



UDC 331; DOI 10.18551/rjoas.2022-11.10

ANALYSIS OF MODERATING FACTORS THAT INFLUENCE FEMALE WORKER PRODUCTIVITY IN OIL PALM PLANTATION COMPANIES BASED ON THE WORK ENVIRONMENT, WORK PRESSURE AND WORKLOAD

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ABSTRACT

The purpose of this study was to determine the factors that affect the productivity of women workers based on the work environment, work pressure and workload at oil palm plantation companies in Sungai Bahar District, Muaro Jambi Regency. The research method used is a survey method. The sampling technique used in this study is stratified random sampling which consists of 2 Strata namely Strata I (women workers in private oil palm plantation companies) and Strata II (women workers in state oil palm plantation companies). Moderated effect analysis using smart Partial Least Square (PLS). In the moderation analysis, it can be concluded that the factors that affect the productivity of women workers who work in oil palm plantations are the work environment, while workloads and pressures do not affect the productivity of women workers who work in oil palm plantations. The social characteristics of women workers are able to strengthen the influence of the work environment on the productivity of women workers who work in oil palm plantations in Sungai Bahar District, Muaro Jambi Regency.

KEY WORDS

Female workers, oil palm plantation companies, productivity.

During the last five years, the economic structure of Muaro Jambi Regency has been dominated by the agricultural sector, which is an average of 43.08% per year. The largest agricultural business field comes from the plantation business field, of which oil palm plantations provide the largest contribution. Based on the latest data, the area of oil palm plantations in Muaro Jambi Regency is 80,224 ha, the largest compared to other plantation areas (Central Bureau of Statistics, 2020). In addition, Jambi Province has a number of oil palm plantation companies, as many as 86 companies, 79 of which are large private plantations and 7 companies are large state plantations, where most of these companies are located in Muaro Jambi Regency. The expansion of oil palm plantations has led to changes in the livelihood structure in the form of changes in women's work from domestic to public domain, namely as oil palm workers (Azzahra, et al. 2017). Expansion of industrial oil palm in Indonesia offers further empirical insights to understandings of 'new enclosures' (White et al., 2012). Increasingly, palm oil companies enclose communities who refuse to release land, or whose labor companies do not require, leaving communities in place with plantations installed around their forests and farmland, creating 'residual spaces or "enclaves"' (Li, 2017).

The consequence of the large number of oil palm plantation companies is the large number of workers in the sector. However, a number of previous research results show that the absorption of labor in the oil palm plantation sector is still dominated by men (Lai, et al, 2016); (Julia & White, 2012); (Villamor & van Noordwijk, 2016); (Linares-Bravo et al., 2018). The results of the Jambi Province National Labor Force Survey in 2020 prove that the population of Jambi Province aged 15 years and over mostly works in the agricultural sector, amounting to 807,286 people (46.39% of the total working population). The interesting thing is that the population of Jambi Province who works in the agricultural sector as much as 30.48% are women, totaling 246,041 people with employment status consisting of 35,667 people as casual workers (14.49%) and 35,996 people as laborers (14.63). %). The problem of women workers working for oil palm plantation companies is the gender inequality and



injustice experienced by women workers starting from human rights violations, namely when the palm oil industry is associated with cheap female workers, low standards of security and safety for women workers, health problems for women workers. (due to continuous exposure to pesticides), and sexual harassment (Bassnet et al, 2016; Saidah, 2013). According to Khotimah (2009), the discrimination experienced by women workers can occur due to several things, namely: marginalization in work, the subordinate position of women in society and culture, *stereotypes* against women, and the low level of education of women. Locally embedded gendered norms and power inequalities are produced and sharpened when individuals and communities are adversely incorporated into palm oil systems (McCarthy, 2010; Cramb and McCarthy, 2016).

Gender inequality and the dynamics of food insecurity emerged as a result of the expansion of oil palm plantations (Toumbourou and Dressler, 2021). In the context of oil palm plantation companies, these 5 forms of gender inequality are still experienced by women workers, especially those who work as workers in oil palm plantation companies. Women who work in oil palm plantation companies have the potential to experience various discriminatory treatments. Discriminatory treatment is caused by a patriarchal culture that is still strong in the work environment. This can be seen in the provision of wages, namely female workers get lower wages than male workers. In addition to receiving discriminatory treatment, women workers are also exploited because they are not included in health protection programs, women workers are increasingly unprotected, and women workers are also at risk of sexual harassment because of their subordinated position.

MATERIALS AND METHODS OF RESEARCH

This research method is a survey research method using the Participatory Rural Appraisal method, which is a data collection process that involves active collaboration between data collectors and respondents. Stratified Random Sampling is a sampling technique used in this research which consists of 2 Strata, namely: Strata I are women who work for private oil palm plantation companies, and Strata II are women who work for state oil palm plantation companies. From each stratum/strata, a sampling unit is selected using a simple technique random sampling. The quantitative approach to analyze the antecedent factor productivity of female workers based on work environment, work pressure and workload in oil palm plantation companies in Sungai Bahar District, Muaro Jambi Regency. The data analyzed used Moderation Analysis by using software smart PLS (partial least square). The Measurement SmartPLS uses outer and inner models. Evaluation model of measurement or outer model is done through confirmatory factor analysis (CFA), with test validity by looking at the value of loading factor, evaluation of structural models or inner model at predicting the relationship between latent variables by looking at the magnitude of the percentage of variance explained by looking at the value of R-Square, value the t-statistics on the chart the path coefficients.

RESULTS AND DISCUSION

Analysis of the Social Characteristics of Women Workers in Oil Palm Plantations. The largest age range of respondents who work for state oil palm plantation companies is 40-49 years old with an average age of 44 years. Very different results were obtained from respondents who work in private oil palm plantation companies, the majority (53.57%) in the age range of 24-39 years, with an average age of 32 years. Women workers who work in oil palm plantations, especially in plant maintenance activities, are not limited to a certain age. The age variation who works as the youngest is 24 years old, while the oldest is 51 years old. This shows that the workforce is still productive (Fatikasari, et al. 2018).

The education level of the respondents can be presented in Table 1. The results obtained from field observations can be seen that the majority of the education level of respondents who work in state oil palm plantation companies is Primary school (53.57%), while those who work in private oil palm plantation companies is Junior high school



(40.48%). The highest educational background of female workers (38%) is elementary school background (SD), junior high school background (21%) and high school background (36%) (Dahlani and Qur'ani, 2021).

Based on field observations, it can be seen that 56.00% of female worker respondents who work in state-owned oil palm plantations are casual daily workers, with an average work experience of 20.16 years. The working status of women working in private oil palm plantation companies is 98.00% are casual daily laborers and the remaining 2.00% are permanent daily workers, with an average work experience of 3.14 years. 8% of female workers who are casual daily workers aged 21-25 years are 8%, while for those aged > 30 years, 92% of female workers are permanent daily workers and 54% are casual daily workers (Fatikasari, et al. 2018). The majority of these female workers are casual daily workers, even though they have been casual daily workers for years. Only the foremen or supervisors who in fact are male and administrative employees who have the status of permanent daily workers. Of course the difference in the status of workers affects the wages received. with four or five working days a week. So that their income for a month according to them, is not sufficient for their daily needs, especially to send their children to a higher level (Ningsih, 2019).

Table 1 – Social Characteristics of female workers

| No. | Age (years) | Plantation (%) | | Education | Plantation (%) | |
|--------|-------------|----------------|---------|--------------------|----------------|---------|
| | | Country | Private | | Country | Private |
| 1 | 24-39 | 26.79 | 53.57 | No school | 0.00 | 4.76 |
| 2 | 40-49 | 42.86 | 38.10 | Primary school | 53.57 | 29.76 |
| 3 | 50-59 | 25.00 | 8.33 | Junior high school | 32.14 | 40.48 |
| 4 | > 60 | 5.36 | 0.00 | Senior High School | 14.29 | 25.00 |
| Amount | | 100.00 | 100.00 | Amount | 100.00 | 100.00 |

The types of work most often carried out by women workers on palm oil plantations in sequence are: fertilizing, spraying chemicals to reduce weeds, cleaning the midribs, collecting seeds from fresh fruit bunches (FFB) and collecting dried fruit bunches. When viewed from the abilities and skills of a female workers, the majority of female workers can have the skills to do three types of work, namely: fertilizing, spraying chemicals to reduce weeds, and cleaning the midrib. The frequency of work of women in one week for six days (Monday to Saturday) except holidays, with total daily working hours of 6 (six) hours (07.00-12.00). The wages earned for each type of work range from Rp. 80,000-85,000, with an agreement system for the amount of work volume that has been agreed upon " *borongan* ". Fertilization wages earned by female workers are Rp. 90,000ha⁻¹. (In 1 one ha it takes 8 tons of fertilizer and is done by 8 people).

Judging from the ergonomics aspect, the workload of a person must be appropriate and balanced with the physical and psychological abilities of the workers doing the work or the workload of the work being done. The types of work and working hours of respondents who work in state and private oil palm plantations can be illustrated in Table 2.

Table 2 – Types of gender work in state and private oil palm plantations

| No | Job Type | Female workforce | Male Labor |
|-----------------------------------------------------------|--------------------------------------------------|------------------|------------|
| 1 | Care and maintenance | | |
| | a. slash | √ | |
| | b. Cleaning dishes | √ | |
| | c. Spread fertilizer | √ | |
| | d. Passing fertilizer | | √ |
| | e. Spraying pesticides | √ | |
| | f. Sliding water for spraying from water sources | | √ |
| g. Cleaning the garden | √ | | |
| 2 | Harvest the garden | | |
| | a. Dododos fruit | | √ |
| | b. Scratch fruit | | √ |
| | c. Picking up the fallen fruit | √ | |
| | d. Pushing fruit using the trolley | √ | |
| e. Collecting fruit heading to the fruit collection point | | √ | |



The type of work that is mostly done by female workers in plant maintenance activities in oil palm plantation companies is as fertilizing workers, followed by circle weeding work and path spraying work (Fatikasari, et al. 2018). The types of work carried out by women workers in oil palm plantations are spraying, slashing, cutting, fertilizing, clericing and seeding (Ningsih, 2019). The activities of women laborers in oil palm plantations include separating oil palm seeds from their bunches, upholding oil palm bunches (manual slashing), clearing weeds around oil palm areas, spraying weeds or eradicating pests around oil palm trees (Apriani et al 2018).

Analysis of factors that affect productivity. The initial stage to develop a governance model for the productivity of women workers based on the environment, pressure and workload in oil palm plantation companies in Sungai Bahar District, Muaro Jambi Regency is to identify the factors that affect the productivity of women workers who work as casual daily laborers in oil palm plantations. The analysis of the identification of the determining factors that affect the productivity of the female workforce in this study was carried out using a Structural Equation Modeling analysis model approach using Smart PLS3. To find out the validity of the relationship between indicators and their latent constructs or variables, the convergent validity test is used.

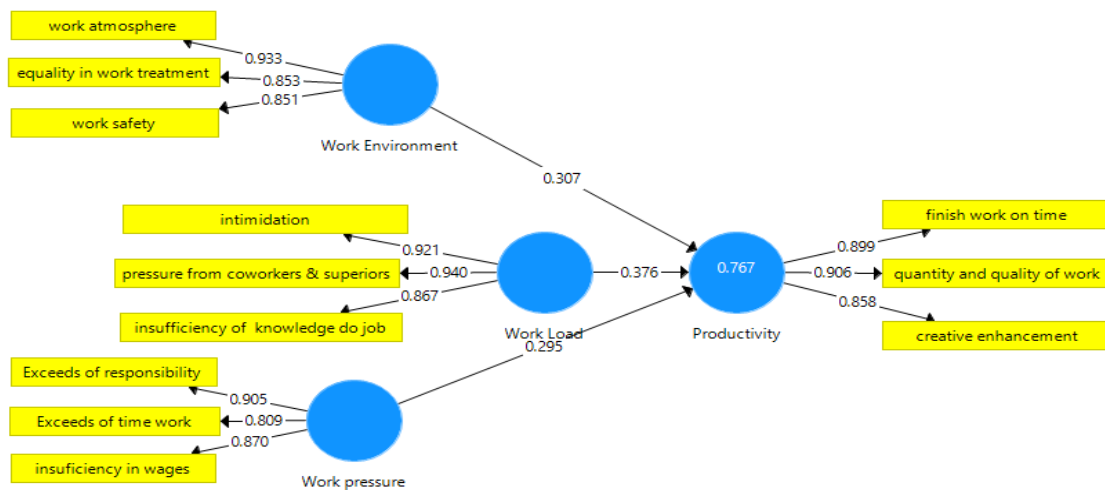


Figure 1 – Structural Model for Productivity of Women labour at oil palm plantations (Outer Loading)

After re-specifying the model, then in Fig. 1 can be obtained that all loading factor values are above 0.70. These results indicate that the construct of the model meets the criteria of convergent validity or in other words the indicators used are valid to be able to measure each latent variable in the modeling of the productivity of women workers who work in oil palm plantations. To ensure that each concept of each model of the latent variable is different from other variables, a discriminant validity test is used. Meanwhile, to evaluate the discriminant validity for each construct or latent variable, the AVE (*average variance extracted*) test was used. In this study the limit value of the loading factor is 0.70, and the AVE value for all constructs has a value > 0.50 (Hair et al, 2006).

The results of this study indicate that the model has better discriminant validity if the square root of the AVE for each construct is greater than the correlation between the two constructs in the model. The AVE test results can be seen in Table 2 which shows that the AVE value for all constructs has a value > 0.50 . These results indicate that there is no convergent validity problem in the model being tested. Composite reliability test is used to measure the real reliability value of a variable, while Cronbach Alpha is used to measure the lowest value (lowerbound) of the reliability of a variable. In this study, the limit value of Composite Reliability is > 0.60 , and the AVE value is > 0.60 (Hair et al, 2006). The results of the composite reliability test in Table 2 show that the value is above 0.60. These results indicate that all constructs have good reliability criteria. While the Cronbach alpha test is



greater than 0.6, these results indicate that all latent variable constructs can be declared reliable.

Table 2 – Construct validity and reliability structural model for productivity of women labour at oil palm plantations

| No | Variable | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|----|------------------|------------------|-----------------------|----------------------------------|
| 1 | Productivity | 0.866 | 0.918 | 0.789 |
| 2 | Work Environment | 0.853 | 0.911 | 0.774 |
| 3 | Workload | 0.896 | 0.935 | 0.828 |
| 4 | work pressure | 0.827 | 0.897 | 0.743 |

Structural model testing consists of two, namely the magnitude of the R-square value used to assess how much influence certain independent latent variables have on the dependent latent variable and the result value of Bootstrapping. The value of R² from the modeling of the determinants of the productivity of women workers who work in private oil palm plantations is 0.776 (R² adjusted = 0.762). This result means that the variables of the work environment, workload, and work pressure are able to explain the productivity of workers. women in oil palm plantations are 77.60%, while the rest (22.40%) are influenced by other factors outside the model.

Table 3 – Total Effect structural model for productivity of women labour at oil palm plantations

| No | Variable | Original Sample (O) | Sample Mean (M) | T Statistics (O/STDEV) | P Values |
|----|----------------------------------|---------------------|-----------------|--------------------------|----------|
| 1 | Work Environment -> Productivity | 0.307 | 0.323 | 2,677 | 0.007 |
| 2 | Workload -> Productivity | 0.376 | 0.365 | 1,824 | 0.057 |
| 3 | Work pressure -> Productivity | 0.295 | 0.295 | 1,824 | 0.055 |

Based on Table 3, it can be seen that the latent variable of women's work environment in oil palm plantations has a significant effect on the productivity of women workers who work in oil palm plantation companies in Sungai Bahar District, Muaro Jambi Regency. However, the results of the analysis show that the workload and work pressure of women workers in oil palm plantation companies have no significant effect on the productivity of women workers who work for oil palm plantation companies in Sungai Bahar District, Muaro Jambi Regency.

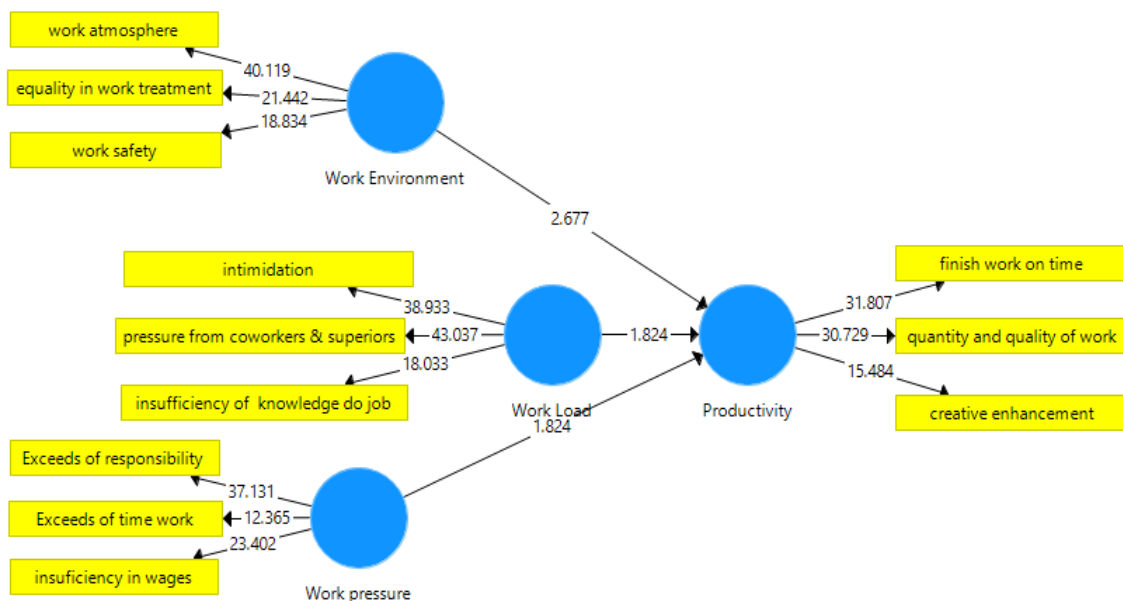


Figure 2 – Bootstrapping Result

Analysis Moderating Factors That Influence Female Worker Productivity. Moderation analysis is used to identify the factors that affect the productivity of women workers based on the work environment, workload, and work pressure. The latent variable that becomes the



moderating variable in this study is the social characteristics of female workers with three exogenous variables, namely education level, age, and number of family members. After re-specifying the model, then in Fig. 3 it can be obtained that all loading factor values are above 0.70. These results indicate that the construct of the model meets the criteria of convergent validity or in other words the indicators used are valid to be able to measure each latent variable in the modeling of the productivity of women workers who work in oil palm plantations.

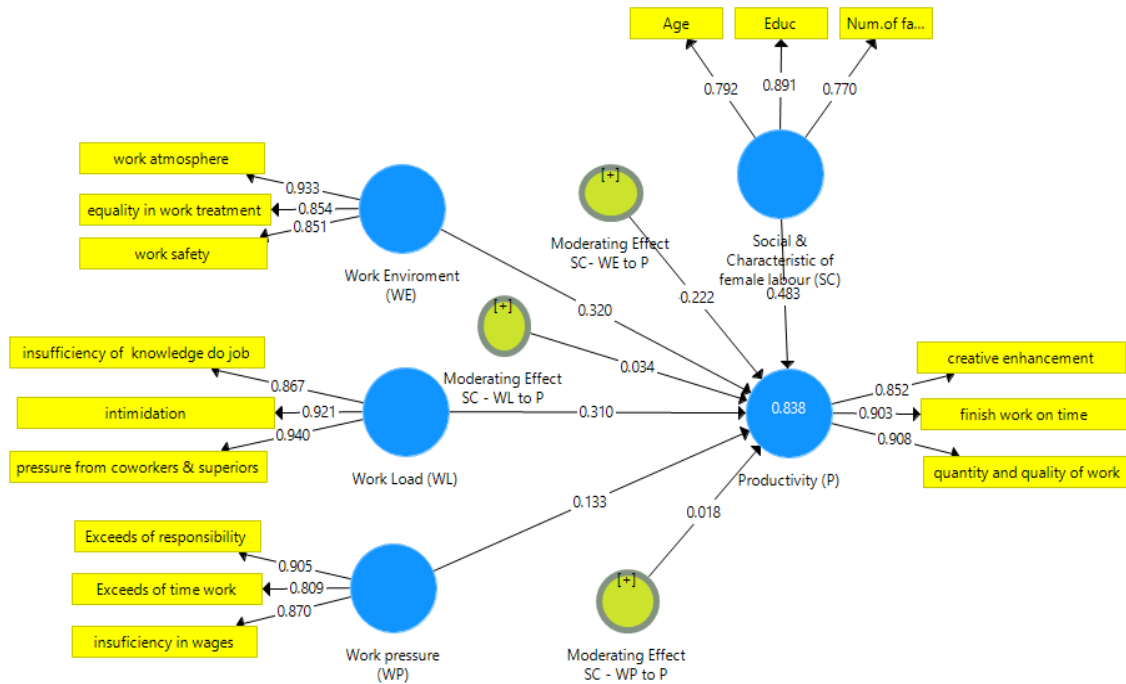


Figure 3 – Structural Model for Moderating effect of social characteristics of Women labour at oil palm plantations (Outer Loading)

Table 4 – Construct Validity and Reliability

| n/n | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|-----------------------------------------------|------------------|-----------------------|----------------------------------|
| Moderating Effect SC - WL to P | 1,000 | 1,000 | 1,000 |
| Moderating Effect SC - WP to P | 1,000 | 1,000 | 1,000 |
| Moderating Effect SC- WE to P | 1,000 | 1,000 | 1,000 |
| Productivity (P) | 0.866 | 0.918 | 0.788 |
| Social & Characteristics of female labor (SC) | 0.754 | 0.859 | 0.672 |
| Work Environment (WE) | 0.853 | 0.911 | 0.774 |
| Workload (WL) | 0.896 | 0.935 | 0.828 |
| Work pressure (WP) | 0.827 | 0.897 | 0.743 |

The AVE test results can be seen in Table 4 which shows that the AVE value for all constructs has a value > 0.50. These results indicate that there is no convergent validity problem in the model being tested. The results of the composite reliability test in Table 4 show that the value is above 0.60. These results indicate that all constructs have good reliability criteria. While the Cronbach alpha test is greater than 0.6, these results indicate that all latent variable constructs can be declared reliable.

The results of the analysis show that the social characteristics of women workers and the work environment of women workers affect the productivity of women workers who work in oil palm plantation companies in Sungai Bahar District, Muaro Jambi Regency. Furthermore, the social characteristics of women workers can moderate the work environment of women workers on the productivity of women workers who work in oil palm plantation companies in Sungai Bahar District, Muaro Jambi Regency.

The variable type of work is a factor that has a positive effect on the productivity of the female workforce because the type of work is (at a significant level of 5%) which means that



the easier the type of work done, the greater the resulting productivity (Fatikasari, et al. 2018). Women workers on oil palm plantations experience a double workload, namely doing work on the plantation for 5 hours, starting at around 06.30 – 11.00 WIB, then returning to resume reproductive work (Theresia and Wahyuni, 2021). The amount of wages for women workers in oil palm plantations as casual workers is not necessarily in accordance with the type and results of the work. It was found that there is a difference in wages between male and female workers in oil palm plantations (Fatchiya, et al. 2022). The workload of employees at PT X Palm Oil Mill partially has a significant effect on employee work performance (Wisudawati and Pratama, 2021). Women in the oil palm site experienced greater stress over time scarcity and employed coping strategies more frequently (Rowland, et al. 2022; Pradipta, 2017). On average, women in the oil palm sector worked two hours more than those in the swidden sites and spent 72 min less on leisure and personal activities and had 45 min less sleep (Rowland, et al. 2022). Women reporting stress and tiredness due to managing competing demands on their time. Especially in providing evidence of the 'invisible' role of women's labor in agricultural livelihoods as well as the routinely underestimated burden of reproductive labor (domestic work and caregiving) (Doss, 2018).

Table 3 – Structural Model Testing using Bootstrapping

| | Original Sample (O) | T Statistics (O/STDEV) | P Values | Hypothesis testing result |
|------------------------------------------------------------------|---------------------|--------------------------|----------|---------------------------|
| Moderating Effect SC - WL -> Productivity (P) | 0.034 | 0.149 | 0.874 | Rejected |
| Moderating Effect SC - WP -> Productivity (P) | 0.018 | 0.099 | 0.922 | Rejected |
| Moderating Effect SC- WE -> Productivity (P) | 0.222 | 2,347 | 0.031 | Accepted |
| Social & Characteristic of female labor (SC) -> Productivity (P) | 0.483 | 3.157 | 0.002 | Accepted |
| Work Environment (WE) -> Productivity (P) | 0.320 | 2,615 | 0.015 | Accepted |
| Work Load (WL) -> Productivity (P) | 0.310 | 1,696 | 0.081 | Rejected |
| Work pressure (WP) -> Productivity (P) | 0.133 | 0.844 | 0.359 | Rejected |

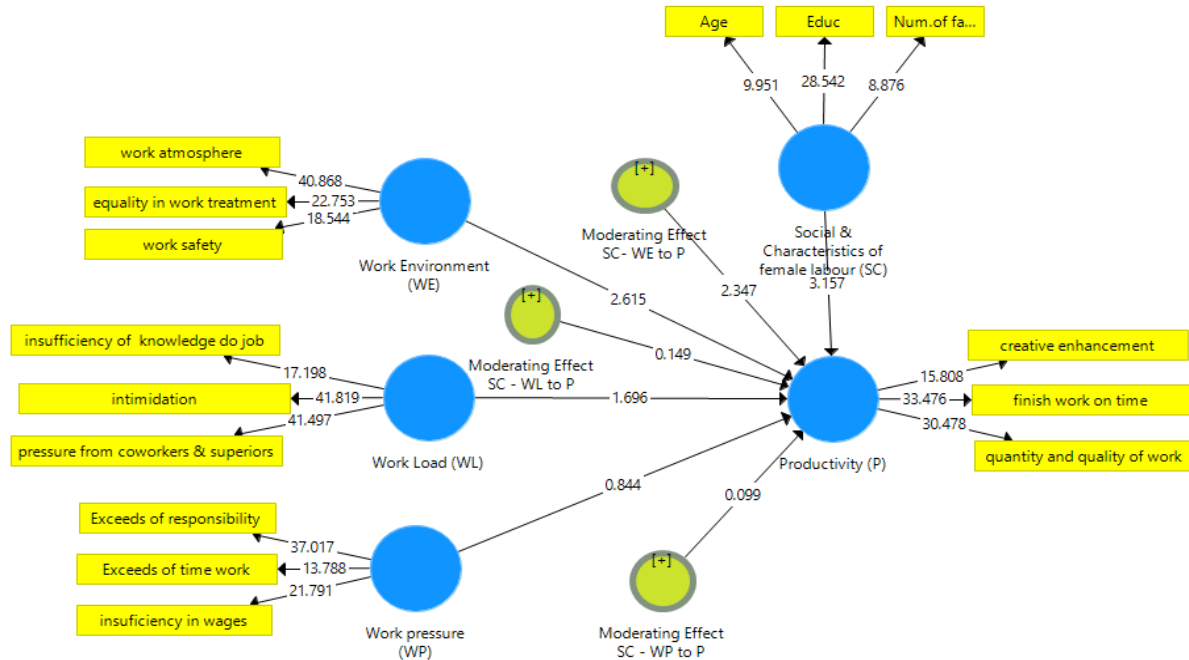


Figure 2 – Bootstrapping Result

Moidady et al's research (2017) concludes: First, female workers in oil palm plantation companies are not free to personally choose to work anywhere, but are recruited informally by the foreman. Second, female casual daily laborers work in oil palm plantation companies for long hours (12 hours) and intensively doing seeding and planting with low daily wages and the use of simple (non-mechanized) production tools. Third, female casual daily laborers



work in oil palm plantation companies for eight hours (intensively) using production inputs such as sprayers (mechanisation), NPK fertilizers and herbicides (chemicals) when fertilizing, chemical, and maintenance. Fourth, female casual daily laborers work for seven hours intensively using simple (non-mechanized) harvest production tools.

CONCLUSION

Factors that affect the productivity of women workers who work in oil palm plantations in Sungai Bahar District, Muaro Jambi Regency are the work environment, while workloads and pressures do not affect the productivity of women workers who work in oil palm plantations. The social characteristics of women workers are able to strengthen the influence of the work environment on the productivity of women workers who work in oil palm plantations in Sungai Bahar District, Muaro Jambi Regency.

ACKNOWLEDGMENTS

This research was funded by PNPB DIPA, Jambi University in Gender Research Scheme for fiscal 2021.

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