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Analysis of the factors affecting employee productivity at the regional planning and development agency of Mimika Regency

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Abstract
Purpose: The objectives of this study are: 1. To analyze the relationship between salary and employee productivity, 2. To analyze the relationship between work relationships and employee productivity, 3. To analyze the effect of the work environment on employee productivity, 4. To analyze the impact of promotions on the productivity of employees at the Regional Planning and Development Agency (Bappeda) of Mimika Regency.
Research methodology: The research method used is quantitative correlational analysis with SEM-PLS. Data were collected using a Likert-scale questionnaire and analyzed to test validity, reliability, and the relationships between variables.
Results: The results show: 1. Salary (X_1) has a significant negative effect on productivity, indicating the need for an evaluation of the salary system; 2. Work Relationships (X_2); 3. Work Environment (X_3) has a significant positive effect on productivity, highlighting the importance of trust and good working conditions; 4. Promotion (X_4) has no significant effect on productivity, suggesting the need for improvements in the promotion mechanism. These findings emphasize the importance of improving the quality of work relationships, the work environment, as well as reviewing the salary and promotion systems to enhance employee productivity.
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1. Introduction

Productivity is one of the most important indicators in evaluating the performance of an organization, including the Regional Planning and Development Agency (Bappeda) of Mimika Regency. As an institution responsible for regional planning and development, Bappeda plays a key role in formulating policies, programs, and activities aimed at improving the welfare of the community and promoting economic growth in the region. From an economic perspective, the theory of employee productivity can be explained through an approach where productivity is one of the critical indicators in assessing the economic performance of a country or organization. According to Mankiw (2015), productivity is the key factor in determining national income and the standard of living of a country. In macroeconomic terms, productivity is measured by the amount of goods/services produced. In other words, employees with high competence become assets to an organization, contributing to efficiency, innovation, and competitive advantage, including in the public sector (Patrick, Chike, & Phina, 2022).

In this context, high productivity contributes to the effectiveness and efficiency in utilizing resources, as well as achieving the development targets that have been set. The Ministry of National Development Planning (Bappenas, 2020) states that "high productivity in regional development planning and

implementation is the key to achieving community welfare." Mimika Regency, located in Central Papua Province, has unique characteristics and challenges in the planning and development process. Despite having abundant natural resources, the region faces various social, economic, and environmental issues, requiring Bappeda Mimika to optimize its performance to meet the needs of the community quickly and appropriately. However, in practice, there are various factors affecting Bappeda's productivity, both from internal and external aspects.

Understanding the factors that influence productivity at Bappeda Mimika Regency has become increasingly important, especially in efforts to improve the quality of planning and implementation of development. Kuncoro (1997) emphasizes that high productivity in the public sector is crucial to achieving sustainable development goals. Todaro and Smith (2009) also stress that effective economic development requires an increase in productivity as one of its key pillars.

Through this research, the authors aim to identify and analyze the factors affecting employee productivity at Bappeda Mimika Regency. It is hoped that the findings of this research will provide useful recommendations for policy-making and improvements to the working system at Bappeda Mimika, as well as contribute to the development of knowledge in the field of regional planning and development.

2. Literature review

2.1 Employee Productivity Theory

Productivity is one of the important indicators in assessing the economic performance of a country or organization. According to Mankiw (2015), productivity is the key factor in determining national income and the standard of living of a country. In macroeconomic terms, productivity is measured by the amount of goods/services produced (Habib & Mehzabin, 2024).

2.2 Labor Market Theory

The labor market theory explains that wages and the number of workers are determined by the interaction between labor supply and demand, similar to the general market mechanism (Mankiw, 2015).

2.3 Supply and Demand Theory

The supply and demand theory is one of the basic concepts in economics that explains how the price and quantity of goods or services are determined in the market. According to Samuelson and Nordhaus (2010), the law of demand states that, assuming other factors remain constant, when the price of a good increases, the quantity demanded will decrease, and vice versa.

2.4 Wage Theory

Mankiw (2015) through a theoretical approach shows that the wage level in a competitive labor market is greatly influenced by the productivity of workers. He emphasizes that when productivity increases, wages tend to rise, so a compensation system that reflects the real contribution of employees can drive performance and work effectiveness.

2.6 Work Environment Theory

North (1990) emphasizes that institutional rules and norms shape the working conditions that are comfortable and safe for employees. In this context, the application of sustainable development principles is also essential for creating a work environment that is not only productive but also environmentally friendly (Sadeghi & Barzegari, 2020).

2.7 Promotion Theory

The promotion process in organizations plays a strategic role in motivating employees and enhancing their loyalty. North (1990) emphasizes that institutions that are transparent and fair in the promotion process can build employee trust in the organization.

2.9 Conceptual Framework

This research framework assumes that employee productivity at Bappeda Mimika Regency is influenced by:

1. Adequate salary (compensation) as a key motivator for employees.
2. Harmonious and conducive work relationships between superiors, subordinates, and colleagues.
3. A comfortable work environment that supports health and work enthusiasm.
4. A fair promotion system that provides career development opportunities

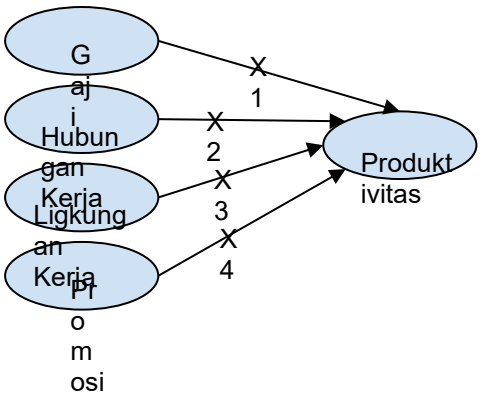

Illustration 2.1 Conceptual Framework
Source: Processed Data, 2025

2.10 Research Hypotheses

Based on the above framework, the proposed hypotheses are:

H1: Salary positively influences employee productivity at Bappeda Mimika Regency.
H2: Work relationships positively influence employee productivity at Bappeda Mimika Regency.
H3: The work environment positively influences employee productivity at Bappeda Mimika Regency.
H4: Promotion positively influences employee productivity at Bappeda Mimika Regency.

3. Research methodology

3.1 Research Location and Time

The research and data collection were conducted at the Regional Planning and Development Agency (Bappeda) of Mimika Regency, Jl. Mayon Timika, Central Papua. Scientifically, the choice of the research location at Bappeda Mimika was based on its unique characteristics in the reward system, which differs from other institutions. This research is important to identify key factors that can enhance employee productivity so that Bappeda Mimika can achieve development targets more effectively. The research was carried out from January to March 2025.

3.2 Types and Sources of Data

This study uses both primary and secondary data to provide a comprehensive understanding of the effects of salary, work relationships, work environment, and promotions on employee productivity. Primary data were obtained through a direct survey of employees at the Regional Planning and Development Agency (Bappeda) of Mimika Regency using a questionnaire that was developed based on the indicators of the research variables. In addition, interviews were conducted to explore aspects that could not be captured by the questionnaire alone. Secondary data included official documents, personnel reports, and employee productivity evaluation results from the relevant agency, used as supplements and comparisons in the analysis. The use of both types of data aims to enhance the validity and reliability of the research findings (Ghorbani & Khanachah, 2021).

The primary data source came from employees of Bappeda Mimika Regency as research respondents for 2024. The data collected includes information on salary amounts, quality of work relationships among employees, working conditions, and promotion policies applied within the agency. All these

data serve as the foundation for measuring and analyzing the influence of these variables on employee productivity holistically.

3.3 Population and Sample

The population in this study consists of all 75 employees of Bappeda Mimika Regency. Since the census method was used, the entire population was made the respondent without sampling. This census method was chosen to ensure that all relevant individuals in the population are involved in the research, so that the data obtained can accurately reflect the true conditions of all employees (Emmanuel, 2023; Sugiyono & Sutopo, 2021).

In this study, the entire population was treated as the sample, known as the saturated sampling technique. This technique is used when the population is relatively small, and the researcher wants to study all elements of the population without exception. Saturated sampling is often chosen to obtain more representative research results and to avoid bias from random sampling. According to Sugiyono and Sutopo (2021), saturated sampling is a sampling technique where all members of the population are included as the sample.

3.4 Data Collection Methods

The data collection methods for this study on the influence of salary, work relationships, work environment, and promotion on employee productivity at the Regional Planning and Development Agency (Bappeda) of Mimika Regency were planned and systematically designed to obtain valid, accurate, and in-depth data. Three main methods were used:

1. Literature Review

The literature review was conducted to gather secondary data related to theories, concepts, and previous research findings relevant to the variables in this study. Information was sourced from various scholarly materials such as books, academic journals, scientific articles, and other official documents. This study served as the foundation for formulating a strong theoretical and conceptual framework. According to Sugiyono and Sutopo (2021), the literature review aims to strengthen the theoretical foundation and build a comprehensive understanding of the research problem being investigated.

2. Interviews

The interview technique was used as a qualitative data collection method by gathering information directly from individuals who are considered to have relevant knowledge or experience. In this context, semi-structured interviews were conducted with several employees and officials of Bappeda Mimika to explore their understanding of the factors influencing employee productivity. As explained by Kasmir (2019), interviews provide the advantage of obtaining contextual data that cannot be captured using written instruments alone.

3. Questionnaires

Quantitative data collection was done through questionnaires distributed to employees as respondents. This instrument contained questions representing the research variables: salary, work relationships, work environment, and promotion. The questionnaire used a Likert scale to allow respondents to express their level of agreement with various statements in a systematic manner. Before being used, the instrument was tested for validity and reliability to ensure that each item could consistently and accurately measure the variables. According to Arikunto (2010), questionnaires are an effective tool for efficiently collecting quantitative data from a large population.

3.5 Data Analysis Methods

The research instruments were used to measure the variables of focus in this study. Primary data were collected through the distribution of questionnaires to all employees of Bappeda Mimika Regency as respondents. The questionnaires were designed based on the indicators of each research variable: Salary, Work Relationships, Work Environment, Job Promotion, and Employee Productivity.

Each variable was broken down into several indicators based on relevant theories, and each of these indicators was developed into statements in the questionnaire. As stated by Sugiyono and Sutopo (2021), "An effective research instrument must be able to measure the variables being studied accurately and consistently." All items were formulated as positive statements, making it easier for respondents to assess each statement presented.

Measurement of the items in the questionnaire was done using a Likert scale. According to Sugiyono and Sutopo (2021), the Likert scale is used to measure attitudes, opinions, and perceptions of individuals or groups regarding certain social phenomena. This scale consists of five answer categories, ranging from strongly agree to strongly disagree.

Respondents were asked to provide answers to each statement by selecting one of the available levels of agreement. Each answer was assigned a numeric score, and the total score would reflect the respondent's tendency to perceive each measured variable. Below is the Likert scale category used in this study:

Table 1. Likert Scale Categories

Description	Score
Strongly Agree	5
Agree	4
Neutral Agree	3
Disagree	2
Strongly Disagree	1

Source: Processed Data, 2025

The use of this scale allows the researcher to conduct a quantitative measurement of the respondents' perceptions, and subsequent statistical analysis is performed to test the influence of each independent variable on the dependent variable, which is employee productivity.

This study uses the Structural Equation Modeling - Partial Least Square (SEM-PLS) analysis method as a statistical approach to test causal relationships between latent variables simultaneously. SEM-PLS is a multivariate analysis technique that is highly suitable for complex models, especially when the sample size is relatively small or the data does not meet the normal distribution assumption. According to Ghozali and Latan (2015), SEM-PLS is more predictive and less demanding on data normality, making it suitable for exploratory research and theory development.

The stages in the SEM-PLS analysis applied in this study include:

1. Construct Validity and Reliability Testing
   In this stage, validity and reliability tests were conducted on the indicators measuring the latent variables. Construct validity is tested using the loading factor value, where an indicator is considered valid if it has a loading value of at least 0.6 (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). Next, construct reliability is tested using two measures, namely Cronbach's Alpha and Composite Reliability, with a minimum recommended value of 0.7 to show good internal consistency among indicators (Dwiyanti, Luh Putu Agustini Karta, Cintya, & Bendesa, 2023; Ghozali & Latan, 2015).
2. Structural Model Evaluation (Inner Model)
   The structural model evaluation is performed to assess the strength of relationships between latent variables. This test includes the analysis of R-square (R^2) values to measure the contribution of independent variables to the dependent variable, as well as Q-square values to test the predictive ability of the model. Additionally, the path coefficient is used to determine the direction and strength of the influence between latent variables in the model. The model is considered good if R^2 is in the moderate to high category, and Q^2 has a positive value (Ghozali & Latan, 2015).
3. Hypothesis Testing

Hypothesis testing in SEM-PLS is carried out by looking at the p-value from the path coefficient testing results. The hypothesis is accepted if the p-value < 0.05, indicating a significant effect between the variables. Therefore, SEM-PLS allows the researcher to test causal relationships in the proposed model simultaneously and comprehensively.

Through this SEM-PLS approach, it is expected that the analysis will provide a comprehensive understanding of the influence of salary, work relationships, work environment, and promotions on employee productivity, both directly and indirectly.

3.6 Operational Definitions of Variables

To ensure clarity in measurement and analysis, each variable in this study is defined operationally. These operational definitions specify the meaning of each variable and the indicators used to measure it. The following is a table containing the operational definitions of the variables used in this study:

1. Salary Variable (X_1)
   The salary variable is defined as the financial compensation received by employees for the work performed, measured by the base salary, allowances, and the alignment of the salary with the responsibilities undertaken. According to Mankiw (2015), a competitive salary level plays a role in increasing motivation and employee productivity.
2. Work Relationship Variable (X_2)
   Work relationships refer to the interactions and communication between employees and superiors, as well as among peers, which can influence the work atmosphere and performance. Robbins, Judge, and Vohra (2019) state that "good work relationships can enhance collaboration and reduce conflicts in the workplace."
3. Work Environment Variable (X_3)
   The work environment refers to the physical and psychological conditions at the workplace that affect employee comfort and productivity. Dessler and Varrkey (2005) explains that "a healthy and comfortable work environment is essential to support the effectiveness and well-being of employees."
4. Promotion Variable (X_4))
   Promotion is the process of advancing an employee's position or rank within the organization, usually accompanied by an increase in salary and responsibilities. According to Armstrong and Taylor (2023), "promotion is one way to reward employee productivity and encourage them to continue growing."
5. Employee Productivity Variable (Y)
   Employee productivity is a measure of the efficiency of an employee in producing the desired output over a specific period. According to Becker (1993), "employee productivity can be influenced by various factors, including salary, work environment, and work relationships."

3.7 Perception of the Variables

Employee perceptions of the variables in this study were assessed through a five-point Likert scale questionnaire, with the following options: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). The Likert scale was chosen for its ability to objectively measure attitudes, perceptions, and opinions in the form of quantitative data (Sugiyono & Sutopo, 2021).

Each item statement was assigned a score based on the respondents' answers, and the average value was calculated to assess the level of perception toward each variable indicator. The average values were then classified into five categories for easier interpretation: 1.0–1.5 (very low), 1.6–2.5 (low), 2.6–3.5 (medium/normal), 3.6–4.5 (high), and 4.6–5.0 (very high).

The use of these categories allows the researcher to conclude the extent of respondents' perceptions of the variables being studied and identify aspects that receive high or low attention. Such classification is important for providing a more directed and communicative analysis (Sekaran & Bougie, 2016).

4. Results and discussions

4.1 Respondent Description

1. Respondent Age

Table 5.1 illustrates the distribution of respondents' ages in the study, which involved a total of 80 individuals. The majority of respondents fall within the productive age range of 30–40 years, totaling 55 individuals or approximately 68.75% of the total respondents, indicating the dominance of this age group, which is typically active in the workforce and decision-making processes.

Tabel 2. Respondent Age

No	Age Range	Number of Respondents	Percentage (%)
1	19–29 Years	10	12.5%
2	30–40 Years	55	68.75%
3	Over 40 Years	15	18.75%

Source: Processed Data, 2025

Fifteen respondents (18.75%) were over 40 years old, while the youngest respondents, in the 19–29 age group, numbered 10 (12.5%). This distribution pattern reflects that most respondents have substantial work experience, allowing them to provide data and perspectives that are representative of the issues explored in this study.

2. Respondent Education Level

Table 5.2 shows the distribution of respondents by gender, indicating gender representation in the data collection or survey process. Of the total respondents, the gender proportion was relatively balanced, with 36 male respondents (48%) and 39 female respondents (52%).

Table 3. Respondent Gender and Education Level

Education Level	Male	Female	Total
Junior High (SMP)	0	1	1
High School (SMA)	6	4	10
Associate Degree (D3)	3	6	9
Bachelor's Degree (S1)	20	0	40
Master's Degree (S2)	7	8	15
Total	36	39	75

Source: Processed data, 2025

This composition reflects inclusive and representative participation between both genders in the data collection process, which is essential to ensure the fairness and non-gender bias of the analysis results. Additionally, this balance strengthens the validity of the findings, particularly in evaluating policies or development programs that impact all segments of society, regardless of gender.

3. Respondent Gender

Table 5.3 presents the distribution of respondents by gender, showing a relatively balanced proportion between males and females. Of the 75 respondents involved in the survey, 36 (48%) were male, and 39 (52%) were female. This composition indicates good gender representation in the data collection process, which is important for maintaining objectivity and avoiding bias in the analysis results. The balanced participation between the two genders also reflects an inclusive approach in the study or evaluation conducted, ensuring that the findings more accurately represent the perspectives and experiences of the entire community.

Table 4. Respondent Gender

Gender	Number of Respondents	Percentage (%)
Male	36	48%
Female	39	52%
Total	75	100%

Source: Processed Data, 2025

4. Respondent Work Experience

The length of work experience varied, with the majority of respondents having work experience ranging from 1 to over 6 years. The percentage of respondents by work experience is shown in Table 5.4.

Table 5. Respondent Work Experience

No	Work Experience	Number of Respondents
1	1–3 Years	15
2	4–6 Years	40
3	Over 6 Years	20

Source: Processed Data, 2025

4.2 Descriptive Analysis of Research Variables

This subsection presents descriptive statistics related to the variables studied in this research. These descriptive statistics include mean, standard deviation, minimum, and maximum values for each variable. The data was obtained from questionnaires distributed to respondents working at Bappeda.

Salary Variable (X_1)

The salary variable (X_1) in this study was measured using four indicators related to employees' perceptions of the meal allowance (ULP) they receive. Based on the descriptive statistical analysis, all indicators showed average perception values categorized as high, according to the Likert scale score range interpretation.

Table 6. Descriptive Statistics for Salary Variable (X_1)

No	Variable	Indicator (Item)	Mean (M)	Standard Deviation	Min Value	Max Value	Perception Indicator
1	Salary (X_1)	The calculation of the meal allowance (ULP) I receive based	4.25	0.97	2	5	High

No	Variable	Indicator (Item)	Mean (M)	Standard Deviation	Min Value	Max Value	Perception Indicator
		on my attendance is fair.					
2		The meal allowance (ULP) I receive influences my decision to attend work.	4.41	0.82	3	5	High
3		The amount of meal allowance (ULP) I receive is sufficient to support my daily needs.	4.23	0.98	2	5	High
4		The meal allowance (ULP) I receive is effective in improving my work productivity.	3.71	0.94	2	5	High
Average			**4.15**	**0.93**	**2.25**	5	High

Source: Primary Data Processed, 2025

Based on the analysis, employees' perceptions of the salary variable, measured through four indicators, show a strong positive tendency. The indicator related to the fairness of the meal allowance calculation based on attendance received an average of 4.25, while the influence of the meal allowance on attendance scored the highest at 4.41, indicating that this compensation plays an important role in encouraging work discipline. Additionally, the perception of the sufficiency of the meal allowance to support daily needs was also high with an average score of 4.23, while the effectiveness of the meal allowance in improving productivity recorded the lowest score of 3.71, though it still falls within the high category. Overall, the combined average of the four indicators was 4.15 with a standard deviation of 0.93, showing that employees positively perceive the meal allowance and that it contributes to their motivation and attendance at work.

Work Relationship Variable (X_2)

Descriptive analysis of the Work Relationship Variable (X_2) shows that, in general, employees at Bappeda Mimika have a positive perception of the quality of interpersonal relationships in their work environment. The first indicator, "I have a good relationship with my colleagues," received an average value of 4.51 with a standard deviation of 0.69, indicating that most respondents felt harmonious work relationships among employees, with relatively low variation in opinions (value range 3–5).

Table 7. Descriptive Statistics for Work Relationship Variable (X_2)

No	Variable	Indicator (Item)	Mean (M)	Standard Deviation	Min Value	Max Value	Perception Indicator
1	Work Relationsh	I have a good relationship with my	4.51	0.69	3	5	High

	ip (X_2)	colleagues.					
2		My supervisor provides adequate support in my work.	4.61	0.49	4	5	Very High
3		Communication among employees at Bappeda runs well.	4.01	0.71	3	5	High
4		I feel appreciated by my colleagues and supervisor.	4.24	0.71	3	5	High
Average			**4.34**	**0.65**	**3.25**	5	High

Source: Processed Data, 2025

The second indicator, "My supervisor provides adequate support in my work," recorded an average of 4.61—the highest value in this variable—with a standard deviation of 0.49, indicating a very strong consistency in the perception that supervisory support is an important element equally felt by employees. Meanwhile, the third indicator, "Communication among employees at Bappeda runs well," received an average of 4.01, which, while still high, suggests that internal communication has room for improvement. The statement "I feel appreciated by my colleagues and supervisor" recorded an average of 4.24 with a standard deviation of 0.71, indicating that recognition and appreciation on an interpersonal level were sufficiently felt, although there was some variation in experiences among respondents. Overall, these findings suggest that work relationships at Bappeda Mimika have been well-established, particularly in terms of supervisor support and relationships among colleagues, although internal communication remains an area of focus for future strengthening.

Work Environment Variable (X_3)

The work environment became the third variable analyzed. The average for questions regarding the support of the work environment for productivity was 3.79, indicating that although there is support, challenges are still faced by employees. The facilities at Bappeda received a high average of 4.59, showing that the facilities support employees' work.

Table 8. Descriptive Statistics for Work Environment Variable (X_3)

No	Variable	Indicator (Item)	Mean (M)	Standard Deviation	Min Value	Max Value	Perception Indicator
1	Work Environment (X_3)	The work environment at Bappeda supports my productivity.	3.79	0.84	2	5	High
2		The facilities at Bappeda are adequate to support my work.	4.59	0.5	4	5	High
3		The work atmosphere at Bappeda is comfortable and conducive.	4.07	0.88	2	5	High

No	Variable	Indicator (Item)	Mean (M)	Standard Deviation	Min Value	Max Value	Perception Indicator
4		The work environment at Bappeda encourages collaboration among employees.	4.17	0.67	2	5	High
Average			**4.34**	**0.65**	**3.25**	5	High

Source: Processed Data, 2025

However, the questions regarding the work atmosphere and collaboration among employees showed slightly lower averages, 4.07 and 4.17, indicating the need for more attention to create a more conducive work environment.

Promotion Variable (X_4)

The promotion variable showed a lower average compared to other variables. The average for questions regarding promotion opportunities was 3.63, and the fairness and transparency of the promotion process only received an average of 3.55.

Table 9. Descriptive Statistics for Promotion Variable (X_4)

No	Variable	Indicator (Item)	Mean (M)	Standard Deviation	Min Value	Max Value	Perception Indicator
1	Promotion (X_4)	I have the opportunity to be promoted at Bappeda.	3.63	0.82	1	5	High
2		The promotion process at Bappeda is fair and transparent.	3.55	0.84	1	5	Medium
3		My performance is considered in the promotion process.	3.65	0.6	3	5	High
4		I feel that job promotion is not influenced by workload.	3.21	0.89	2	5	Medium
Average			**4.34**	**0.65**	**3.25**	5	High

Source: Processed Data, 2025

This indicates that employees feel less confident about the fairness and transparency of the promotion process. The last question regarding the impact of workload on promotion received the lowest average of 3.21, signaling significant dissatisfaction in this area.

Employee Productivity Variable (Y)

Descriptive analysis of the Employee Productivity Variable (Y) shows positive results related to employees' attitudes and behaviors in completing tasks and efforts to enhance productivity at Bappeda Mimika. The first indicator, "I always complete my work on time," received an average value of 4.2

with a standard deviation of 0.81, indicating that most employees consistently complete their work on time, though there is slight variation in individual experiences.

Table 10. Descriptive Statistics for Employee Productivity Variable (Y)

No	Variable	Indicator (Item)	Mean (M)	Standard Deviation	Min Value	Max Value	Perception Indicator
1	Employee Productivity (Y)	I always complete my work on time.	4.2	0.81	2	5	High
2		I am able to complete tasks efficiently and without procrastination.	4.03	1.1	1	5	High
3		I always prioritize quality when completing every task assigned.	4.45	0.5	4	5	High
4		I regularly seek ways to improve my productivity at work.	4.39	0.66	3	5	High
Average			**4.34**	**0.65**	**3.25**	5	High

Source: Processed Data, 2025

The second indicator, "I am able to complete tasks efficiently and without procrastination," received an average score of 4.03 with a standard deviation of 1.1, indicating that most employees feel they can work efficiently, although some respondents may experience challenges with time efficiency. Meanwhile, the third indicator, "I always prioritize quality when completing every task assigned," obtained an average score of 4.45, reflecting that quality of work is a priority for most employees, with a relatively small spread of values (standard deviation of 0.5). The last indicator, "I regularly seek ways to improve my productivity at work," showed an average score of 4.39, meaning that employees are proactive in continuously improving their productivity. Overall, these results indicate that employee productivity at Bappeda Mimika tends to be high, with a commitment to meeting deadlines, maintaining work quality, and striving for work efficiency.

4.3 Validity Test

The validity test can be performed using Microsoft Excel by calculating the correlation between items in the questionnaire. This process involves using the Pearson correlation formula, where the instrument is considered valid if the correlation value (r computed) between the item and the total score of the variable is greater than the table value of r and is significant at the 5% level ($p < 0.05$). In this article, Anwar Hidayat (2012) explains the steps for performing a validity test using Excel, including how to calculate the total score for respondents and the correlation values between items using the Excel function =CORREL(array1, array2).

This table shows that all tested variables—Salary (X_1), Work Relationship (X_2), Work Environment (X_3), Promotion (X_4), and Employee Productivity (Y)—have correlation values greater than the R Table value (0.227). The correlation values for Salary are 0.520, Work Relationship 0.682, Work Environment 0.480, Promotion 0.557, and Employee Productivity 0.384, all of which are considered valid. These

results indicate that there is a significant relationship between each independent variable and the dependent variable, in this case, employee productivity.

Table 11. Validity Test Results

Validity			
Variable	**Correlation**	**R Table**	**Decision**
Salary (X_1)	0.520	0.227	Valid
Work Relationship (X_2)	0.682	0.227	Valid
Work Environment (X_3)	0.480	0.227	Valid
Promotion (X_4)	0.557	0.227	Valid
Employee Productivity (Y)	0.384	0.227	Valid

Source: Processed Data, 2025

4.4 Reliability Test

The reliability test is an essential step in research to assess the consistency of the measurement instrument when applied repeatedly under the same conditions. The reliability value is often measured using Cronbach's Alpha, which indicates the degree of uniformity or internal consistency of the items in the instrument. According to Anwar Hidayat (2012), an instrument is considered reliable if the Cronbach's Alpha value exceeds 0.70, which means the instrument can be trusted to produce stable and consistent data. Therefore, reliability testing using Cronbach's Alpha is a standard practice in quantitative research to ensure the validity of the research results.

Tabel 12. Reliability Test Results

Reliability		
Variable	**Cronbach"s Alpha**	**Notes**
Salary (X_1)	1,262	Reliable
Work Relationship (X_2)	1,298	
Work Environment (X_3)	1,289	
Promotion (X_4)	1,281	
Employee Productivity (Y)	1,281	

Source: Processed Data, 2025

Table 5.11 shows the reliability test results for the variables, including Salary (X_1) with a Cronbach's Alpha of 1.262, Work Relationship (X_2) 1.298, Work Environment (X_3) 1.289, Promotion (X_4) 1.281, and Employee Productivity (Y) 1.281. All these values support that these variables are considered

reliable, with the exception of Work Environment (X_3), which has a slightly lower value but still remains within acceptable limits.

4.5 Classical Assumption Test

The classical assumption test is performed to ensure that the data used in the multiple linear regression model meet the basic statistical assumptions, so that the analysis results are valid and unbiased. According to Ghozali (2014), if the significance value (K) is greater than 0.05, then the residual data is considered to be normally distributed. In this case, since the Sig. value = 0.154 > 0.05, it can be concluded that the residual data in this regression model is normally distributed.

Normality testing aims to examine whether the residual data from the linear regression model follow a normal distribution. In this study, normality testing was conducted using the Kolmogorov-Smirnov (K-S) method.

Table 13. Normality Test Using the Kolmogorov-Smirnov Method

Average ($\bar{x}$)	Standard Deviation	D	K
82	8.030303	0.949	0.154

Source: Processed data, 2025

Based on Table 5.12, the average ($\bar{x}$) of the residual data is 82, with a standard deviation of 8.03. The resulting K-S statistic (D) is 0.949, with a significance level (K) of 0.154. Therefore, the assumption of normality in the multiple linear regression analysis has been met, and the model can proceed to the next stage of analysis.

4.6 Multiple Linear Regression Analysis Results

Multiple linear regression analysis was conducted to determine the extent to which the variables Salary (X_1), Work Relationship (X_2), Work Environment (X_3), and Promotion (X_4) affect employee productivity (Y). The regression model used is formulated as: $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e$, where a is the constant and e is the error term. Positive and significant regression coefficients indicate that these variables directly contribute to increasing employee productivity. A significance value (p-value) < 0.05 is used as the basis for accepting the hypothesis, meaning there is a significant effect between the independent and dependent variables on a partial basis.

According to Anwar Hidayat (2012), multiple regression analysis is used to evaluate the effect of several independent variables on a single dependent variable, with the goal of predicting or quantitatively explaining the relationship. This method helps researchers understand each variable's contribution to changes in the dependent variable and identify the strength and direction of the relationships between variables.

4.7 Structural Model Evaluation (Inner Model)

Table 5.13 below shows that the Multiple R value is 0.673, indicating a positive relationship between independent and dependent variables. The R Square value is 0.453, showing that approximately 45.3% of the data variability can be explained by this regression model, while the Adjusted R Square value of 0.421 indicates the influence of the variables more precisely after considering the number of predictors. The Standard Error is recorded at 1.703, which estimates how far the predicted results are from the actual values, with a total of 75 observations used.

Table 14. Multiple Regression

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0,673
R Square	0,453
Adjusted R Square	0,421
Standard Error	1,703
Observations	75
a. Predictors: (Constant),X4, X3, X2, X1	

Source: Processed data, 2025

Table 5.14 below shows the results of the analysis of variance (ANOVA) conducted to test the influence of several independent variables on employee productivity as the dependent variable. In this table, it can be seen that the degrees of freedom (df) for regression are 4, with a sum of squares (SS) of 168 and a mean square (MS) of 42. In contrast, for residuals, the degrees of freedom are 70 with SS of 203 and MS of 3. The total degrees of freedom for the entire model are 74, with a total SS of 371. The F-test result shows an F value of 14 and a Significance F of 0, indicating that at least one predictor variable—salary, work relationship, work environment, and promotion—has a significant effect on employee productivity. In other words, the regression model built is suitable for further analysis regarding the factors influencing employee productivity.

Table 15. *Anova Table*

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	168	42	14	0
Residual	70	203	3		
Total	74	371			
a. Predictors: (Constant) X4 Promosi, X3 Lingkungan Kerja, X2 Hubungan Kerja, X1 Gaji					
b. Dependent Va gawai					

Source: Processed Data, 2025

In Table 5.15 below, titled "Coefficient," the regression analysis for the dependent variable, which is employee productivity (Y), with four independent variables (X_1, X_2, X_3, X_4), as well as the intercept, is shown. The intercept coefficient is 6.906 with a t-statistic of 3.389 and a p-value of 0.001, indicating significance at the 5% level, providing a strong foundation for the influence of other variables. Variable X_1 has a coefficient of -0.330 with a t-statistic of -4.589 and a p-value of 0.000, indicating that X_1 has a significant negative impact on employee productivity. Conversely, variable X_2 with a coefficient of 0.420 and a t-statistic of 3.356 and a p-value of 0.001 shows a significant positive influence. Variable X_3 also shows significant results with a coefficient of 0.462 and a t-statistic of 3.039, while variable X_4 has a coefficient of 0.048, but does not show any significant impact with a p-value of 0.739. The confidence intervals for each variable are also presented, supporting information about the potential influence of the independent variables on employee productivity.

Table 16. *Coefficient*

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	6,906	2,038	3,389	0,001	2,842	10,970	2,842	10,970
x1	-0,330	0,072	-4,589	0,000	-0,473	-0,187	-0,473	-0,187
x2	0,420	0,125	3,356	0,001	0,170	0,669	0,170	0,669
x3	0,462	0,152	3,039	0,003	0,159	0,765	0,159	0,765
x4	0,048	0,143	0,335	0,739	-0,237	0,333	-0,237	0,333
a. Dependent Va gawai								

Source: Processed Data, 2025

Complete Equation:
[$Y = 6.906 - 0.330X_1 + 0.420X_2 + 0.462X_3 + 0.048X_4$]
Coefficient Interpretation:
1. **Intercept (6.906):** The value of Y when all independent variables are zero.
2. **X_1 (-0.330):** Each increase of one unit in X_1 will decrease Y by 0.330, assuming other variables remain constant.
3. **X_2 (0.420):** Each increase of one unit in X_2 will increase Y by 0.420, assuming other variables remain constant.
4. **X_3 (0.462)**: Each increase of one unit in X_3 will increase Y by 0.462, assuming other variables remain constant.
5. **X_4 (0.048):** Each increase of one unit in X_4 will increase Y by 0.048, assuming other variables remain constant.

Statistics:
1. **P-Value for X_1 and X_2**: Significant ($P < 0.05$), indicating that X_1 and X_2 have an effect on Y.
2. **P-Value for X_3:** Significant ($P < 0.05$), indicating that X_3 also has an effect on Y.
3. **P-Value for X_4:** Not significant ($P > 0.05$), indicating that X_4 does not have an effect on Y.

Overall, this regression model shows that X_1, X_2, and X_3 are significant variables in affecting Y, with X_2 and X_3 contributing positively more than X_1. Meanwhile, X_4 does not show a significant effect, and thus can be considered irrelevant in the context of this model. These findings can be used to formulate more effective strategies to improve Y by focusing on the variables that have proven impacts.

4.8 Hypothesis Testing
Hypothesis testing was conducted to determine the effect of each independent variable on the dependent variable, which is employee productivity (Y). Based on the regression analysis results in **Table 5.15** titled "Coefficient," the null hypothesis (H_0) and alternative hypothesis (H_1) are formulated as follows:
1. **H_0:** The regression coefficient of the independent variable = 0 (no significant effect on employee productivity)
2. **H_1**: The regression coefficient of the independent variable ≠ 0 (significant effect on employee productivity)

The hypothesis test results for each independent variable are as follows:
1. Variable X_1
   Regression Coefficient: -0.330
   t-statistic: -4.589
   p-value: 0.000
   With a p-value < 0.05, H_0 is rejected. This indicates that variable X_1 has a significant negative effect on employee productivity.
2. Variable X_2
   Regression Coefficient: 0.420
   t-statistic: 3.356
   p-value: 0.001
   With a p-value < 0.05, H_0 is rejected. Variable X_2 has a significant positive effect on employee productivity.
3. Variable X_3
   Regression Coefficient: 0.462
   t-statistic: 3.039
   p-value: 0.003
   With a p-value < 0.05, H_0 is rejected. Variable X_3 has a significant positive effect on employee productivity.

4. Variable X_4
   Regression Coefficient: 0.048
   p-value: 0.739
   With a p-value > 0.05, H_0 fails to be rejected. This indicates that variable X_4 does not have a significant effect on employee productivity.

The results of this hypothesis testing show that the salary variable (X_1) has a significant negative effect on employee productivity with a regression coefficient of -0.330 and a p-value of 0.000, meaning that an increase in salary may actually decrease productivity. Conversely, work relationships (X_2) and work environment (X_3) have a significant positive effect, with regression coefficients of 0.420 (p-value 0.001) and 0.462 (p-value 0.003), indicating that good interaction among employees and a conducive work environment can improve productivity. Meanwhile, the promotion variable (X_4) does not show a significant effect, with a regression coefficient of 0.048 and a p-value of 0.739, indicating that the current promotion process is not sufficiently effective in encouraging productivity. These findings emphasize the importance of focusing on work relationships and the work environment to improve employee productivity at Bappeda Mimika.

5. Conclusion

5.1 Conclusion

Based on the research results and analysis conducted, several points can be concluded as follows:

1. The results of the research show that salary (X_1) has a significant negative effect on employee productivity at Bappeda Mimika Regency, meaning that an increase in salary does not automatically lead to an increase in productivity. The real situation at Bappeda shows that employee absenteeism leads to a reduction in salary (meal allowance based on attendance), which can result in decreased employee productivity.
2. Work relationships (X_2) have a significant positive effect on employee productivity at Bappeda Mimika Regency. The dynamic work relationships, with active interactions among employees at various levels, create a collaborative atmosphere that supports task completion. However, there is still a communication gap between leadership and staff, which hinders the understanding of policies. Increasing employee participation in decision-making and improving cross-level communication could create a more supportive work environment, enhance productivity, and help achieve regional development goals.
3. The work environment (X_3) has a significant positive impact on employee productivity at Bappeda Mimika Regency. The work environment at Bappeda is supported by comprehensive and adequate facilities, such as workspaces, meeting rooms, and other basic facilities designed to support complex planning activities. The availability of operational vehicles and adequate technology, including laptops, computers, and audiovisual equipment, also contributes to comfort and efficiency in daily tasks. These facilities create a conducive work atmosphere, enabling employees to collaborate effectively and enhance their productivity. Therefore, a good work environment not only supports employee comfort but also plays a crucial role in achieving the strategic goals of regional development planning.
4. Promotion (X_4) does not have a significant effect on employee productivity at Bappeda Mimika Regency. The real situation shows that employee productivity is measured by their ability to achieve key targets, such as the development of the Regional Information System Roadmap (SiDA) and national priority programs. The insignificance of the effect of promotion on productivity may be caused by the lack of a clear link between promotion and the increase in responsibilities or new challenges faced by employees. Although employees feel valued and have equal opportunities, other factors such as resource support and a conducive work environment may have a more significant impact on driving productivity.

Overall, the regression model used in this study proves to be valid and effective in explaining the relationship between the independent variables and employee productivity. These findings imply that improving salary, strengthening work relationships, and enhancing the work environment should be the primary focus to sustainably increase employee productivity.

5.2 Limitations of the Study

There are several limitations in this study that should be considered for future research development. First, this research only involved employees at Bappeda Mimika Regency, so the results may not be generalized to other institutions or regions with different characteristics. Second, data collection was carried out through questionnaires that relied on subjective responses from the participants, which may introduce response bias that could affect the accuracy of the data. Third, although the promotion variable tested in this study did not show a significant effect on employee productivity, other factors that may moderate or mediate this relationship have not been further analyzed. Additionally, technical limitations in the analysis methods could have affected the research results, such as the limited sample size and data distribution assumptions. Therefore, future research is recommended to involve a larger sample, use more diverse data collection methods, and analyze additional variables to provide a more comprehensive understanding of the factors influencing employee productivity.

5.3 Recommendations

Based on the evaluation results, several operational steps need to be considered to improve the efficiency and effectiveness of activities in the future. The following operational recommendations can be implemented to improve daily work processes:

1. Reformulate the salary system based on performance and actual work results, rather than just years of service or position, to increase fairness and motivation.
2. Improve work relationships among employees through communication training, teamwork, and regular team-building activities that foster trust and solidarity.
3. Enhance the physical and psychological work environment, including improving facilities, ergonomics, and supportive and open leadership approaches.
4. Reevaluate the promotion policy to make it more transparent, merit-based, and clearly communicated to all employees, so it can serve as an effective incentive for improving performance.

By paying attention to these suggestions, it is hoped that the productivity of Mimika Bappeda employees can be increasingly optimal, effective, and sustainable in supporting the achievement of the goals of the Regional Apparatus Organization.

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