (Table 4).

A low value (Prob(Omnibus)=0.030) suggests that the model is statistically significant, in other words, the assessment showed that the model has statistically significant explanatory power and the included variables collectively contribute significantly to explaining the variance of the dependent variable.

Table 4:
Diagnostic tests for normality of residuals

Omnibus	5.085	Durbin-Watson	2.001
Prob(Omnibus)	0.030	Jarque-Bera (JB)	0.669
Skew	0.01	Prob(JB)	0.06
Kurtosis	2.88	Cond. No.	4
feature	VIF		
Unemployed	4.098937		
Having a job	2.313089		
Social work place	3.753764		
Retraining	4.230140		
Root Mean Squared Error (Lasso Regression)		0.14879668465372264	

Source: Compiled by the authors

The Durbin-Watson statistic value is 2.001, which implies the absence of autocorrelation.

The low value of the Jarque-Bera test shows that the residuals of the regression model have a normal distribution. This is confirmed by the indicator Prob (JB) equal to 0.06.

Condition Number evaluates the multicollinearity of the independent variables. A low conditionality number (in this case 4) implies low multicollinearity, which is usually favorable for stable coefficient estimates.

The VIF values suggest moderate multicollinearity among the functions, and the RMSE for Lasso regression indicates the accuracy of the model prediction.

The RMSE of Lasso regression indicates a relatively low error in the predictions of the model, suggesting that the model may perform well in predicting the dependent variable «Employable».

Thus, the model has a statistically significant general correspondence (as indicated by the Omnibus test), the absence of autocorrelation and some signs of normality in the distribution of residues (Jarque-Bera test). The asymmetry has a zero value, and the kurtosis is close to the normal value. VIF values indicate the absence of multicollinearity. A lower standard deviation indicates better forecasting performance, that is, the model's forecasts are closer to the actual values.

A comparative assessment of the coefficients (Table 3) shows that the influence of the initial status at the entrance to the program has a stronger impact on the variable Y than the efforts made by the employment services to direct applicants to employment promotion projects.

If an applicant registers as Unemployed, this subsequently affects the number of beneficiaries negatively, since his problem is easier to solve, he is more likely to be employed in a low-skilled workplace and increase his income. The power of influence is determined by the fact that the registration of 33 unemployed, ultimately, reduces the number of employable beneficiaries of CCT by 1 person.

Registering 4 people with the «Having a job» status ultimately increases Y in the next cycle by 3 people. Those who have jobs at the time of registration may not participate in employment promotion projects, but since the employment of these actors is either low-paid or non-standard (temporary, partial, platform), it is difficult to solve their problem with a sufficient degree of stability using CCT. In other cases, as expert surveys of employment services specialists show, it is not uncommon to conceal income from informal, and in large cities often platform, employment. Actors who hide their income from such forms of employment tend to use government transfers for as long as possible. Since the influence of the «Having a job» group, recorded during registration, on the final result is the most significant, it is obvious that employment projects alone cannot solve this problem. Here, inclusion errors need to be corrected by other methods, possibly by strengthening control through the examination of household tangible assets that they own or use. This requires an adjustment of the regulatory framework governing entry into the CCT program.

As for employment promotion projects, none of them significantly reduces the number of CCT applicants, according to the simulation results. But two projects: «Social work place» and «Retraining» even increase Y, that is, according to quantitative criteria, they rather do not help applicants exit the CCT program. With a sufficient degree of reliability, it can be argued that five aimed at a social workplace cause an increase in another applicant in the program in the next cycle. For the vocational training program, for every 10 employable applicants sent to this employment promotion project, 11 CCT beneficiaries become available in the next cycle.

5. Conclusions and Proposals

A feature of the CCT program is a significant proportion of employees, among employable persons, who seek targeted assistance from the budget. For the period from 2018 to 2023, according to the structure of official labor market statuses, the unemployed make up an average of 6% with a slight variation in values. The self-employed have an average of 4.8% over the period, but in the last two years the share has decreased to 0.3%. Employees of all forms of employment (partial, temporary, platform, etc.) account for an average of 60.7% of 66.3% of those with official status in the employable group.

The results of the regression analysis made it possible to assess and compare the impact on the number of beneficiaries of CCT from the initial registration statuses in the labor market and from employment promotion projects.

Registration of an applicant with the status of unemployed has a negative impact on the number of beneficiaries of CCT. The problem of such applicants is solved by finding a job with low wages and for every 33 unemployed in the next annual cycle, the number of applicants decreases by 1. With employees, the problem is protracted: the registration of every four applicants with this status subsequently causes an increase of three more people.

The main conclusion is the following thesis: the impact of the initial registration statuses of applicants on the total number of employable beneficiaries of CCT is stronger than from employment projects. Some projects are also accompanied by an increase in the number of employable beneficiaries. This applies to projects subsidized by Social workplace and Retraining. For every five applicants sent to Social workplace and for every 10 to Retrain, another one is subsequently added. According to expert surveys of project operators, many applicants from these projects return to the Career Center again and again. The remaining projects do not have any significant impact on reducing or increasing the number of applicants.

To clarify the results obtained, a survey of CCT beneficiaries will be undertaken on the reasons for a long stay among the CCT beneficiaries in the Having a job status. In parallel, a survey of participants in employment projects and program operators in Career Centers will be conducted, which will identify factors that reduce the effectiveness of projects, understood as finding a job and maintaining it for at least 6 months.

Activation measures include, at a minimum, improving the effectiveness of employment promotion projects from the standpoint of their management technology, such as: psychological diagnostics of the applicant's internal competencies, solving his social problems outside the labor market, developing intersectoral partnerships with the corporate and non-profit sectors. These measures are not currently being used, while they could improve the end results of employment promotion projects.

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