



## Demographic trends in average wages of workers in Indonesian provinces

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### ABSTRACT

The average wage of employees is a significant indicator of economic and social welfare in Indonesia. Rising worker wages can indicate economic growth and enhanced welfare, whereas falling worker wages can indicate economic problems and social unrest. The research urgency is visualizing the demographic trends of average worker wages demonstrates that statistical data visualization is a solution for presenting data from the Indonesian Central Bureau of Statistics on wages in a more appealing and understandable manner. Using Google Data Studio for data visualization in this study can facilitate the transformation of complex data into engaging graphs and diagrams that are simple to share with readers. This study's contribution is a visualization of the demographic trend of the average hourly wage of employees in Indonesian provinces from 2018 to 2022. Visualize outcomes The average wage of Indonesian laborers has increased and decreased over the past five years. In 2022, the province of DKI Jakarta has the greatest average wage of all provinces, amounting to 32,685 dollars. In 2018, the province of West Nusa Tenggara had the lowest average wage, which was 11,359 rupiah per month. The average wage of Indonesian employees with five years of experience is IDR 16,888 per hour.

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## 1. INTRODUCTION

Indonesia is a diverse nation in terms of its culture, geography, and economy. The country consists of numerous provinces, each of which has its own distinct characteristics and features. As one of the world's most populous nations, Indonesia has a diversified workforce that contributes significantly to economic development and social welfare (Nugraha et al., 2023; Rustariyuni et al., 2018; Septiana et al., 2023; Sudarmanto

et al., 2023). The average wage of employees is a crucial indicator for gauging a country's prosperity and economic dynamics. A wage or salary is a remuneration received from an institution or employer for work or services performed or to be performed (Fachrurazi et al., 2022; Irnawati et al., 2022; Sembiring, 2019). Wages are expressed in the form of money whose quantity is determined by agreement or in accordance with laws and regulations, and are paid based on an agreement between the employer and the working party. Article 88 paragraph (3) of Law 13/2003 jo. Law No. 11/2020 on Job Creation (Law 11/2020) and Government Regulation No. 36/2021 (PP 36/2021) regulate wage policies. The policies include minimum wages, structure and scale of wages, overtime work wages, wages for not coming to work or not doing work for certain reasons, the form and method of payment of wages, things that can be calculated with wages, and wages as the basis for calculating or paying other rights and responsibilities (Aprilsesa et al., 2023; Maryati et al., 2021; Panjaitan & Hilmawan, 2023).

The amount of wages for workers in Indonesia varies, this is determined based on Decent Living Needs (KHL) for one month a worker. Besides that, the size of wages is caused by several factors, namely, based on the area of residence, level of education, and gender. There is a need for a demographic trend of the average wage of workers in provinces in Indonesia which can provide a visualization of the socio-economic changes that are taking place (Mayasari et al., 2023; Nafisah, 2018; Surachmad et al., 2023). The average wage of workers is an important indicator in assessing the level of welfare and prosperity of a society (Bakdiah et al., 2023; Boari, Ilindamon, Mikir, et al., 2022; Muhammadiyah et al., 2022; Rahayu & Nurhayati, 2021; Sadikin, 2020c, 2020b; Sahrul et al., 2023; Sembiring & SH, 2022). When workers' wages increase, it can indicate economic growth and increased welfare. Conversely, a decrease in wages can be a sign of problems in the economy and social instability (Ayuningtyas & Suryanata, 2022; Boari, Ilindamon, & Rumaropen, 2022; Heikal et al., 2022; Muhammadiyah & Amin, 2020; Muliadi et al., 2022; Sadikin, 2020a; Sembiring et al., 2023).

Some research (Aqil & Wahyuniati, 2022; Azis et al., 2022; Hayat & Sadikin, 2023; Kalianda, 2019; Sudipa, Sarasvananda, et al., 2023) related to the visualization of demographic data trends by explaining the importance of visualization to find out the level of wages in Indonesia can be seen through the Central Statistics Agency (BPS), where the data provided is still in tabular form on Microsoft Excel. In the data provided in the form of excel files to read it takes a long time to understand the available data (Arsana & Lestari, 2021; Prahendratno et al., 2023). The need for data visualization to know the lowest wage or wage from the data makes it difficult to have to compare one by one because the available data is not sorted from the lowest or highest data.

So with current technological developments in this study the aim is to help present statistical data or visualization (turn data into images, charts or graphs) from the BPS data. Data visualization is one of the modern visual communications that can be a solution for presenting data to make it interesting and easier for readers to understand. Good graphics and an attractive display are not only a demand, integration with data sources and easy sharing of information are now also demands for data visualization. In doing this there is a lot of software that can be used in the data visualization process. One of the software that can be used for data visualization is Google Data Studio (Boari et al., 2023; Google, 2016; Hurst, 2020; Rifani & Sadikin, 2020; Sudipa, Udayana, et al., 2023). Google data studio is a data visualization program designed as an easy-to-use tool for representing complex data sets in an attractive and clear way. The implication of this study is to analyze the demographic trends of the average wage of workers in provinces in Indonesia over a certain period of time. In this case, the research will focus on changes in hourly wages at the provincial level. Thus, this research is expected to make a significant contribution to the understanding of economic dynamics and social welfare in various regions of Indonesia.

## 2. RESEARCH METHOD

### 2.1 Research Stages

The research's stages are depicted in Figure 1 below:

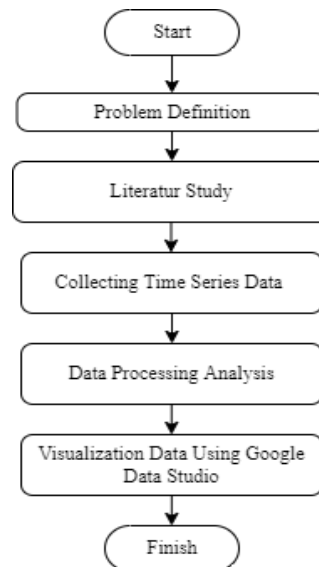


Figure 1. Research Stages

The explanation of Figure 1 can be provided. The utilization of time series data visualization in literature analysis can provide a comprehensive understanding of the subject matter. The issue at hand pertains to the absence of visual representation about the mean salary of employees across several provinces in Indonesia, hence hindering the ability to discern disparities in workers' remuneration. The data in question has been sourced from the official website of the Indonesian Central Bureau of Statistics (BPS). The present methodology categorizes the mean laborer updah data in Indonesian provinces, utilizing the Microsoft Excel spreadsheet extension, by considering the hourly rates according to the month and year of arrival. The concluding stage involves employing Google Data Studio graphs to visually represent the average wage data of workers across various provinces in Indonesia.

### 2.2. Data source

In this study, data on average hourly wages for 2018-2022 were taken from the Central Bureau of Statistics (BPS). This data contains the amount of hourly worker wages by province in Indonesia. The data used is data for 2018-2022. Data on average hourly wages for workers by province in Indonesia (Rupiah/Hour), 2018-2022 can be seen in Table 1.

**Table 1. of Average Wage Data of Provinces in Indonesia**

Province	Average Hourly Wages of Workers by Region of Residence (Rupiah/Hour)				
	2018	2019	2020	2021	2022
aceh	13,814	15,065	18,099	17037	16,772
North Sumatra	13,257	14,061	15,949	15,486	15.131
West Sumatra	14,431	15,210	17,571	16,630	15,887
Riau	15,613	16,270	18,411	19.144	18,626
Jambi	14007	14,304	15,840	16043	16,042
South Sumatra	13,214	13,580	15,072	15,873	15,978

Bengkulu	14,353	14,511	17,407	18,271	16,501
Lampung	11,779	12,575	14,912	15,224	13.218
.....	.....	.....	.....	.....	.....
West Papua	21,727	22,987	27,904	29,600	24.128
Papuan	25,987	24,984	32,138	30,382	24,097

### 3. RESULTS AND DISCUSSIONS

The process of visualizing demographic data trends uses Google Data Studio tools. The research data uses average wage data for workers per hour (Rupiah/hour), for 2018-2022 this was taken from the Central Bureau of Statistics (BPS). This data contains the amount of hourly worker wages by province in Indonesia. The data used is data for 2018-2022. Furthermore, this data is visualized into several display diagrams, which can be seen in the image below.

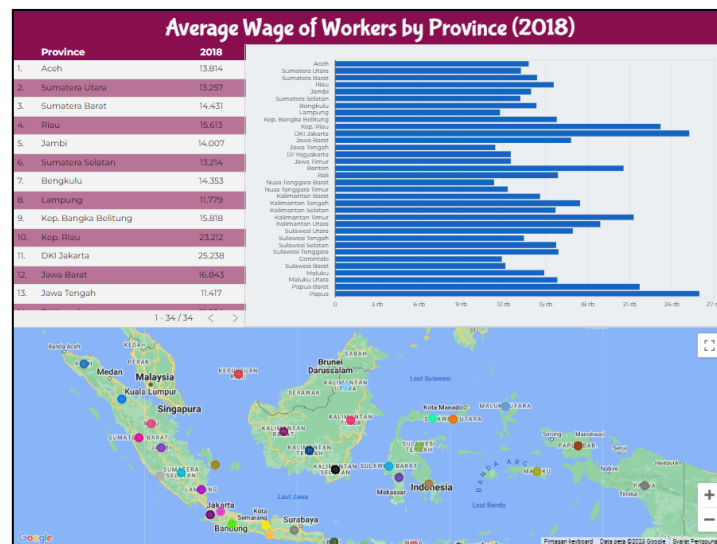


Figure 1. Results of Data Visualization of the Indonesian Province's Average Wage for 2018

Based on Figure 1 above, this is a visualization of the average worker data by province in 2018. The visualization of the data displayed is a table diagram with lines. From the results of the data visualization above, it can be seen that: a) The highest average wage for workers by province in 2018 was in the province of Papua with an average wage of 25,987. b) The lowest average wage for workers by province in 2018 was in West Nusa Tenggara province with an average wage of 11,359.

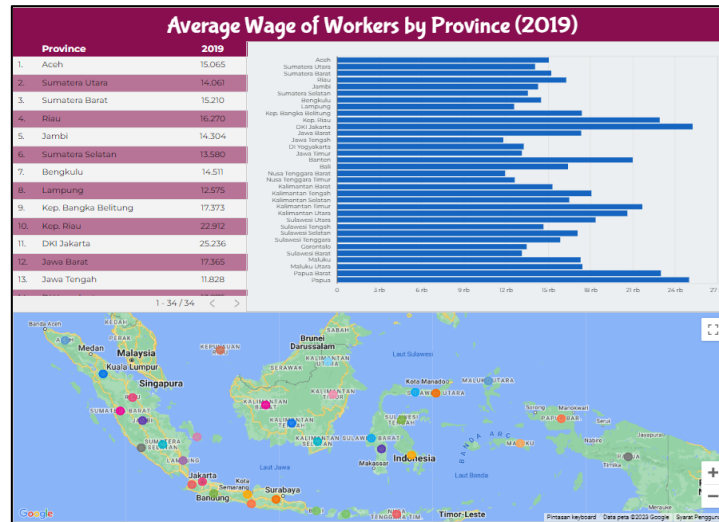


Figure 2. Results of Data Visualization of the Indonesian Province's Average Wage for 2019

The picture above is a visualization of the average worker data by province in 2019. The data visualization displayed is a table diagram with lines. From the results of the data visualization above, it can be seen that: a) The highest average wage for workers by province in 2019 was in the DKI Jakarta province with an average wage of 25,236. b) The lowest average wage for workers by province in 2019 was in the province of Central Java with an average wage of 11,828.

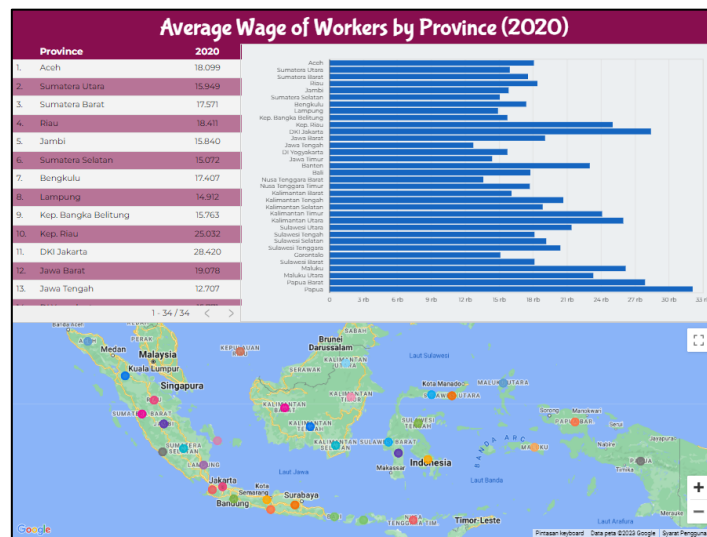


Figure 3. Results of Data Visualization of the Indonesian Province's Average Wage for 2020

The image above is a visualization of the average worker data by province in 2020. The data visualization displayed is a table diagram with lines. From the results of the visualization of the data above, it can be seen that: a) The highest average wage for workers by province in 2020 is in the province of Papua with an average wage of 32,138. b) The lowest average wage for workers by province in 2020 is in the province of Central Java with an average wage of 12,707.

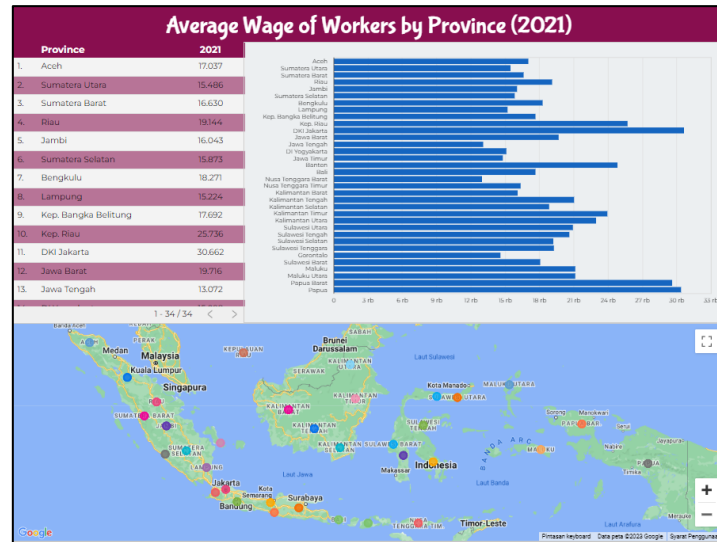


Figure 5. Results of Data Visualization of the Indonesian Province's Average Wage for 2021

The image above is a visualization of the average worker data by province in 2020. The data visualization displayed is a map diagram. From the results of the visualization of the data above, it can be seen that: a) The highest average wage for workers by province in 2020 is in the province of Papua with an average wage of 32,138. b) The lowest average wage for workers by province in 2020 is in the province of Central Java with an average wage of 12,707.

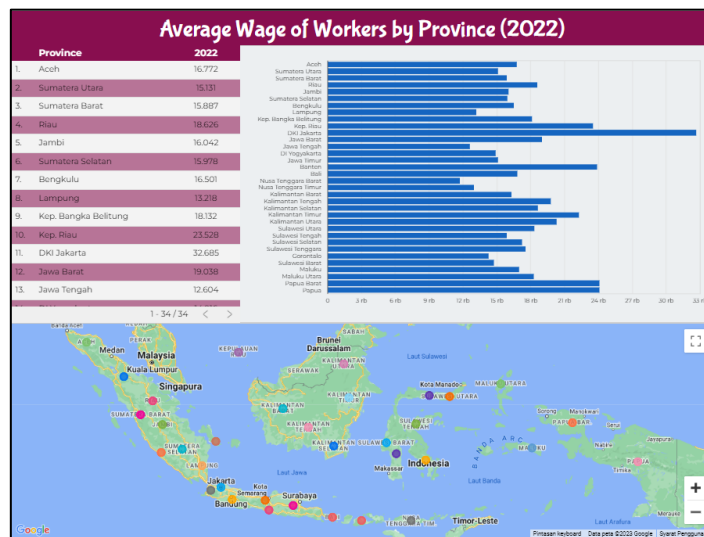


Figure 6. Results of Data Visualization of the Indonesian Province's Average Wage in 2022

The image above is a visualization of the average worker data by province in 2022. The data visualization displayed is a table diagram with lines. From the results of the data visualization above, it can be seen that: a) The highest average wage for workers by province in 2022 is in the DKI Jakarta province with an average wage of 32,685. b) The lowest average wage for workers by province in 2022 is in the West Nusa Tenggara province with an average wage of 11,734.

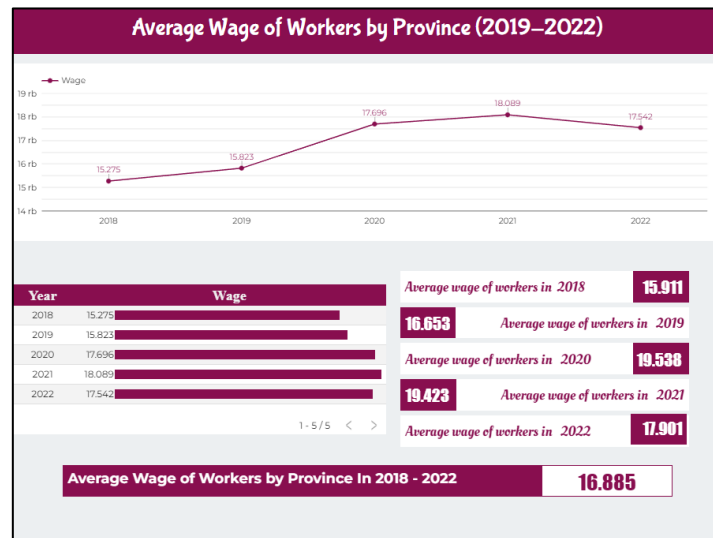


Figure 7. Results of the 2018-2022 Indonesian Province Average Wage Data Visualization

The picture above is a visualization with a line chart from data on average hourly wages by province for 5 years. From this visualization it can be seen that the highest wage for workers is in 2021 of 18,089. Meanwhile, the lowest wage was in 2018, which was 15,275. The average wage of workers each year has also increased and decreased. In 2019 the increase in the average wage of workers was 548, with an initial wage of 15,275 in 2018, increasing to 15,823 in 2019. In 2020 the increase in the average wage of workers was 1,873, with an initial wage of 15,823 in 2019, an increase to 17,696 in 2020. In 2021 the average wage increase is 393, with an initial wage of 17,696 in 2020, increasing to 18.

#### 4. CONCLUSION

Based on the results of the visualization of data on the average wage of workers per hour by province for 5 years, namely 2018 to 2022, it can be concluded that there is an increase in wages when viewed from 2018 to 2021, namely Rp. 3,512; this data demonstrates the government's attention to workers' wages; however, in 2021 to 2022 there is a decrease in wages of Rp. 547; therefore, it can be used as a basis for evaluating workers' wages. This research's contribution is that it can produce visualizations accompanied by analysis of changes in the average wages of workers in each province of Indonesia, namely that the average wage of workers in Indonesia over the past five years has been IDR 16,885 per hour. The implications of this study can provide readers with visual information regarding changes in the average wage of employees in Indonesian provinces, making it simpler to analyze and comprehend. To be able to make comparisons with the entire data in the month and year of 2023, and to analyze the factors that influence changes, particularly the decline in the average wage of workers in Indonesian provinces, are suggestions for future research.

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