

## THE EFFECT OF SOCIO-DEMOGRAPHICS ON EMPLOYEE PRODUCTIVITY

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### *Abstrak*

Sosio demografis merupakan kondisi sosial seseorang yang dilihat dari faktor latar belakang individu. Faktor sosio demografis yang digunakan dalam penelitian ini yaitu usia, jenis kelamin, tingkat pendidikan dan masa kerja. Penelitian ini dilakukan di Badan Pusat Statistik (BPS) wilayah Madiun. Tujuan penelitian ini adalah untuk mengetahui apakah usia, jenis kelamin, tingkat pendidikan dan masa kerja berpengaruh terhadap produktivitas karyawan di BPS wilayah Madiun. Pengambilan sampel dalam penelitian ini menggunakan tehnik sampling jenuh pada 50 orang karyawan. Tehnik analisis data dalam penelitian ini menggunakan Analisis Regresi Linier Berganda dengan Uji-T, Uji-R determinasi dan Uji-F. Hasil dari penelitian ini menunjukkan bahwa usia, jenis kelamin dan tingkat pendidikan berpengaruh tidak signifikan terhadap produktivitas karyawan di BPS wilayah Madiun, sedangkan masa kerja secara signifikan berpengaruh terhadap produktivitas kerja karyawan di BPS wilayah Madiun.

**Kata Kunci:** Sosio demografis, Masa kerja, Produktivitas Karyawan.

### *Abstract*

*Socio-demographics refer to an individual's social conditions viewed from their background factors. The socio-demographic factors used in this study are age, gender, education level, and tenure. This research was conducted at the Central Badan Pusat Statistik (BPS) Madiun region. The goal of this study was to find out if factors like age, gender, education level, and job tenure affect how productive employees are at BPS Madiun region. For this study, a saturated sampling method was used, which included 50 employees. To analyze the data, the researchers used Multiple Linear Regression along with T-test and F-test. The results showed that age, gender, and education level do not have a significant impact on employee productivity at BPS Madiun region, while tenure has a significant influence of employee productivity at BPS Madiun region.*

**Keywords:** *Socio-demographics, Tenure, Employee Productivity*

## A. INTRODUCTION

Human resources are the most important part of a company's growth and ability to stay strong over time. Getting good human resources requires a lot of education because education helps create workers who are skilled and have up-to-date ways of thinking (Febianti *et al.*, 2023).

Socio-demography is a branch of science that specifically discusses various individual characteristics, which includes four main aspects of demographic factors, namely age, gender, education level, and length of service within a company. Through this socio-demographic approach, the differences possessed by each individual can be identified and analyzed, particularly in relation to the level of productivity demonstrated by employees in the work environment. In Indonesia, the labor force is characterized not only by its very large size but also by its generally relatively low education level. If a worker's education level has a positive relationship with the skills they possess and the level of productivity they can generate, then this condition indicates that a large portion of the workforce in Indonesia is still categorized as having limited skills and a tendency for low productivity (Swarsih & Junaidi, 2020).

According to 2023 data from BPS for the Madiun Region, the percentage of the working population with an Elementary School (SD) education level in Madiun Regency is 48.37%. This is significantly larger compared to those with a SMA/SMK equivalent, who make up 11.51% to 14.82%, Diploma holders at 0.99%, and University graduates at 4.42%. In contrast, Madiun City has a much smaller percentage of its working population with an Elementary School (SD) education at 10.99%. The figures for other education levels in the city are as follows (SMA/SMK) graduates account for 19.47% to 31.85%, Diploma holders make up 5.05%, and University graduates represent 20.56% in 2023. Studies by (Febianti *et al.*, 2023) and (Sigarlaki *et al.*, 2019) showed that the level of education does not significantly influence employee productivity. However, other research conducted by (Lukminto & Edy and (Permana *et al.*, 2020) indicates that education does influence employee productivity. According to 2023 data from BPS of Madiun Regency, the number of working individuals by gender shows that 243,966 are male, while

176,232 are female, indicating a considerable gap. For Madiun City, 2023 BPS data shows the number of working males is 57,903 and working females is 47,410.

Employee productivity can also be analyzed based on gender. Generally, male employees tend to have greater physical strength compared to females. However, some jobs are more suitable for women. According to research by (Desanti & Ariusni, 2021) the productivity level of men is higher than that of women, a finding consistent with the study by (Febianti et al., 2023). Conversely, another study by (Siahaya et al., n.d.) shows that gender does not influence employee productivity. A person's age can be a measure of their productivity level. An employee within their productive age is believed to be more capable of performing activities maximally to achieve company goals. Research by (Febianti et al., 2023; Jamaludin et al., 2024; Meutia et al., 2022) shows that age affects a person's productivity. As a person ages, their productivity declines in line with their biological condition. However, research by (Gusti et al., 2023) indicates that age does not affect productivity.

Length of service is also predicted to affect productivity, as more work experience leads to greater knowledge. The longer an employee's tenure, the more positively it can impact their performance. Extensive experience allows employees to think more critically and solve problems more easily (Gusti et al., 2023). This statement aligns with research by (Nur Ainal Karima et al., n.d.) and (Sali, 2020) which shows that tenure influences employee productivity. Based on the background described, the researcher aims to determine whether socio-demographics viewed from the aspects of age, gender, education level, and tenure influence employee productivity at the BPS (Central Statistics Agency) of the Madiun Region, and to what extent these socio-demographic differences affect employee productivity at the BPS Madiun Region. From this problem formulation, the following research hypotheses are proposed:

**H<sub>1</sub>:** Age influences the productivity of employees at the BPS Madiun Region

**H<sub>2</sub>:** Gender influences the productivity of employees at the BPS Madiun Region.

**H<sub>3</sub>:** Education level influences the productivity of employees at the BPS Madiun Region.

**H<sub>4</sub>:** Tenure (length of service) influences the productivity of employees at the BPS Madiun Region.

**H<sub>5</sub>:** Age, gender, education level, and tenure collectively influence the productivity of employees at the BPS Madiun Region.

## B. METHOD

In this study, the research was conducted at the BPS of the Madiun Region, specifically BPS Madiun Regency, located at Jl. Marsma TNI Anumerta R. Iswahjudi No.30, Jiwan Utara, Jiwan, Kec. Jiwan, Kabupaten Madiun, Jawa Timur. BPS Madiun City, located at Jl. Raya Mayjen Di Panjaitan No.11, Taman, Kec. Taman, Kota Madiun, Jawa Timur. The study focused on the employees of BPS Madiun Region, with a total population of 50 people. This research used a saturated sampling method, meaning the entire population was taken as respondents. Data for this study was collected using primary data in the form of questionnaire results from the respondents and secondary data obtained from employee records, which included age, tenure (length of service at the agency), education level, and gender.

## C. RESULTS AND DISCUSSIONS

### Validity Test Results

The validity test for the variable Age ( $X_1$ ), which consists of six statements, showed that the calculated r-value (*r-hitung*) was higher than the critical r-table value (*r-tabel*), ranging between 0.496 and 0.754. The variable Gender ( $X_2$ ), consisting of four statements, showed that all items had a calculated r-value higher than the r-table value of 0.279, with a range from 0.444 to 0.718. The variable Education Level ( $X_3$ ), with four statements, indicated that all items had a calculated r-value greater than the r-table value of 0.279, ranging between 0.773 and 0.813. The variable Tenure ( $X_4$ ), with six statements, showed that the calculated r-values were greater than the r-table value of 0.279, with a range from 0.691 to 0.904. Since the calculated r-value for every

item in all four variables ( $X_1$ ,  $X_2$ ,  $X_3$ , and  $X_4$ ) is greater than the critical r-table value, all items for these variables are declared valid.

## Reliability Test

The variables Age ( $X_1$ ), Gender ( $X_2$ ), Education Level ( $X_3$ ), and Tenure ( $X_4$ ) all have a Cronbach's alpha value  $> 0.60$ . This indicates that all statements (items) within each variable are reliable.

## Classical Assumption Tests

### Normality Test

This study used the One-Sample Kolmogorov-Smirnov Test. The test indicates that if the Asymp. Sig. (2-tailed) value is  $> 0.05$ , then the data is normally distributed. Based on Table 1 below, it can be concluded that the data is normal because the Asymp. Sig. value is  $0.200 > 0.05$ . Therefore, the data is said to be normally distributed.

**Tabel 1. Normality Test Result**  
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		50
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	1.84375555
Most Extreme Differences	Absolute	.091
	Positive	.079
	Negative	-.091
Test Statistic		.091
Asymp. Sig. (2-tailed)		.200 <sup>c,d</sup>

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

Source: Processed Primary Data (2025)

### Multivollinearity Test

The multicollinearity test checks if there is a strong connection between the independent variables in a regression model. This test uses the tolerance value and the Variance Inflation Factor

(VIF) from the SPSS analysis. If the tolerance value is greater than 0.10 or the VIF is less than 10, it means there is no multicollinearity.

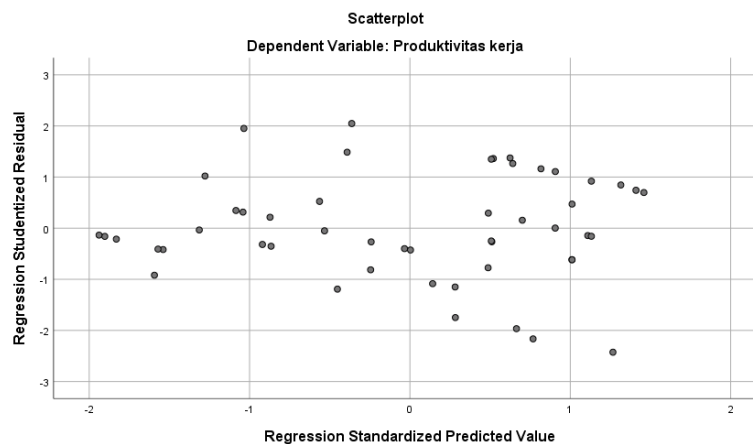
**Table 2 Multicollinearity Result**

Variabel	Colinearity Statistics	
	Tolerance	Variance Inflation Factor
Usia	0,931	1,074
Jenis kelamin	0,903	1,107
Tingkat pendidikan	0,537	1,863
Masa kerja	0,592	1,690

Source: Processed Primery Data (2025)

Based on Table 2 above, it showed that the Variance Inflation Factor (VIF) values are all less than 10, as follows age:  $1.074 < 10$ , gender:  $1.107 < 10$ , education level:  $1.863 < 10$ , tenure:  $1.690 < 10$ . Furthermore, the tolerance values are all greater than 0.1: age:  $0.931 > 0.1$ , gender:  $0.903 > 0.1$ , education level:  $0.537 > 0.1$ , tenure:  $0.592 > 0.1$ . Therefore, the regression model is free from multicollinearity.

## Heteroscedasticity Test



**Picture 1 Scatterplot heteroscedasticity test**  
Processed Primery Data (2025)

The heteroscedasticity test aims to determine whether the regression model has inequality of variance in the residuals from one observation to another. A good regression model is one that is free from heteroscedasticity. In this study, the method used to detect symptoms of heteroscedasticity is by examining the scatterplot between the predicted values of the dependent variable (ZPRED) and its residuals (SRESID).

Based on Picture 1 above, The scatterplot shows that the points are spread out randomly and don't make a clear pattern or line. The graph also shows that the data is centered around the zero point. The results from this test show that the regression model doesn't have the issue of heteroscedasticity.

## Multiple Linear Regression Test

### Partial Significance Test (T-test)

The Partial Test (T-test) shows how far each independent variable individually explains the variation. This test uses a significance level of 5%. When the significance value is less than 0.05, it shows that there is a significant relationship between one independent variable and the dependent variable. If the significance value is more than 0.05, it means there is no significant relationship between one independent variable and the dependent variable.

**Table 3 T-Test Result**

		Coefficients <sup>a</sup>				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.782	4.287		1.116	.271
	Usia	.160	.168	.120	.953	.346
	Jenis Kelamin	.047	.173	.035	.275	.785
	Tingkat pendidikan	.088	.248	.059	.357	.723
	Masa kerja	.505	.158	.504	3.196	.003

a. Dependent Variable: Produktivitas kerja

Source: Processed Primary Data (2025)

Based on the SPSS output, it can be seen that the variables age, education, and gender have a Sig. value  $> 0.05$ . This means they do not have a significant influence on employee productivity. Conversely, tenure (length of service) has a Sig. value of  $0.003 < 0.05$ , which means it has a significant positive influence on the productivity of employees at the BPS (Central Statistics Agency) of the Madiun Region.

### Simultaneous Test (F-Test)

The F-Test is conducted to examine the simultaneous influence of independent variables on the dependent variable. This is done by looking at the level of significance (0.05). If the significance value is less than 0.05, the hypothesis is accepted.

**Table 2 F-Test Result**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	85.428	4	21.357	5.770	.001 <sup>b</sup>
	Residual	166.572	45	3.702		
	Total	252.000	49			

a. Dependent Variable: Produktivitas kerja

b. Predictors: (Constant), TOTALX4, TOTALX2, TOTAL X1, TOTALX3

Source: Processed Primary Data (2025)

As seen from Table 2 above, it can be concluded that the Sig. value of  $0.001 < 0.05$ . This means that variables age, gender, education level, and tenure have a significant simultaneous influence (together) on employee productivity.

### Coefficient of Determination Test (R<sup>2</sup> Test)

This analysis of the coefficient of determination is used to determine the percentage of the variation in the dependent variable that is explained by the independent variables. Based on the results processed using SPSS 26, an Adjusted R Square value of 0.280 was obtained. This means the coefficient of determination in this study is 28%, indicating that 28% of the variation in work

productivity can be explained by the variables age, gender, education level, and tenure. The remaining  $100\% - 28\% = 72\%$  is can explained by other variables outside this research model.

### D. CONCLUSIONS

From the results above, it can be concluded that the socio-demographic factors namely the variables age, gender, education level, and tenure have an influence, both partially and simultaneously. The variables age, gender, and education level do not have a significant influence on employee productivity at the BPS Madiun Region. However, the tenure variable has a significant positive influence on employee productivity at the BPS Madiun Region.

### E. SUGGESTIONS

The results of this study are expected to serve as a reference for future research to incorporate other variables not used in this study

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