ON JOB TRAINING – KS 4721

ANALYSIS OF FOREIGN INVESTMENT AND DOMESTIC INVESTMENT IN EAST JAVA

Arranged by :
Kristina Panduwinata   NRP 062119 4200 0007

Advisor :
Irhamah, S.Si, M.Si., Ph.D.

UNDERGRADUATE PROGRAM
DEPARTMENT OF STATISTICS
FACULTY OF SCIENCE AND DATA ANALYSIS
SEPULUH NOPEMBER INSTITUTE OF TECHNOLOGY
SURABAYA
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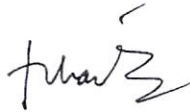**SEPULUH NOPEMBER INSTITUTE OF TECHNOLOGY**
SURABAYA
2023

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VALIDITY SHEET I

ON JOB TRAINING REPORT
Graduate Program Study Department of Statistics
Faculty of Science and Data Analysis
Sepuluh Nopember Institute of Technology

Surabaya, 25 January 2023
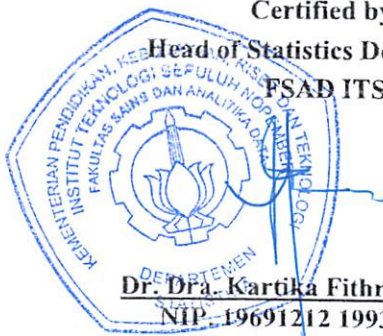
Approved by,

Lecturer

Irhamah, S.Si, M.Si., Ph.D
NIP. 19780406 200112 2 002

Certified by,
Head of Statistics Department
FSAD ITS

Dr. Dra. Kartika Fithriasari, M.Si.
NIP. 19691212 199303 2 002

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VALIDITY SHEET II

ON JOB TRAINING
Investment and Integrated Service Office of East Java Province

Surabaya, 25 January 2023

Approved by,

BPS Supervisor   KOMINFO Companion

Haryono, SST   Sucipto, S.Kom
NIP.19901209 201412 1 00102   NIP.19671113 200701 10231

Certified by,
DPMPTSP Companion

Herman Wahyudi, S.E
NIP.19851107 201101 1 0043

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FOREWORD

Praise be to God, the author thanks to the presence of God Almighty who has bestowed all His grace and guidance, so that with God permission this Practical Work Report (KP) at the Investment and Integrated Services Office of East Java Province can be completed properly. This report would not have been possible without the assistance, guidance and support of various parties. Therefore, the author would like to express his deepest gratitude to:

1. Mrs. Dr. dr. Kartika Fitsriashari, M.Sc. as the Head of the Department of Statistics FSAD ITS.
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3. Mrs. Irhamah, S.Si, M.Sc., Ph.D. as a guardian lecturer as well as a Practical Work Advisor.
4. The academic community of the ITS Statistics Department.
5. Mr. Haryono,SST as field supervisor, Mr. Sucipto, S.Kom as Kominfo companion and Mr. Herman Wahyudi, S.E as DPMPTSP companion
6. Parents and family who always provide support in educating both materially, morally, and spiritually.
7. Friends of S1 Statistics ITS 2019 and all parties who have helped a lot in completing this Practical Work Report.

The author hopes that this Practical Work Report can provide benefits for society and for science. The author realizes that in writing and compiling this Practical Work Report there are still many shortcomings and weaknesses. Therefore, the authors expect constructive suggestions and criticism.

Surabaya, 15 December 2022

Writer

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TABLE OF CONTENT

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LIST OF TABLES

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LIST OF FIGURE

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xvi

CHAPTER I
INTRODUCTION

1.1 Background

Investment or investment is the initial capital in economic development of a country. National development can implement well if national stability is in normal condition. The better the national stability, the smoother the development will be that can be carried out within a country. Good development should be based on the trilogy of development, namely: equity development in order to create justice for all people, improvement in economic growth that is getting better, and based on healthy and growing national stability (Silvia, 2015).

In realizing national development, the government is still not able to fully fund the necessary financing needs. Therefore, the government needs help from abroad. (Lubis, 2013) argues that, basically in implementing economic development, the accumulation of foreign money is a symptom reasonable. This is due to the still condition of domestic savings low, so it is not possible to do the investment on the basis adequate and countries that do not have domestic savings that enough to finance in such construction, in general close the gap by seeking sources from abroad. So, it is not surprising that so much capital flows from developed countries to developing countries, including in including Indonesia. For that the government must withdraw loan funds from donors from abroad.

For developing countries like Indonesia, investment is a component that plays an important role in the formation of value added national income that is useful in implementing development. National income is the amount of goods and services that can be produced by a country in one period, if the amount goods and

services produced more and more, then this illustrates the higher level of national income. Investment in an area also has a significant effect significant to national economic growth. Investment growth in every region of Indonesia develops dynamically following economic growth. The development of investment in each region varies depending on the region's ability to create a climate investment in the region. (Simanjuntak, 2016)

Sepuluh Nopember Institute of Technology implements On Job Training as a course aimed at enabling students to learn to work and apply statistical methods in the working world (Statistics, 2014). By participating in practical work at one of the institutions in Indonesia, students from the Department of Statistics at Sepuluh Nopember Institute of Technology are expected to apply the statistical knowledge acquired during their lectures in the real working world. In connection with this, Sepuluh Nopember Institute of Technology collaborates with the Central Statistics Agency/*Badan Pusat Statistik* (BPS) as a form of collaboration between the BPS Statistics Corner in East Java and the East Java provincial government in supporting unified data for East Java. As a result, students participating in this program will be directed by the BPS to carry out internships at the Regional Apparatus Organization/*Organisasi Perangkat Daerah* (OPD). One of the existing OPDs is the Investment and Integrated One-Stop Services Agency/*Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu* (DPMPTSP) of East Java. In the internship, students can assist the DPMPTSP in conducting statistical scientific activities such as data analysis and more. This allows students to gain experience in applying statistics in the working world while simultaneously helping the organization solve problems using statistical scientific methods.

This study utilizes an econometric approach to identify the effects of three variables under investigation, namely Foreign Direct Investment (PMA), Domestic Investment, and Labor, on the Gross Domestic Product (GDP) of East Java Province. The econometric approach is used in this study because it allows for establishing causal relationships between the variables under investigation. By employing econometric techniques, researchers can analyze the empirical data collected from DPMPTSP to measure the level of influence exerted by PMA, Domestic Investment, and Labor on the GDP of East Java Province. Through econometric analysis, the researcher aims to obtain results that provide a deeper understanding of the impact of investment activities and labor on regional economic growth in East Java Province. The findings of this research can offer valuable insights and information for decision-makers at the governmental, business, and academic levels regarding economic policies and regional development.

1.2 On Job Training Objectives

Based on the educational goals of the Statistics Study Program at the Sepuluh Nopember Institute of Technology (ITS) Surabaya, namely to form graduates who have expertise in statistics with creative, innovative and independent abilities, the objectives of this on job training are as follows.

1.2.1 General Objectives

Some general goals to be achieved through the implementation of practical work are as follows.

1. Students gain insight and experience about the world of work in the field of Statistics.
2. Improving the application of SDI principles to sectoral statistics in government circles

1.2.2 Special Objectives

Special Objectives of the on job training is:

1. IKU/IKD data and/or other data from OPD are identified.
2. Identification of statistical activities carried out by OPD, as well as compilation of recommendation requests and statistical metadata.
3. Availability of infographics and/or videographs with sectoral statistical themes for each OPD.
4. Analysis the data from OPD using statistics method

1.3 On Job Training Benefits

The benefits of practical work for ITS Department of Statistics students are as follows.

1.3.1 Benefits for East Java DPMPTSP

The benefits of ITS Statistics Department student on job training for DPMPTSP are as follows.

1. There is direct collaboration between DPMPTSP and the world of education, especially the ITS Statistics Department.
2. The problems that exist in DPMPTSP can be resolved in the special assignments given based on the discipline of statistics.
3. DPMPTSP obtains input from the results of processing and interpretation using statistical methods regarding the conditions and problems that exist in DPMPTSP.

1.3.2 Benefit for BPS

The benefits of ITS Statistics Department student on job training for BPS are as follows.

1. Establishing collaboration with the Department of Statistics at ITS facilitates access to skilled workforce with the best recommendations from the Department of Statistics at ITS.

2. Assisting the BPS in socializing the input of OPD data into the East Java unified data portal.
3. Resolving issues related to BPS data fulfillment through the involvement of students assigned to each OPD in East Java.

1.3.3 Benefit for Students

The benefits of ITS Statistics Department student on job training for students are as follows.

1. Providing opportunities for students to know and get to know first hand aspects of DPMPTSP, especially OPD management which is engaged in investment.
2. Can add experience and knowledge about the world of work and be able to apply statistics in the world of work in certain fields, especially in investment.

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CHAPTER II

OVERVIEW OF ON JOB TRAINING PLACE

2.1 The East Java Provincial Investment and One-Stop Services Office (DPMPTSP)

2.1.1 Company Profile

The East Java Provincial Investment and One-Stop Services Office (DPMPTSP)is the new Nomenclature of the Investment Board of East Java Province. Formed based on East Java Governor Regulation number 88 of 2016 concerning Position, Organizational Structure, Description of Duties and Functions and Work Procedures of the Investment Service and One-Stop Integrated Services of East Java Province.

Governor of East Java Regulation number 88 of 2016 is a substitute for Regional Regulation of East Java Province Number 10 of 2008 which was previously used as a guideline for the establishment of the Investment Board of East Java Province. Meanwhile, if traced further, it was previously named the Investment Coordinating Board of East Java Province which was regulated in the Decree of the Governor of the Level I Region of East Java Number 494 of 1989 concerning the Organization and Working Procedures of the Regional Investment Coordinating Board of East Java Province.

2.1.2 Vision

The vision of East Java Provincial Investment and One-Stop Services Office (DPMPTSP) East Java is "DPMPTSP as the best partner for investment and licensing services in East Java."

2.1.3 Mision

The mission of DPMPTSP is as follows:

1. Enhancing investment value through the creation of a conducive investment climate.
2. Improving the quality of business licensing services with the principles of CETTAR (Fast, Effective, Responsive, Transparent, and Responsive).

2.1.4 Objectives and Target

Objectives and Target from DPMPTSP is as follows.
1. Increasing investment realization of Foreign Direct Investment (PMA) and Domestic Investment (PMDN)
2. Improving the quality of licensing services based on the principles of public service.
3. Increasing the quality of potential and opportunity data available investment
4. Increasing the effectiveness of promotion and cooperation
5. investment to attract investment interest
6. Increasing the quality of implementation control capital investment.

2.2.5 Program and Activity

Some program managed by DPMPTSP is:
1. Investment Climate Planning and Development
2. Investment promotion
3. Control of Investment Implementation
4. Investment Data Processing and Information System
5. Licensing Services for the Development and Economic Sector
6. Licensing Services for the People's Welfare and Environment sector
7. **Complaints, Counseling and Service Reporting**

2.2 The Central Statistics Agency (BPS) of East Java Province
2.2.1 Company Profile

The Central Statistics Agency of East Java Province, also known as Badan Pusat Statistik Provinsi Jawa Timur in Indonesian, is a government agency responsible for collecting, processing, and disseminating statistical data and information related to various aspects of the economy, society, and demography in the East Java Province of Indonesia. The agency operates under the Ministry of National Development Planning/Bappenas and plays a crucial role in providing reliable and up-to-date statistical data for decision-making, policy formulation, and research purposes. The Badan Pusat Statistik Provinsi Jawa Timur conducts surveys, censuses, and data analysis to generate accurate and comprehensive statistics on population, employment, agriculture, industry, trade, tourism, education, health, and other sectors. These statistical data are used by government agencies, businesses, researchers, and the public to understand the socio-economic dynamics and development trends in East Java Province.

(BPS) is a Non-Ministerial Government Institution directly responsible to the President. Previously, it was known as the Central Bureau of Statistics (Biro Pusat Statistik), established based on Law Number 6 of 1960 concerning Census and Law Number 7 of 1960 concerning Statistics. As a replacement for both laws, Law Number 16 of 1997 concerning Statistics was enacted. Based on this law, which is further regulated by subsequent legislation, the formal name of the Central Bureau of Statistics was changed to the Central Statistics Agency.

2.2.2 Vision

Taking into consideration the performance achievements, community aspirations, potentials, issues, and the realization of the

President and Vice President's vision, the vision of BPS for the period 2020-2024 is as follows: "Provider of Qualified Statistical Data for Advanced Indonesia." This vision indicates that BPS plays a role in providing national and international statistical data, aiming to produce accurate and truthful statistics that reflect the actual conditions in order to support the advancement of Indonesia. With this vision, the existence of BPS as a provider of statistical data and information becomes increasingly important, as it holds a central role and influence in providing quality statistics not only within Indonesia but also globally. Additionally, this vision strengthens the role of BPS as the promoter of statistical data.

2.2.3 Mision

The mission of BPS is formulated by considering the functions and authorities of BPS, the vision of BPS, as well as the implementation of the President and Vice President's missions, namely the 1st mission (Improvement of Indonesian Human Quality), the 2nd mission (Productive, Self-reliant, and Competitive Economic Structure), and the 3rd mission (Equitable and Just Development). The missions are described as follows:

1. Providing quality statistics that adhere to national and international standards.
2. Nurturing government institutions through a sustainable National Statistical System.
3. Achieving excellent service in the field of statistics to realize the National Statistical System.
4. Developing highly skilled and adaptable human resources based on professionalism, integrity, and trustworthiness.

2.2.4 Task and Function

The Central Statistics Agency (BPS) carries out government tasks in the field of statistics in accordance with laws and regulations. Its functions are as follows:

1. Assessment, formulation, and development of policies in the field of statistics.
2. Coordination of national and regional statistical activities.
3. Determination and implementation of basic statistics.
4. Establishment of the national statistical system.
5. Supervision and facilitation of government agencies' activities in the field of statistics.
6. Provision of supervision and general administrative services in the areas of general planning, governance, organization and management, personnel, finance, archives, public relations, law, supplies, and household affairs.

2.2.5 Authority

The authorities of the Central Statistics Agency (BPS) are as follows:

1. Formulating national macro plans in its field.
2. Formulating policies in its field to support macro development.
3. Determining information systems in its field.
4. Establishing and implementing national statistics.
5. Other authorities in accordance with applicable laws and regulations, including Formulating and implementing specific policies in the field of statistical activities and then developing guidelines for conducting sectoral statistical surveys.

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CHAPTER III

IMPLEMENTATION OF ON JOB TRAINING

The implementation of On Job Training involves careful planning and execution of various components. Firstly, the determination of the time and place of implementation is crucial to ensure that the training aligns with the availability of resources and the schedules of both the trainees and the trainers. Next, the specific task completion methodology encompasses several essential elements. This includes conducting a comprehensive literature review to gather relevant information and insights, identifying and accessing appropriate data sources to support the training objectives, and defining the research variables that will be examined during the training program. Lastly, the analysis steps involve the systematic examination and interpretation of the collected data, employing various analytical techniques and tools to draw meaningful conclusions and insights from the training experience. Through the effective implementation of these components, the On Job Training program can provide valuable knowledge and practical skills to the participants, contributing to their personal and professional growth.

3.1   Time and Place of On Job Training

The practical work lasts for one month at the East Java Investment and One-Stop Service Office. Practical work was carried out from 4 July 2022 to 12 August 2022.

Place	:	Investment and Integrated Service Office of East Java
Address	:	Jl. Johar No.17, Alun-alun Contong, Kec. Bubutan Kota SBY, Jawa Timur 60174

Division   :   Data processing and information systems

Practical Work Activities are carried out at the Office. Students are assigned the responsibility of gathering data from the relevant OPD. Additionally, they are expected to perform an analysis using descriptive statistics and graphical visualization techniques, followed by providing interpretations of the processed data.

To monitor the attendance of practical work students, a standard procedure is followed. This involves filling in the attendance sheet with the date, activity description, and obtaining the signature of the field supervisor. Table 3.1 provides a comprehensive overview of the activities conducted throughout the practical work implementation.

Table 3. 1 Details of the schedule of practical work activities.

No	Date	Activity
1	4-5 July	Preparation of activities (Overview and technical briefing)
2	6 July	General introduction to OPD
3	7 - 12 July	Identify statistical activities
4	11 - 22 July	Drawing up recommendations for statistical activities
5	14- 22 July	Input recommendations
6	22 July	Evaluate Statisrtical recommendations
7	18 - 29 July	Compose statistical metadata (MS-Keg, MS-Ind and MS-Var)
8	25 July – 3 August	OPD sectoral data collection (starting in 2019)
9	3 August	Submitting KP results to the companion
10	4-9 August	Create a sectoral data infographic
11	10-12 August	Compile recommendations and metadata recapitulation reports

3.2   Specific Objectives Completing Methodology

3.2.1 Literature Review

Literature review of research methods used in mapping OPD data are descriptive statistics and data exploration.

A. Descriptive Statistics

Descriptive statistics are the tools, techniques, or procedures used to describe or describe a collection of data or observations information. (Walpole, 1995). Results of information based on statistics descriptive incomplete and inaccurate. However, an attractive appearance and easily understood by common people. Descriptive statistics are divided into two namely the size of the concentration and distribution of data while the presentation of descriptive statistics such as tables, histograms, boxplots, charts, graphs and others.

B. Bar Chart

A bar chart is a type of graph used to illustrate changes in values over time or to compare different categories. This graph can be easily created and modified according to the specific case at hand. Bar charts have several variations, including vertical, horizontal, and stacked formats. The use of bar charts in data visualization offers several advantages. Firstly, bar charts facilitate easy visual comparison between different categories or time periods. The human eye is naturally inclined to compare which parts are smaller and which parts are larger. This makes bar charts easier to read and understand. (Few, 2009)

Furthermore, bar charts effectively depict changes in values over time. By setting the time axis on the horizontal axis and the values on the vertical axis, we can easily observe

trends, patterns, and fluctuations in the data.

C. Pie Chart

Pie chart is a popular type of graph used to represent data in a circular format, where the whole circle represents the total value or 100% and the individual slices represent the proportionate parts or categories of the whole. Pie charts are widely used for displaying categorical data and showing the relative sizes or percentages of different components. One of the main advantages of using pie charts is their ability to provide a clear visual representation of proportions. The size of each slice directly corresponds to the proportion it represents, making it easy for viewers to grasp the relative significance of each category. Pie charts are particularly useful when presenting data with distinct and non-overlapping categories.

However, there are also limitations and considerations when using pie charts. One limitation is the difficulty in accurately comparing the sizes of individual slices, especially when the differences are subtle. Another consideration is the challenge of effectively conveying precise numerical values, as pie charts primarily focus on relative proportions rather than absolute values. Despite these considerations, pie charts remain a popular choice for visually representing categorical data and conveying the distribution of different components within a whole. (Ware, 2013)

D. Infographics

Infographics are visual representations that combine graphic elements such as charts, diagrams, icons, and text

to convey information effectively. Infographics have become popular in various fields, including journalism, marketing, education, and visual communication. Previous research has revealed various benefits associated with the use of infographics. A study can help improve understanding, recall, and information retention, as humans are more responsive to images than written text. (Lazard, 2016)

Additionally, research by Wong (2017) demonstrated that the use of infographics in an educational context can enhance student motivation and engagement. Furthermore, a study by Knaflic (2015) emphasizes the importance of effective design in creating infographics that are easy to understand and visually appealing. Thus, this literature review provides an understanding of the use of infographics, their benefits, and the design principles that need to be considered in creating effective infographics.

E. Econometrics

Econometrics is a branch of economics that uses concepts, theories, and statistical methods to analyze and model economic relationships. It involves the application of economic principles in the use of empirical data to test hypotheses, estimate parameters, and make predictions about economic phenomena. Econometrics also studies ways to address common issues encountered in economic data analysis, such as multicollinearity, heteroscedasticity, and autocorrelation. In practice, econometrics is used in various fields of economics, including macroeconomics, microeconomics, finance, trade, and economic development. (Gujarati,2019)

F. Ordinary Least Squares (OLS) Method

The Ordinary Least Squares (OLS) method is a widely used technique in econometrics and statistical analysis. It is used to estimate the parameters of a linear regression model by minimizing the sum of the squared differences between observed data points and the predicted values from the model. OLS fits a linear equation to the data to represent the relationship between independent variables and a dependent variable. The method relies on assumptions such as linearity, independence of errors, constant error variance, and no multicollinearity. After estimation, statistical tests can be conducted to assess the significance of coefficients and evaluate model fit. OLS is valuable in economic research for analyzing relationships, quantifying the impact of predictors, and making predictions based on the estimated model (Gujarati, 2019). The formulation of the regression equation using OLS is as follows:

$$Y = \beta_0 + \beta_1 \text{PMDN} + \beta_2 \text{PMA} + \beta_3 \text{LF} + e$$

With Y represents the dependent variable that is to be predicted or explained. β_0, β_1, β_2, and β_3 are the regression coefficients that depict the influence of each independent variable on the dependent variable. These coefficients indicate how much the dependent variable is expected to change when the independent variable changes by one unit. PMDN, PMA, and LF are the independent variables used in the model to explain the variation in the dependent variable Y. Then e represents the error term or residual, which includes other factors not accounted for by the independent variables in this model. It captures the inaccuracies or

18

imperfections of the linear relationship described by the regression model.

G. Classical Assumption Testing

1. Normality

   The test for normality aims to determine whether the residuals are normally distributed or not. A good regression model has normally distributed residual values. Therefore, the normality test is not performed on each individual variable, but rather on its residual values. One of the methods used to detect normality is the Kolmogorov-Smirnov technique (Gujarati, 2019)

2. Multicollinearity

   According to Gujarati (2009), Multicollinearity refers to a high degree of correlation among independent variables in a regression model. It occurs when two or more independent variables are highly linearly related, which can lead to instability in the estimation of the regression coefficients and difficulties in interpreting the effects of individual variables. Detecting multicollinearity is crucial as it can affect the reliability and validity of the regression results. Several diagnostic tests and measures are commonly used to identify the presence of multicollinearity, such as the Variance Inflation Factor (VIF), tolerance, and correlation matrices.

3. Heteroscedasticity

   According to Gujarati (2009), Heteroscedasticity is a violation of the assumption of constant error variance in a linear regression model. It occurs when the variability of the error terms is not constant across different levels of the independent variables. Heteroscedasticity can lead to

biased and inefficient parameter estimates, as well as incorrect inference results. The Glejser Test, also known as the Glejser's Heteroscedasticity Test, is one of the statistical tests used to detect heteroscedasticity in regression models. This test examines the relationship between the absolute values of the residuals and one or more independent variables. If heteroscedasticity is present, there will be a systematic pattern in the relationship between the residuals and the independent variables.

4. Autocorrelation

Autocorrelation is a condition in which there is correlation between residuals in a linear regression model across consecutive time periods. Autocorrelation can affect the reliability of model estimation results and the interpretation of hypothesis testing outcomes. The Run Test, also known as the Runs of Sign Test or Wald-Wolfowitz Test, is one of the methods that can be used to detect autocorrelation in regression model residuals.

The Run Test is based on the analysis of the sequence of signs (positive and negative) of the residuals. This test compares the number of consecutive sign runs with the expected number in a situation where there is no autocorrelation. If autocorrelation is present, the consecutive runs of signs will be longer or shorter than expected by chance. (Gujarati, 2009)

H. Statistics Test

1. Coefficient of Determination

The coefficient of determination, also known as R-squared (R^2), is a measure used in regression analysis to

quantify the extent to which the variation in the dependent variable can be explained by the independent variables used in the regression model. The coefficient of determination ranges from 0 to 1, and the higher its value, the greater the proportion of variation in the dependent variable that can be explained by the independent variables.

In general, the coefficient of determination reflects how well the regression model fits the empirical data. If the coefficient of determination is close to 1, it indicates that the model can effectively explain the variation in the data and has good predictive capability. However, if the coefficient of determination is close to 0, it suggests that the model does not adequately explain the variation in the data. (Greene, 2018)

2. t-statistic

The t-statistic is a statistical test that measures the extent to which an individual independent variable influences the variation in the dependent variable (Gujarati, 2009) The t-test is conducted using the following hypothesis:

H_0 :There are no significant effect on the dependent variable.

H_1:There are significant effect on the dependent variable.

To find t-statistics using the following formula

$$t_{stat} = \frac{\beta_i - \beta_0}{SE} \qquad (3.1)$$

With $\boldsymbol{\beta_i}$ is the estimated value of the coefficient for the independent variable. $\boldsymbol{\beta_0}$ is the value specified in the null hypothesis (often 0 when testing for no effect). And $\boldsymbol{SE}$ is the standard error of the coefficient estimate, which measures the precision of the estimate

Critical area: reject null hypothesis if $t_{stat} > t_{table}$.

3. F-Statistics

F-statistics in the context of regression analysis and analysis of variance is an important concept in inferential statistics. F-statistics are used to test the overall significance of a regression model or the significant differences among multiple groups in analysis of variance. Greene (2018)

3.2.2 Data Source dan Variable

The data used by the investment service comes from BKPM RI which is updated quarterly, Meanwhile, data on the number of licenses comes from DPMPTSP itself via the JOSS website created by DPMPTSP. The variables used in data processing from BKPM RI are foreign investment value, domestic investment value, number of projects, number of workers, number of license issuances and GDP from BPS.

3.2.3 Analysis Method

The steps to analyze the realization of investments and permits in DPMPTSP are as follows.

1. Collecting data from DPMPTSP East Java. .
2. Explore value data using descriptive statistical analysis and visualize that data.
3. Create a diagram illustrating the relationship between economic growth and the influencing variables.
4. Determine the method to be used.
5. Conduct tests for model assumption violations.
6. Perform statistical testing.
7. Interpret the results.
8. Draw conclusions and make suggestions.

CHAPTER IV
RESULT AND DISCUSSION

4.1 Descriptive Statistics

Result of the descriptive statistics are divided by 2, there are investment realization and permit issuance performance.

4.1.1 Investment realization

There are two categories of investment realization in East Java, namely the realization of domestic investment (PMDN) and foreign investment (PMA).
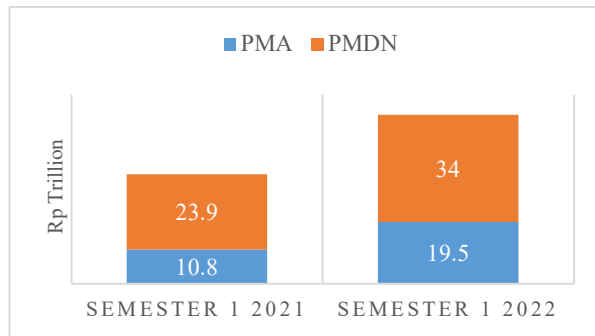

Figure 4. 1 Investment Realization in East Java (y-o-y)

From the year-over-year (y-o-y) investment realization graph in East Java, it can be concluded that there has been a significant increase in investment in the region. In the first semester of 2021, the realized Foreign Direct Investment (PMA) amounted to 10.8 trillion and Domestic Direct Investment (PMDN) amounted to 23.9 trillion. However, in the first semester of 2022, both types of investment experienced a substantial increase. PMA rose to 19.5 trillion, while PMDN reached 34 trillion. This indicates a positive

growth in investment from both PMA and PMDN sectors in East Java.

The conclusion drawn from this graph is that investment in East Java has shown a significant increase from year to year. This reflects the confidence of investors and the supportive investment climate in the region. The positive investment growth also indicates a favorable economic potential in East Java and highlights the region as an attractive destination for investors. With the increased investment, it is expected to further stimulate economic growth in East Java and contribute to the development and welfare of the local community.
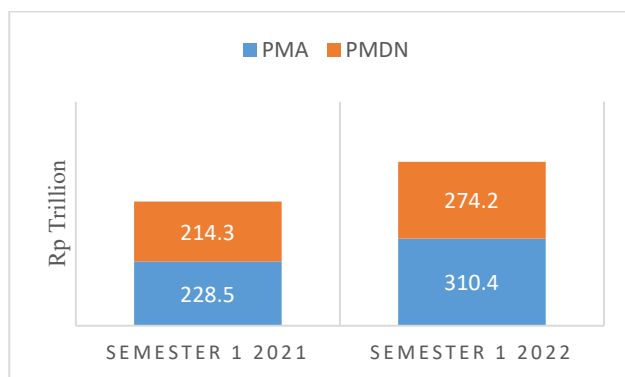

Figure 4. 2 Investment Realization in Indonesia (y-o-y)

The year-over-year (y-o-y) investment realization graph in Indonesia reveals interesting trends. In the first semester of 2021, Foreign Direct Investment (PMA) reached a significant value of 225.8 trillion, while Domestic Direct Investment (PMDN) amounted to 214.3 trillion. This indicates a relatively balanced distribution of investment

between PMA and PMDN during that period. However, in the first semester of 2022, there was a notable increase in both types of investment. PMA surged to 310.4 trillion, surpassing the previous year's figure, while PMDN also experienced substantial growth, reaching 274.2 trillion. This indicates a positive trend in investment in Indonesia, with both PMA and PMDN contributing significantly to the overall investment landscape.

The graph suggests that Indonesia is an attractive destination for both foreign and domestic investors, as evidenced by the significant growth in investment from year to year. The increased investment signals confidence in the country's economic potential and reflects the government's efforts in creating a favorable investment climate. The significant rise in both PMA and PMDN indicates positive economic prospects for Indonesia, potentially leading to job creation, infrastructure development, and overall economic growth. Then, From both figure, it can be seen that investment realization in East Java increase 54.4% from realization of the semester in the previous year. While realization in Indonesia is increase 32% from the previous year.
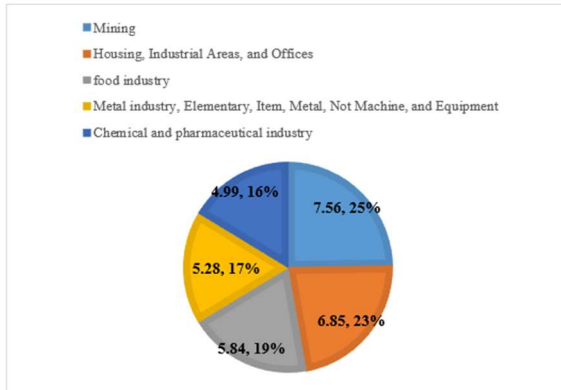
Figure 4. 3 Pie Chart of Investment Realization by Sector

Based on the figure above, it is evident that the investment realization in East Java is primarily concentrated in the mining sector. This observation is supported by data from BKPM RI, which reveals that the mining sector, particularly represented by PT. Freeport, made a substantial contribution of 6.69 trillion in Kab. Gresik. On the other hand, the residential and industrial sectors are prominently represented by the city of Surabaya. Despite Surabaya having a significant number of residential properties, it does not dominate the investment landscape in East Java as seen in Kab. Gresik. The housing sector in Surabaya contributed 1.23 trillion to the total investment. Furthermore, other sectors are represented by districts such as Malang and Sidoarjo, indicating their respective contributions to the overall investment scenario in East Java.
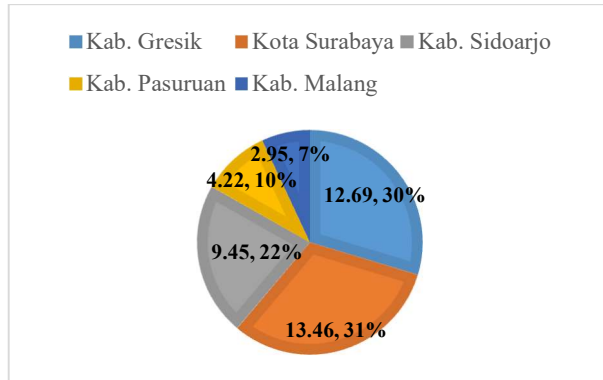
Figure 4. 4 Pie Chart of Investment Realization by Location

Based on the image provided, it can be observed that the city of Surabaya makes the highest contribution to investment realization in East Java when considering the location. Surabaya's prominent contribution is not limited to a single sector but extends to the housing industry sector as well. This can be attributed to the diverse range of sectors present in Surabaya, which provide a conducive environment for investment realization in East Java. Gresik Regency holds the second position and significantly contributes, particularly in the mining sector. Other areas such as Malang Regency, Sidoarjo Regency, and Pasuruan Regency also play significant roles in investment realization. Pasuruan Regency, in particular, benefits from its abundance of industrial areas, which attract investment activities. These findings indicate the spatial distribution of investment realization in East Java and highlight the importance of various regions in driving economic growth and development.
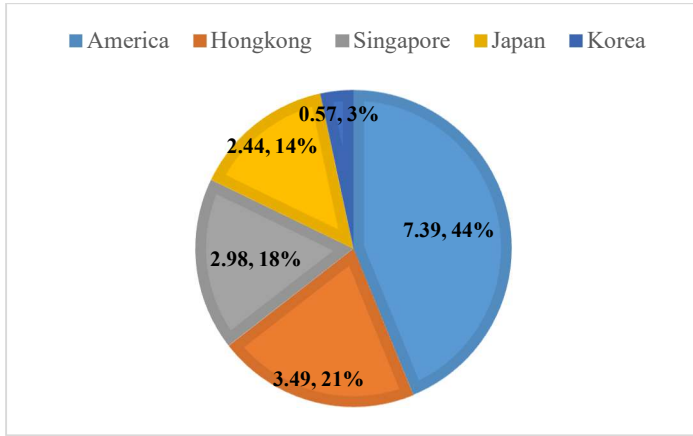
Figure 4. 5 Pie Chart of Investment Realization by Origin Country

Investment realization in East Java is supported by several large companies and cities as shown in Figure 4.4 previously. However, several companies in East Java are also not all owned by the Indonesian state but also owned by foreign countries. Most of the Indonesian products that people know come from China, and recently many products have come from Japan and Korea. As shown in Figure 4.5, it can be seen that the United States has a large contribution to investment realization in East Java. One of the companies in East Java, originating from America, is Freeport, which originates from Gresik Regency. This company is a mining company with a very high contribution as shown in Figure 4.5. in fifth position there is also korea. If you look at the current trend, there are lots of people who admire Korean goods, especially clothes. one of the korean clothing companies located in east java, namely samjin tarpaulin industry located in Kab. Pasuruan.

4.1.2 Permit Issues Performance

Investment realization in East Java mainly comes from companies, which are required to obtain a business license from DPMPTSP.
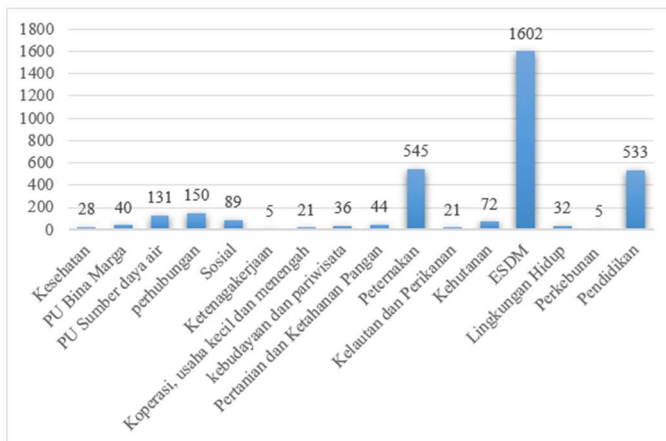
Figure 4. 6 Chart of Permit Issues by Sector

Based on the image provided, it is evident that the ESDM sector has the highest number of issued permits, totaling 1602 business permits. The permits granted in the EMR sector typically include groundwater drilling permits, groundwater exploitation permits, electricity permits, and various others. These permits are essential for conducting activities related to the exploration and utilization of energy and mineral resources. The significant number of permits in the ESDM sector highlights the importance of this sector in driving economic activities and ensuring the sustainable development of energy and mineral resources in the region.

4.2 Infographics Result

From the data obtained, visualizations in the form of infographics were also produced. The following is the result of the infographics from the on-the-job training program.
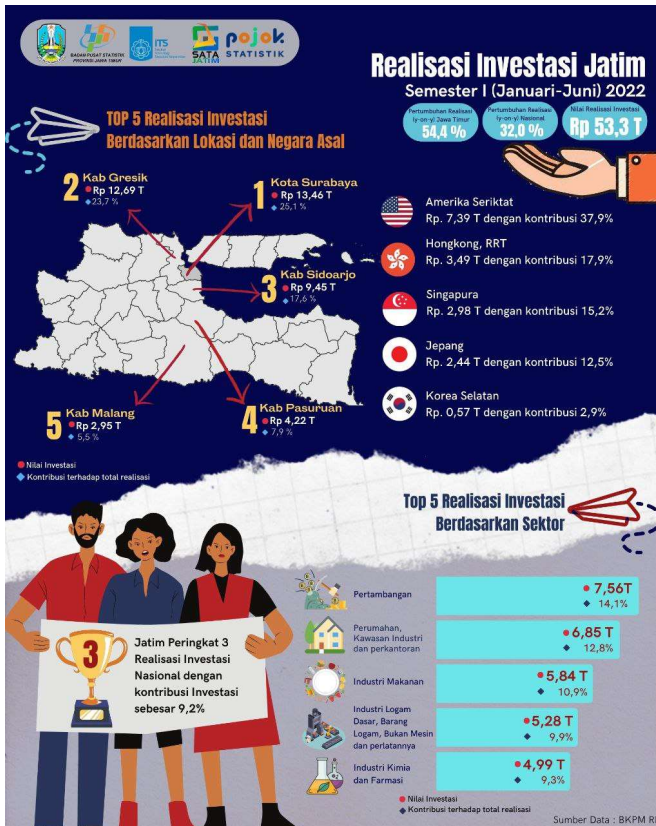

Figure 4. 7 Infographics of Investation Realization

The above infographic provides a visual representation of the investment realization in East Java based on location and country of origin in the first semester of 2022. It reveals interesting insights

into the distribution of investments across different locations and the prominent countries contributing to the region's economic growth. Notably, Surabaya emerges as the city with the highest investment realization, indicating its attractiveness as an investment destination. Moreover, the United States stands out as the leading country of origin for investments in East Java, highlighting the international interest in the region's potential. Additionally, the infographic highlights the top five sectors driving investment realization, with the mining sector taking the lead. This emphasizes the significance of the mining industry in East Java's economic landscape. Overall, East Java secures the 3rd position in terms of national investment realization, reflecting its robust economic performance. The region's contribution of 9.2% to the total investment, along with an impressive annual growth rate of 54.4% in investment realization, underscores its position as a thriving investment destination. The total investment value of IDR 53.3 trillion further demonstrates the scale and magnitude of the investments made in East Java during the specified period.

4.3 Econometrics
4.3.1 Relationship Between Variable
The investment values of PMDN, PMA, and the labor force in East Java province are considered as independent variables that are hypothesized to have a partial or joint influence on the economic growth of East Java province.

The relationship between investment and economic growth is that individuals do not use all of their income for consumption, but instead save a portion of it, and these savings are needed for investment formation. Furthermore, investment formation is considered as one of the main factors in economic development. For example, investment in capital equipment or

31

capital formation not only increases production or economic growth but also provides employment opportunities for the community. Thus, there is a positive relationship between investment formation and economic growth in a country (Nasution, 2020).

The relationship between government expenditure and economic growth is that government expenditure reflects the government's policy to purchase goods and services. Government expenditure represents the costs incurred by the government to implement these policies. According to the Peacock and Wiseman theory, economic development leads to increased tax collection, even if tax rates remain unchanged, and increased tax revenue results in increased government expenditure. Therefore, in normal circumstances, an increase in national income leads to greater government revenue, and consequently, government expenditure also increases (Irianto, 2019).

The relationship between labor and economic growth is that an increase in labor can contribute to higher output. According to Boediono (1992), the general form of the production function between capital (K) and labor (L) is as follows: $Q = f(K, L)$, where Q represents output, K represents the stock of capital, and L represents labor. This equation indicates that an increase in the stock of capital and labor can lead to higher output. When output increases in a certain period, a portion of the increased output will be invested, resulting in a larger stock of capital equal to the amount of output invested. The increase in output also signifies the creation of employment opportunities, which indicates the participation in development. This participation can involve shouldering the burden of development, taking responsibility for its implementation, and benefiting from its outcomes (Hidayat, 2017).

Based on the statement above, a diagram illustrating the relationship between economic growth and its influencing variables can be presented as follows: Economic growth, as the dependent variable, is influenced by a range of factors, which can be depicted in the diagram. These factors may include investment levels, government policies, technological advancements, human capital development, infrastructure quality, and global economic conditions. By visually representing these variables and their interconnections, the diagram aims to provide a comprehensive understanding of how each factor contributes to or hinders economic growth. This visualization can assist policymakers, economists, and researchers in identifying key areas for intervention or further analysis to promote sustainable and robust economic development.
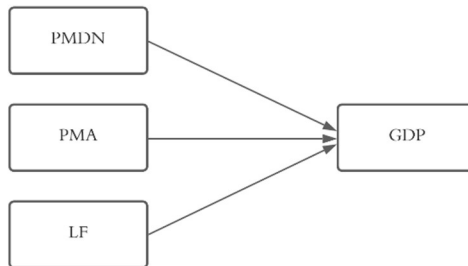

Figure 4. 8 Correlation between variable

The hypotheses used in this study are as follows:
1. It is hypothesized that Domestic Direct Investment (PMDN) has a positive and significant impact on economic growth in East Java province.
2. It is hypothesized that Foreign Direct Investment (PMA) has a positive and significant impact on economic growth in East Java province.

33

3. It is hypothesized that the Labor Force has a positive and significant impact on economic growth in East Java province.
4. It is hypothesized that Domestic Direct Investment (PMDN), Foreign Direct Investment (PMA), and Labor Force together have a significant impact on economic growth in East Java province.

4.3.2 Exploratory Data Analysis

In this part a comprehensive and in-depth exploratory data analysis is conducted with the aim of gaining a profound understanding of the data characteristics before proceeding to the next stage.

Table 4. 1 Descriptive Statistics of Each Variable

Variable	N	Mean	StDev	Min	Q1	Median	Q3	Max
PMDN	38	1719893	4304427	21275	83769	280506	981092	24559860
PMA	38	82475	285014	0	185	2259	48353	1730696
GDP	38	103895	380704	4723	12830	22416	54426	2354651
LF	38	433.3	450.2	1.1	80	284.5	707.3	1689

The descriptive statistics for the variables PMDN (Domestic Investment), PMA (Foreign Direct Investment), GDP (Gross Domestic Product), and LF (Labor Force) provide insights into their respective distributions and central tendencies.

For the variable PMDN, the mean value is approximately 1,719,893, with a standard deviation of 4,304,427. The minimum value observed is 21,275, while the maximum value is 24,559,860. The first quartile (Q1) is 83,769, and the third quartile (Q3) is 981,092. The median value (50th percentile) is 280,506. These statistics indicate a wide range of values, with considerable variability in domestic investment across the observed data.

Regarding the variable PMA, the mean value is approximately 82,475, with a standard deviation of 285,014. The minimum value observed is 0, while the maximum value is 1,730,696. The first quartile (Q1) is 185, and the third quartile (Q3) is 48,353. The median value (50th percentile) is 2,259. These statistics suggest variation in foreign direct investment across the observed data, with a notable range of values.

For the variable GDP, the mean value is approximately 103,895, with a standard deviation of 380,704. The minimum value observed is 4,723, while the maximum value is 2,354,651. The first quartile (Q1) is 12,830, and the third quartile (Q3) is 54,426. The median value (50th percentile) is 22,416. These statistics indicate a wide range of values for gross domestic product, reflecting notable variation across the observed data.

Finally, for the variable LF (Labor Force), the mean value is approximately 433.3, with a standard deviation of 450.2. The minimum value observed is 1.1, while the maximum value is 1,689. The first quartile (Q1) is 80, and the third quartile (Q3) is 707.3. The median value (50th percentile) is 284.5. These statistics indicate variability in the labor force size, with a significant range of values observed.

In conclusion, the descriptive statistics provide insights into the distributions and central tendencies of the variables PMDN, PMA, GDP, and LF. The statistics reveal notable variations in domestic investment, foreign direct investment, gross domestic product, and labor force size across the observed data.

For the next step is visualize the data using boxplot to observe an outliers in the data. This helps us to visually

understand the characteristics of the data and gain deeper insights into the distribution of the variable under investigation. Then, the output of boxplot using minitab are shown in the figure below.

a) Boxplot of Variable PMDN

b) Boxplot of Variable PMA

c) Boxplot of variable GDP
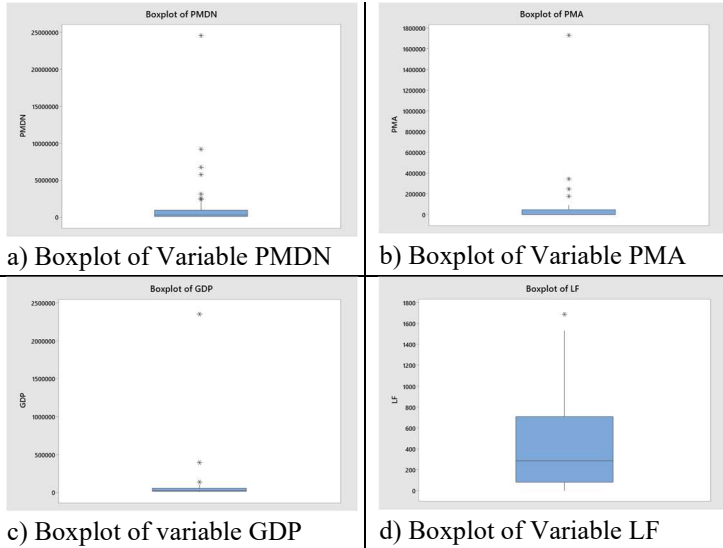

d) Boxplot of Variable LF

Figure 4. 9 Box Plot for Each Variable

From the boxplot above, it can be seen that there are an outlier in each variable. Also there are some extreme outliers observed in each variable, indicating data points that deviate significantly from the majority of the data. These outliers are situated far away from the main body of the boxplot, suggesting the presence of unusually high or low values in the dataset. These extreme observations could potentially have a significant impact on the overall distribution and statistical analysis of the variables.

Therefore, outlier checking is performed using Excel by calculating the absolute value of data standardization. This

method helps identify data points that are significantly distant from the mean in terms of standard deviations. By checking the absolute value of the standardized data, we can determine if there are values that are substantially different from the majority of the data. Checking for outliers is important to ensure the integrity and validity of the data analysis being conducted. The table below will show the extreme oulier in each variable.

Table 4. 2 Outlier Detection in Each Variale

PMDN			PMA		
standardize	abs std	outlier	standardize	abs std	outlier
1.1689556	1.168956	no	5.7829393	5.7829393	outlier
1.729975	1.729975	no	0.9135239	0.9135239	no
-0.3850685	0.385069	no	-0.2893377	0.2893377	no
5.306157	5.306157	outlier	0.330993	0.330993	no
LF			GDP		
standardize	abs std	outlier	standardize	abs std	outlier
2.3298554	2.329855	no	-0.0164919	0.0164919	no
3.6722368	3.672237	outlier	0.0825057	0.0825057	no
-0.5334865	0.533486	no	5.9120938	5.9120938	outlier
1.9965489	1.996549	no	0.7539757	0.7539757	no

The output shown above represents the results obtained from data analysis, specifically addressing the presence of outliers. The Excel analysis revealed that each variable has one extreme outlier. Although the boxplot displayed multiple outliers, the Excel calculations focused on identifying the most distant outlier for each variable. These findings provide valuable insights into the distribution of the data and the presence of extreme values. A comprehensive summary of the calculations, including

detailed explanations and additional statistical measures, will be included in the appendix section for further reference and analysis. Then, the extreme outlier will be exclude from the data.

4.3.3 Classical Assumption Testing
1. Normality
   The table below shown the output of normality test using one sample kolmogorov smirnov with SPSS.

Table 4. 3 Normality Test Using One-Sample Kolmogorov-Smirnov Test

		PMA	PMDN	LF	GDP
N		34	34	34	34
Normal Parameters[a,b]	Mean	729872.82	25990.62	16252.91	28514.91
	Std. Deviation	1193852.01	54224.40	22691.63	24674.12
Most Extreme Differences	Absolute	0.279	0.355	0.244	0.236
	Positive	0.279	0.355	0.226	0.236
	Negative	-0.276	-0.316	-0.244	-0.167
Test Statistic		0.279	0.355	0.244	0.236
Asymp. Sig. (2-tailed)		.000[c]	.000[c]	.000[c]	.000[c]

In Table 4.3, it can be observed that the values of Z (Asymp. Sig) as indicators for variable PMA is 0.000, for variable PMDN is 0.000, for variable LF is 0.000, and also for variable GDP is 0.000. Then the Z values in this test < 0.05. Therefore, it can be concluded that the data is not normally distributed. When data deviates from a normal distribution, it can have significant implications. Firstly, statistical inference may be affected, as tests and models assuming normality may yield inaccurate results. Biased

parameter estimates can also arise, leading to unreliable conclusions. Additionally, incorrect assumptions about normality can result in flawed decision-making. Non-normality violates the assumptions of certain statistical methods, making interpretation challenging and limiting generalizability. To address these issues, alternative techniques for non-normal data and addressing underlying causes should be considered.

Because the data is not normally distributed. The data transformation using LN will be used. It aims to achieve a more normal distribution or address statistical assumptions. By applying the LN transformation, the data is approximated to a symmetrical and normally distributed shape, which is beneficial for statistical analyses. This transformation is advantageous as it satisfies the normality assumption required by many tests and models. It can also linearize the relationship between variables, stabilize variance, and provide interpretable results in terms of percentage change. The table below will show the result of normality after the data transformation.

Table 4. 4 Normality Test Using One-Sample Kolmogorov-Smirnov Test After Data Transformation

		lnPMDN	lnPMA	lnLF	lnGDP
N		34	30	34	34
Normal Parameters[a,b]	Mean	12.4975	8.0504	8.9473	9.9319
	Std. Deviation	1.45339	2.79284	1.31342	0.81814
Most Extreme Differences	Absolute	0.105	0.101	0.086	0.146
	Positive	0.105	0.061	0.058	0.146
	Negative	-0.068	-0.101	-0.086	-0.102
Test Statistic		0.105	0.101	0.086	0.146

Asymp. Sig. (2-tailed)	.200[c,d]	.200[c,d]	.200[c,d]	.062[c]

In Table 4.4, it can be observed that the values of Z (Asymp. Sig) as indicators for variable PMDN, PMA, and LF are 0.200. Then for variable GDP is 0.062. Then all the Z values in this test > 0.05. Therefore, it can be concluded that the data is normally distributed.

2. Multicollinearity

The result of assessing multicollinearity using the correlation matrix in SPSS is presented in Table 4.5. The correlation matrix provides valuable insights into the relationships between the independent variables in the regression model. It allows for the identification of potential multicollinearity issues, which occur when two or more independent variables are highly correlated with each other.

Table 4. 5 Correlation Between The Independent Variable

	PMDN	PMA	LF
PMDN	1	.633[**]	.698[**]
PMA	.633[**]	1	.581[**]
LF	.698[**]	.581[**]	1

From the table above, it can be seen that the correlation coefficients between the independent variables, starting from Foreign Direct Investment (PMA), Domestic Direct Investment (PMDN), and Labor Force (LF), are all below 0.90. Therefore, there is no occurrence of multicollinearity.

3. Heteroskedasticity

The result of heteroscedasticity test is:

Table 4. 6 Heterocedasticity Result Using Glejser Test

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.845	0.464		1.821	0.080
PMDN	-0.085	0.048	-0.454	-1.758	0.090
PMA	-0.024	0.023	-0.246	-1.048	0.304
LF	0.089	0.053	0.413	1.681	0.105

From the glejser test test above, it can be observe that the significance value for the variable PMDN is 0.090, for variable PMA is 0.304, and for variable LF is 0.105. These value are greater than thr significance level of $\alpha=0.05$, indicating that there are no heteroscedasticity.

4. Autocorrelation

The result of autocorrelation test are shown in the following table.

Table 4. 7 Result of Autocorrelation Using Run Test

	Unstandardized Residual
Test Value[a]	-0.12902798443528
Cases < Test Value	15
Cases >= Test Value	15
Total Cases	30
Number of Runs	14
Z	-0.557
Asymp. Sig. (2-tailed)	0.577

From the run test above, the value of 0.577 is greater than 0.05. Therefore, the data used is sufficiently random, indicating there are no autocorrelation issues in the tested data.

4.3.4 Analysis Method

The data analysis conducted in this study will utilize a regression equation using the Ordinary Least Squares (OLS) method, which is a method for estimating the parameters of a linear regression model. The formulation of the regression equation using OLS is as follows:

$$Y = \beta_0 + \beta_1 \text{PMDN} + \beta_2 \text{PMA} + \beta_3 \text{LF} + e$$

Due to the non-normal distribution of the data, the data is transformed into logarithmic form using the following equation:

$$Y = \beta_0 + \beta_1 \ln\text{PMDN} + \beta_2 \ln\text{PMA} + \beta_3 \ln\text{LF} + e$$

Information:

Y: Gross Regional Domestic Product at constant prices (in billion rupiah)

PMDN : Domestic Investment (DI) in billion rupiah

PMA : Foreign Direct Investment (PMA) in billion rupiah

LF : Labor Force in number of people

β_0: the intercept or constant term

β_1: the regression coefficients for lnPMDN

β_2: the regression coefficients for lnPMA

β_3: the regression coefficients for lnLF

4.3.5 Statistics Test

In this study, an analysis and discussion will be conducted on the influence of domestic investment (PMDN), foreign direct investment (PMA), and labor force on economic growth in East Java Province, with the result shown in the table 4.8.

Table 4. 8 Coefficient of Regression Result

Term	Coef	SE Coef	T-Value	P-Value
Constant	4.345	0.905	4.8	0
lnPMDN	0.2751	0.0942	2.92	0.007
lnPMA	-0.0105	0.0455	-0.23	0.819
lnLF	0.251	0.104	2.43	0.022

$\alpha = 0.05$

R-sq = 64.61%

F-Statistics = 15.82

Durbin-Watson = 1.94192

1. Coefficient of Determination

   From the result of R-sq known that that the economic groeth can explain by variable PMA, PMDN, and LF 64.61%. and the other 34.39% are explained by the other variable.

2. F-Statisctics Result

   The F-test is used to determine the simultaneous influence of independent variables on the dependent variable. This test is conducted by comparing the calculated F-value with the tabulated F-value (0.05; 29; 3). The obtained results show that the calculated F-value is 15.82, which is greater than the tabulated F-value of 2.934. Therefore, the decision is to reject the null hypothesis (Ho). Thus, the F-test results indicate that the variables PMDN, PMA, and LF together have a significant influence on the economic growth in East Java Province.

3. t-Statistics Result

   Partial testing (t-test) of each independent variable shows the individual influence of the four independent variables, namely PMDN, PMA, and labor force (LF), on

the dependent variable, which is economic growth (GDP). The t-test is conducted by comparing the calculated t-value with the tabulated t-value. The tabulated t-value is obtained from α; df (n-k), where α is the significance level and df is the degrees of freedom (n-k). The obtained results show that the tabulated t-value is 1.697.

According to the regression result, the t-value for variable PMDN is 2.92 > t-table 1.697, means that the null hypothesis is failed to rejected. The result of t-test shown that variable PMDN has a positive influence on the economic growth of east java and the correlation already statistically significant. So, it can be conclude that PMDN has a significant positive effect on the economic growth of east java.

According to the regression result, the t-value for variable PMA is -0.23 < t-table 1.697, means that the null hypothesis is rejected. The result of t-test shown that variable PMA has a negative influence on the economic growth of east java and the correlation is not statistically significant. So, it can be conclude that PMA has a negative correlation and no significant effect on the economic growth of east java.

According to the regression result, the t-value for variable LF is 2.43 > t-table 1.697, means that the null hypothesis is failed to rejected. The result of t-test shown that variable LF has a positive influence on the economic growth of east java and the correlation already statistically significant. So, it can be conclude that LF has a significant positive effect on the economic growth of east java.

4. Model Interpretation

Based on the regression results, the econometric model generated is as follows:

$$Y = \beta_0 + \beta_1 \ln\text{PMDN} + \beta_2 \ln\text{PMA} + \beta_3 \ln\text{LF} + e$$

$$Y = 4.345 + 0.2751\ln\text{PMDN} - 0.0105\ln\text{PMA} + 0.251\ln\text{LF}$$

The interpretation of the regression results regarding the influence of PMDN, PMA, and labor force on economic growth in East Java is as follows:

In the above regression model, there is a dependent variable that is the natural logarithm (ln) of GDP (Gross Domestic Product), and three independent variables, namely lnPMDN (natural logarithm of PMDN), lnPMA (natural logarithm of PMA), and lnLF (natural logarithm of the labor force).

The regression coefficient for lnPMDN is 0.2751, indicating that a 1% increase in PMDN (Domestic Direct Investment) will be followed by a 0.2751% increase in GDP. The regression coefficient for lnPMA is -0.0105, indicating that a 1% increase in PMA (Foreign Direct Investment) will be followed by a 0.0105% decrease in GDP. The regression coefficient for lnLF is 0.251, meaning that a 1% increase in the labor force will be followed by a 0.251% increase in GDP. The intercept (constant regression coefficient) is 4.345, indicating that if all independent variables (lnPMDN, lnPMA, and lnLF) have a value of zero, GDP is estimated to be 4.345.

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CHAPTER V

CONCLUSSION AND RECOMENDATION

5.1   Conclussion

The conclusions drawn from the discussion in this report are as follows:

1. The IKU/IKD data and other data from the OPD have been identified. The identified data in the DPMPTSP (Department of Investment and One-Stop Integrated Services) includes the realization data of foreign direct investment (FDI) according to business sectors, location sectors, and countries of origin. The data also includes the realization value of domestic investment according to business sectors and location sectors. Additionally, other sectoral data obtained includes the data on the number of business permits.

2. The statistical activities conducted by the OPD include collecting investment data from the Investment Coordinating Board (BKPM), as well as processing the investment data and business licensing data. The OPD has also compiled recommendations and statistical metadata, with the metadata results provided in the attachment.

3. The infographic provides insights into investment realization in East Java in the first semester of 2022. Surabaya stands out as the city with the highest investment realization, while the United States is the leading country of origin. The mining sector drives investment, emphasizing its importance in East Java's economy. East Java ranks 3rd nationally in investment realization, contributing 9.2% to the total investment. With an annual growth rate of 54.4%, East

Java is a thriving investment destination with a total investment value of IDR 53.3 trillion.

4. Based on the analysis, PMDN (Domestic Direct Investment) has a significant positive effect on the economic growth of East Java, as evidenced by the positive coefficient and statistically significant t-value. Conversely, PMA (Foreign Direct Investment) shows a negative correlation and no significant effect on economic growth. The labor force (LF) has a significant positive impact on economic growth, as indicated by the positive coefficient and statistically significant t-value. Then the regression model equation suggests that a 1% increase in PMDN leads to a 0.2751% increase in GDP, while a 1% increase in PMA results in a 0.0105% decrease in GDP. Additionally, a 1% increase in the labor force leads to a 0.251% increase in GDP.

5.2 Recommendation

Based on the above conclusions, the following recommendations can be given:

1. In identifying IKU/IKD data and other data from OPD, it is important to continue expanding the scope of identified data, including investment data and business permits. Additionally, efforts should be made to obtain other relevant sectoral data.

2. The OPD needs to continue its statistical activities, such as collecting and processing investment data and business permits. In this process, it is important to maintain good collaboration with BKPM and other partners to ensure the collected data is of high quality and accuracy.

3. It is recommended to create infographics for future on-job training participants to provide them with more information

regarding OPD data. The infographics should cover comprehensive information while being designed in a way that is easily understood by the general audience.

4. It is desired to have more comprehensive and relevant data available in each OPD to facilitate statistical analysis. Additionally, for future on-job training participants, they can conduct further statistical analysis to obtain more information from OPD data.

5.

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APPENDIX

Appendix 1. Acceptance Letter

PEMERINTAH PROVINSI JAWA TIMUR
DINAS KOMUNIKASI DAN INFORMATIKA
Jl.A.Yani No. 242 – 244 Surabaya, Telp.(031)8294608; Fax. (031) 8294517
Website : kominfo.jatimprov.go.id
Email : kominfo@jatimprov.go.id
SURABAYA 60235

SURAT PERINTAH TUGAS
Nomor : 094/ 1363 /114.6/2022

Dasar : 1. Peraturan Daerah Provinsi Jawa Timur Nomor 5 tahun 2021 tanggal 31 Desember 2021 tentang Anggaran Pendapatan dan Belanja Daerah Provinsi Jawa Timur Tahun Anggaran 2022;

2. Peraturan Gubernur Jawa Timur Nomor 55 Tahun 2021 tentang Pedoman Kerja dan Pelaksanaan Tugas Pemerintah Daerah Provinsi Jawa Timur Tahun 2022;

3. Peraturan Gubernur Jawa Timur Nomor 116 Tahun 2021 tanggal 31 Desember 2021 tentang Penjabaran Anggaran Pendapatan dan Belanja Daerah Provinsi Jawa Timur Tahun Anggaran 2022;

4. Keputusan Gubernur Jawa Timur Nomor A.1/2.16.2.20.2.21.04.0000/ 001/2022 tanggal 1 Januari 2022 tentang Penetapan Dokumen Pelaksanaan Anggaran Satuan Kerja Perangkat Daerah (DPA-SKPD) Dinas Komunikasi dan Informatika Provinsi Jawa Timur Tahun Anggaran 2022.

M E M E R I N T A H K A N :

Kepada : 1. Nama Staf :
NIP :
Pangkat/Gol :

2. Nama Mahasiswa :
NRP :

Daftar terlampir

Untuk : Melaksanakan Pendampingan Kegiatan Kerja Praktik Mahasiswa Institut Teknologi Sepuluh Nopember (ITS) Surabaya kepada Perangkat Daerah di Lingkungan Pemerintah Provinsi Jawa Timur, pada tanggal 6 Juli s.d. 12 Agustus 2022.

Surabaya, 5 Juli 2022
KEPALA DINAS KOMUNIKASI DAN INFORMATIKA
PROVINSI JAWA TIMUR

Dr. HUDIYONO, M.Si
Pembina Utama Muda
NIP. 19640323 198503 1 010

53

DAFTAR NAMA MAHASISWA KEGIATAN KERJA PRAKTIK
INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS) SURABAYA

Team	No	Nama	NRP	Keterangan
1	1	Hafez Afghan	06211940000018	Inspektorat
	2	M. Ridhlotul Izza	06211940000066	
2	3	Dewi Musaani Oihu	06211940000015	Sekretariat DPRD
	4	Gannisa Sekar Adiya	06211940000040	
3	5	Adhista Widya Nandasari	06211940000030	Dinas Pemberdayaan Perempuan, Perlindungan Anak dan Kependudukan Provinsi Jawa Timur
	6	Atikah	06211940000034	
4	7	Edwina Maheswari Paramesti	06211940000058	Dinas Kesehatan Prov. Jawa Timur
	8	Salsabila Naqiyyah	06211940000044	
5	9	Farhan Aula Rahman	06211940000043	Dinas Kepemudaan dan Olahraga Provinsi Jawa Timur
	10	Ivana Irma Defi	06211940000114	
6	11	Denny Firmansyah	06211940000093	Dinas Pemberdayaan Masyarakat dan Desa Provinsi Jawa Timur
	12	Puspa Arum Sari	06211940000101	
7	13	Evika Aisyah Yasmin	06211940000137	Dinas Tenaga Kerja dan Transmigrasi Prov. Jawa Timur
	14	Reka Manika Insani	06211940000143	
8	15	Prasasti Arika Widya	06211940000150	Dinas Pendidikan Provinsi Jawa Timur
	16	Nur Addawiah D. Rabbah	06211940007004	
9	17	Natasya Shantika Azhami	06211940000053	Dinas Perumahan Rakyat, Kawasan Permukiman dan Cipta Karya Prov. Jawa Timur
	18	Nur Farahizam Sari Harahap	06211940007003	
10	19	Sayyid Nur Cahyo Abdul Jalil	06211940000089	Dinas Kehutanan Provinsi Jawa Timur
	20	Adani Nauval Prijantoro	06211940000111	
11	21	Dinda Nuranisa Rahmadanty	06211940000033	Dinas Energi dan Sumber Daya Milenial Provinsi Jawa Timur
	22	Adelia Nur Asmaria	06211940000081	
12	23	Firyal Almasah Kamilia Sartono	06211942000005	Dinas Kelautan dan Perikanan Provinsi Jawa Timur
	24	Safitri Paras Shadira	06211942000009	
13	25	Megawati R. Sitorus	06211940000050	Dinas Perkebunan Provinsi Jawa Timur
	26	Ovid First Own Damanik	06211940000031	
14	27	Adhelia Karenina	06211942000004	Dinas Peternakan Prov. Jawa Timur
	28	Rachel Gracia Simatupang	06211942000002	
15	29	Wedho Genosis	06211940000077	Dinas Pertanian dan Ketahanan Pangan Provinsi Jawa Timur
	30	Alissa Novitasari	06211940000134	
16	31	Jonathan Mangasi Sitorus	06211940000126	Dinas Pekerjaan Umum dan Bina Marga Provinsi Jawa Timur
	32	Yohanes Kristianto Pratisto	06211940000133	
17	33	Surotin Najikhah	06211940000097	Dinas Pekerjaan Umum Sumber Daya Air Provinsi Jawa Timur
	34	Salsa Salsabila	06211940000072	
18	35	Shinta Nuriyah Arief	06211940000138	Dinas Kebudayaan dan Pariwisata Provinsi Jawa Timur
	36	Fimadasa Blesofi Fikansa	06211940000142	
19	37	Latifatuz Zulfa	06211940000144	Dinas Perhubungan Provinsi Jawa Timur
	38	Natasya	06211940000104	
20	39	Yanuar Dwi Aunurrofiki	06211940000010	Dinas Perindustrian dan Perdagangan Prov Jawa Timur
	40	Irfan Nur Hanif Khoirullah	06211940000061	

Team	No	Nama	NRP	Keterangan
21	41	Wahidatul Wardah Al Maulidiyah	06211940000090	Dinas Koperasi, Usaha Kecil dan Menengah Provinsi Jawa Timur
	42	Andrea Ernest	06211940000098	
22	43	Dion Haffiz Hendriarto	06211940000149	Dinas Lingkungan Hidup
	44	Putri Aprilastika Sukarna	06211940000136	
23	45	Muhammad Hafidz Assidiq	06211942000003	Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi Jawa Timur
	46	Kristina Panduwinata	06211942000007	
24	47	Fajar Apriyanto	06211940000107	Dinas Sosial Provinsi Jawa Timur
	48	Althavida Riris	06211940000116	
25	49	Nur Laili Syahrozhadl	06211940000070	Dinas Komunikasi dan Informatika Prov. Jawa Timur
	50	Mohammad Bagussurya Basuni	06211940000078	
26	51	Gusti Ayu Ardell Salsa Wardhani	06111940000062	Dinas Perpustakaan dan Kearsipan Provinsi Jawa Timur
	52	Hanniya Gerimina Baunsele	06111940000009	
27	53	Sekar Puspita Sari	06211940000036	Badan Kesatuan Bangsa dan Politik Provinsi Jawa Timur
	54	Nadhirah Adzani Khairunnisa	06211940000021	
28	55	Pramesti Hayu Wirastri	06211940000011	Badan Pengelola Keuangan dan Aset Daerah Provinsi Jawa Timur
	56	Shafira Aisyah Maharani	06211940000019	
29	57	Kevina Windy Arlianni	06211940000047	Badan Pendapatan Daerah Provinsi Jawa Timur
	58	Arya Bima	06211940000020	
30	59	Muhamamad Fauzan Solikhin	06211942000001	Badan Perencanaan Pembangunan Daerah Provinsi Jawa Timur
	60	Farhan Landi	06211942000008	
31	61	Diah Ayu Fitri Anti	06211940000002	Badan Penelitian dan Pengembangan Provinsi Jawa Timur
	62	Ovivah Novoinah	06211940000051	
32	63	Ericko Verdianto Karnadi	06211940000055	Badan Penanggulangan Bencana Daerah
	64	Fernaldy Wananda Putra	06211940000148	
33	65	Intan Citra Phonskaningtyas	06211940000007	Badan Pengembangan Sumber Daya Manusia
	66	Aulia Kharis Rakhmasari	06211940000073	
34	67	Siti Rohmatun Afidah	06111940000061	Badan Kepegawaian Provinsi Jawa Timur
	68	Dewi Safitri	06111940000047	
35	69	Jihan Nabilah	06211940000068	Biro Kesejahteraan Rakyat
	70	Nunik Isyidhun Na'imah	06211940000080	
36	71	Indah Salshabila	06211940000032	Biro Organisasi
	72	Nur Rohmatunnisa'	06211940000096	
37	73	Dwi Purwanto	06211940000052	Biro Administrasi Pembangunan
	74	M. Zaim Husnun Niam	06211940000085	
38	75	Giovanita Ellen Prasetya	06211940000067	Biro Hukum
	76	Vania Frederica	06211940000006	
39	77	Dinda Khairun Nisa	06211940000022	Biro Pemerintahan dan Otoda
	78	Anita beatrix	06211940007002	
40	79	Rachmat Winardiansyah	06211940000042	Biro Perekonomian
	80	Akhmad Miftakhul Ilmi	06211940000062	
41	81	Prima Catur Perkasa	06211940000106	Biro Umum
	82	Dede Yusuf P. Kuntaritas	06211940007001	
42	83	Rafandra Ariftito Apta Kiran	06211940000128	Biro Pengadaan Barang dan Jasa
	84	Haris Yafie	06211940000074	
43	85	Mellina Eka Fitiriani	06211940000099	Biro Administrasi Pimpinan
	86	Nanda Novenia Shinta Hapsari	06211940000008	
44	87	Rahma Dea Dyaksa	06211940000086	Satuan Polisi Pamong Praja Provinsi Jawa Timur
	88	Nadhira Ramadhani Jatmiko	06211940000145	

Appendix 2. Evidence of Activity in The Company

	PROGRAM STUDI S1 STATISTIKA FSAD-ITS		
	Undergraduate Program Department Of Statistics FSAD -ITS	**F-A**	
	Bukti Kegiatan di Perusahaan		
	Evidence of Activity in the Company		
KP-S1-07	Curriculum 2018 , May 2019 Ed	Revision Number : 01	Code/sks : KS1B4721 / (0/0/2)	Page :1 of 2

Nama Mahasiswa /*Student Name* : Kristina Panduwinata / Muhammad Hafidz Assidiq
NRP/ *Student Identity Number* : 06211942000007 / 06211942000003
Nama Perusahaan/ *Company Name* : Badan Pusat Statistika Jawa Timur
Unit Kerja/*Work Unit* : Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Jawa Timur
Nama Pembimbing / *Supervisor Name* : Irhamah, S.Si, M.Si., Ph.D
Waktu Kerja Praktek/ *Practical Work time* : 08.00 – 16.00
Waktu Pelaksanaan/ *Execution Time* : 6 Juli 2022 s.d 12 Agustus 2022

No	Tanggal Date	Waktu /Time		Kegiatan Activity	TT PL /CSS")
		Start	Finish		
1	6 Juli	08.00	16.00	Workshop pembekalan KP	
2	7 Juli	08.00	16.00	Workshop pembekalan KP	
3	8 Juli	08.00	16.00	Pemberian surat tugas ke OPD dan Pengenalan OPD	
4	11 Juli	08.00	16.00	Identifikasi kegiatan statistik	
5	12 Juli	08.00	16.00	Identifikasi kegiatan statistik	
6	13 Juli	08.00	16.00	Identifikasi kegitan statistik dan pengisian FP-KPA	
7	14 Juli	08.00	16.00	Pengumpulan Identifikasi Kegiatan Statistik dan Pengisian FP-KPA (lanjutan)	
8	15 Juli	08.00	16.00	Revisi Identifikasi Kegiatan Statistik dan pengisian FP-KPA	
9	18 Juli	08.00	16.00	Pengisian FP-KPA dan mencicil pengumpulan data 2019	
10	19 Juli	08.00	16.00	Pengisian FP-KPA dan Mengerjakan Tugas dari OPD	
11	20 Juli	08.00	16.00	Membantu Mengerjakan Tugas dari OPD (diminta membantu untuk membuat lampiran surat untuk kegiatan nasional) dan pengumpulan FP-KPA	
12	21 juli	08.00	16.00	Membantu tugas dari OPD (diminta membantu pembuatan surat untuk kegiatan nasional) dan Revisi FP-KPA	
13	22 Juli	08.00	16.00	Pengumpulan Revisi FP-KPA dan input Romantik Online	
14	25 Juli	08.00	16.00	Melakukan metadata statistic, mengumpulkan data	
15	26 Juli	08.00	16.00	Melakukan metadata statistic, mengumpulkan data	
16	27 Juli	08.00	16.00	Melakukan metadata statistic, mengumpulkan data	
17	28 Juli	08.00	16.00	Revisi metadata statistik dan membantu keperluan opd (diminta membantu membuat infografis untuk postingan Instagram di opd)	
18	29 Juli	08.00	16.00	Revisi metadata statistic dan membantu keperluan opd	

	PROGRAM STUDI S1 STATISTIKA FSAD-ITS	F-A
	Undergraduate Program Department Of Statistics FSAD -ITS	
	Bukti Kegiatan di Perusahaan	
	Evidence of Activity in the Company	
KP-S1-07	Curriculum 2018 , May 2019 Ed Revision Number : 01 Code/sks : KS184721 / (0/0/2)	Page 2 of 2

19	1 Agustus	08.00	16.00	Mencoba pembuatan infografis, membantu keperluan opd	
20	2 Agustus	08.00	16.00	Seminar infografis dan pembuatan infografis	
21	3 Agustus	08.00	16.00	Melanjutkan infografis dan membantu keperluan opd	
22	4 Agustus	08.00	16.00	Melanjutkan infografis dan membantu keperluan opd	
23	5 Agustus	08.00	16.00	Membantu keperluan opd	
24	8 Agustus	08.00	16.00	Menyusun ide paper	
25	9 Agustus	08.00	16.00	Melanjutkan paper	
26	10 Agustus	08.00	16.00	Mengisi laporan rekapitulasi dan menemui kepala bidang untuk tanda tangan	
27	11 Agustus	08.00	16.00	Melanjutkan paper	
28	12 Agustus	08.00	16.00	Melanjutkan paper	

*) Setiap paraf harus disertai stempel perusahaan/ Each initials must be accompanied by the company stamp
TTPL= Tanda tangan pembimbing Lapangan/Company Supervisor Signature (CSS)

Form F-A merupakan bukti bahwa mahasiswa telah mengikuti kegiatan di perusahaan tempat KP. Formulir ini dilampirkan di laporan Kerja Praktek sebagai bukti telah melaksanakan Kerja Praktek
F-A Form is evidence that the student has attended activities at the company of PW. This form is attached in report as evidence has been carrying out Practical Work

Proses pembelajaran di Jurusan Statistika- ITS meliputi Lecture, Practical Work (PW) dan Final Project (FP). Ada 11 Dokumen dalam proses Kerja Praktek, yaitu : 1). SOP (D1),2). Pedoman (D2), 3).Formulir pengajuan Surat permohonan KP (F1), 4).Surat permohonan KP di Perusahaan (F2), 5).Surat balasan dari perusahaan (F3), 5).Formulir rekaman kegiatan (F4,FA,FB), 6).Formulir penilaian (F-C,F-D dan F-E).
The learning process in the Department Statistika- ITS covers Lecture, Practical Work (PW) and Final Project (FP). There are 11 documents in the process of PW, ie: 1). SOP (D1), 2). Manual (D2), 3). Formulir filing request letter PW (F1), 4) Letter of PW request to the Company (F2), 5) Letter reply from the company (F3), 5) Formulir recording activities (F4, FA, FB), 6) Formulir assessment (FC, FD and FE).

Surabaya,..25...January.., 2013
Mengetahui
Pendamping Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi Jawa Timur

(Hermin wahyudri.s. e)
NIP. 19851107 201101 1 0043

D-1	D-2	F-1	F-2	F-3	F-4	F-A	✓	F-B	F-C	F-D	F-E
SOP of PW	Practical Work Report Writing Form	Formulir filing request letter PW	Letter of PW request to the Company	Letter reply from the company	PW proposal supervising Form	Activity Form in the Company		PW supervising Form	PW Company Assessment Form	Assessment of Report Form	Poster Assessment Form

Appendix 3. Evidence of Practical Work Supervising

	PROGRAM STUDI S1 STATISTIKA FSAD-ITS		F-B
	Undergraduate Program Department Of Statistics FSAD -ITS		
	Bukti Pembimbingan Kerja Praktek		
	Evidence of Practical Work Supervising		
KP-S1-08	Curriculum 2018 , May 2019 Ed	Revision Number : 01 Code/sks : KS184721 / (0/0/2)	Page :1 of 1

Nama Mahasiswa /Student Name : Kristina Panduwinata
NRP/ Student Identity Number : 06211942000007
Nama Perusahaan/ Company Name : Badan Pusat Statistika Provinsi Jawa Timur
Unit Kerja/Work Unit : Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Jawa Timur
Nama Pembimbing / Supervisor Name : Irhamah, S.Si, M.Si., Ph.D
Waktu Kerja Praktek/ Practical Work time : 6 Juli – 12 Agustus 2022

No	Tanggal Date	Materi yang dibahas Component Discussions	TT Pembimbing Supervisor Sign
1	9 June 2023	the data from on job training, the background and objective of this on job training the anylis method.	✗
2	18 June 2023	corection of regression model, conclusion of on job training.	✗
3	21 June 2023	fixing the conclusion, page of the new chapter	✗
4			
5			
6			
7			

Form-FB merupakan bukti bahwa mahasiswa telah melakukan pembimbingan selama pembuatan Laporan KP. Formulir ini dilampirkan di laporan Kerja Praktek. Bimbingan KP Minimal 5 kali.
FB Form is evidence that the student has been spervising for report drafting of PW. This form is attached in PW report. PW guidance least 5 times.

Surabaya, 21 June 2023
Dosen Pembimbing KP/PW Supervisor

(Irhamah, S.Si, M.Si., Ph.D)
NIP. 19780406 200112 2 002

Proses pembelajaran di Jurusan Statistika- ITS meliputi Lecture, Practical Work (PW) dan Final Project (FP). Ada 11 Dokumen dalam proses Kerja Praktek, yaitu : 1). SOP (D1),2). Pedoman (D2), 3).Formulir pengajuan Surat permohonan KP (F1), 4).Surata permohonan KP di Perusahaan (F2), 5).Surat balasan dari perusahaan (F3), 5) Formulir relaman kegiatan (F4,FA,FB), 6).Formulir penilaian (F-C,F-D dan F-E).
The learning process in the Department Statistika- ITS covers Lecture, Practical Work (PW) and Final Project (FP). There are 11 documents in the process of PW, ie: 1). SOP (D1), 2). Manual (D2), 3) Formulir filing request letter PW (F1), 4) .Letter of PW request to the Company (F2), 5) .Letter reply from the company (F3), 5) .Formulir recording activities (F4, FA, FB), 6) Formulir assessment (FC, FD and FE).

D-1	D-2	F-1	F-2	F-3	F-4	F-A	F-B ✓	F-C	F-D	F-E
SOP of PW	Practical Work Repot Writing Form	Formulir filing request letter PW	Letter of PW request to the Company	Letter reply from the company	PW proposal supervising Form	Activity Form in the Company	PW supervising Form	PW Company Assessment Form	Assessment of Report Form	Poster Assessment Form

58