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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: This study aims to examine the determinants of employee productivity at the Regional Planning and Development Agency (Bappeda) in Mimika Regency. Specifically, it investigates (1) the relationship between salary and employee productivity, (2) the relationship between work relationships and employee productivity, (3) the effect of the work environment on productivity, and (4) the impact of promotion on productivity.

Research Methodology: A quantitative method using SEM-PLS correlational analysis was applied. Data were obtained via a Likert-scale questionnaire. The study conducted validity, reliability, and hypothesis testing to assess relationship strength and significance among variables, ensuring robust measurement and accurate evaluation of the proposed research model.

Results: The study found salary (X_1) negatively influenced productivity, indicating the need to reassess compensation. Work relationships (X_2) and environment (X_3) positively affected productivity, highlighting collaboration and supportive conditions. Promotion (X_4) showed no significant effect, suggesting weaknesses in promotion mechanisms requiring attention to improve organizational motivation and employee outcome.

Conclusions: Employee productivity is more strongly influenced by relational and environmental factors than salary and promotion. Therefore, organizational improvements should focus on fostering positive relationships and enhancing the physical and psychological work environments.

Limitations: This study was limited to a single regional agency, which may have affected the generalizability of the findings. Additionally, the cross-sectional design does not capture the long-term dynamics.

Contribution: This study contributes to the public sector human resource management literature by highlighting the relative importance of workplace relationships and conditions over financial and promotional factors in improving employee productivity.

Keywords: *Employee Productivity, Promotion, Salary, Work Environment, Work Relationships*

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1. Introduction

Productivity is one of the most important indicators for evaluating the performance of an organization, including the Regional Planning and Development Agency (Bappeda) of Mimika Regency (Nurjanah, Sadhana, & Sukowati, 2022). As an institution responsible for regional planning and development,

Bappeda plays a key role in formulating policies, programs, and activities aimed at improving community welfare and promoting regional economic growth (Fadli, 2020). From an economic perspective, the theory of employee productivity can be explained through an approach in which productivity is a critical indicator in assessing the economic performance of a country or organization. According to Mankiw (2015), productivity is the key factor in determining a country's national income and standard of living. In macroeconomic terms, productivity is measured by the amount of goods and 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 of resource utilization, as well as achieving the development targets that have been set. The Ministry of National Development Planning Pabendon and Arapi (2022) 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, various factors affect Bappeda's productivity, both internally and externally.

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 (Amalia & Oktavia, 2024). 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 a key pillar. Through this research, the authors aim to identify and analyze the factors affecting employee productivity at Bappeda Mimika Regency (Pangkey, Dotulong, & Saerang, 2023). It is hoped that the findings of this research will provide useful recommendations for policymaking 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 (Sivarajah et al., 2016).

2. Literature Review

2.1. Employee Productivity Theory

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

2.2. Labor Market Theory

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). Recent studies reveal that labor market concentration significantly depresses wages and that minimum wage increases can even boost employment in highly concentrated markets, contrary to predictions of classical competitive models (Azar, Marinescu, & Steinbaum, 2022; Manning, 2021). Empirical evidence from the U.S. manufacturing sector finds wage markdowns of up to 35% relative to marginal productivity (Yeh, Macaluso, & Hershbein, 2022), while research in the UK highlights how worker preferences for commuting distance and non-wage attributes reinforce local monopsony power (Manning & Petrongolo, 2024).

2.3. Supply and Demand Theory

Supply and demand theory is a basic concept 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 decreases, 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; thus, a compensation system that reflects the real contribution of employees can drive performance and work effectiveness.

2.5. Work Environment Theory
North (1990) emphasized 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 essential for creating a work environment that is not only productive but also environmentally friendly (Sadeghi & Barzegari, 2020).

2.6. Promotion Theory
The promotion process in organizations plays a strategic role in motivating employees and enhancing loyalty. North (1990) emphasized that institutions that are transparent and fair in the promotion process can build employee trust in the organization. Recent studies highlight that Promotion Theory views promotions as both incentive devices and signals of worker ability. Empirical evidence shows promotions yield wage increases larger than regular raises, but may also reveal mismatches such as the "Peter Principle," where strong performers underperform after promotion (Benson, Li, & Shue, 2019).

2.7. Conceptual Framework
This research framework assumes that employee productivity at Bappeda Mimika Regency is influenced by the following factors:
1. Adequate salary (compensation) is a key motivator for employees.
2. Harmonious and conducive work relationships exist between superiors, subordinates, and colleagues.
3. A comfortable work environment that supports health and enthusiasm for work.
4. A fair promotion system that provides career development opportunities

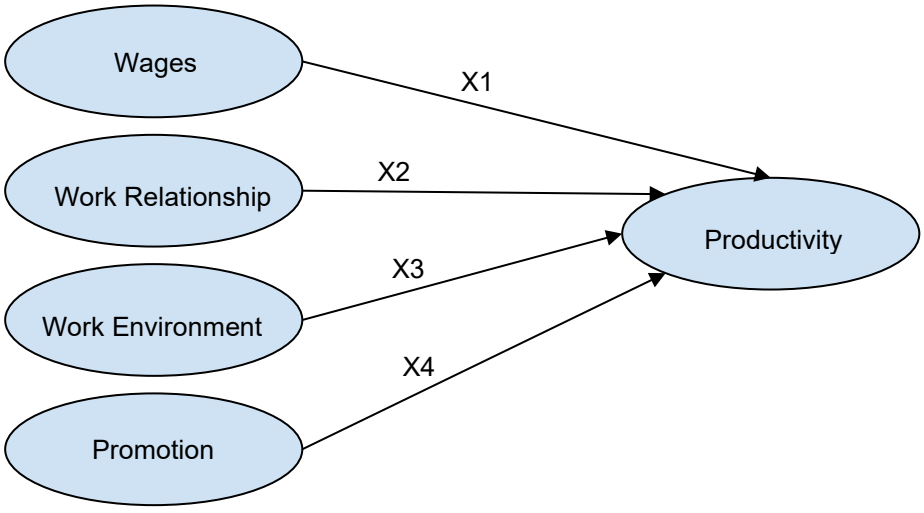

Figure 1. Conceptual Framework
Source: Processed data (2025)

2.8. Research Hypotheses
Based on the above framework, the proposed hypotheses are as follows:
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. 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 differ from those of other institutions. This research is important for identifying key factors that can enhance employee productivity so that Bappeda Mimika can achieve development targets more effectively. The study will be conducted 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 developed based on the indicators of the research variables. 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, which were used as supplements and comparisons in the analysis. The use of both types of data aimed to enhance the validity and reliability of the research findings (Ghorbani & Khanachah, 2021). The primary data source was the employees of Bappeda Mimika Regency as research respondents for 2024. The data collected include information on salary amounts, quality of work relationships among employees, working conditions, and promotion policies applied within the agency. 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 consisted 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 were involved in the research so that the data obtained could accurately reflect the true conditions of all employees (Emmanuel, 2023; Sugiyono & Sutopo, 2021). In this study, the entire population was treated as a sample using 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 avoid bias from random sampling. According to Sugiyono and Sutopo (2021), saturated sampling is a sampling technique in which all members of the population are included in 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
   A 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 serves as the foundation for formulating a strong theoretical and conceptual framework. According to Sugiyono and Sutopo (2021), a 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 to gather information directly from individuals who were 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 productivity. As Kasmir (2019)

explained, interviews provide the advantage of obtaining contextual data that cannot be captured using written instruments alone.

3. Questionnaires
   Quantitative data were collected through questionnaires distributed to employees as respondents. This instrument contained questions representing the research variables: salary, work relationships, work environment, and promotions. The questionnaire used a Likert scale to allow respondents to systematically express their level of agreement with various statements. Before use, the instrument was tested for validity and reliability to ensure that each item could consistently and accurately measure the variables. Questionnaires are an effective tool for collecting quantitative data from a large population efficiently.

3.5. Data Analysis Methods

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. 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 indicator 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.

The items in the questionnaire were measured using a Likert scale. According to Sugiyono and Sutopo (2021), the Likert scale is used to measure the 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 answer each statement by selecting one of the available levels of agreement. Each answer was assigned a numeric score, and the total score reflected the respondent's tendency to perceive each measured variable. The Likert scale categories used in this study are as follows:

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 allowed the researcher to conduct a quantitative measurement of the respondents' perceptions, and subsequent statistical analysis was 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 do not meet the normal distribution assumption. According to Ghozali and Latan (2015), SEM-PLS is more predictive and less demanding of data normality, making it suitable for exploratory research and theory development.

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

1. Construct Validity and Reliability Testing
   In this stage, validity and reliability tests were conducted on the indicators that measured the latent variables. Construct validity was tested using the loading factor value, where an indicator was considered valid if it had 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)
   Structural model evaluation was performed to assess the strength of the relationships between the 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 model's predictive ability. Additionally, the path coefficient was 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 examining the p-value from the path coefficient testing results. The hypothesis is accepted if the p-value is < 0.05, indicating a significant effect between the variables. Therefore, SEM-PLS allows researchers to simultaneously and comprehensively test causal relationships in the proposed model.

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 was operationally defined. These operational definitions specify the meaning of each variable and the indicators used to measure them. The following table contains 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 alignment of the salary with the responsibilities undertaken. According to Mankiw (2015), competitive salary levels plays a role in increase 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 of employees. 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 in 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 an 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 of time. 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 of 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 of the literature (Sekaran & Bougie, 2016).

4. Results and Discussions

4.1. Respondent Description

1) Respondent Age

Table 2 illustrates the distribution of respondents' ages in this study, which involved a total of 80 individuals. The majority of respondents fell 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 had substantial work experience, allowing them to provide data and perspectives that were representative of the issues explored in this study.

2) Respondent Education Level

Table 3 shows the distribution of respondents by gender, indicating gender representation in the data collection or survey process. The gender proportion was relatively balanced, with 36 male (48%) and 39 female (52 %) respondents.

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 of both genders in the data collection process, which is essential to ensure the fairness and non-gender bias of the analysis results. 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 4 presents the distribution of respondents by gender, showing a relatively balanced proportion of men and women. 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. 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 of experience. Table 5 shows the percentage of respondents by work experience.

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 the descriptive statistics related to the variables studied in this research. These descriptive statistics included the mean, standard deviation, minimum, and maximum values for each variable. Data were obtained from questionnaires distributed to respondents working at Bappeda.

1) 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 on my attendance is fair.	4.25	0.97	2	5	High
2	Salary (X_1)	The meal allowance (ULP) I receive influences my decision to attend work.	4.41	0.82	3	5	High
3	Salary (X_1)	The amount of meal allowance (ULP) I receive is sufficient to support my daily needs.	4.23	0.98	2	5	High
4	Salary (X_1)	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 using four indicators, showed 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 discipline at work. 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 fell 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.

2) Work Relationship Variable (X_2)

The 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 Relationship (X_2)	I have a good relationship with my colleagues.	4.51	0.69	3	5	High
2	Work Relationship (X_2)	My supervisor provides adequate support in my work.	4.61	0.49	4	5	Very High
3	Work Relationship (X_2)	Communication among employees at Bappeda runs well.	4.01	0.71	3	5	High
4	Work Relationship (X_2)	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 all 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 can be improved. 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.

3) Work Environment Variable (X_3)

The work environment was the third variable analyzed. The average score for questions regarding the support of the work environment for productivity was 3.79, indicating that although there is support, employees still face challenges. The facilities at Bappeda received a high average of 4.59, showing that the facilities support the 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	Work Environment (X_3)	The facilities at Bappeda are adequate to support my work.	4.59	0.5	4	5	High
3	Work Environment (X_3)	The work atmosphere at Bappeda is comfortable and conducive.	4.07	0.88	2	5	High
4	Work Environment (X_3)	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, respectively), indicating the need for more attention to create a more conducive work environment.

4) Promotion Variable (X_4)

The promotion variable showed a lower average than the other variables. The average score for questions regarding promotion opportunities was 3.63, and the fairness and transparency of the promotion process received an average score 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	Promotion (X_4)	The promotion process at Bappeda is fair and transparent.	3.55	0.84	1	5	Medium
3	Promotion (X_4)	My performance is considered in the promotion process.	3.65	0.6	3	5	High
4	Promotion (X_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.

5) Employee Productivity Variable (Y)

The descriptive analysis of the Employee Productivity Variable (Y) showed 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, although there is a 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	Employee Productivity (Y)	I am able to complete tasks efficiently and without procrastination.	4.03	1.1	1	5	High
3	Employee Productivity (Y)	I always prioritize quality when completing every task assigned.	4.45	0.5	4	5	High
4	Employee Productivity (Y)	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 regard to 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, indicating 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 was performed using Microsoft Excel by calculating the correlation between the items in the questionnaire. This process involved using the Pearson correlation formula, where the instrument was considered valid if the correlation value (r computed) between the item and the total score of the variable was greater than the table value of r and was significant at the 5% level ($p < 0.05$). In this article, 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 the 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, Work Relationship 0.682, Work Environment 0.480, Promotion 0.557, and Employee Productivity were 0.520, 0.682, 0.480, 0.557, and 0.384, respectively, all of which were considered valid. These results indicate 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 it is applied repeatedly under the same conditions. Reliability is often measured using Cronbach's alpha, which indicates the degree of uniformity or internal consistency of the items in the instrument. According to 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	
Work Relationship (X_2)	1,298	
Work Environment (X_3)	1,289	Reliable
Promotion (X_4)	1,281	
Employee Productivity (Y)	1,281	

Source: Processed data (2025)

Table 12 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, except for the Work Environment (X_3), which has a slightly lower value but still remains within acceptable limits.

4.5. Classical Assumption Test

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

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 13, the average ($\bar{x}$) of the residual data was 82, with a standard deviation of 8.03. The resulting K-S statistic (D) was 0.949, with a significance level (K) of 0.154. Therefore, the assumption of normality in the multiple linear regression analysis was met, and the model could 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 is formulated as follows: $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e$, where a is the constant and e is the error term. Positive and significant regression coefficients indicate that these variables directly contribute to increasing the employee productivity. A significance value (p-value) < 0.05 was used as the basis for accepting the hypothesis, indicating a significant effect between the independent and dependent variables on a partial basis. According to 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 the variables.

4.7. Structural Model Evaluation (Inner Model)

Table 14 below shows that the Multiple R value is 0.673, indicating a positive relationship between the independent and dependent variables. The R Square value was 0.453, showing that approximately 45.3% of the data variability could be explained by this regression model, while the adjusted R Square value of 0.421 indicated the influence of the variables more precisely after considering the number of predictors. The Standard Error was 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 15 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 mean square (MS) of 42. In contrast, for the residuals, the degrees of freedom were 70, with SS of 203 and MS of 3. The total degrees of freedom for the entire model were 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, or promotion has a significant effect on employee productivity. In other words, the regression model built is suitable for further analysis of 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 Variable: Y					

Source: Processed data (2025)

In Table 16 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 and negative impact on employee productivity. Conversely, variable X_2, with a coefficient of 0.420, 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 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 Variable: Y								

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 the independent variables are zero.
2. **X_1 (-0.330):** Each increase of one unit in X_1 decreases Y by 0.330, assuming that other variables remain constant.
3. **X_2 (0.420):** Each increase of one unit in X_2 will increase Y by 0.420, assuming that the other variables remain constant.
4. **X_3 (0.462)**: Each increase of one unit in X_3 will increase Y by 0.462, assuming that the other variables remain constant.
5. **X_4 (0.048):** Each increase of one unit in X_4 will increase Y by 0.048, assuming that the 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. **The p-value for X_3 is** 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 affect Y.

Overall, this regression model shows that X_1, X_2, and X_3 are significant variables that affect Y, with X_2 and X_3 contributing positively more than X_1. Meanwhile, X_4 does not show a significant effect and can thus 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 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, employee productivity (Y). Based on the regression analysis results in Table 16**,** 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
   If the p-value was < 0.05, H_0 was rejected. This indicates that variable X_1 has a significant negative effect on the productivity of employees.
2. Variable X_2
   Regression Coefficient: 0.420
   t-statistic: 3.356
   p-value: 0.001
   If the p-value was < 0.05, H_0 was rejected. Variable X_2 has a significant and positive effect on employee productivity.
3. Variable X_3
   Regression Coefficient: 0.462
   t-statistic: 3.039
   p-value: 0.003
   If the p-value was < 0.05, H_0 was rejected. Variable X_3 has a significant and 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 significantly affect 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) had a significant positive effect, with regression coefficients of 0.420 (p-value 0.001) and 0.462 (p-value 0.003), respectively, 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 higher productivity. These findings emphasize the importance of focusing on work relationships and the work environment to improve employee productivity at Bappeda.

5. Conclusions

5.1. Conclusion

Based on the research results and analysis conducted, several conclusions can be drawn.

1. The results 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 productivity.
2. Work relationships (X_2) have a significant positive effect on employee productivity at Bappeda Mimika Regency. Dynamic work relationships, with active interactions among employees at various levels, create a collaborative atmosphere that supports task completion. However, a communication gap between leadership and staff hinders understanding of policies. Increasing employee participation in decision-making and improving cross-level communication can 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. The availability of operational vehicles and adequate technology, including laptops, computers, and audiovisual equipment, also contributes to comfort and efficiency in the performance of daily tasks. These facilities create a conducive work atmosphere, enabling employees to collaborate effectively and enhance 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 significantly affect 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 (NPPs). The insignificance of the effect of promotion on productivity may be caused by the lack of a clear link between promotion and an 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 was valid and effective in explaining the relationship between the independent variables and employee productivity. These findings imply that improving salaries, strengthening work relationships, and enhancing the work environment should be the primary focus to sustainably increase employee productivity.

5.2. Limitations of the Study

This study has several limitations that should be considered in future research. First, this study only involved employees at Bappeda Mimika Regency; therefore, the results may not be generalizable to other institutions or regions with different characteristics. Second, data collection was conducted through questionnaires that relied on subjective responses from the participants, which may have introduced response bias that could have affected 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 analyzed further. Additionally, technical limitations in the analysis methods could have affected the research results, such as the limited sample size and data distribution assumptions used. Therefore, future research should 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 must be considered to improve the efficiency and effectiveness of future activities. 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 years of service or position to increase fairness and motivation.
2. Improving work relationships among employees through communication training, teamwork, and regular team-building activities that foster trust and solidarity.
3. Enhancing 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 that it can serve as an effective incentive for improving performance.

By paying attention to these suggestions, it is hoped that the productivity of the 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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