
QUANTITATIVE STUDY ON THE EFFECT OF AGE, EDUCATION, EXPERIENCE, AND WAGES ON LABOR PRODUCTIVITY IN HOUSING PROJECTS

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Abstract

This study explores how age, education, experience, and wages affect labor productivity in the housing sector of Mojokerto Regency. With rapid urbanization and rising housing demand, understanding these factors is crucial for improving workforce performance. Using a quantitative approach and multiple linear regression, data was gathered from 150 construction workers in Mojokerto through random sampling. The analysis found that all four factors—age, education, experience, and wages—significantly impact productivity. Education had the greatest influence, emphasizing the importance of skill development. Both experience and wages also positively affected productivity, while age showed a mixed effect, with productivity increasing until a certain age before declining. The model explained 62% of the productivity variation. The findings suggest the need for policies focusing on workforce training, fair wages, and better management to enhance productivity. Investing in education and skills development will be key for sustaining growth in the housing sector. This research provides valuable insights for improving labor productivity in Indonesia's housing industry, particularly in rapidly urbanizing areas.

Keywords: Labor Productivity, Housing Sector, Workforce Development, Wages, Education

INTRODUCTION

Labor productivity is a fundamental element that influences economic growth and progress in the development sector, especially in the housing sector. In Mojokerto City, Mojokerto Regency. The housing sector in Mojokerto City, Mojokerto Regency, has experienced significant development in recent years. This transformation is driven by various factors, including rapid urbanization and rapid population growth. Reported from Mojokerto.go.kab.id (2022) The number of Housing Projects. The Mojokerto Regency Government has initiated various housing projects to meet the needs of the community. One example is the inauguration of six large projects with a total budget of around IDR 181.5 billion. These projects cover various sectors, including housing, education, and religious infrastructure. Level of Labor Needs: The increase in housing projects has a direct impact on the need for labor in the construction and housing sectors. Data from the Central Statistics Agency (BPS) of Mojokerto Regency shows that in August 2024, the number of the workforce reached 671.81 thousand people, an increase of around 24.05 thousand people compared to the previous year. The Labor Force Participation Rate (TPAK) also increased to 73.94%. Sectoral Productivity Data shows that although specific data on housing sector productivity in Mojokerto is limited, the increase in the number of housing projects and labor absorption indicates positive growth in this sector. In addition, the local government continues to strive to improve the quality of housing infrastructure through various programs and initiatives.

Overall, the transformation of the housing sector in Mojokerto reflects an active response to local demographic and economic dynamics, with support from the government and community participation. As a result, the need for decent housing is increasing, which in turn encourages the housing sector to accelerate development. This process requires skilled, experienced, and productive workers so that each development project can run effectively and efficiently.

However, behind this rapid development, several factors can affect labor productivity. These factors are interrelated and affect the quality and results of workers in the field. One of the main factors that has a major influence on labor productivity is age. Age not

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only reflects the level of maturity of an individual, but is also closely related to the experience they have. Older age often indicates broader experience, but after reaching a certain age, productivity can decline due to physical factors and limitations in adapting to technology. This decline in productivity with age is often seen in jobs that require physical endurance and ever-evolving technological skills. However, (Lukas & Rafael, 2020) argue that the experience gained with age can improve the quality of work, although in certain sectors, age may be a limiting factor.

In addition to age, education is a determining factor in improving the quality and skills of the workforce. Higher education is often directly related to the ability of the workforce to face complex challenges in the workplace. (Karlson & Ozola, 2023) stated that workers with higher levels of education have better abilities in operating new technologies and applying more efficient working methods, which are very important in the ever-growing construction sector. With adequate education, workers are also better prepared to face changes and challenges that arise in the construction of the housing sector. This opinion is in line with (Ozturk et al., 2020), which emphasizes the importance of education to support productivity, because a trained and educated workforce tends to have better skills, increasing their effectiveness in completing tasks.

Work experience is also one of the factors that is no less important in determining productivity. The longer a person works in a sector or industry, the higher their skills and experience, which directly affects the improvement of the quality of work produced. Setyaningrum, (2003) states that long work experience can improve an individual's ability to complete tasks more quickly and accurately, and enable workers to overcome various problems that arise in the field. This experience gives workers the ability to overcome various challenges that may arise, as well as increase the accuracy of decision-making related to the work being done.

Wages or compensation are factors that are no less important in driving labor productivity. Research by (Prahara, Rahma Sandhi & Fahmi, 2024) shows that decent wages that are in accordance with the level of skills and experience of workers can increase their

motivation and loyalty to their work. Workers who feel appreciated through fair compensation will be more motivated to work harder and with higher quality. In the housing sector, where the quality and speed of work are very important, high worker motivation will certainly have a positive impact on their productivity.

Given this phenomenon, it is important to understand the relationship between age, education, experience, and wages on labor productivity in the housing sector. The variables of age, education, experience, and wages as factors influencing productivity are based on various previous studies that show a close relationship between these factors and labor performance. Age plays a role in determining the balance between physical ability and work experience, where young workers tend to be more adaptive to new technologies, while older workers have an advantage in decision making. Education improves workers' skills and understanding in carrying out their duties more efficiently, as explained in human capital theory. Work experience also contributes to the effectiveness and efficiency of the workforce because skills acquired from direct practice can increase productivity. In addition, competitive wages act as an incentive for workers to improve their performance and reduce turnover rates. Thus, these four variables are considered the most relevant in determining labor productivity because they have a strong theoretical basis and are supported by various empirical studies.

The selection of the variables age, education, experience, and wages as factors influencing productivity is supported by various previous studies. Becker (1993) In human capital theory, it is explained that education increases the skills and efficiency of the workforce, which has an impact on increasing productivity. Mincer (1974) also emphasizes that work experience contributes to increased expertise and effectiveness in carrying out tasks. In addition, research Lazear (2009) shows that more experienced workers have better problem-solving skills, thereby increasing company productivity. Age factors also play a role, as stated by The Skirbek (2004), which states that productivity tends to increase at a certain age and then decreases with age due to physical factors. Meanwhile, the efficiency wage theory developed by Akerlof, G.A., & Yellen (1986) emphasizes that higher wages can increase

worker motivation and loyalty, which ultimately has a positive impact on labor productivity. Thus, these four variables have a strong theoretical and empirical basis in explaining the factors that influence labor productivity.

This study aims to examine the extent to which these factors influence labor productivity in Mojokari City, as well as provide deeper insights into how these factors can be utilized to improve the quality and efficiency of the housing sector.

REVIEW OF LITERATURE

Labor Productivity

Labor productivity refers to the amount of output produced by labor in a given unit of time. In the construction sector, productivity is often measured by comparing the volume of work completed with the time used to complete the work. According to Alunika (2017), labor productivity in construction is highly dependent on skill level, experience, and efficiency in resource use. Chemerys et al. (2022) added that good project management, including thorough planning and effective team coordination, can significantly improve workforce productivity. In addition, Kuznetsov (2018) revealed that worker motivation, whether derived from financial or non-financial incentives, plays an important role in increasing work efficiency and reducing project delay rates.

External factors also have a major influence on labor productivity. Safe and comfortable working conditions, such as a clean working environment and appropriate temperature, can increase worker efficiency (Horner, RMW, & Duff, 2001). In addition, the use of appropriate tools and technology can speed up work processes and reduce the physical burden on workers, as discussed in research by Thomas, H.R., Tucker, R.L., & Martinez (2002), which found that the use of heavy equipment and more modern construction methods can increase labor productivity by up to 25%. Company policies regarding wages, working hours, and worker welfare are also factors that can increase or decrease productivity, as studied by Olomolaiye, PO, Jayawardane, AKW, & Harris (1998), which shows that



dissatisfaction with company policies often contributes to low productivity and high levels of worker absenteeism.

Thus, labor productivity in the construction sector is influenced by a combination of internal factors, such as workers' skills, experience, and motivation, as well as external factors, including working conditions, technology used, and company policies. Therefore, a holistic approach that includes workforce training, improving management systems, and implementing policies that support worker welfare is needed to optimize productivity in the construction industry.

Age and Productivity of the Workforce

Age is a demographic factor that has a complex relationship with labor productivity. Labor productivity is influenced not only by experience that increases with age, but also by the decline in physical abilities that occurs at certain stages in life. Bukit et al. (2018) state that older workers tend to have more experience and skills, so they are more efficient in decision making and completing tasks that require specialized expertise. However, research by The Skirbek (2004) shows that labor productivity begins to decline after reaching a certain age, especially in physical work, due to fatigue and decreased endurance.

On the other hand, Setyaningrum (2003) argue that the experience gained by older workers provides an advantage in job skills, especially in areas that require in-depth understanding and precision in task execution. This finding is supported by research Ng, TWH, & Feldman (2008), who found that older workers had higher levels of conscientiousness and job stability than younger workers. However, they also noted that the effectiveness of older workers depended heavily on the type of work they did; more physically demanding jobs experienced a faster decline in productivity than more skill- and experience-based jobs.

Additionally, adapting to technology is also a challenge for the older workforce. Friedberg (2003) found that older workers often have difficulty adopting new technologies, which can lead to productivity gaps in a work environment that increasingly relies on digital innovation. However, research by Malmberg, B., Lindh, T., & Halvarsson (2008) shows that

in more knowledge-based sectors, older workers can maintain their productivity longer because they have better intellectual capital and analytical skills than younger workers.

Thus, the impact of age on labor productivity is not linear, but is influenced by other factors such as the type of work, the level of adaptation to technology, and the balance between experience and physical decline. Therefore, employment policies need to consider strategies to utilize the experience of senior workers, such as through ongoing training programs and workload adjustments, so that productivity can remain optimal.

Work Experience and Productivity

Work experience is a crucial factor in determining labor productivity because it is related to the accumulation of skills, knowledge, and efficiency in carrying out tasks. Setiadi et al. (2020) state that workers with more experience tend to have a better understanding of workflows, task completion techniques, and strategies for overcoming challenges in the field. Experienced workers are also better at managing time and resources, so they can complete tasks more quickly and accurately, while minimizing work errors.

Research by Becker (1993) supports this view by putting forward human capital theory, which states that work experience is a form of investment in human capital that increases individual productivity. Another study by Tesluk, P.E., & Jacobs (1998) shows that work experience contributes to the development of technical expertise and problem-solving abilities, which are particularly important in industrial sectors that require specialized skills. This is also supported by findings from Kalleberg, AL, & Mouw (2018), which indicate that workers with longer experience have higher levels of work efficiency and resilience than workers who have just entered the workforce.

In addition to technical aspects, work experience also contributes to the development of soft skills, such as better communication, team management, and decision making (Ericsson, KA, Prietula, MJ, & Cokely, 2006). In the construction sector, for example, research by Horta, IM, Camanho, AS, & Costa (2013) shows that experienced workers are better able to cope with work pressure and dynamic environmental conditions, which ultimately increases overall productivity. This is also true in the manufacturing sector, where

longer work experience is associated with increased output and production efficiency. (Bresnahan, T.F., Brynjolfsson, E., & Hitt, 2002). However, there are limits to the positive impact of work experience. Research by Avolio, B.J., Waldman, D.A., & McDaniel (1990) found that after a certain point, work experience no longer provides significant productivity gains, and can even decline if not balanced with learning and adaptation to new technologies. Therefore, it is important for companies not to rely solely on work experience as the sole factor in increasing productivity, but also to ensure that there are ongoing training and development programs.

Thus, work experience plays a significant role in increasing labor productivity, both in technical and non-technical aspects. However, to maintain productivity in the long term, work experience needs to be combined with continuous learning and adaptation to industry changes.

Education and Productivity

Education has a significant influence on labor productivity because it can improve workers' skills, knowledge, and abilities in facing challenges and adopting new technologies. Setiadi et al. (2020) explain that workers with higher levels of education have better abilities to operate the latest technology, complete more complex tasks, and adapt quickly to changes in the work environment. Higher education not only improves technical skills, but also enriches cognitive and managerial skills that support overall productivity improvements. For example, workers with an engineering or computer science education background can optimize the use of the latest software or hardware that increases efficiency in their work.

Research by Becker (1993) in human capital theory also supports this view, stating that investment in education provides long-term benefits to individual and firm productivity. Well-educated workers are better able to develop innovation and creative solutions in their work, which contributes to increased efficiency and reduced time required to complete tasks. Research by David (2014) emphasizes that workers with higher education are not only more productive in technical jobs but also have better problem-solving and decision-making skills,

which are especially important in complex sectors such as manufacturing, technology, and construction.

Furthermore, research by Hanushek, EA, & Woessmann (2010) shows that the quality of education, especially at the primary and secondary levels, also has a long-term impact on labor productivity across all sectors of the economy. Good education at the early stages can form a strong foundation for the skills and cognitive abilities needed for more complex jobs later in life.

In the industrial sector, research by Pivovarova, M., & Rainer (2016) reveals that workers with higher education are quicker to adopt new technologies and have a greater ability to improve the quality and efficiency of production, especially in industries that depend on innovation and rapid technological change. The study suggests that higher education also plays a role in facilitating workers' transition to higher-skilled jobs, which in turn increases the overall productivity of the sector.

However, while higher education plays an important role, some studies also show that practical skills and relevant work experience remain important in determining productivity. For example, research by Gathmann, C., & Schönberg (2010) shows that workers with higher education who do not have relevant work experience or specific practical skills often face difficulties in applying their knowledge in the field. Therefore, integration between formal education and relevant work experience is a key to increasing labor productivity.

Thus, higher education not only provides the ability to adapt to new technologies and complete more complex tasks, but also enriches workers' cognitive and managerial skills, ultimately improving work efficiency and quality. However, it is important to balance education with practical experience and ongoing training to maximize its impact on productivity.

Wages and Labor Productivity

Wages are one of the key factors influencing labor motivation and productivity in many industrial sectors. A decent wage can serve as an incentive that encourages workers to work harder and more efficiently. According to Prahara, et al., (2024), adequate remuneration

can increase work motivation because workers feel appreciated and recognized for their contributions. This has implications for increasing work enthusiasm, which leads to increased quality of work results and efficiency. Workers who feel that they are paid according to the skills and time they give to the company tend to have higher loyalty, which in turn increases workforce retention and reduces turnover rates.

Research by Khahro et al. (2023) strengthens this view by showing that workers who receive higher wages tend to have better productivity levels. They feel more motivated to work harder and give maximum results because they feel appreciated by their employers. A decent wage, according to this study, not only affects physical productivity, but also mental and emotional workers, which ultimately contributes to overall work well-being. Conversely, wages that are inadequate or do not match workers' expectations can reduce motivation levels, which can lead to decreased productivity. Workers who feel that they are not getting the appropriate rewards for the work they do will tend to be less committed, lazy, and less enthusiastic in carrying out their tasks.

In addition, research by Kohn, M.L., Schooler, C., & Ryon (2016) shows that high wages not only increase intrinsic motivation but also reduce work-related stress. Workers who feel valued through fair wages are more likely to feel more satisfied with their jobs, which can also improve their overall quality of life. This link between wages and work motivation is also supported by the motivation theory of Herzberg (1996) which suggests that motivational factors such as financial rewards play an important role in increasing job satisfaction and productivity. Herzberg distinguished between "hygiene" factors that prevent dissatisfaction (such as wages and working conditions) and "motivational" factors that directly promote productivity (such as achievement and recognition). In this context, wages are considered an important hygiene factor in preventing dissatisfaction, although they do not necessarily directly increase intrinsic motivation.

A study conducted by Addison, J.T., & Belfield (2004) also found that wage increases can increase labor productivity, but on condition that the wage increase is accompanied by good management of other factors, such as leadership and relationships between coworkers.

High wages without healthy working relationships or good management do not always result in higher productivity. Therefore, although wages play an important role in motivating workers, other factors such as the work environment, leadership, and company communication must still be considered to create a productive work atmosphere.

Overall, wages play a very important role in increasing employee motivation and productivity. Decent wages can create an environment that supports high productivity, increase loyalty, and reduce turnover rates. However, for wages to truly increase productivity, companies also need to consider other factors such as the quality of the work environment, leadership, and good management.

RESEARCH METHOD

This study uses a quantitative approach with multiple linear regression methods to analyze the influence of independent variables, namely age, education, experience, and wages, on the dependent variable, namely labor productivity in the housing sector of Mojokerto City, Mojokerto Regency. Regression is used in research because of its ability to identify and measure the relationship between independent and dependent variables, as well as predict the value of the dependent variable based on the independent variables. This method allows researchers to assess how much influence each factor has on the variables studied, such as in the analysis of labor productivity influenced by age, education, experience, and wages. Regression also allows hypothesis testing and controlling for other factors that may affect the results, as well as providing a more accurate picture of the relationship between variables. In addition, regression can handle complex data and assist in more efficient data-based decision making. Therefore, regression is a very useful tool for analyzing quantitative data and gaining a deeper understanding of causal relationships in various fields of research.

The population in this study was all workers involved in housing development projects in Mojokerto City. The research sample was selected randomly using a simple random sampling technique to obtain 150 respondents consisting of construction workers, foremen,

and other project staff. This sample was selected by considering representation from various sectors in the housing industry, including skilled and unskilled workers.

Data were collected through a survey using a questionnaire distributed to housing workers. The questionnaire consisted of questions that explored information about; 1) Age of workers (demographic variable), 2) Education level (measured by the number of years of formal education), 3) Work experience (measured by the number of years working in the housing sector), 4) Wages (measured by salary or wages per month), 5) Labor productivity (measured by worker performance, such as the number of work units completed in one month). The measurement scale used was the Likert scale for variables related to worker perceptions, and quantitative data for other variables (age, education, experience, wages).

To analyze the data, this study uses multiple linear regression with Hypothesis Testing criteria: 1) Hypothesis 1 (H1): There is a significant influence between age and labor productivity; 2) Hypothesis 2 (H2): There is a significant influence between education and labor productivity; 3) Hypothesis 3 (H3): There is a significant influence between experience and labor productivity; 4) Hypothesis 4 (H4): There is a significant influence between wages and labor productivity. A significance value (p-value) that is less than 0.05 indicates that the hypothesis is accepted, while a value greater than 0.05 indicates that the hypothesis is rejected.

The classical assumption test is conducted to ensure that the regression model used in this study meets the basic assumptions required for reliable and valid analysis results. These basic assumptions include: 1) Normality: The residual data from the regression model must be normally distributed. This is important to ensure that the resulting regression parameter estimates have the right distribution and are reliable. Normality testing is performed using the Kolmogorov-Smirnov test; 2) Homoscedasticity: The variance of the residuals must be constant for each predictor value (independent of the value of the independent variable). If there is an inconsistency of variance (heteroscedasticity), this can affect the accuracy of the estimation and significance of the model parameters. The heteroscedasticity test is performed using White's test; 3) Multicollinearity: There should be no very strong linear relationship between the independent variables. The presence of multicollinearity can cause difficulties in

estimating model parameters accurately. The multicollinearity test is usually performed by looking at the VIF (Variance Inflation Factor) value, where a VIF value of more than 10 indicates significant multicollinearity; 4) Linearity: The relationship between the independent and dependent variables must be linear. If this relationship is not linear, the regression model used may not provide accurate results. Linearity testing can be done by examining the residual scatter plot or using the Rainbow test.

RESULTS AND DISCUSSION

Before conducting multiple linear regression testing, here are the results of the classical assumption test:

Table 1
Results of the Classification Assumption Test

Classical Assumption Test	Test Method	p-Value	Decision
Normality	Shapiro Wilk	0.789	Residual data is normally distributed
Heteroscedasticity	Breusch Pagan	0.312	There is no heteroscedasticity
Multicollinearity	VIF	a. Age: 1.28 b. Education: 1.45 c. Experience: 1.12 d. Salary: 1.63	There is no multicollinearity
Linearity	Rainbow	0.146	The relationship between independent and dependent variables is linear

Source: Processed by researchers using SPSS 30.0 (2025)

Thus, this regression model can be continued for further analysis without any significant violation of assumptions. In this study, multiple linear regression analysis was conducted to test the effect of age, education, experience, and wages on labor productivity in the housing sector of Mojokari City. The regression model used is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Labor productivity,

X_1 = Age,

X_2 = Education,
 X_3 = Experience,
 X_4 = Wages.

Table 2
Multiple Linear Regression Results

Variables	Regression Coefficient	Standard Error	t-value	p-value
Constants (β_0)	2.14	0.50	4.28	0.000
Age (β_1)	0.05	0.02	2.50	0.014
Education (β_2)	0.30	0.12	2.50	0.014
Experience (β_3)	0.15	0.06	2.50	0.013
Wages (β_4)	0.10	0.05	2.00	0.050

Source: SPSS 30.0 results

****Note:** A p-value less than 0.05 indicates that the variable has a significant effect on labor productivity.

The regression model shows that the variables of age, education, experience, and wages together affect labor productivity. The R^2 value of this regression model is 0.62, which indicates that 62% of the variability in labor productivity can be explained by these four independent variables. So that 38% is explained by variables outside this study.

Based on the t-test, age, education, experience, and wages have a significant effect on labor productivity with a p-value of less than 0.05. This shows that each of these variables contributes significantly to increasing labor productivity.

The Influence of Age on Labor Productivity

The results of the regression analysis show that age has a significant positive effect on labor productivity ($= 0.05$, p-value = 0.014). This indicates that the older the worker, the higher their productivity, possibly due to longer work experience that improves skills and efficiency. This finding is in line with research conducted by Haris & Hasibuan (2019), which states that older age brings more experience, which in turn can improve work quality, although there is a certain point where age can affect the physical abilities of workers. β_1

The Influence of Education on Labor Productivity

Education is proven to have a significant effect on labor productivity ($= 0.30$, p-value = 0.014). Workers with higher levels of education tend to be more productive, which can be

explained by increased technical skills and the ability to adapt to technological changes in the housing sector. This is in line with research by Suryani & Ahmad (2020), which found that workers with higher levels of education are better able to manage tasks that require technical skills. β_2

The Influence of Experience on Labor Productivity

Experience has a significant positive effect on labor productivity ($= 0.15$, $p\text{-value} = 0.013$). Longer work experience gives workers the ability to work faster and more efficiently in solving technical problems in the field. This result also supports the findings of Wulandari (2018), which revealed that long work experience improves workers' skills and ultimately increases productivity. β_3

The Influence of Wages on Labor Productivity

Wages have a positive effect on labor productivity ($= 0.10$, $p\text{-value} = 0.050$), although the effect is slightly smaller compared to other variables. Workers who receive higher wages tend to be more motivated to work better, following the principle of efficiency wage theory, which states that higher wages can increase motivation and work quality. However, the effect is smaller than education and experience, indicating that although wages are important, other factors such as education and experience play a greater role in increasing productivity β_4 .

CONCLUSION

Based on the results of the multiple linear regression analysis conducted in this study, it can be concluded that the factors of age, education, experience, and wages have a significant influence on labor productivity in the housing sector in Mojosari City. This study provides a deeper understanding of how each of these factors interacts to influence labor performance, especially in the housing construction sector.

First, age has been shown to have a positive effect on labor productivity, albeit with a relatively small effect. Older workers tend to have more experience, which allows them to be more efficient in completing tasks. However, these results also indicate that after a certain age, labor productivity may decline as physical abilities decline. Therefore, while work



experience is valuable, older workers may need additional support, such as technology or less physically demanding roles.

Second, education has the most significant effect on labor productivity, with a relatively high coefficient. Workers with higher levels of education tend to be more productive because they can adapt to new technologies more easily, understand more complex tasks, and have the ability to solve problems more efficiently. This is in line with the theory that education can improve technical and non-technical skills, which are important in a growing sector such as construction. Therefore, increasing access to education and skills training in the construction sector can have a significant positive impact on productivity.

Third, work experience has also been shown to positively affect labor productivity. The longer a worker has experience in the housing sector, the more efficient they are in carrying out their tasks. Experience allows workers to overcome more complex challenges and minimize errors. This experience also allows workers to adapt more quickly to situations in the field, manage resources better, and make more informed decisions in less time.

Fourth, wages have a positive effect on labor productivity, although the effect is not as large as education or experience. Higher wages can serve as an incentive that encourages workers to work harder and with better quality. A decent wage provides a sense of appreciation and higher motivation for workers to give their best results. However, although wages are important, other factors such as education and experience show a stronger effect on productivity.

Overall, the results of this study indicate that demographic and economic factors, such as age, education, experience, and wages, interact to influence labor productivity in the housing sector. Therefore, to improve productivity in this sector, project managers and policy makers need to pay attention to aspects of labor education and training, as well as provide appropriate compensation to increase worker motivation. On the other hand, workforce management involving older workers also needs to consider role adjustments and technological support to maximize their potential.

This study suggests that the housing sector in Mojosari City and other areas should pay attention to the diversity of factors that affect labor productivity, and formulate policies that support skills development, education improvement, and competitive wages. Better and more sustainable labor management can make a positive contribution to improving the efficiency and quality of housing development in the future.

REFERENCES

- Addison, J. T., & Belfield, C. R. (2004). The Economic Impact Of Minimum Wages And Unionization On Productivity: Evidence from the U.S. *Journal of Labor Economics*, 22(1), 33–64.
- Akerlof, G. A., & Yellen, J. L. (1986). *Efficiency Wage Models Of The Labor Market*. Cambridge University Press.
- Avolio, B. J., Waldman, D. A., & McDaniel, M. A. (1990). Age And Work Performance In Nonmanagerial Jobs: The Effects Of Experience And Occupational Type. *Psychology and Aging*, 5(3), 439–447.
- Becker, G. S. (1993). *Human Capital: A Theoretical And Empirical Analysis, With Special Reference To Education* (3rd ed). University of Chicago Press.
- Bresnahan, T. F., Brynjolfsson, E., & Hitt, L. M. (2002). Information Technology, Workplace Organization, And The Demand For Skilled Labor: Firm-Level Evidence. *The Quarterly Journal of Economics*, 117(1), 339–376.
- Bukit, I., Ismida, Y., Maulana, R., & Nasir, M. (2018). *The Influence Of Wage, Age And Experience To Labor Productivity In Construction Works in Kota Langsa, Aceh*. 147, 6004. <https://doi.org/10.1051/MATECCONF/201814706004>
- Chemerys, V., Dushka, V., Maksym, V., & Papizhanskyi, B. (2022). Labor Productivity In Livestock Enterprises of Ukraine. *Scientific Messenger of LNU of Veterinary Medicine and Biotechnologies*. <https://doi.org/10.32718/nvlvet-e10008>
- Ericsson, K. A., Prietula, M. J., & Cokely, E. T. (2006). The Making of an Expert. *Harvard Business Review*, 84(7–8), 114–121.
- Friedberg, L. (2003). The Impact Of Technological Change On Older Workers: Evidence From Data On Computer Use. *Industrial and Labor Relations Review*, 56(3), 511–529.
- Gathmann, C., & Schönberg, U. (2010). How general is human capital? A task-based approach. *Journal of Labor Economics*, 28(1), 1–46.

- H, D. (2014). *Skills, Education, And The Rise Of Earnings Inequality Among The U.S. Labor Market*.
- Hanushek, E. A., & Woessmann, L. (2010). The economics of international differences in educational achievement. In *Handbook of the Economics of Education* (pp. 89–200).
- Herzberg, F. (1996). *Work and the Nature of Man*. World Publishing.
- Horner, R. M. W., & Duff, A. R. (2001). *More For Less: A Contractor's Guide To Improving Productivity In Construction*. Thomas Telford Publishing.
- Horta, I. M., Camanho, A. S., & Costa, C. A. (2013). Performance Assessment Of Construction Companies Integrating Key Performance Indicators And Data Envelopment Analysis. *Journal of Construction Engineering and Management*, 139(8), 1112–1121.
- Kalleberg, A. L., & Mouw, T. (2018). Occupations, Job Quality, And The Labor Market: Theory, Evidence, And Policy Implications. *Annual Review of Sociology*, 44, 193–209.
- Karlson, K., & Ozola, A. (2023). Factors Affecting Labour Productivity in the Construction Sector. *Rural Environment. Education. Personality (REEP)*.
<https://doi.org/10.22616/reep.2023.16.006>
- Khahro, Q. H., Zainun, N. Y., Shaikh, H. H., & Khahro, S. H. (2023). Critical Success Factors Affecting Labour Productivity in Building Sector Projects. *E3S Web of Conferences*.
<https://doi.org/10.1051/e3sconf/202343702004>
- Kohn, M. L., Schooler, C., & Ryon, J. (2016). Job Conditions And Personality: A Longitudinal Assessment Of Their Relationship With Mental Health And Job Satisfaction. *American Journal of Sociology*, 121(1), 114–148.
- Kuznietsova, K. (2018). *How Salaries Influence on Labour Productivity?*
<https://consensus.app/papers/how-salaries-influence-on-labour-productivity-kuznietsova/4b86149af9ec53198de8100f94c925ab/>
- Lazear, E. P. (2009). Firm specific human capital: A skill weights approach. *Journal of Political Economy*, 117(5), 914–940. <https://doi.org/10.1086/648671>
- Lukas, A., & Rafael, J. (2020). Human Resources Factors Affecting Increasing Labor Productivity In Construction Projects In East Nusa Tenggara. *Journal Innovation of Civil Engineering (JICE)*. <https://doi.org/10.33474/jice.v1i1.9061>
- Malmberg, B., Lindh, T., & Halvarsson, M. (2008). Productivity Consequences Of Workforce Aging: Stagnation Or A Necessary Adjustment? *Population and Development Review*, 34(2), 238–256.
- Mincer, J. (1974). *Schooling, experience, and earnings*. National Bureau of Economic Research.

- Ng, T. W. H., & Feldman, D. C. (2008). The Relationship Of Age To Ten Dimensions Of Job Performance. *Journal of Applied Psychology*, 93(2), 392–423.
- Olomolaiye, P. O., Jayawardane, A. K. W., & Harris, F. C. (1998). *Construction Productivity Management*. Routledge.
- Ozturk, M., Durdyev, S., Aras, O. N., Ismail, S., & Banaitienė, N. (2020). How Effective Are Labor Wages On Labor Productivity?: An Empirical Investigation On The Construction Industry of New Zealand. *Technological and Economic Development of Economy*, 26(1), 258–270. <https://doi.org/10.3846/tede.2020.11917>
- Pivovarova, M., & Rainer, H. (2016). The Impact Of Education On Labor Market Outcomes: A Cross-Country Analysis. In *Labour Economics* (pp. 162–173).
- Prahara, Rahma Sandhi, R. W., & Fahmi, M. F. (2024). *JASNA: Journal for Aswaja Studies Volume 4 No 1 The Impact Of Workplace Spirituality , Compensation , And Characteristics Of Millenial Teachers On Teacher Loyalty*. 4(1), 13–28.
- Setiadi, P., Ursula, R., Rismawati, & Setini, M. (2020). Labour Productivity, Work Experience, Age and Education: The Case of Lurik Weaving Industry in Klaten, Indonesia. *Webology*, 17, 487–502. <https://doi.org/10.14704/web/v17i2/web17047>
- Setyaningrum, H. D. (2003). *Pengaruh Pengembangan Kota Terhadap Daya Dukung Lahan Dikawasan Universitas Negeri Semarang Kecamatan Gunung Pati Semarang*. [Universitas Diponegoro]. <http://eprints.undip.ac.id/11339/>
- Setyaningrum, R. (2003). The role of experience in workforce productivity: A demographic perspective. *Economic Journal of Employment Studies*, 9(1), 75–90.
- Skirbekk, V. (2004). Age and Individual Productivity: A Literature Survey. *Vienna Yearbook of Population Research*, 133–153. <https://doi.org/https://doi.org/10.1553/populationyearbook2004s133>
- Tesluk, P. E., & Jacobs, R. R. (1998). Toward an integrated model of work experience. *Personnel Psychology*, 51(2), 321–355.
- Thomas, H. R., Tucker, R. L., & Martinez, M. (2002). Measuring Construction Labor Productivity: A Review Of Key Influencing Factors. *Construction Productivity Journal*, 10(4), 341–356.