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Study on the effect of active labor market policies on women's labor markets

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policies on women's labor markets**



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Contents

I . Introduction	1
1. Background and Purpose	1
2. Research Methods and Main Contents	2
II . Current Status of Active Labor Market Policies and Impact on Women's Labor Markets in Korea	3
1. Participation by Gender in Active Labor Market Policies ...	3
2. Impact of Active Labor Market Policies on Women's Labor Markets	6
3. Summary	17
III . Impact of Active Labor Market Policies on Women's Labor Markets in the OECD Countries	18
1. Rudimentary Analysis of the OECD Data	18
2. Effects of Active Labor Market Policies	20
3. Effects of Active Labor Market Policies on Women	22
4. Summary	24

IV. Conclusions and Implications	25
1. Implications for Female Labor Market Policies	25
2. Strengthening of Gender Sensitivity of the Employment Service Policy	27
3. Limitations of the Research	28
References	30

Tables

〈Table 1〉	Budget of financial support projects for job creation · 4
〈Table 2〉	Participation in active labor market policies after the loss of employment insurance 8
〈Table 3〉	Employment within six months after the loss of employment insurance 11
〈Table 4〉	Employment of matching samples within six months after the loss of employment insurance 13
〈Table 5〉	Wages of policy participant groups after the reacquisition of employment insurance 15
〈Table 6〉	Wages of matching samples of policy participant groups after the reacquisition of employment insurance 17
〈Table 7〉	Total unemployment rates and women's unemployment rates by the type of state 19
〈Table 8〉	Effects of expenditures on ALMP by specific area, macro economic, and institutional variables 21
〈Table 9〉	Impact of variables on women's unemployment rate 23

Figures

[Figure 1]	Proportion of female participants in active labor market policies	5
[Figure 2]	Changes in the proportion of participants by gender and policy type	6

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I . Introduction

1. Background and Purpose

With higher volatility in the labor market and amid the added difficulties arising from the COVID-19 pandemic, the past few years have attached greater importance to active labor market policies than ever. In the government's labor market policies as well, a large amount of budget and human resources has been invested in active labor market policies, comprising direct job creation, vocational training, employment services, employment subsidies, and business startup support. In the wake of the pandemic, plenty of budget investment has been put in employment subsidies, such as emergency employment subsidies, and in direct job creation, such as financial support for job creation.

In the process of coping with the impact of the COVID-19 pandemic on the labor market, the government has expanded its projects, including direct job creation programs. In order to deal with the labor market situation being rearranged thereafter, it is imperative to analyze the policy

measures implemented in response to the pandemic over the past years, and to restructure women's labor policies in the future.

Consisting of career counseling, vocational training, and follow-up management in a complex manner, employment service policies brought a relatively positive performance. The performance was greatly influenced by sub-policies, such as vocational training and job placement assistance. As direct job creation projects such as internships are closely related to employment services such as job placement assistance to produce a performance, it is crucial to analyze policies from an integrated perspective. Though some projects are targeted at women only, such as employment support projects for career-interrupted women, a fairly large number of women participate in other policies. For this reason, this study needs to contribute to setting the policy direction matching the future changing labor market and human resource demand by analyzing the distribution and performance of policies that have been implemented over the past few years.

The purpose of this study is to identify the relations between women's participation in the aforementioned active labor market policies and women's labor markets, then to present suggestions for desirable distribution of the policies in the future. Also, the study aims to draw implications for Korea from the active labor market policies of other countries through analysis of policy impact on women's labor markets and policy effects on the performance of each policy area, the desirable distribution of resources, and women's labor markets.

2. Research Methods and Main Contents

This study used three different data sets. First, we utilized the data

from the government policy assessment outcomes from EDB Postgres Advanced Server (EPAS). Second, we analyzed the Data Warehouse (DW) employment & labor administration data (10-percent random sampling data) of 2018 and 2019 by Korea Employment Information Service. Finally we created unbalanced panel data from OECD. Stat in order to analyze and compare women's employment and other social policies among the groups of countries.

As for the main contents of this study, we first analyzed the current status of policies, participants by gender, and gender gaps in invested budgets, and other basic conditions and performances using the data of the government policy outcomes, including the assessment result of financial support projects for job creation. Second, using the administration data and the data on the insured, we conducted a comparative analysis, by gender, of the performance of active labor market policies, including the employment status of the policy recipients, duration of employment, and wages.

Third and last, we analyzed the relations between active labor market policies of OECD countries and women's employment, and sought desirable directions for establishing policies in the future.

II . Current Status of Active Labor Market Policies and Impact on Women's Labor Markets in Korea

1. Participation by Gender in Active Labor Market Policies

Focusing on direct job creation, vocational training, employment services, and employment subsidies, we compared the budget sizes of

the projects. According to the comparison, the total budget of all active labor market policies increased from 19 trillion and 231.2 billion won in 2018 to 30 trillion and 513.1 billion won in 2021, approximately 58.7% up during the same period. In response to the impact of the pandemic on the labor market, the Korean government enforced an expansive policy for active labor market policies during this period. Compared to the pre-pandemic period, the budget sharply rose 10.4% from 2018 to 2019, 32.6% from 2018 to 2020, and 19.7% from 2020 to 2021. Therefore, it is believed that the COVID-19 pandemic had a big impact on the government policies.

〈Table 1〉 Budget of financial support projects for job creation

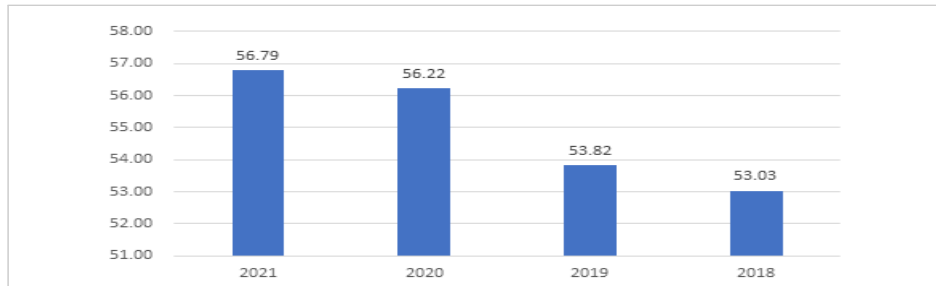
(Unit: 100 million won)

	Total	Direct job creation	Vocational training	Employment services	Employment subsidies	Business startup support	Income support for the unemployed
2021	305,131	31,599	22,648	17,330	84,106	24,071	125,377
2020	254,998	28,587	22,434	11,994	64,950	23,585	103,447
2019	212,374	20,779	19,610	9,867	57,883	25,097	79,139
2018	192,312	31,961	20,645	9,354	37,879	24,475	67,998

Source: The homepage of the Ministry of Employment and Labor> information disclosure > employment policies and statistics> current status of financial support projects for job creation, Budget of 2018~2021 Financial Support Projects for Job Creation.

The total number of participants in the policies hiked from 6,249,268 persons in 2018 to 7,796,893 persons in 2021, 24.8% up during the period, with 16.1% up for men, 33.6% up for women during the same period. Accordingly, the proportion of female participants continued to increase from 53.0% in 2018 to 53.8% in 2019, 56.2% in 2020, and 56.8% in 2021.

(Unit: %)



Source: Inside data of the Ministry of Employment and Labor, Ways to Efficiently Run Financial Support Projects for Job Creation (2018-2021), Inside data of Korea Employment Information Service, Employment Programs Analysis System (EPAS)(2018-2021).

[Figure 1] Proportion of female participants in active labor market policies

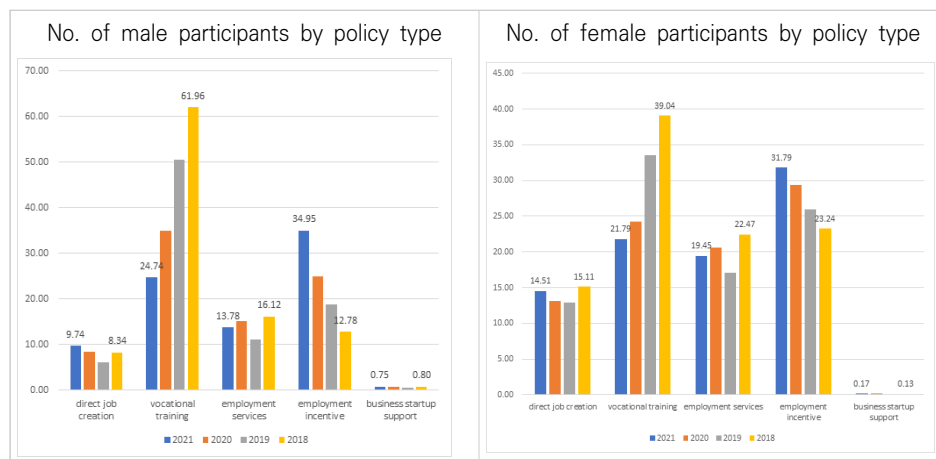
Changes in the proportion of participants by policy type were slightly different depending on the gender. That is to say, the proportion of male participants in vocational training fell from approximately 62% to 24.7%, but their proportion in employment subsidies rose from about 13% to 35%. These changes show that the big trend in active labor market policies has greatly changed over the past four years. In other words, active labor market policies have shifted their emphasis from achieving the traditional goal of enhancing employability to bearing the burden of labor costs that directly supports employment.

Like that of men, the proportion of women participating in vocational training decreased, but the proportion in employment subsidies increased. Compared to that of men, however, the drop of female participants in vocational training was small, falling from 39.0% to 28.6%. The proportion of women in employment subsidies rose from 23.2% to 31.8%, a relatively small change in proportion compared to that of men.

The proportions of both men and women participating in employment services declined. Employment services undertake a major function of

resolving the mismatch in the labor market, with a strong characteristic of being linked to vocational training. In this respect, the proportion of employment services relatively slightly fell compared to vocational training. But the reduction of the proportion in employment services is noteworthy because employment services are regarded as an important policy to raise the efficiency of job search in the labor market.

(Unit: %)



Source: Inside data of the Ministry of Employment and Labor, Ways to Efficiently Run Financial Support Projects for Job Creation (2018-2021),
Inside data of Korea Employment Information Service, Employment Programs Analysis System (EPAS)(2018-2021)

[Figure 2] Changes in the proportion of participants by gender and policy type

2. Impact of Active Labor Market Policies on Women's Labor Markets

1) Rudimentary analysis of DW employment & labor administration data

Based on employment insurances by individual and employment history, the DW data have been established by linking the database of

participation in policies, including vocational training, unemployment benefits, and job placement. This study used the 10-percent random sampling data of 2018 and 2019 in order to make use of the most recently linked data, because not all the applicable data have been linked up to recent years. Also, the study used data prior to 2020 and 2021 when most affected by COVID-19 in order to have a relatively less impact from rapid policy changes. The result of this study is significant for seeking various contents and methods that can be analyzed by using the sampling data rather than analyzing population parameters as its subjects.

The study also used the observed value of 1,377,524 sample participants, excluding the sample participants under 15 years old or 90 years old or above at the time of losing employment insurance from the DW employment & labor administration data of 2018 and 2019. The information used for this analysis included gender, age, education and industry, occupation type, and average monthly wages when they lost or acquired employment insurance, as well as information on vocational training, job placement, prescribed working hours, and the number of days paid related to unemployment benefits. For the analysis, we categorized the insured who participated in projects into eight groups: 1) a group of the insured who participated in vocational training only, 2) a group who participated in job placement only, 3) a group who received unemployment benefits only, 4) a group who participated in vocational training and job placement as well, 5) a group who participated in vocational training and received unemployment benefits, 6) a group who participated in job placement and received unemployment benefits, 7) a group who participated in vocational training, job placement, and unemployment benefits, and 8) a group who did not

participate in any policy, or non-participant group, for short. The group who received vocational training only had relatively more women than men, The group who received job placement only also had more women than men. The group who received unemployment benefits had more women, but the difference in the number was not large. The non-participant group had slightly more men than women.

〈Table 2〉 Participation in active labor market policies after the loss of employment insurance

(Unit: persons, %)

Category	Women		Men	
Participated in vocational training only	7,586	(1.1)	5,023	(0.7)
Participated in job placement only	41,166	(6.2)	30,339	(4.3)
Received unemployment benefits only	57,928	(8.7)	57,723	(8.2)
Participated in vocational training and job placement as well	2,230	(0.3)	1,324	(0.2)
Participated in vocational training and received unemployment benefits	1,547	(0.2)	803	(0.1)
Participated in job placement and received unemployment benefits	23,226	(3.5)	17,143	(2.4)
Participated in all three policies	1,337	(0.2)	551	(0.1)
Did not participate in any policy	534,189	(79.8)	595,409	(84.1)
Total	669,209	(100.0)	708,315	(100.0)

Source: Korea Employment Information Service, DW employment & labor administration data (2018-2019).

In this study, we also examined the distribution of industry, business size, and business type at the time of losing or acquiring the insured. As a result, we found that the industrial distribution was similar to the existing division of role by gender. In other words, while many men lost or acquired employment insurances in manufacturing and construction, many women did so in health and social service. Though there were gender gaps in other industries based on the employed, the loss or

acquisition of the insured as indicators of labor mobility showed that male and female workers frequently changed their jobs in those industries. Though the proportion of men who remained in manufacturing was high, that of women was low, and there was a high mobility in wholesale and retail, food and lodging, transport and storage, and health and social services. The proportion of workers in similar-sized businesses (diagonal matrix) was highest, in general, upon the loss and the next acquisition of employment insurance. But there was also a high mobility in the same-sized businesses with fewer than 10 employees, 10 to 49 employees, and 1,000 or more employees. Like industry type, business type is an indicator for gender segregation. Workers frequently changed their jobs in management, clerical work, finance, and insurance, with the highest proportion, or 33.6% of women and 33.1% of men working in that business type upon the loss of employment insurance. In general, there was less change in business type than in industry type, but one remarkable change in the distribution of business type upon the loss and acquisition of the female insured was that a high proportion, or 39.4% of those in research and engineering transferred to management, clerical work, finance, and insurance upon the next acquisition. Such transfer in business type can be the cause of lowering the proportion of female engineers.

2) Impact of active labor market policies on employment

To examine the impact of active labor market policies on employment, we analyzed whether the policy participants got a job within six or 12 months using the logit model.

$$Employment_i = \alpha_{i,t} + \beta_0 ALMP_i + \beta_1 X_i + \epsilon_{i,t}$$

Because the dependent variables are binary, we used logit or logistic regression for the analysis with the type of the most important active labor market policy as the key variable. We then controlled demographic variables, such as age, education, and the industry, occupation, region, and business size of the job before the loss. The variables of participation in active labor market policies are categorized into eight types, with the type of no participation as the base and the remaining types as dummy variables.

According to the analysis, the probability of employment went down in most types of groups who participated in active labor market policies based on the type of no participation. The type whose probability of employment decreased the most was the type of participation in training only, followed by the type of participation in training and job placement. Because it takes time to participate in training itself, the type of groups who participated in training may have a lower probability of employment within six months. Most importantly, however, it is reasonable to interpret that the policy participant groups were highly likely to have been vulnerable groups compared to non-participant groups who lost employment insurance. Women's probability of getting a job within six months was significantly low. The result of analyzing female sample participants only was similar to that of analyzing the whole set of sample participants.

〈Table 3〉 Employment within six months after the loss of employment insurance

d_almph6m	Coef.	Std. Err.	Odds ratio
Training	-4.238	0.054	0.014
Job placement	-0.721	0.008	0.486
Unemployment benefits	-1.553	0.007	0.212
Training+job placement	-3.714	0.079	0.024
Training+unemployment benefits	-3.045	0.070	0.048
Job placement+unemployment benefits	-1.926	0.012	0.146
Training+job placement+unemployment benefits	-3.571	0.096	0.028
Age	control	.	.
Education	control	.	.
Industry before the loss	control	.	.
Region	control	.	.
Business size before the loss	control	.	.
Occupation before the loss	control	.	.
Female	-0.097	0.004	0.908
_cons	-1.717	0.040	0.180

Source: Korea Employment Information Service, DW employment & labor administration data (2018-2019)

When we analyzed the probability of employment within 12 months, the negative effects of policy participant groups decreased in size compared to the probability of employment within six months. Overall, however, the performance of policy participants was low compared to that of non-participants as it was the case with 12 months. Likewise, women's probability of getting a job within 12 months was significantly low compared to men's.

To correct selection bias, we employed the logit analysis that uses sample matching. We also used the general method of propensity score matching (PSM), whose control variables included human characteristics and job information before the loss of employment insurance. Specifically, human characteristics comprised age, education, gender, and characteristics of

participation in active labor market policies. And the job information consisted of the industry and region to which the job belonged before the loss, the type of business the participants worked in, and the wages they received from the job when losing employment insurance.

According to the logit analysis of the probability of employment within six months, the employment performance of participants in all active labor market policies except for training increased after the matching compared to that of non-participants. The probability of employment within six months went up highest in the participant group who received all three of training, job placement, and unemployment benefits, followed by the group who received training and unemployment benefits, and the group who participated in training and job placement in that order. The group who received training only showed a decrease in the probability of employment within six months compared to the non-participant group. On the other hand, the group who participated in a combination of policies showed a relatively high probability of employment compared to the non-participant group. In this regard, it is desirable for the present administration to provide a diverse combination of policies. The analysis also showed that the group who received not only training but also job placement and unemployment benefits as a package support had a higher employment probability than the group who participated in one policy only. In this analysis as well, women's employment probability was significantly low compared to men's. The result of analyzing female sample participants only was the same as that of analyzing the employment probability within six months and that of analyzing the whole set of sample participants. In other words, though participation in training only had a negative impact on the employment probability within six months, participation in all three of training, job placement, and

unemployment benefits, participation in training and unemployment benefits, and participation in training and job placement raised the employment probability, respectively, in that order. In the group who participated in job placement only, women's employment probability was lower than that of whole set of sample participants. On the other hand, when job placement was combined with training, women's employment probability was similar to that of the whole set of sample participants. In this respect, the combination of job placement and training may have a slightly greater impact on women's employment.

〈Table 4〉 Employment of matching samples within six months after the loss of employment insurance

	Total		Women	
d_almph6m	Coef.	Std. Err.	Coef.	Std. Err.
Training	-0.421	0.044	-0.504	0.056
Job placement	0.083	0.015	0.062	0.019
Unemployment benefits	0.257	0.014	0.147	0.019
Training+job placement	1.243	0.084	1.247	0.104
Training+unemployment benefits	1.280	0.102	1.371	0.127
Job placement+unemployment benefits	0.471	0.020	0.409	0.026
Training+job placement+unemployment benefits	1.449	0.123	1.411	0.141
Age	control	.	control	.
Education	control	.	control	.
Industry before the loss	control	.	control	.
Region	control	.	control	.
Business size before the loss	control	.	control	.
Occupation before the loss	control	.	control	.
Female	-0.135	0.011		
_cons	-0.354	0.208	-0.188	0.321

Source: Korea Employment Information Service, DW employment & labor administration data (2018-2019)

Like the employment probability within six months, the employment probability of the policy participants in 12 months after the matching was significantly high, overall. The group who participated in training only had a low employment probability within 12 months compared to the non-participant group, but it was not the case with other policy combinations. When we compared the analysis of the employment probability within six months to odds ratio, the odds ratio relatively increased, and women's employment probability within 12 months was significantly low compared to men's. According to the analysis of the employment probability within 12 months of matching female sample participants only, training and job placement had a relatively low effect compared to that of the whole set of sample participants. What was characteristic was that, unlike the total sample participants, women who received unemployment benefits only had a negative value, but a mixture of unemployment benefits with training or job placement did not result in a negative effect. When we compared odds ratios, the policies had a slightly lower effect on women than the whole set of sample participants.

3) Impact of active labor market policies on wages

Based on the non-participant group, we examined the impact of policy participation by type on wages. As a result, we found that wages of the group who participated in training increased, but the increase was not statistically significant. Also, neither the group who participated in training and job placement nor the group who participated in training and unemployment benefits showed a statistically significant impact on their wages. Compared to the non-participant group, the group who received unemployment benefits only had significantly high wages. On the other hand, the group who participated in job placement only and

the group who participated in job placement and other policy mixes had significantly low wages compared to the non-participant group. According to the analysis of women sample participants, the group who participated in training only showed a slightly significant increase in wages compared to the non-participant group. The group who received unemployment benefits also had a significantly positive impact on wages unlike the analysis of all groups. The group who received job placement only had a relatively negative impact on wages, and the longer period between the loss of employment insurance and reemployment had a negative impact on wages, but the coefficient value of women was smaller than that of the total set of sample participants.

〈Table 5〉 Wages of policy participant groups after the reacquisition of employment insurance

Inmpay_h2	Total		Women	
	Coef.	Std. Err.	Coef.	Std. Err.
Female	-0.2543	0.0013		
Training	0.0028	0.0092	0.0201	0.0120
Job placement	-0.1391	0.0027	-0.1192	0.0035
Unemployment benefits	0.0844	0.0024	0.0936	0.0034
Training+job placement	-0.0145	0.0106	-0.0003	0.0132
Training+unemployment benefits	-0.0130	0.0129	0.0051	0.0157
Job placement+unemployment benefits	-0.0206	0.0037	0.0028	0.0048
Training+job placement+unemployment benefits	-0.0862	0.0144	-0.0690	0.0169
Period between the loss and reacquisition	-0.0002	0.0000	-0.0002	0.0000
Age	control	.	control	.
Education	control	.	control	.
Industry before the loss	control	.	control	.
Region	control	.	control	.
Business size before the loss	control	.	control	.
Occupation before the loss	control	.	control	.
_cons	13.6897	0.0159	13.5287	0.0295

Source: Korea Employment Information Service, DW employment & labor administration data (2018-2019)

When we compared the impact of matching policies on wages between policy participants and non-participants, the group who participated in job placement showed a significantly negative impact on wages like the way it was before the matching compared to the non-participant group. But the group who received unemployment benefits showed a significantly positive impact on wages. The policy combination of job placement and unemployment benefits brought a significantly positive impact, but the group who received all three of training, job placement, and unemployment benefits showed a significantly negative impact. In matching samples as well, women had significantly low wages compared to men. Also, as the period between the loss and reacquisition prolonged, their wages significantly decreased.

Of the analysis results of female matching samples, what was slightly different from that of the total samples was that based on the non-participant group, the group who participated in the policy combination of training and unemployment benefits showed a statistically significant positive impact on wages. In contrast, the group who received all training, job placement, and unemployment benefits had a statistically insignificant impact on wages. This shows that unemployment benefits had a higher impact on women's wages upon re-employment than those of the total set of sample participants.

〈Table 6〉 Wages of matching samples of policy participant groups after the reacquisition of employment insurance

	Total		Women	
lnmpay_h2	Coef.	Std. Err.	Coef.	Std. Err.
Female	-0.2470	0.0032	.	.
Training	0.0056	0.0125	0.0104	0.0158
Job placement	-0.0820	0.0042	-0.0688	0.0054
Unemployment benefits	0.1344	0.0037	0.1300	0.0050
Training+job placement	-0.0006	0.0154	-0.0023	0.0185
Training+unemployment benefits	0.0282	0.0185	0.0424	0.0217
Job placement+unemployment benefits	0.0272	0.0057	0.0432	0.0072
Training+job placement+unemployment benefits	-0.0567	0.0231	-0.0341	0.0265
Period between the loss and reacquisition	-0.0001	0.0000	-0.0001	0.0000
Age	control	.	control	.
Education	control	.	control	.
Industry before the loss	control	.	control	.
Region	control	.	control	.
Business size before the loss	control	.	control	.
Occupation before the loss	control	.	control	.
_cons	13.7466	0.0816	13.6267	0.1145

Source: Korea Employment Information Service, DW employment & labor administration data (2018-2019)

3. Summary

Overall, the analysis of active labor market policies targeting women did not have consistent results. This inconsistency seems to have come largely from the heterogeneity of female sample participants or possibly from the analysis of 10-percent random samples.

When designing policies based on the results of the analysis, it is important to provide the most appropriate combination of policies matching the group characteristics through consulting and support from field officers rather than applying the policies to all women en bloc.

Therefore, it is crucial to strengthen the role of case managers in the field and to develop their expertise. Above all, support should be provided according to vulnerabilities of policy targets to help them overcome the vulnerabilities. Therefore, it is necessary to make efforts to set different goals for supporting each policy target and to continuously establish specific types of cases by profiling policy targets and building a database of the targets.

III. Impact of Active Labor Market Policies on Women's Labor Markets in the OECD Countries

1. Rudimentary Analysis of the OECD Data

For the analysis of this study, we established the data of the OECD countries from 1990 to 2020 as time-series unbalanced panel data by country. The target variable used for the international comparison of active labor market policies is, generally, the unemployment rate of each country. Accordingly, we used the total unemployment rate of people aged between 15 and 64 and women's unemployment rate for the study.

Independent variables used for the analysis largely consist of four types: i) macro-economic variables, including inflation level, GDP per capita, GDP growth rate, and the amount of foreign direct investment, ii) institutional variables, including the rigidity of employment protection legislation, unionization rate, and tax wedge, iii) expenditures on active labor market policies, including the proportion of expenditure on active labor market policies to GDP per capita, the proportion of annual expenditure by item to GDP per capita, and expenses for employment services and administration, vocational training, employment benefits,

direct job creation, and business startup support, and iv) related variables to identify impacts on women's unemployment rate, including fertility rate, the duration of paternity leave, the duration of maternity leave, gender wage gaps, and gender employment gaps.

When we compared the mean of total unemployment rates and women's unemployment rates by the type of state in the observation period, the unemployment rates of southern European states were relatively high, whereas those of East Asian states were very low. Women's unemployment rates were slightly lower than total unemployment rates in most types of states, but they were high in southern and eastern European states. In particular, women's unemployment rates were much higher than total unemployment rates in southern European states.

〈Table 7〉 Total unemployment rates and women's unemployment rates by the type of state

(Unit: %)

Category	Unemployment rate	Mean	Standard deviation
Anglo-American liberal states	total	7.12	0.20
	women	6.73	0.18
Continental European states	total	6.07	0.16
	women	6.69	0.18
Northern European social democratic states	total	6.28	0.23
	women	6.16	0.22
Southern European states	total	12.33	0.51
	women	15.44	0.60
Eastern European states	total	8.44	0.33
	women	8.67	0.32
East Asian states	total	3.75	0.14
	women	3.48	0.12

Source: OECD.Stat (1990-2020) Database.

We conducted a Hausman test to identify the appropriateness of the panel fixed effect model and the random effect model, then applied the fixed effect model to the analysis.

2. Effects of Active Labor Market Policies

The following model was used to analyze the effects of active labor market policies on the unemployment rate, with the unemployment rate as a dependent variable. Independent variables included the unemployment rate of the previous year, macro-economic variable, active labor market policy variable, institutions, and variables related to women's labor markets.

$$UnemploymentRate_{i,t} = \alpha_{i,t} + \beta_0 UnemploymentRate_{i,t-1} + \beta_1 Macro_{i,t} + \beta_2 ALMP_{i,t} + \beta_3 institutions_{i,t} + \beta_4 gender_{i,t} + \epsilon_{i,t}$$

The macro-economic variable had a strong effect on the unemployment rate. Compared to this, the total expenditure on active labor market policies did not have a significant impact on the rate. Where only the macro variable was considered, inflation did not have a significant impact. However, in the model that included the variable of expenditure on active labor market policies (ALMP), inflation had a very significant impact. In model 2 that analyzed the variable of expenditure on active labor market policies by specific area, direct job creation and business startup support had a significantly negative and positive impact, respectively, on the employment rate. As such, we found that active labor market policies had very mixed effects depending on the specific area. When it came to institutional effects, the rigidity of employment protection systems, in addition to the ALMP expenditure and the macro-economic variable, had a significantly positive impact on the

unemployment rate. This implies that more rigid employment protection systems significantly raise the unemployment rate.

〈Table 8〉 Effects of expenditures on ALMP by specific area, macro economic, and institutional variables

unemp_all	Model 1		Model 2	
	Coef.	Std. Err.	Coef.	Std. Err.
Unemployment rate of the previous year (total)	0.8209***	0.0266	0.8056***	0.0265
Inflation	-0.1634***	0.0378	-0.1903***	0.0370
Foreign direct investment	0.0112*	0.0058	0.0112**	0.0057
GDP (per capita) log value	-3.8857***	1.0812	-4.9990***	1.1066
GDP growth rate	-0.2250***	0.0189	-0.2185***	0.0186
Expenditure on active labor market policies (proportion to GDP (%))	0.5312	0.4239		
Expenditure on employment services (proportion to GDP (%))			0.5197	1.7140
Expenditure on vocational training (proportion to GDP (%))			0.2844	1.1704
Expenditure on employment subsidies (proportion to GDP (%))			1.7386	1.1974
Expenditure on direct job creation (proportion to GDP (%))			-3.9881***	1.1854
Expenditure on business startup support (proportion to GDP (%))			12.456***	3.5912
Rigidity of employment protection legislation (version 1)	0.9285***	0.3422	0.5922*	0.3417
Unionization rate	0.0532*	0.0270	0.0211	0.0274
Tax wedge	-0.0075	0.0318	-0.0286	0.0321
_cons	39.7120***	12.1718	54.0249***	12.4627
sigma_u	1.6920		1.8149	
sigma_e	0.8375		0.8137	
rho	0.8032		0.8327	

	Model 1		Model 2	
unemp_all	Coef.	Std. Err.	Coef.	Std. Err.
R-sq:			R-sq:	
within = 0.8694			within = 0.8783	
between=0.7351			between = 0.7315	
overall = 0.7655			overall = 0.7639	

Source: OECD.Stat (1990-2020) Database.

3. Effects of Active Labor Market Policies on Women

According to the analysis of women's unemployment rate, the macro-economic variable had a significant impact on women's unemployment rate in model 1 and model 2 as well, similarly to the impact of the variable on the total unemployment rate.

Though the total expenditure on active labor market policies did not have a significant impact on the total unemployment rate and women's unemployment rate alike, expenditures on specific projects had slightly different impacts on the rates. In other words, though expenditures on direct job creation and business startup support only had a significant impact on the total unemployment rate, expenditures on employment services had a very significant negative impact on women's unemployment rate. This shows that employment service policies are more useful for women than men.

While the institutional variable did not have much impact, gender-related variables had a more or less impact in model 2. Countries with high fertility rates tended to have low women's unemployment rates. In countries where gender employment gaps were wide, women's unemployment rates were low. This means that there are countries, like Korea, where women are highly likely to be incorporated in the economically inactive population without remaining in the unemployed

status. Gender wage gaps and the duration of paternity and maternity leave did not have a significant impact on women's unemployment rates. When examined by the type of state, fertility rates were high in Anglo-American liberal states, northern European social democratic states, and continental European states, despite some differences among the countries. Considering this, these countries were characterized by high women's employment rates.

〈Table 9〉 Impact of variables on women's unemployment rate

	Model 1		Model 2	
unemp_f	Coef.	Std. Err.	Coef.	Std. Err.
Unemployment rate of the previous year (total)	0.6525***	0.0773	0.6063***	0.0728
Inflation	-0.0319	0.0685	-0.0574	0.0592
Foreign direct investment	0.0311**	0.0132	0.0290**	0.0118
GDP (per capita) log value	-7.7475***	2.6293	-10.4703***	2.3639
GDP growth rate	-0.1276***	0.0350	-0.1048***	0.0302
Expenditure on active labor market policies (proportion to GDP (%))	-0.9412	1.0801		
Expenditure on employment services (proportion to GDP (%))			-9.1632***	3.3218
Expenditure on vocational training (proportion to GDP (%))			1.3200	2.6915
Expenditure on employment subsidies (proportion to GDP (%))			3.0167	3.3407
Expenditure on direct job creation (proportion to GDP (%))			-4.1642**	1.6761
Expenditure on business startup support (proportion to GDP (%))			15.4785***	5.5201
Rigidity of employment protection legislation (version 1)	-0.8608	0.9537	-1.3061	0.8395
Unionization rate	0.0370	0.0676	0.0044	0.0650
Tax wedge	-0.0175	0.0748	-0.0628	0.0718
Total fertility rate	-1.8968	1.1521	-2.1772**	1.0632

	Model 1		Model 2	
unemp_f	Coef.	Std. Err.	Coef.	Std. Err.
Gender employment gap	-0.1226	0.0764	-0.1640**	0.0705
Gender wage gap	-0.0691	0.0497	-0.0146	0.0456
Duration of maternity leave	-0.0133	0.0110	-0.0076	0.0094
Duration of paternity leave	-0.0184	0.0212	-0.0264	0.0187
Childcare facility use rate of two years old or below	-0.0345	0.0243	0.0131	0.0264
Household expenditure	0.0814	0.3879	0.0573	0.3481
_cons	94.1727***	30.0513	125.792***	27.1889
sigma_u	2.3728	.	2.9549	
sigma_e	0.7616	.	0.6464	
rho	0.9067	.	0.9543	
R-sq:			R-sq:	
within = 0.8869			within = 0.9242	
between = 0.6426			between = 0.5290	
overall = 0.6631			overall = 0.5591	
F(16,57) = 27.92			F(20,53) = 32.31	

Note: *** is significant at 99% confidence level, ** at 95%, and * at 90%.

Source: OECD.Stat (1990-2020) DB.

4. Summary

Though its impacts were different depending on the gender, macro economy had a greater impact on women. This finding reaffirms that women are more vulnerable to the impact of the labor market than men. Considering that active labor market policies are one of the tools to cope with such impact, it is necessary to take stronger measures for the women's labor market when the macro-economic variable changes. By the type of state, Anglo-American liberal states, northern European social democratic states, and continental European states with high fertility rates featured high women's employment rates. Even if the maternity and

paternity leave systems were well established, women's employment rates were not necessarily high and we found that both women's employment rates and fertility rates were high in Nordic social democratic states where the use rate of the system was high. Women's employment, childbirth, maternity and paternity leave, and gender wage gaps had mutually connected impacts on each other. Not many countries are like Korea that has quite complex and difficult tasks due to low women's employment and fertility rates and wide wage gaps. Therefore, it is necessary to find what is the most effective combination of policies in the direction of narrowing the gender gaps in employment rate and wage, raising the use rate of maternity and paternity leave, and increasing fertility rates.

IV. Conclusions and Implications

1. Implications for Female Labor Market Policies

Active labor market policies were found to have brought better performance when they were in a package type than in a separate form. This implies that it is desirable/necessary to regularly evaluate the performance of policy combinations, to specifically design policy packages needed for each individual by using diverse menus of active labor market policies, and to make use of the packages to improve the employment and working conditions of individuals.

A good number of employment subsidy policies were found to have been used. In this case, it is necessary to assess whether the subsidy projects evenly affected the gender because the government's subsidy policies were largely centered on supporting business owners.

Vocational training can be a very important means in active labor market policies. However, despite a relative increase in expenditures on active labor market policies over the past four years, the proportion of spending on vocational training decreased. Therefore, it is necessary to evaluate the implementation of policies when they bring unbalanced outcomes by gender, and give feedback to prevent the occurrence of structural problems.

As seen from the results of analyzing those who lost employment insurance in Korea, the OECD countries by the type of state, and the COVID-19 pandemic situation, we found that women were more severely affected by economic fluctuations and the impact of the labor market, and that women are an important group among the vulnerable groups in the labor market.

The proportion of the group regarded as the long-term uninsured reached approximately 23%. According to the demographic characteristics of these uninsured people, a lot of women belong to the age group in their 30s and the education group with two-year college graduation. In this regard, it is necessary to take measures for mitigating their vulnerabilities to employment.

According to the analysis of the OECD countries by the type of state, the countries had in common that public employment service policies were effective for women. Notably, however, East Asian and eastern European countries had low women's unemployment rates, and at the same time low employment rates. The reason for this is that women account for a high proportion of the economically inactive population in those countries. Korea too has the serious issue of career-interrupted women. Because policies for job hunters have limitations in alleviating their dropout of the labor market itself, it is necessary to broaden the

scope of policy targets and to set the goal of activating female labor force participation.

As women make up a majority of vulnerable groups in the labor market, what is necessary above all is a labor market policy that is based not only on the gender of women but also on their vulnerabilities. It is also necessary to continue implementing policies for a fairly long period time that can overcome i) women's vulnerabilities as the long-term unemployed, ii) disadvantages arising from the recruitment and career development based on the existing gender structure of the labor market, including gender-based occupational segregation, and iii) difficulties arising from balancing work and family during the childbirth and childcare period. Also, by providing welfare services to support their child rearing or childcare in the package programs together with services to support their employment, it is necessary to remove the factors hindering women from participating in the labor market.

2. Strengthening of Gender Sensitivity of the Employment Service Policy

The new administration aims to promote the innovation of the employment service policy by providing public employment service packages for job-searchers and for enterprises, respectively. The process of improving the employment service policy is closely related to reinforcing the employment safety net, including vocational training and unemployment benefits. Because policies tend to be provided in packages, policy performances are inevitably interdependent. In this process, it is an imperative task to identify vulnerabilities of the labor market and to identify vulnerable groups to make them policy targets. Specifically, it is necessary to review the entire process of policy

implementation from a gender sensitive perspective. In particular, because the long-term unemployed may not be job-seekers, they may be systematically left out of the policy targets. If too much importance is attached to performance-centered support systems, this may cause the problem of making it difficult to provide intensive support for practically more vulnerable groups. As such, it is necessary to effectively identify the targets so that the employment service package for job-seekers can provide more suitable support for practically more vulnerable groups. The employment service package for enterprises also may possibly fail to deliver policy support properly for vulnerable groups if there are gender gaps. For this reason, it is necessary to prepare a system that can reflect relevant issues in each stage of the decision-making process when establishing and implementing the policies.

The national agendas of the new administration have insufficient policies specific to women. As such, it is necessary to review the necessity, validity, and performance of women-specific policies, then to set policy directions based on the review. Also, by preparing gender-disaggregated data on all government projects centered on differences from the perspective of performance and by faithfully making gender impact assessments and employment impact assessments of key policy tasks, stronger support should be provided for women in vulnerable groups.

3. Limitations of the Research

The results of this study need further follow-up studies. First of all, the DW employment & labor administration data used in the study were analyzed for a two-year period only, and thus there exist the issues of data clipping and sample selection bias. Therefore, it is necessary to

solve the issue of selection bias with more samples and the issue of data clipping with a longer-term analysis. As databases are yet to be fully linked and the data analysis is in its initial stage, limitations of this study will be able to be overcome if follow-up studies are actively conducted by using the administration data.

As there are various types of policy participation, the methods of identifying the policy effects can be different according to whether or not the policy participation and types are exogenously given. Because the analysis showed that participation in the packages could be a main incentive, this matter should be more specifically examined and used for policy improvement.

In countries like Korea where the unemployment rate is low and the proportion of women to the economically inactive population is high, it is an important task to secure labor market participants through a wider range of support. It is, then, necessary to conduct an analysis focusing on the activation of female workforce or employment of women. Particularly, taking interest in the long-term unemployed is of utmost importance. Therefore, it is necessary to analyze the effects of labor market policies by point in time through a life-cycle analysis, ranging from NEET (not in education, employment or training) in the youth period to career breaks in the marriage and childbirth period, and long-term unemployment in the middle-aged period.

Research areas: labor and employment

Keywords: active labor market policy, women's employment, labor market, OECD countries

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