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BDO Yayıncılık A.Ş.

Eski Büyükdere Cad. No.14
Park Plaza Kat:4
34398 Maslak/İstanbul
Turkey

Tel: +90 212 365 62 00
Fax: +90 212 365 62 02
e-mail: bdo@bdo.com.tr
www.bdo.com.tr

Halit BAŞBUĞA¹ Hakan KİTAPÇI²

THE EFFECTS OF THE INCENTIVE FOR YOUNG AND FEMALE EMPLOYMENT REGULATED BY LAW NO.6111 AND MACROECONOMIC VARIABLES ON EMPLOYMENT, INFORMAL EMPLOYMENT AND INCOME

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Abstract

This study examines the effects of macroeconomic variables and the Incentive for Young and Female Employment Regulated by Law No. 6111 in Turkey on employment, informal employment, and income. Electricity consumption (economic growth), USD/TRY exchange rate and inflation have been taken as the macroeconomic variables. Of the employment incentive policies implemented in Turkey, the employment incentive regulated by Law No. 6111 has also been used as a variable. Data have been taken monthly for the period 2012 through 2016. This study is significant because the data regarding the employment incentives implemented in Turkey are the actual data obtained from the Social Security Institution.

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Halit BAŞBUĞA
hbasbuga@gtu.edu.tr

Prof. Dr. Hakan KİTAPÇI
kitapci@gtu.edu.tr

¹ Gebze Technical University, Faculty of Business Administration, Kocaeli, Turkey

² Gebze Technical University, Faculty of Business Administration, Kocaeli, Turkey

As a result of the analysis, no significant impact of the Employment Incentive for Young and Female Employment regulated by Law No. 6111 and the examined macroeconomic variables was found on employment. The first lagged value of Inflation, one of the macroeconomic variables used in the study, had statistically significant impacts on the increase in informal employment. From macroeconomic variables, the USD/TRY exchange rate has a negative and relatively high impact. The increase in the exchange rate lowered revenue, as an expected outcome.

Keywords: Employment, Informal Employment, Income, Employment Incentives, Electricity Consumption, Active Labour Market Policies

1. INTRODUCTION

When the historical process of the unemployment is examined, the first trace of the phenomenon dates back to the era of modern economies. It is not possible to talk about the problem of unemployment in pre-modern agricultural societies. With the Industrial Revolution, the advancement of science and technology led to a decrease in the need for human power and the emergence of the problem of income sharing.

Accordingly, the unemployment issue experienced in the economy stands as a problem that needs to be solved by policymakers as the full employment has not yet been realized in modern economic systems.

The great economic depression of 1929, in particular, caused unemployment to rise rapidly and triggered different other social problems. In the 1930s, public investments and direct expenditures were used as the most important economic instruments to solve the problem within the framework of the Keynesian Economics Theory. However, with the oil crisis faced in 1973, the issue of unemployment came back to the agenda as the biggest problem of the world economies. The effectiveness of passive policies within the Keynesian Economic Theory that is based on transfer expenditures has been criticized by economists from time to time. Therefore, the active labour market policies developed by Swedish Employment Officer Gösta Rehn in the fight against unemployment, especially after 1973, began to be a preferred model in developed economies.

Labour employment policies have been increasing in importance throughout the world, especially in developed countries, in the context of macroeconomic policies. The rapidly developing production processes in Europe after the Industrial Revolution have created a huge amount of added value. Thus, the growing manufacturing industries began to require a very high quantity of qualified labour force. The rapid growth of the production industry in capitalist economy systems leads these countries to seek new markets. This increase in production also makes it necessary to set new employment policies and other policies and strategies to guide labour mobility within the country. In this context, serious work has been carried out at both the supranational and national levels.

While active labour market policy practices were first seen in Sweden, it has gradually gained reputation within the policies aimed at increasing employment among various international organizations such as the OECD, the European Union, and the World Bank. The realization of the economic goals of policymakers in the fight against unemployment is important in solving the problem. Unemployment is a problem in developing countries, as it is in developed countries, but its solution is based on different structural reasons. Instability, encountered especially after major economic crises, reduces labour force participation rates and leads to increased unemployment.

Economic crises in developing countries also cause an increase in unemployment, and increases in unemployment rates necessitate the implementation of the above-mentioned active labour policies for national economies. Employment incentives have a very important place in the active labour market, and insurance premium discounts and subsidies provided to employers during periods of economic recession help them take a breath of relief financially. Such policies will facilitate the overcoming of general economic, regional or sectoral crises, while actions without policies will make it very difficult to achieve employment growth.

The industrial revolution and effective employment policies centered in Western Europe have also been closely followed by policy makers in our country. Active labour employment policies that date back far in literature and practice are increasing in importance within the economic system of Turkey as well.

The need for energy in developing countries is the most important factor in economic development. In addition, when studies in the literature are examined, it is observed that there is a relationship between the economic growth of developing countries and their energy consumption. In this study, energy consumption data were used to determine the economic growth of the country in macroeconomic variables, since Turkey falls into the category of developing countries.

In our study, the effects of employment incentives and macroeconomic variables on employment, informal employment and income were investigated. In this context, as part of the literature review, active and passive Labour employment policies were explained and studies on labour employment policies implemented in Turkey and in the world were summarized. The data set, in which employment incentives and macroeconomic variables are independent, while employment, informal employment and income variables are dependent variables, was analyzed and the results of the analysis were interpreted. Finally, the study was completed with a conclusion and suggestions.

2. LITERATURE REVIEW

2.1. Labour Employment Policies

Labour Employment Policies represent a whole set of measures and programs that improve labour mobility, increase employability in the labour market, improve the quality and skills of the labour force, and are implemented in the fight against unemployment. The target group of the labour policies varies according to economic conditions, political and social objectives and labour dynamics. In developed countries, a significant part of the economic policy-oriented managers' intervention in the labour market is subsidy programs implemented to increase employment. European politicians and academics have been increasingly interested in assessing the efficiency of active labour market policies in recent years, especially in the context of the European Employment Strategy (Kluve 2006). Employment policies are divided into two groups: active and passive policies.

2.2. Passive Labour Employment Policies

Passive labour employment policies are applied during periods when employees who are registered to social security programs and paid premiums by their organizations are vacated. Passive labour policies are more socially weighted and include economic measures aimed at maintaining the living standards of employees rather than being operational in the labour market. In addition to this, policies are also implemented to prevent excessive decreases in the economic standards and welfare levels of employees. (Yavuz, 2015). In our country, Unemployment Insurance is implemented as the Wage Guarantee Fund and Short-time Working Allowance practices.

2.3. Active Labour Employment Policies

Active labour employment policies are subsidies applied to increase employment, protect employees from leaving work, and regulate wage inequality among employees (Brown, Merkl & Snower 2011). Active labour employment programs target both unemployed and working personnel, taking into account labour demand requirements (Kuddo, 2009).

Active labour employment policies are important in terms of reducing layoffs and costs, particularly by strengthening the position of employees in the labour market during recovery periods. Employment policies are considered as sources of competitive advantage for organizations in developing countries with high economic fragility and to have a positive effect on increasing employment rates (Brown & Koettl 2015). Active labour market programs include financial assistance to employers to ensure that they create more employment and protect the existing employees. From the point of employees and job seekers, they provide contributions such as shortening the unemployment period, reducing the economic inequality among employees, and helping them gain expertise through vocational training.

States also use the measures to improve the situation of disadvantaged groups in the labour market and to provide them with equal opportunities.

Employment subsidies, while explicitly functioning as a booster for employment, can also subsidize investments as they are directly involved with labour markets. Investment subsidies, on the other hand, serve as an instrument to boost economic growth and employment (Fuest & Huber 2000).

Some economists and policymakers have sought to craft policies that directly subsidize employment. For instance, some member states of the European Union argue over a general wage subsidy, such as the financialization of employers' social security funds (Kaldor 1936). When the aim is to increase employment through investments, the effects of investments on employment will not be felt significantly within the short term as it takes time for investment plans to be realized (Nadiri 1969). For example, if higher profits lead to higher investments, an increase in investments and employment is expected when taxes on corporate profits decrease. But direct investment subsidies may not generate any additional employment if the substitution effect prevails (Kesselman, Williamson & Berndt 1977).

2.3.1. Types of Active Labour Employment Policies

Different active workforce employment programs are implemented in the member states of the European Union and other countries in Europe. Active labour employment policies can be analyzed in six basic categories (Kluve 2006).

- Measures such as labour market training, on-the-job training, and work experience,
- Private sector subsidy programs, measures aimed at improving the professional skills of employers, employees or job-seekers, in relation to private sector employment,
- Direct employment programs in the public sector, the direct creation and provision of other activities in which public goods or services are produced,
- Service and sanctions, all measures aimed at improving job search efficiency,
- Specific programs for disadvantaged and unemployed youth, including youth programs, training programs, wage subsidies and job search assistance, with regard to the target groups of active labour employment programs,
- Vocational rehabilitation, sheltered work programs, and wage subsidies for individuals with disabilities and in need of physical rehabilitation are these six core categories.

2.3.2. Negative Effects of Active Labour Employment Policies

Deadweight Effect; if subsidized employees are to be hired even without subsidies, a deadweight loss effect may occur. In this case, wage subsidies are unnecessary and they prevent growth in private sector employment. Employment funds released under the subsidy may be allocated by the firm to another area (instead of employment) (Kangasharju 2007). In addition, the deadweight loss effect actively reduces the cost-effectiveness of labour employment policies. For example, the cost-effectiveness of employment policies decreases when workers that can be employed without subsidies are employed using them (Brown et al. 2015). **Skimming Effect;** if skilled workers with high employment prospects are selected for the program, the target will be achieved during the program period and the scheme may be considered to be successful. (Rodriguez-Planas 2010). In this case, the implementation of subsidy programs on skilled workers or job-seekers will be positive for program success but negative for employability. Because from the point of unqualified and inexperienced employees, a negative situation will be encountered during recruitment processes. **Displacement Effect;** displacement effect can be reduced if long-term unemployed people rejoin employment, regain the intricacies and skills of their profession, and improve their long-term employability (Brown et al. 2011). According to Martin and Grubb (2001), the displacement effect applies only in the short term. **Substitution Effect;** labour costs will vary with subsidy programs applied to employers. In this case, workers may add new skills to their skill sets. Thus the substitution effect occurs. The substitution effect demonstrates the substitutability between different skill groups. For example, companies can benefit from incentives to recruit low-skilled workers instead of middle-skilled people (Brown et al. 2015). **Wage Effect;** is defined as increasing wages of existing workers using the resources provided by the employment policies, rather than creating new employment. The wage effect reduces the effectiveness of policies (Brown et al. 2011). **Locking-in Effect;** is also called the retention effect. Employees who benefit from active labour employment policies have a shorter time to find jobs during periods when they are unemployed, and their employment rates may be faster than those who cannot benefit from the programs (Van Ours 2004). **Stigmatizing Effect** may have negative effects on the future employment prospects of participants who benefit from active labour employment policies. The employer may be dissatisfied with the employees benefiting from the subsidy programs or may cease to employ personnel who may benefit from the program again due to their inefficiency (Calmfors 1994). **Skill Acquisition Effect;** active labour employment policies reduce the wage gap between unskilled and skilled workers. However, vocational training of unskilled workers may also have a negative impact (Oskamp & Snower 2006).

2.3.3. Negative Effects of Active Labour Employment Policies;

Competition Effects; employers take advantage of incentive programs, such as in labour costs, layoff costs, and training costs of new staff. The competition effects strengthen the position of employees and thus no decline occurs in employment (Lindbeck & Snower 1988). **Threat Effect;** It is the effect of methods in active labour employment policies in which there is a high probability of participation (as opposed to the locking-in effect), i.e. policies that increase the job search for the unemployed (Lalive, Ours & Zweimüller 2005). **Transition Effect;** is the reduction of the time losses of the employees in job searches through the incentive programs and the ability of the workers to continue their working life without any loss of their work experience and skills (Hujer, Blien, Caliendo & Zeiss 2006). **Screening Effect;** when businesses choose to benefit from the subsidy program for hiring staff, they deal only with the eligible candidates. Thus they have a clear knowledge of the performance and productivity of the personnel they employ (Gerfin & Lechner, 2002). **Budget Effects;** if employment can be increased with the effect of incentive policies, savings will be achieved in the general budget as unemployment benefits and social benefits will be reduced and premiums collected will be increased (Carling & Richardson 2004). Therefore, tax increases should not be practiced at the same time when incentive policies are applied. A tax increase would adversely affect the incentive program (Calmfors 1994).

2.4. Studies on Labour Force Employment Policies in Turkey and in the World

In researches on employment, theoretical analyses are static and therefore it is observed that only short-term effects of an employment policy are regarded and the results obtained are often similar to each other. However, there are studies that the long-term effect is regarded more important. Employment incentives are thought to have an effect on the transition from unemployment to employment (Brown, Merkl & Snower 2011). While the rate at which wage subsidies are used in specific groups is lower than targeted, it has been effective on economically disadvantaged young people and adults. Wage subsidies, when used in conjunction with business development, training, and job search assistance efforts, have been proven to be successful in improving the employment and earnings of targeted disadvantaged groups. Additionally, economists propose subsidies to improve the earnings and employment of low-wage workers (Katz, 1996).

Research by Pissarides (1998) found that a lump-sum subsidy corresponding to 20% of the pre-tax wage reduced unemployment by 4% and the pre-tax wage increased by 13%. Leary (1999) explored self-employment programs for Poland and Hungary and expected positive employment effects for both countries. When the results were examined, strong positive earnings effects for Hungary and negative income effects for Poland were observed.

Heckman, LaLonde, and Smith (1999) conducted an econometric analysis of the Employment Strategy programs implemented in Europe before 1994. This study provides a comprehensive summary of microeconomic studies for the United States and Europe. Accordingly, US researchers conducted studies on the effects of Employment Strategy programs in the mid-1970s. European researchers, on the other hand, have expanded the scope of these programs.

While European countries focused on unemployed young people, the US focused on disadvantaged unemployed people of all ages. Researches analyzing the incentive policies implemented in the United States suggest that government employment and training programs may increase welfare of the low-skilled individuals and have significantly different effects on different demographic and skill groups. European researchers, on the other hand, have failed to reach a conclusion on the effect of any active labour policy on employment.

Meager, Bates, and Cowling (2003) concluded that the subsidies implemented on young people by the Prince's Trust in the UK had no significant impact on employment and opening new workplaces. According to Martin, Dias, Meghir, and Reenen (2004), the UK government's incentive program to create new opportunities for young people in the labour market includes extensive job assistance and wage subsidies for employers. When the results of the program were examined, it was found that the incentive applied to recruitments increased employment by about 5%, but had little effect in the long term.

Huttune, Pirttila, and Uusitalo (2013) found that the subsidy programs implemented in Finland were not effective in increasing employment, however, they helped some part-time employees work full-time in the industrial sector by increasing their working hours. They concluded that an increase occurred in the monthly fees even though outcomes regarding the overall effects on wages were uncertain, especially in the employment of unskilled workers, subsidies were not as effective as desired, or the wage demand of workers was not flexible.

Deidda, Di Liberto, Foddi, and Sulis (2015) argue that the policy called Interventions for Social Cohesion (*Interventi di Coesione Sociale*) in the region of Southern Italy reduced companies' recruitment costs and that the training services offered by the program, while beneficial for the unemployed, do not advantage informal workers.

The study by Betcherman, Daysal, and Pagés (2010) examined the effect of the employment subsidy program in Turkey in accordance with Law No. 5084 and Law No. 5350 on formal employment, earnings, and the number of registered organizations. Although the data were favorable, the study revealed that the predominant effect of subsidies increased the social security records of companies and employees, rather than increasing total employment and economic activity.

In his study on the impact of a policy aimed at promoting employment for women and young people in Turkey in 2008, Ayhan (2013) examined the role of non-wage cost strictures in slowing employment creation. The employment effect of the decrease in employer contributions to the social security premiums was analyzed using the difference in differences strategy. Shortly after the incentive policies were declared, a positive impact of the cost reduction was observed in the employment of the target group. In addition, women were prevented to leave the labour market. However, women who were not covered by the subsidies were not encouraged to seek jobs.

Uysal (2013) conducted a study focusing on the effects of social security premium incentives applied to young women in Turkey on the employment of women in the 30-44 age group. Incentives were found to have a positive effect, particularly in the employment of married women with low levels of education, and the companies that benefited from the incentives were mostly large-scale organizations active in the industrial sector. But regional incentives, tax incentives, and other incentives undermined the positive effects of this policy. Accordingly, it was emphasized that policymakers should consider all possible interactions between incentives when designing laws and regulations.

In his study, Aksoy (2013) examined the relationship between growth and employment in Turkey in general and industrial terms and the effects of investment and employment incentives on employment. The study showed that the incentive regulated by Law No. 5084 had a statistically significant impact on employment in the social work, manufacturing, transport and trade industries, while the incentive regulated by Law No. 5763 was found to have a statistically significant effect on energy consumption and distribution and employment in the financial brokerage industries.

The literature review showed that active labour market policies applied in developing countries, programs where disadvantaged groups are chosen as the target group, in which the choice of occupational groups is based upon unskilled individuals, and programs implemented in short term schemes, and those practices in areas with high unemployment rates are more effective in terms of employment.

3. FINDINGS

3.1. Data Used in the Study

In the study, the effects of employment incentives implemented between 2012 and 2016 in the private sector by the Social Security Institution in accordance with Law No. 6111 on employment, informal employment, and average monthly income were investigated. Moreover, out of the macroeconomic variables, the effects of economic growth, change in the exchange rate of the US dollar, and inflation on employment, informal employment, and average monthly income were examined. Electricity consumption data were used as the economic growth variable. This is because a study using data from more than 100 countries for the overall world economy found a correlation between energy consumption and countries' economic growth (Wolfram, Shelefa, and Gertler 2012). However,

it is not possible to link electricity consumption data to growth in developed countries as energy needs in these countries are supplied from different sources. Since our country is in the developing countries class, energy consumption data can be used as the country's growth data.

Variables used in the study;

- Employment rate (Employment, %)
- Informal employment rate (Informal Employment, %)
- Monthly average income (Monthly Average Income, TRY)
- Monthly electricity consumption (Economic Growth, kw)
- United States dollar exchange (USD/TRY Exchange Rate, %)
- Monthly change rate in consumer price index (Inflation, %)
- Employment incentives applied to the private sector with above-mentioned variables;
- Incentives for young and female employment (6111, million TL) regulated by Law No. 6111

Data were taken monthly for the period 2012 through 2016. Data regarding the incentives regulated by Law No. 6111 were obtained from the Social Security Institution, while energy consumption data were collected from the official correspondence records of the Electricity Market Institution. Data on other variables were obtained from the websites of TUIK³, the Central Bank of the Republic of Turkey⁴ and the Social Security Institution⁵. As for the financial data, the Consumer Price Index for 2012 was used by taking the second month's values as the baseline and using real values instead of nominal values.

Moreover, Table 1 shows the subsidy amounts applied per social insurant reported to the Social Security Institution as a beneficiary of the incentives regulated by Law No. 6111 on the 12th month of 2016 (2016/12). The amounts given in Table 1 were calculated in the US dollar according to the data of the Central Bank as published in the institution's official website⁶. The data include the average gross income of employees covered by social insurance programs within the category of 4A and also bases on the official data of the Social Security Institution. The website was accessed on December 30, 2016.

3.2. Analysis Results

Since the data were gathered on a monthly basis, an extended Dickey-Fuller test (ADF) was performed to determine whether the series exposed adjusted for seasonality issues are stationary using the tramo/seats method. And the non-stationary series were stabilized at level. After all of the variables were stabilized, the appropriate number of lags was determined using the Schwartz information criterion (SIC) for the VAR analysis and the Granger causality analysis was performed to determine the input order of variables to the VAR analysis. Later on, the VAR model was established and the effects

³ (<http://tuik.gov.tr/UstMenu.do?metod=kategorist>)

⁴(<https://www.tcmb.gov.tr/wps/wcm/connect/TR/TCMB+TR/Main+Menu/Istatistikler/Doviz+Kurlari>)

⁵(http://www.sgk.gov.tr/wps/portal/sgk/tr/kurumsal/istatistik/aylik_istatistik_bilgileri)

⁶ https://www.tcmb.gov.tr/kurlar/kurlar_tr.html

of incentives on employment, informal employment and income were examined.

3.2.1. Extended Dickey-Fuller Test

Unit root tests developed by Dickey-Fuller are not applied only to first order autoregressive processes. It is also possible to apply Dickey-Fuller tests to higher-order autoregressive processes. In this case, the error term ε_t will not remain in the form of a clean array, but rather will be serially correlated. In this case, the Dickey-Fuller test process would be invalid. Therefore, the serial correlation in error terms should be eliminated. For this purpose, the correlation of errors is eliminated by adding lagged values of the variable to the model. The test applied in this case is called the extended Dickey-Fuller (ADF) test. The regression equations to be created for the ADF test are similar to the Dickey-Fuller test, the only difference being that the lagged values of the variable are joined to the model (Enders 2008). ADF test results applied to the data are given in Table 2.

Table1. ADF Test results for the analyzed series

Variables	No Constant, No Trend		Constant		Constant, Trend	
	<i>t</i> -statistic	<i>p</i> -value	<i>t</i> -statistic	<i>p</i> -value	<i>t</i> -statistic	<i>p</i> -value
Employment	2.06	0.99	-1.80	0.38	-1.81	0.69
D_Employment	-4.77	0.00	-5.35	0.00	-5.55	0.00
Informal Employment	-3.38	0.00	-2.08	0.25	0.11	1.00
Income	1.54	0.97	-0.64	0.85	-2.21	0.47
D_Income	-8.01	0.00	-8.37	0.00	-8.30	0.00
Economic Growth	5.59	1.00	4.32	1.00	-1.51	0.82
D_Economic Growth	0.32	0.77	-10.20	0.00	-13.18	0.00
USD/TRY Exchange Rate	-4.08	0.00	-4.88	0.00	-5.16	0.00
Inflation	-2.02	0.04	-6.01	0.00	-6.03	0.00
6111	2.30	0.99	-1.58	0.49	-1.60	0.78
D_6111	-5.47	0.00	-5.87	0.00	-5.85	0.00

If the variables in the ADF test results table do not have significant *p* values without first-order differences, they are retested together with the first-order differences. The variables were initially renamed by prefixing them with "D". In tests with 95% confidence level, as can be seen in Table 1, the employment variable series is integrated into the first order ($t = -4.77$. $P = 0.000$). The informal employment variable is at level ($t = -3.38$. $P = 0.000$). The income variable series is into the first order ($t = -8.01$. $P = 0.000$). Economic growth variable series is integrated into the first order ($t = -13.18$. $P = 0.000$). USD/TRY Ratio variable is constant ($t = -4,08$, $P = 0,000$). The inflation variable is at level ($t = -4.08$. $P = 0.000$). The 6111 variable series is integrated into the first order ($t = 50.47$. $P = 0,000$). In summary, as a result of the ADF tests, it was found that employment, income, economic growth, and 6111 variables were integrated into the first order, while other variables were constant.

3.2.2. Vector Autoregressive Models

VAR models are primarily used in the study of relationships between macro-economic variables and in the analysis of the dynamic effect of random shocks on the system of variables. Relationships between variables in VAR modeling based on the Granger causality test. It is studied through variance decomposition and impulse response functions. VAR modeling is highly sensitive to the selected lag length. In VAR analysis, the lag length of the variables to enter the model must be sufficient to capture the dynamic relations between the variables. VAR models are a linear function of both their own lagged values of each variable in the system and the lagged values of other variables. In this case, if there are no constraints, the right side of each equation in the VAR model will contain the same variables. In addition, the presence of lagged values of dependent variables in VAR models makes it possible to make strong predictions for the future.

In VAR modeling, it is preferred that the series be stationary because the shocks in the stationary time series are temporary, meaning that the effect of a random shock given to the system disappears over time and the series returns to long-term equilibrium levels. For non-stationary time series, the shocks are permanent.

In VAR modeling, the error term for each equation constitutes white noise processes with constant standard deviation, and these error terms come without autocorrelation among themselves (Akan & Hook 2015).

In our study, the Schwarz information criterion was used to determine the lag length, and tests were conducted until the third lag. Accordingly, the values for each lag length are given in Table 3.

Table2. Determining the appropriate lag length for the VAR model

Number of Lags	Schwartz Information Criterion
0	28.40
1	17.91*
2	18.78
3	20.32
4	21.77
5	21.55

According to the data given in Table 3, the lag length that makes SC the smallest value can be determined as the optimal number of delays. Accordingly, the first lag can be considered the optimal lag with a value of 17.91.

As VAR analysis is sensitive to the length of lags, it is important to measure the response of variables to shocks and to rank the variables in the system that are used to investigate the source of the change in variables. For this purpose, it is suggested that variables are sorted from exogenous to endogenous (Enders 2008).

The endogenous or exogenous nature of variables is basically based on the economic theory. In addition, with the Granger causality analysis, the separation of variables as endogenous and exogenous can be possible.

3.2.3. Granger Causality Analysis

If there is a time-delayed relationship between two variables, the Granger causality test can be used to determine the direction of the causality of the relationship statistically. For the Granger causality test, the number of lags in the models must be determined first. Since the Granger causality test is based on the VAR model, the number of lags must initially be determined using the AIC and SC criteria according to the VAR model.

The number of lags was determined using SC criteria in our study. Granger causality analysis results for the series used in the study are given in the attached table. The lag length was taken as 1 in parallel with the VAR model. Accordingly, the H_0 hypothesis was rejected for variables with a p -value of less than 0.1 in the conclusion of 132 tests (H_0 : X is not the granger cause of Y).

According to the results of the Granger causality test, the variables can be listed as inflation, informal employment, USD/TL exchange rates, unemployment, D_6111, D_Income, and D_Economic Growth.

In the study, VAR analysis was carried out for the effect of active labour force employment incentives, which are applied in the private sector, on the labour market. In this context, first of all, the stability of the variables was examined and the differences of the first level integrated series were taken. After that, since VAR models are sensitive to lag length and the order of variables, the lag length is determined according to the SC criterion and the variables are sorted from exogenous to endogenous by the Granger causality test. As a result, the VAR model was estimated by taking lag length 1 and sorting the variables from exogenous to endogenous. Prediction results for models in which the variables D_Employment, Informal Employment, and D_Income are dependent variables are given in Table 4.

Table3. VAR model results

Variables	D_Employment		Informal Employment		D_Income	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
D_6111(-1)	-0.0012	0.76	-0.0040	0.44	-0.1878	0.79
D_Employment (-1)	0.8431	0.00	0.0269	0.72	4.8429	0.62
Informal Employment (-1)	-0.0527	0.14	1.0180	0.00	-1.6136	0.79
D_Income (-1)	-0.0006	0.32	0.0007	0.42	0.8133	0.00
D_Economic Growth (-1)	0.0924	0.32	0.0116	0.93	15.7617	0.34
USD/TRY Exchange Rate (-1)	0.0024	0.83	0.0022	0.89	-4.6647	0.02
Inflation (-1)	0.0689	0.25	0.1607	0.05	14.4192	0.18
C	8.2217	0.03	-3.0849	0.54	170.9573	0.80
R ²	0.98		0.99		0.96	
F-statistics	358.92	0.00	764.19	0.00	169.90	0.00

According to the VAR model results given in Table 4, the variables affecting employment, informal employment and income can be summarized as follows.

Variables affecting D_Employment: the initial lagged value of employment (P = 0.00) has a statistically significant effect on the Employment variable at a significance of 10%. When we look at the coefficients of the variables that have a statistically significant effect on the variable D_Employment, a one-unit increase in the first lagged value of the Employment variable would cause a 0.8431 unit increase in the D_Employment variable.

No statistically significant effect of the other variables, such as, Incentives regulated by Law No. 6111 (D_6111) (p = 0.76), Informal Employment (p = 0.14), D_Income (p = 0.32), D_Economic Growth (p = 0.32), USD/TRY Exchange Rate (p = 0.83), and Inflation (p = 0.25), was found on D_Employment.

Variables affecting informal employment: the first lagged value of Informal Employment; Inflation (P = 0.05) has a statistically significant effect on Informal Employment at a 10% significance level. When we look at the coefficients of the variables, we see that a unit increase in the first lagged value of the inflation variable will increase the informal employment variable by 0.1607 units.

No statistically significant effect of other variables, such as, Incentives regulated by Law No. 6111 (D_6111) (p = 0.44), D_Employment (p = 0.72), D_Income (p = 0.42), D_Economic Growth (p = 0.93), and USD/TRY exchange rate (p = 0.89) was found on D_Informal Employment.

Variables affecting the D_Income variable: the first lagged value of the Income variable; the USD/TRY exchange rate ($p = 0.02$) has a statistically significant effect on the Informal Employment variable at a 10% significance level. Looking at the coefficients of the variables, we can say that a unit increase in the first lagged value of the USD/TRY ratio variable will reduce the income variable by -4.6647 units.

No statistically significant effect of other variables, such as, Incentives regulated by Law No. 6111 (D_6111) ($p = 0.79$), D_Employment ($p = 0.62$), D_Informal Employment ($p = 0.79$), and D_Economic Growth ($p = 0.18$) was found on D_Income.

4. CONCLUSION

The results of our study, which examines the effects of the incentives for young and female employment regulated by Law No. 6111 and macroeconomic variables on informal employment and income, shares similarities with the literature.

When these effects of the incentives for young and female employment regulated by Law No. 6111 and macroeconomic variables are examined, it is seen that;

The macroeconomic variables and the incentives for young and female employment regulated as by Law No. 6111 do not have statistically significant effects.

The requirements to benefit from the employment incentive regulated by Law No. 6111 are tailored for mostly young and female workers who are unemployed. This incentive aims to support unemployment people to find jobs and encourage employers to create additional employment. The incentive covers a period of forty (40) months. For this reason, the incentive model applied for the first time in our country targets the whole country and aims to increase employment without any sectoral discrimination. In our analysis, it is seen that the incentive regulated by Law No. 6111 does not have a significant effect on employment.

It was found out that the incentive applied in the type of Law No. 6111 and the policy called Interventions for Social Cohesion (*Interventi di Coesione Sociale*) applied in the region of Southern Italy are similar and Deidda et al. (2015) studied on the effects of this policy on employment which they found insignificant. Studies suggesting positive effects of Active Labour Employment Policies on Employment were analyzed. Of these works; similar outcomes were seen in Caliendo, Künn and Uhlendorff (2012), Caroleo and Pastore 2001, Dengler (2013), Jaenichen and Stephan (2011), Mihaylov (2011), Stephan and Pahnke (2011), Kangasharju (2007), Girma et al. (2008), Baumgartner and Caliendo (2008), Román et al. (2017). In Turkey, results of the studies conducted by Ayhan (2013) (positive on women), Uysal (2013), Aksoy (2013), and Balkan et al. (2014) show similarities to the outcomes of our study.

When the effects of the **incentives for young and female employment regulated by Law No. 6111 *macroeconomic variables on informal employment are examined***, it is seen that informal employment is a quantity that cannot be directly measured but can be estimated, and the only data available is the estimates made by TurkStat. It is known that the employment incentives implemented by the Social Security Institution are one of the many efforts to reduce informal employment.

The employment incentive regulated by Law No. 6111 has no effect on informal employment. Moreover, Deidda et al. (2015) concluded that the similar incentive program implemented in Italy's Sardinia region in 2006-2008 was not helpful in reducing informal employment.

The positive relationship between inflation and informal employment is statistically assessed and the failure of employment with economic growth in our country is considered due to the implementation of capital intensive growth model instead of labour intensive growth (Muratoğlu 2011). For employers, informal employment provides an advantage in the competition between companies due to reduced employee costs. It is easier to operate informally than in other sectors, especially in the service sector. Therefore, even if informal employment declines with economic growth, this decrease remains at very low levels.

When the effects of the **employment incentive for young and female employment as regulated by Law No. 6111 and *macroeconomic variables on income are examined***, it is seen that increases in the real exchange rate have a negative impact on the purchasing power of employees. Since our country has an import-oriented economy, the increase in the foreign currency exchange rate has increased the prices of products or services in parallel with the increase in costs. This caused employers to pay their employees less, or not to increase their wages, as it has led to an increase in costs. Therefore, the increase in the real foreign currency exchange rate has negatively affected incomes as an expected outcome.

5. SUGGESTIONS

It is a fact that the effectiveness and success of active labour market programs are affected by national and global factors. The labour market, which has a dynamic structure, changes according to the economic and social factors. Incentives cannot be used efficiently by employers because the benefit and cost analyses of active labour market programs, whose objectives and objectives are similar, are not carried out effectively. Furthermore, the complex nature of the employment incentives applied makes it necessary for practitioners to ask for professional assistance. Large-scale companies use these programs more effectively thanks to their institutional structures and financial facilities. However, small-scale companies are unable to benefit from the programs as efficiently as their large-scale counterparts due to financial inadequacies to employ experts on institutional capacity and incentives. For this reason, employment policies should be simplified or consultant support should be provided to medium-sized organizations.

Other factors that reduce the efficiency of active labour market programs are that the programs are not understood well enough by the implementing public bodies and that there is not enough publicity in the labour market. The immaturity of the working culture in our country leads employers and employees to informal employment. However, by raising awareness about active labour market programs, and, contrary to informal employment, seeing that most risks will be eliminated with registered employment (occupational accidents and diseases, administrative fines), also with the help of the financial assistance to be provided within the medium and the long term along with the competitive advantage, employers will be encouraged to register their employees. For this reason, it is necessary to understand the employment incentive laws, to introduce the programs, to raise awareness about registered work among the employees and employers.

Active labour market programs for companies actively involved in different sectors of the national economy that create added value must boost their competitiveness in national and international markets and the incentive programs should be redesigned taking into account regional differences.

The position of entrepreneurial culture in national economies is an undeniable fact. In developed countries, active labour market programs and entrepreneurial incentives are co-executed. However, there is a serious shortfall in this area in Turkey. Among the incentives implemented by the Social Security Agency, which has a special mission regarding active labour market policies, a different employment incentive model should be introduced to entrepreneurs to open new businesses and provide new employment. Furthermore, entrepreneurial support is important for the prevention of informal employment in the labour market and for the provision of additional employment.

It is thought that subsequent researchers should focus on sectors that create high added value for the country's economy by studies on the effectiveness of active labour employment policies from the points of sectors, regions and genders.

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