The Effect of Earned Income Tax Credit (EITC) Eligibility Change in 2014 on Working Poor's Labor Market Outcomes

By

LEE, Hana

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Submitted to

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Abstract

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This research analyzes the effect of the policy change in Earned Income Tax Credit (EITC) eligibility in 2014 on the beneficiaries' labor market outcomes. To this end, Waves 5-14 (2009-2018) of Korea Welfare Panel Study (KoWePS) data are used to conduct a Difference-in-Differences analysis. This study examines whether EITC achieved its new policy objectives put forward in the program revision in 2014. In the full sample, compared to the control group, the treatment group increased the probability of getting a job by 8.68%p and the annual working hours by 264.5 hours after the policy expansion and revision. Overall, the policy change in 2014 had a statistically significant positive effect on the EITC beneficiaries. However, this study finds mixed effects depending on different specifications. Among female beneficiaries, the policy change in EITC eligibility had a statistically significant positive effect on their annual working days and hours. Among male beneficiaries, it had a statistically significant positive effect on their daily working hours, their labor market participation, and employment.

Keyword: Difference-in-differences analysis, Earned Income Tax Credit, EITC, Korea Welfare Panel Study, KoWePS, Labor market outcomes, Low-income class, Working poor

CONTENTS

LIST OF TABLES

1. Introduction

Since the 1997 financial crisis, income distribution has deteriorated in Korea, and social polarization and poverty are rapidly exacerbating (Choi, 2002; Shin, 2007). The dramatically spreading poverty has produced the working poor (Hong, 2005; Noh & Choi, 2004). To help the working poor, the government introduced Earned Income Tax Credit (EITC) in 2008. EITC is a workfare policy (Jeong, 2009). Workfare policies like EITC encourages labor participation among the poor and supports income by paying cash benefits to households with earned income below a certain level (Hong et al., 2016; Ki & Kim, 2015; Yoo et al., 2014; Lee et al., 2015).

This study focuses on analyzing the effects of EITC eligibility change in 2014 due to the 2013 Tax Law Amendment (NAB, 2013). Before the Amendment, EITC benefits were provided only to households with children and differentially depending on the number of children in the household. After the Amendment, EITC overhauled its beneficiary structure, significantly expanding its targets (NTS, 2020.). The benefits were provided to all households – differentially depending on the householder's marital status and the single-earner/dual-earner status (Jeong & Kim, 2015; Ki et al., 2015; Yeom & Jeon, 2014). Also, the introduction of Child Tax Credit (CTC) in 2015 replaced the child support element of EITC (Kim, 2014).

The policy effect of EITC on labor supply is a major controversy in the field of public policy and labor economics (Hong et al., 2016; Jeong, 2014; Ki et al., 2015; Lee et al., 2015; Yoo et al., 2014). Some researchers find the positive effect of EITC on beneficiaries' labor market outcomes (Jeong, 2014; Hong, 2019; Nam, 2017; Marr et al., 2015; Shing & Song, 2018; Yeom & Jeon, 2014; Yoo et al., 2014). Other researchers show its negative effect on labor market outcomes of beneficiaries (Cancian & Levinson, 2006; Hong et al., 2016; Leigh, 2010; Jeong & Km, 2015; Ki et al., 2015; Kim & Kim, 2017). A growing body of literature has shown that the EITC's effects are mixed and negatively related, especially in terms of women's

participation in economic activities and earned income when the target is segmented (Eissa & Hoynes, 2004; Eissa & Hoynes, 2006; Jang, 2013; Jeong, 2014; Jeong & Kim, 2015; Lalumia, 2013; Lee et al., 2015; Seock & Noh, 2020; Yoo et al., 2014).

The effect of receiving EITC benefits on labor market outcomes is relatively unclear. When there is an increase in real wages due to EITC benefits, the substitution effect that increases the labor supply and the income effect that decreases the labor supply occur simultaneously (Dickert, Houser and Scholz, 1995). EITC is likely to increase the overall labor market participation rate (Choi & Lee, 2010). However, for those who come into labor market, working hours are expected to have different effects depending on the income range they belong. (Nam, 2017; Hong et al., 2016; Lee et al., 2015; Yeom & Jeon, 2014).

This research paper contributes to our understanding EITC by analyzing the policy effects of the change in EITC eligibility in 2014. Most empirical studies have suffered from data limitations (Lee et al., 2015; Lim, 2016). Since its inception, EITC underwent multiple major changes, and households eligible for EITC and total wages have increased significantly. However, few studies have analyzed the effect of expansion and revision of EITC on labor supply (but see Hong, 2019; Kim & Kim, 2017; Shin & Song, 2018). This study uses data of the Korea Welfare Panel Study (KoWePS) ranging from 2009 to 2018 to conduct an empirical analysis through the Difference-in-Differences method. Moreover, this study also examines the effects on labor market outcomes of EITC beneficiaries of different gender.

This study attempts to answer the following research questions: First, does EITC eligibility change in 2014 statistically significantly affect the beneficiaries' labor market outcomes at the extensive margin? Secondly, does it also have statistically significant effects on beneficiaries' labor market outcomes at the intensive margin? Thirdly, does it statistically significantly affect gross income, private education expenses, and overall life satisfaction?

Lastly, does it affect each gender group significantly, and are there any differences in policy effects between groups?

The remainder of this paper is organized as follows: Section 2 presents a literature review. Section 3 demonstrates the research design such as data description, methodology explanation, and how the variables are measured and generated. Section 4 shows main findings based on the empirical evidence of this research by each analysis group. Section 5 summarizes the result of the study on the topic, suggesting policy implications and reveals the limitations of the model.

2. Literature review

This paper reviews the literature conducted after the implementation of EITC. Whereas some researchers had made efforts to predict the policy effect of EITC on its beneficiaries' labor market participation before the introduction of EITC (Cho, 2009; Jeon, 2008; Kang, 2007), this research does not focus on the effect of the EITC introduction in 2008 but on the reform of EITC in 2014. Researchers in Korea have proposed various approaches to empirically analyze and examine the effect of EITC on working incentive, income redistribution, and poverty reduction for the low-income group (Choi & Lee, 2010; Hong, 2019; Jang, 2013; Jeong, 2014; Jeong & Kim, 2015; Ki & Kim, 2015; Kim & Kim, 2017; Lee et al., 2015; Lee & Yang, 2017; Nam, 2017; Seock & Noh, 2020; Yeom & Jeon, 2014; Yoo et al., 2014). Most of these studies employ DID approach with data accumulated after the policy was introduced but find varying results about the effect of EITC program on its beneficiaries.

Some studies use the labor market participation and employment rate as dependent variables in evaluating the effect of EITC (Hong et al., 2016; Jeong, 2014; Lim, 2016; Nam,

2017; Shin & Song, 2018; Yeom & Jeon, 2014; Yoo et al., 2014). Other studies analyze working hours and income of EITC beneficiaries (Hong et al., 2016; Hong, 2019; Jeong, 2014; Jeong & Kim, 2015; Kim & Kim, 2017; Ki et al., 2015; Lim, 2016; Nam, 2017; Seock & Noh, 2020). In addition, a number of individual characteristics variables were used to control the analysis targets (Jang, 2013; Jeong, 2014; Jeong & Kim, 2015; Lim, 2016; Seock & Noh, 2020; Yoo et al., 2014). Specifically, these papers select gender, age, educational background, health status, residential areas, household income, and the number of household members as demographic variables.

The following studies report positive results on EITC's work incentives: Shin and Song (2018) make efforts to form comparable treatment and control groups to examine the impact the changes in the revision of the EITC had on the beneficiaries. They show that EITC expansions and reforms increased the participation of low-income households in economic activities as a whole, supporting the effect of EITC and the validity of the policy reform. Similarly, Hong (2019) predicts that the improvement rate of the income inequality index in 2019 will increase by about three times compared to 2018. His research provides important evidence that the 2019 expansionary amendments will significantly contribute to improving income redistribution. Yeom and Jeon (2014) analyze the effect of EITC on labor supply using a clustered regression model. Their study finds that, when limiting the target to households that receive EITC benefits, it significantly increases the labor supply. Nam (2017) attempts an analysis of EITC’s impact on labor supply. According to him, the implementation of the EITC significantly increased the number of employed in the household and the total number of hours worked per year in the household. In addition, he proved that these results are still valid even when the analysis group of the study is set differently, showing the robustness of the estimation results.

However, Ki et al. (2015) argue that the effect of EITC showed a statistically significant negative correlation between hourly wages and earned income. According to their research, Receiving EITC benefits can rather reduce incentives to work, leading to moral hazard among beneficiaries. Likewise, other researchers have pointed out that receiving EITC benefits is related to significant decreases in labor supply and working hours per week and a significant increase in individual poverty rates (Hong et al., 2016; Kim & Kim, 2017).

On the other hand, Lim (2016) asserts that between 2007 and 2008, the annual labor supply and weekly working hours of the EITC recipient group decreased while the participation in economic activities increased, though not significantly. However, he finds an increase in the annual labor supply between 2007 and 2009. These inconsistent results reveal the temporal limitations of the accumulated data employed in his research. It seems necessary to grasp the effect of institutional changes more closely by analyzing the expansion and reorganization of EITC made after 2014. Thus, this paper examines post 2014 data to compensate for the preceding study's shortcomings by employing data spanning a longer period.

A growing body of literature has shown that the effect of EITC is mixed and negatively related, especially in terms of women's participation in economic activities and earned income when the target is segmented (Jang, 2013; Jeong, 2014; Jeong & Kim, 2015; Lee et al., 2015; Seock & Noh, 2020; Yoo et al., 2014). In this regard, Jang (2013) argues that in order to reduce the problem of the marriage penalty for dual-earner households and to increase practical incentives for female spouses, who are secondary earners, it is necessary to raise the income ceiling to form a separate payment system.

According to Seock and Noh (2020), income replacement rate by EITC benefits for single women is lower than that for married women. Jeong (2014) attempts to figure out policy effects

at the extensive and intensive margin for segmented groups. He demonstrates that for women, receiving EITC benefits does not significantly increase their earned income. Similarly, Lee et al. (2015) conducts an analysis the effect of EITC on participation in economic activities and earned income. They report that, although EITC has a significant effect on increasing participation in economic activity, it is relatively low for female heads of households compared to male heads. This study suggests additional policy support for women's labor market outcomes. Jeong and Kim (2015) analyze the effect of EITC reform made after 2014, finding that expansion of the existing EITC eligibility did not have a positive effect on the increase in real income of dual-earner households. Yoo et al. (2014) demonstrate that EITC has a positive effect on married individuals' labor market outcomes at the extensive margin but not on unmarried individuals.

In addition to research in Korea, it is worthwhile to review studies on EITC outside Korea, especially those in the United States. In the U.S., the relatively long history of EITC has led to a wealth of research on policy effects of EITC on poverty, income redistribution, and labor supply. In addition, since it has a payment structure with high similarity to Korea's EITC, it is meaningful to review American studies (Lee et al., 2015).

Just as studies in Korea, research findings in the U.S. are also mixed. According to Marr et al. (2015), EITC has a positive effect on low-income households' labor supply. On the other hand, Cancian & Levinson (2006) argue that EITC reduces labor supply. They use a cross-sectional analysis to compare Wisconsin with other states to analyze the impact of EITC on labor supply. Meanwhile, Neumark & Wascher (2011) discuss the relationship between the rise of minimum wage and the effectiveness of EITC. According to the study, the combination of the rise of minimum wage and EITC increases labor opportunities for high-skilled single

mothers and decreases labor opportunities for low-skilled childless workers, including youth.

Also, there are studies analyzing the effect of EITC on the wages of beneficiaries. Rothstein (2008) looks at the wage and participation rate in economic activities following the expansion of EITC. As the EITC expanded, wages for low-skilled workers and for single mothers fell. However, the rate of participation in economic activities increased for both groups. Leigh (2010) examines the effects of EITC on hourly wages, categorized by educational background. As a result of analysis using US Current Population Survey (CPS) data, as EITC receipts increased by 10%, hourly wages for high school dropouts decreased by 5%, and high school graduates also decreased by 2%. On the contrary, it did not affect the hourly wages of college graduates.

EITC's effects analysis research for women is also being actively conducted. Eissa & Hoynes (2006) estimate that the EITC reduces the total working hours of married couples, increasing the male spouse's working hours while decreasing the female spouse's labor market participation. In their other they argue that the EITC can negatively affect the working hours and labor market participation of women who live with their male spouses, unlike those of women who do not live with their male spouses (Eissa & Hoynes, 2004). Similarly, Lalumia (2013) reports that EITC has a significant effect on employment, but not on the change in labor supply hours of women in single-parent households.

This study contributes to the EITC literature by using data spanning longer periods of EITC implementation and more comparable treatment and control groups. Studies in the early years of EITC did not have objective explanatory power in analyzing EITC's policy effects due to data limitations. Moreover, even the more recent studies often suffered from selection bias in composition of their treatment and control groups. This is because, most studies using DID

method only control for observable differences between groups (Hong et al., 2016; Jeong, 2014; Kim & Kim, 2017; Lee et al., 2015; Lim, 2016; Nam, 2017). Therefore, this paper aims to overcome the limitations of the preceding literature not only with the most recent data ranging from 2009 to 2018 but also more comparable treatment and control groups whose only difference is their admission into EITC. Also, it analyzes the effect of EITC eligibility change in 2014 on low-income workers' labor market outcomes as a whole and by gender. This paper also discusses the effect in terms of the extensive and intensive margin as well as income and other elements of life. To this end, this study examines more rigorously and objectively by using DID method with panel data and fixed effects.

3. Research design

3.1. Sample

This study used Waves 5-14 (2009-2018) of "Korea Welfare Panel Study: KoWePS" provided by Korea Institute for Health and Social Affairs (Kihasa). Kihasa reports the detailed data on EITC in KoWePS. Also, Kihasa surveys the main economic activity participation state, working hours, and employment types, along with demographic variables such as gender, age, educational background, and health of low-income persons in KoWePS. Thus, KoWePS is suitable for research on the effect of EITC eligibility change on the working poor' labor market outcomes.

Analysis targets of this study is all household members aged over 18. This is because, EITC benefit increases the real income of the recipient's household and, in turn, affects labor and other life outcomes of not only the householder but also other members of the households. This study includes persons aged over 65 since elderly workers make a living as self-employed

and daily workers in Korea (Kim, 2014). The temporal range of the study is post introduction of EITC program, corresponding to the most recent data of KoWePS' Waves 5-14 (2009-2018).

TABLE 1—DESCRIPTIVE STATISTICS

Variables	Full sample		Female sample		Male sample	
	Control group	Treatment group	Control group	Treatment group	Control group	Treatment group
Panel A: Proportions of dependent variables						
Participation in economic activities	69.3	69.4	58.	62.6	83.1	79.1
Employed	59.9	60.6	54.1	58.3	66.9	63.9
Satisfied with life	92.3	91.6	92.9	92.5	91.6	90.3
Panel B: Means of dependent variables						
Daily working hours	5.9	5.6	4.5	4.4	7.7	7.2
	(4.62)	(4.59)	(4.37)	(4.25)	(4.28)	(4.59)
Annual working days	164.5	157.5	132.2	136.4	203.6	187.6
	(123.84)	(121.71)	(125.5)	(121.91)	(109.82)	(114.95)
Annual working hours	1482.1	1355.5	1083.9	1056.6	1964.4	1782.5
	(1321.98)	(1299.92)	(1198.22)	(1172.4)	(1304.84)	(1353.26)
Gross income	5.1	4.9	4.1	4.3	6.4	5.9
	(3.5)	(3.37)	(3.56)	(3.39)	(3.)	(3.11)
Education expense	1.6	1.2	1.6	1.2	1.7	1.3
	(1.77)	(1.6)	(1.76)	(1.59)	(1.78)	(1.61)
Panel C: Covariates						
Healthy	61.5	54.7	63.	53.1	59.7	56.9
Disabled person	6.2	7.8	2.4	6.2	11.	10.1
Low-educated	22.2	29.1	26.3	33.8	17.3	22.3
Living with the spouses	74.4	65.5	69.8	58.2	80.	75.8
Household type 1[a]	3.6	7.2	4.5	9.6	2.4	3.8
Household type 2[b]	2.8	4.7	3.7	6.2	1.8	2.6
Household type 3[c]	93.6	88.1	91.8	84.3	95.8	93.6
Living in urban areas	83.7	83.4	82.8	83.2	84.8	83.7
Age	45.5	48.1	45.2	48.0	45.9	48.1
	(14.91)	(16.73)	(15.67)	(17.68)	(13.92)	(15.27)
Observations	1,634	3,556	895	2,092	739	1,464

Notes: *Panel A* and *Panel C* present dummy variables and proportions of them. In *Panel B* and for Age, standard deviations are parentheses. The definitions of treatment and control groups are in the 3.1. sample section.

[a] Household type 1 indicates one person households.

[b] Household type 2 indicates the household of grandparents and grandchildren without parents or the children of families without parents.

[c] Household type 3 indicate ordinary households except for the one person households.

This study uses comparable treatment and control groups whose only difference is their admission into EITC. In the treatment group are persons who applied to and have been admitted to EITC. In the control group are those who applied to but have been rejected from EITC. This study assumes that the observable characteristics of the groups are identical. Those in both groups applied for EITC in the first place because they thought their households qualify for EITC. Also, this study assumes that unobservable characteristics of the groups are identical. Given that all the applicants are willing to receive EITC benefits and to work, their dispositions in life can be considered similar. Thus, getting into the EITC program and receiving EITC benefits should be arbitrary among applicants. Table 1 shows the descriptive statistics of EITC applicants. Table 1, columns (1) and (2) present that the total number of observations is 5,190, of which the control group is 1,634 (32.48%) and the treatment group is 3,556 (68.52%). Columns (3)-(6) demonstrate observations in the subsamples by gender. The purpose of this subsample analysis is not to estimate the gender gap but to estimate the difference in the effects of the EITC eligibility change within the same gender. Table 1 shows that, overall, the treatment and control groups are comparable.

3.2. Methodology

$$\boldsymbol{Y_{it} = \alpha + \gamma EITC_i + \lambda Post2014_t + \beta\, EITC_i * Post2014_t + X'_{it} + \delta_i + \theta_t + \varepsilon_{it}}$$

This study uses individual and time fixed effects in Difference-in-Differences (DID) model. $\boldsymbol{\beta}$ captures the effect of EITC eligibility change on beneficiaries' labor market and life outcomes. *EITC* is an exogenous variable indicating the EITC receipt. Dependent variables are

Labor market participation, Employment, Daily working hours, Annual working days (hours), Gross income. *Labor market participation* indicates whether one participates in the labor market. Statistics Korea considers four types of workers as employed persons: wage and salary workers, unpaid family workers, self-employed workers, public works program participation. Of the four types of workers, this study disregards unpaid family workers as employed persons because they work based on blood ties and do not receive wages accordingly (Jeong, 2014). Since EITC targets are mainly low-income workers who hardly become self-ownership including both own-account workers and employers by receiving EITC benefits (Yoo et al., 2014), for *Employment,* self-ownership considered unemployed for the purposes of this study. This study analyzes the working poor's job continuity with *Annual working hours*, derived by multiplying *Daily working hours* by *Annual working days*. This study controls for individual characteristics (age, health, disability, educational background), household characteristics (marital status, household types), and regional characteristics (residence).

4. Result

Table 2, panel A presents that EITC eligibility change in 2014 has statistically significantly positive effects on beneficiaries' labor market outcomes both at the extensive margin and the intensive margin. Probability of Labor market participation increased by 6.64 percentage point. Probability of getting a job increased by 8.68 percentage point. Daily working hours increased by 0.82, annual working days increased by 19.9, and annual working hours increased by 264.5. Also, Gross income increased by 46 percentage. However, Table 3, column (1) shows no evidence supporting for the statistically significant effects both on life satisfaction and education expenses.

TABLE 2—EFFECTS OF EITC ELIGIBILITY CHANGE IN 2014 ON BENEFICIARIES' LABOR MARKET OUTCOMES

	At extensive margin		At intensive margin			
	Labor market participation	Employment	Daily working hours	Annual Working days	Annual working hours	Gross income
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Full sample			
EITC*Post2014	0.0664*	0.0868**	0.821**	19.90**	264.5***	0.460*
	(0.0376)	(0.0418)	(0.3394)	(9.3660)	(96.44)	(0.2609)
Adjusted R^2	0.0253	0.022	0.0316	0.0304	0.0289	0.0391
N	5,190	5,190	5,190	5,190	5,190	5,190
			Panel B: Female sample			
EITC*Post2014	0.0475	0.0585	0.619	26.71**	319.3***	0.435
	(0.0548)	(0.0560)	(0.4309)	(13.3400)	(114.90)	(0.3729)
Adjusted R^2	0.0332	0.0305	0.0523	0.0493	0.0561	0.0524
N	2,987	2,987	2,987	2,987	2,987	2,987
			Panel C: Male sample			
EITC*Post2014	0.0896*	0.118*	1.111**	12.05	212.4	0.504
	(0.0484)	(0.0626)	(0.5281)	(12.6900)	(159.30)	(0.3532)
Adjusted R^2	0.0306	0.0239	0.0358	0.0199	0.0213	0.0316
N	2,203	2,203	2,203	2,203	2,203	2,203

Notes: Standard errors are in parentheses. In columns (1) and (2), the unit of the coefficients of EITC*Post2014 is percentage point. The units of the coefficients of EITC*Post2014 are hour per a day, days per a year, and hours per a year for columns (3)-(5), respectively. In column (6), the unit of the coefficients of EITC*Post2014 is percentage. All the regressions include all control variables: Health, Disability, Educational background, Marital status, each of Household type, Residential area, and Age. Also, individual and time fixed effects are used in all the regressions. The error terms are clustered in the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 2, panel B presents that EITC eligibility change in 2014 has statistically significantly positive effects on female beneficiaries' labor market outcomes at the intensive margin. Colum (4) shows that annual working days increased by 26.71. Colum (4) presents that annual working hours increased by 319.3. However, columns (1)-(3) and (6) show no evidence supporting for the statistically significant effects on the women's labor market outcomes at the extensive margin and gross income. Also, Table 3, column (2) presents no evidence supporting for the statistically significant effects both on life satisfaction and

education expenses.

TABLE 3—EFFECTS OF EITC ELIGIBILITY CHANGE IN 2014 ON BENEFICIARIES' LIFE OUTCOMES

Outcome measure	Full sample	Female sample	Male Sample
	(1)	(2)	(3)
	Panel A: Life satisfaction		
EITC*Post2014	-0.0392	-0.0341	-0.0405
	(0.0322)	(0.0435)	(0.0484)
Adjusted R^2	0.0137	0.02	0.00954
	Panel B: Education expense		
EITC*Post2014	0.0259	0.0038	0.0509
	(0.1232)	(0.1628)	(0.1886)
Adjusted R^2	0.027	0.0255	0.0336
N	5,190	2,987	2,203

Notes: Standard errors are in parentheses. In *Panel A*, the unit of the coefficients of EITC*Post2014 is percentage point. In *Panel B*, the unit of the coefficients of EITC*Post2014 is percentage. All the regressions include all control variables: Health, Disability, Educational background, Marital status, each of Household type, Residential area, and Age. Also, individual and time fixed effects are used in all the regressions. The error terms are clustered in the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 2, panel C presents that EITC eligibility change in 2014 has statistically significantly positive effects on male beneficiaries' labor market outcomes both at the extensive and the intensive margin. Column (1) shows that probability of Labor market participation increased by 8.96 percentage point. Column (2) presents that probability of getting a job increased by 11.8 percentage point. Column (3) shows that daily working hours increased by 1.11. However, columns (4)-(6) show no evidence supporting for the statistically significant effects both on annual working day (hours) and gross income. Also, Table 3, column (3) presents no evidence supporting for the statistically significant effect both on life satisfaction

and education expenses.

5. Conclusion

The EITC eligibility change in 2014 has shown to have statistically significantly positive effects on the beneficiaries' labor market outcomes. According to the subsample analysis, however, the effects appear rather inconsistent across different labor market outcomes. The effect on female beneficiaries is found at the intensive margin while that on male beneficiaries is found at the extensive margin. These results do not live up to the expectations of the EITC reform – in expanding women's participation in economic activities. This suggests the need for work incentives that can encourage unemployed women to enter the workforce. Whereas men's daily working hours significantly increased, their annual working days did not have a significant effect. These differences in labor market outcomes across gender may have occurred due to the types of jobs that are readily available to low-skilled, low-income men. For instance, they often find work as day laborers, whose employment is essentially unstable (Ji, 2007; Ko, 2019). EITC does not seem to address the problems of unstable employment.

This study contributes to the literature by dividing the sample according to gender and analyzing the difference in the effect of the EITC eligibility change within the same gender. To address data limitations in studying the EITC's effect, this study uses as many observations as possible by using panel data accumulated for 10 years since the EITC implementation. This uses comparable treatment and control groups, controlling for their unobservable characteristics. However, this study has some limitations: due to the way the KoWePS data is collected since the introduction of CTC in 2015, it is possible that some of the treatment group may have benefited from not just EITC but also CTC. The EITC effects on labor market outcomes in the study may have overestimated the true effect. Since 2014, EITC underwent

several changes, and households eligible for EITC and total wages have increased. However, this study did not cover the effects of these policy changes. Some researchers divided the sample of their studies into employment and unemployment, or not in the labor force, groups and analyzed the difference in the EITC effect on the labor supply within the same classification of labor force participation (Eissa & Hoynes, 2004; Lim, 2016; Marr et al., 2015; Shin & Song, 2018). However, this study did not divide the sample according to the classification of labor forces participation to preserve the identical economic characteristics among samples.

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