Jurnal Ekonomi dan Bisnis Digital (MINISTAL)
Vol. 5, No. 3, 2026: 269-280

The Effect of Hunger and Healthy Living on Economic Productivity

Albertus Maria Setyastanto[1]*, Feridah[2], Sepni Yanti[3]
Universitas Borobudur, Jakarta, Indonesia
Corresponding Author: Albertus Maria Setyastanto albertussetyastanto@gmail.com

A R T I C L E I N F O
Keywords: Hunger, Healthy Living, Economic Productivity

Received : 25, June
Revised : 20, July
Accepted: 22, August

A B S T R A C T
This study aims to determine the impact of hunger levels and healthy lifestyles on economic productivity. Using quantitative research methodology. Calculations using multiple linear regression resulted in a line equation Y = 45.291 + 0.000 + 0.002. This shows that consumer satisfaction (Y) is positively and significantly influenced by hunger levels (X1) and healthy living (X2). In addition, R Square, or 92.5%, was determined by calculating the coefficient of determination. Thus, it can be concluded that there is an influence of 0.925% or 92.5% between the price and service quality factors on customer satisfaction. The remaining 7.5%, other variables are not included in this study. Determination of Y as much as 0.000 <0.05 and F testing, the results of F count as much as 324.186> F table 5.32. Thus it can be said that Ha. accepted, this shows that X1 and X2 affect F at the same time.

DOI: https://doi.org/10.55927/ministal.v5i3.25
ISSN-E: 2827-8259
https://journalministal.my.id/index.php/ministal

INTRODUCTION

One of the developing countries that is still struggling with many problems related to the welfare of its people is Indonesia. Many of the problems faced by the Government include hunger and healthy living. Hunger and healthy living are interrelated issues and a major challenge for human development around the world. Although progress in food production has been made, an estimated 690 million people still experience chronic hunger, with most of this population residing in developing countries. Hunger not only impacts food availability, but also includes access to adequate and quality nutrition, which is critical for individual health and development. Malnutrition, which is often the result of hunger, has a direct impact on the physical and mental health of individuals. Healthy living, on the other hand, includes access to health services, good sanitation, education on nutrition, and an environment that supports healthy living. A healthy society not only has a better quality of life, but is also able to contribute optimally to economic productivity. Overcoming hunger and promoting healthy living are key to improving socio-economic well-being and achieving the Sustainable Development Goals (SDGs), particularly SDG 2 (Zero Hunger) and SDG 3 (good health and well-being). Therefore, this study aims to explore the relationship between hunger and healthy living, and its impact on productivity and general. With a good understanding of this interaction, it is hoped that effective strategies can be formulated to address both problems simultaneously. Social problems experienced by Indonesian society include hunger, healthy living, poverty, crime rates, low education levels, unemployment and many more.

Kholisoh (2018: 1) states that a healthy lifestyle is a lifestyle that consists of maintaining environmental, physical and psychological hygiene and health and achieving a good degree of health through adequate nutrition. The level of hunger according to the Global Hunger Index (GHI) is a comprehensive measure that ranks countries based on four main indicators to describe the level of hunger and malnutrition. Hunger means a state of prolonged lack of food intake (Aziz, et al, 2023). Prolonged hunger has a negative impact on the health levels of the population as well as high public health costs. There are many reasons for hunger in Indonesia, such as poverty, unstable government institutions, lack of power for children and women, and over- utilization of natural resources. The main causes are poverty and hunger, both of which are linked to each other (Setiono, 2014). Thus, when there is poverty and hunger, it follows, and per capita income is also affected. Generally, people with little income do not have enough food, and are therefore vulnerable to changes in the economic sector.

With regard to this issue, a clear plan is needed to achieve the objectives of: (1) creating food resilience and (2) continued agricultural progress. As we know, the sustainable development goals (Sustainable Development Goals) are Zero hunger. (The Sustainable Development Goals are (1) Earth, (2) Prosperity, (3) Peace, and (4) Partnership. These five basic principles are known as the 5 P's, encompassing 17 global goals and 169 interrelated, indivisible, and unified targets, with the aim of improving the quality of life. (Harina, 2019). To achieve

the goals of the SDGs, implementation is needed in all aspects and stages so that it can directly target the achievement of goals and continuous development. All in all, health conditions and hunger have an impact on productivity. Productivity is impacted by health conditions and hunger. Health services and nutritious food guarantee considerable importance in increasing labor productivity, and ultimately economic growth.

With a comprehensive approach and support from public policy, it is expected to overcome the problem of hunger and improve public health to achieve optimal productivity. Mawarni (2019) conveyed the meaning of productivity as a comparison between the results of employee work and the inputs used. Employees who have high performance do not always have increased productivity. The importance of economic productivity lies in its ability to improve people's standard of living. When productivity increases, per capita income also tends to increase, allowing individuals to products and services including food, education, and healthcare. This contributes to reducing poverty and hunger levels, as well as improving the overall quality of life. However, high productivity must also be accompanied by attention to sustainability. Economic growth through the utilization of natural resources without considering environmental impacts can lead to ecosystem damage, which in turn can reduce future productivity. Therefore, it is important to incorporate the principle of sustainability in efforts to increase productivity. From this explanation, the topic of this research is "The Effect of Hunger Levels and Healthy Living on Economic Productivity".

LITERATURE REVIEW

Hunger, Entitlement, and the Global Hunger Index

Hunger, in economic and nutritional literature, is not merely the physical sensation of an empty stomach but a structural condition of insufficient access to food that undermines an individual's capacity to function normally in society. Sen (1981), in his entitlement approach, argued that hunger and famine are rarely caused solely by an absolute shortage of food supply, but more often result from a failure of entitlement, that is, the inability of certain groups to command enough food through production, trade, labor, or transfer, even when the aggregate food supply is adequate. This perspective is particularly relevant for Indonesia, where regional disparities in income distribution, employment access, and social protection often leave certain groups, particularly in rural and eastern parts of the country, vulnerable to hunger despite the nation's overall progress in staple food production.

At the international level, hunger is most widely measured through the Global Hunger Index (GHI), jointly published by Concern Worldwide, Welthungerhilfe, and the Institute for International Law of Peace and Armed Conflict. The GHI score is calculated from four component indicators, namely undernourishment, child wasting, child stunting, and child mortality (Global Hunger Index, 2025). In the most recent edition, Indonesia recorded a GHI score of 14.6 and ranked 70th out of 123 countries with sufficient data, placing the

country in the moderate hunger category. Although this reflects a long-term improvement compared to the more serious classification Indonesia held in earlier decades, the score also indicates that hunger and undernutrition remain unresolved structural problems rather than issues that have been fully overcome. This is reinforced by FAO, IFAD, UNICEF, WFP, and WHO (2023), who reported in The State of Food Security and Nutrition in the World that hundreds of millions of people worldwide continue to face chronic food insecurity, with the Asia-Pacific region, despite substantial economic growth, still hosting a large share of the world's undernourished population. These figures support the argument that economic growth alone does not automatically translate into food security, which strengthens the rationale for examining the direct relationship between hunger indicators and productivity outcomes, as undertaken in this study.

Healthy Living and Human Capital Theory

The relationship between health and economic outcomes has long been theorized through the lens of human capital. Grossman (1972), in his seminal model of health capital, conceptualized health as a durable capital stock that individuals inherit and can invest in through healthcare, nutrition, exercise, and other health-promoting behaviors. Unlike other forms of capital, health capital depreciates with age and adverse living conditions, but it can be augmented through deliberate investment, and a healthier stock of human capital in turn increases the number of healthy days available for productive activity. Building on this foundation, Fogel (2004) introduced the concept of technophysio evolution to explain a substantial share of long-run economic growth in industrialized nations. He demonstrated empirically that improvements in nutrition and health from the eighteenth to the twentieth century directly increased body size, physical capacity, and life expectancy, and that these improvements together account for a measurable share of historical increases in labor productivity and national income.

More recently, the World Bank has operationalized this theoretical link through the Human Capital Index, which combines indicators of child survival, expected years of schooling, learning quality, and health status, including stunting and adult survival rates, into a single measure of the human capital a child born today can expect to attain by the age of eighteen (Kraay, 2018). Countries with poor nutritional and health outcomes systematically record lower scores on this index, implying that a substantial share of the next generation's productive potential is being foregone. In the Indonesian context specifically, the World Bank (2020) estimated in Spending Better to Reduce Stunting in Indonesia that chronic child malnutrition imposes measurable long-term costs on the economy, since children who experience stunting tend to complete fewer years of schooling and earn lower wages as adults, a loss that compounds across the workforce over time. These findings are consistent with the healthy living construct used in this study, which extends beyond the mere absence of illness to encompass sanitation, preventive healthcare access, and nutrition education

(Kholisoh, 2018), all of which jointly shape the stock of human capital available to the economy.

Nutrition, Health, and Workplace Productivity

At the level of the individual worker, several empirical studies have documented the direct channel through which nutritional and health status affects productivity. Bakri, Suharni, Yusriani, Hardi, and Septiyanti (2021), in a study of employees at PT Angkasa Pura I in Makassar, found a statistically significant relationship between nutritional status and work productivity, with workers of normal nutritional status recording substantially higher productivity than their overweight or undernourished counterparts. This finding is consistent with the broader review conducted by Tochibayashi and Ota (2025) for the World Economic Forum, which notes that unbalanced diets are associated with higher rates of lifestyle-related disease and reduced labor productivity, and that employer investment in workforce nutrition tends to generate a positive return through lower absenteeism, fewer errors, and improved cognitive performance. Taken together, this body of literature, spanning the macro-level entitlement and human capital frameworks of Sen (1981), Grossman (1972), and Fogel (2004), and the micro-level workplace evidence of Bakri et al. (2021) and Tochibayashi and Ota (2025), provides strong theoretical and empirical grounding for the hypothesis tested in this study, namely that both the level of hunger (X1) and healthy living practices (X2) exert a measurable influence on economic productivity (Y).

Conceptual Framework

Drawing on the literature reviewed above, this study conceptualizes hunger level (X1) and healthy living (X2) as two related but distinct dimensions of a population's human capital stock, each capable of independently affecting economic productivity (Y). The hunger level dimension, grounded in Sen's (1981) entitlement approach and tracked empirically through indices such as the GHI (Global Hunger Index, 2025) and the FAO, IFAD, UNICEF, WFP, and WHO (2023) food security data, is expected to constrain productivity primarily through reduced physical capacity and increased illness. The healthy living dimension, grounded in the human capital models of Grossman (1972) and Fogel (2004) and in the World Bank's (2018, 2020) human capital and stunting-related evidence, is expected to raise productivity through improved physical and cognitive functioning as well as fewer lost working days. Consistent with the workplace-level evidence of Bakri et al. (2021) and Tochibayashi and Ota (2025), this study therefore hypothesizes that both dimensions independently and jointly exert a statistically significant, positive influence on economic productivity, which is tested empirically in the following sections.

METHODOLOGY

Data processing involves classical assumption testing, multiple regression analysis, and hypothesis testing both individually and simultaneously. In this

study, secondary data was used in the form of the Indonesia Hunger Index and Healthy Living Index Publication reports from 2014 to 2023. Secondary data is information from researchers from existing sources. Examples include company documentation such as attendance records, salaries, financial reports disseminated by the company, government reports, magazines, and so on (Muhajirin and Panorama, 2017: 201). The type of data applied in this study is quantitative. The data in this study was collected using a time series from 2014-2023 with SPSS as the calculation tool. Based on the period of collection, the type of data in quantitative method research is referred to as the traditional method, because it is used for a long time until it becomes familiar in the world of research.

RESEARCH RESULT AND DISCUSSION

Multiple Linear Regression Test

Table 1. Multiple Linear Regression Analysis

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	78.802	.405		195.788	.00
Level Hunger	.050	.000	1.110	24.547	.00
Healthy Life	.20	.002	.744	5.180	.00

a. Dependent Variable: Economic Productivity

Source: Processed Researchers (2024)

1) For the value of β1 (Regression Coefficient X1), the result is 0.000. This indicates that the product price factor has a positive impact on the decision to buy, which means that every 1 unit increase in product price will affect the purchase decision by 0.000, noting that unless other variables are analyzed in this study.
2) At the β1 value (X2 Regression Coefficient), the output shows a number of 0.002. This indicates that the product brand variable has a positive effect, which means that every 1 unit increase in the product brand variable will have an impact on purchasing decisions by 0.002, but other variables are excluded in this study.

Determinant Coefficient

Table 2. Determinant Coefficient

Model Summaryb

Model	R Square	Adjusted R Square	Std. Error of the Estimate
1 .947[a]	.925	.971	1.134

Source: Processed by Researchers (2024)

R Square is determined to be 0.925 or 92.5% of the output shown in Figure 2 above. Thus, it can be concluded that there is an influence of 0.925% or 92.5% of the price and product quality factors on customer satisfaction. The remaining 7.5%, outside of this variable, is not included.

Hypothesis Test

a. Test t

Table 3. Test t

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	78.802	0.405		195.788	.000
Level Hunger	.050	.000	1.110	24.547	.000
Healthy Life	.20	.002	.744	7.180	.000

a. Dependent Variable: Economic Productivity

Source: Processed by Researchers (2024)

1) Hypothesis 1

The estimated t value is 24.547> 2.306 and it is known that the sig value of the effect of X1 on Y is 0.000< 0.05. Thus, it can be said that Ha is accepted, this shows that X1 has an impact on Y.

2) Hypothesis 2

For the impact of X2 on Y, the calculated t value is 7.180> 2.306, and the known sig value is 0.002

<0.05. Thus it can be said that Ha is accepted, this shows that X2 has an impact on Y.

a. F Test

Table 4. Test t

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.442	2	9.497	324.186	.000[b]
	Residuals	.219	8	.048		
	Total	17.437	10			

a. Dependent Variable: Economic Productivity

Source: Processed by Researchers (2024)

The sig value of the simultaneous effect of X1 and X2 on Y is 0.000< 0.05, and the calculated F result is 324.186> F table 5.32, according to Figure 4. With that, it is concluded that the alternative hypothesis is accepted, meaning that X1 and X2 have an effect simultaneously.

Comparison with Previous Studies and Theoretical Implications

The regression results obtained in this study, namely an R Square of 0.925 together with statistically significant and positive coefficients for both the hunger level variable (X1: unstandardized B = 0.050, t = 24.547, p = 0.000) and the healthy living variable (X2: unstandardized B = 0.20, t = 7.180, p = 0.002), are broadly consistent with the theoretical and empirical literature reviewed in the preceding section. The positive influence of the healthy living variable corroborates the human capital framework of Grossman (1972) and the technophysio evolution thesis of Fogel (2004), both of which predict that improvements in health and nutrition raise the physical and cognitive capacity available for productive work. Likewise, the positive influence of the hunger level variable is consistent with Sen's (1981) entitlement approach, which holds that unresolved hunger constrains the labor capacity of the population and, by extension, aggregate economic output.

These findings also align with more recent evidence at the micro level. The strength of the relationship between healthy living and productivity mirrors the workplace-level results reported by Bakri et al. (2021), who found a significant association between nutritional status and employee productivity, as well as the pattern documented by Tochibayashi and Ota (2025) linking workforce nutrition programs to measurable productivity gains. At the same time, Indonesia's persistent GHI score of 14.6 and its continued placement in the moderate hunger category (Global Hunger Index, 2025), together with the FAO, IFAD, UNICEF, WFP, and WHO (2023) finding that food insecurity remains widespread across the Asia-Pacific region, help explain why the hunger level variable in this study still exerts a measurable, if smaller, effect on productivity relative to healthy living. It should be noted, however, that the very high R Square value obtained from an annual national time series should be interpreted with some caution, since strong co-movement between aggregate indices over a short ten-year period does not by itself rule out the influence of confounding macroeconomic trends; this caveat is discussed further in the Limitations section below.

The magnitude of the estimated effects is also informative when set against other Indonesian workplace studies. The standardized coefficient for healthy living (Beta = 0.744) is comparable in direction, though larger in size, to the association reported by Bakri et al. (2021) between nutritional status and productivity at a single firm; the difference in magnitude is plausible given that the present study aggregates a decade of national data rather than a single cross-sectional sample of employees, and national indices tend to move together with other unmeasured drivers of productivity, such as infrastructure and technology adoption, that a firm-level study would not capture. This reinforces the conclusion, reached independently by both this study and the workplace literature, that healthy living is a materially important, and not merely a statistically detectable, contributor to productivity.

From a policy-monitoring perspective, these results also illustrate why hunger and health indicators deserve continued tracking alongside conventional productivity and growth statistics. Because Indonesia reports progress toward

SDG 2 and SDG 3 using indicators similar to those underlying the Global Hunger Index and the World Bank's Human Capital Index (Kraay, 2018), the statistically significant relationships identified here suggest that gains recorded on those international indices are likely to be mirrored, at least in part, by gains in domestic labor productivity, reinforcing the value of using such indices as complementary, low-cost proxies for productivity-relevant human capital in future national planning documents.

Policy Implications

Strengthening Food Security and Social Protection

The findings of this study reinforce the argument that reducing hunger requires more than increasing aggregate food production; it requires ensuring that vulnerable households can reliably access adequate and nutritious food. In line with Sen's (1981) entitlement framework, policies should prioritize strengthening social protection instruments, such as targeted food subsidies, conditional cash transfers, and community food reserves, particularly in regions where the Global Hunger Index and related FAO, IFAD, UNICEF, WFP, and WHO (2023) data indicate persistent food insecurity. Continued alignment with SDG 2 (Zero Hunger) requires that these programs be paired with agricultural extension support so that improvements in food access are sustained rather than temporary.

Investing in Preventive Health and Nutrition

Given the strong positive effect of healthy living on economic productivity found in this study, and consistent with the World Bank's (2020) estimate that childhood stunting imposes lasting economic costs, government investment in preventive healthcare, sanitation, and nutrition education should be treated as a productivity-enhancing investment rather than solely a welfare expenditure. Expanding integrated health post (Posyandu) services, maternal and child nutrition programs, and clean water and sanitation infrastructure would directly raise the components measured in the World Bank's Human Capital Index (Kraay, 2018), thereby strengthening the long-run productive capacity of the Indonesian workforce.

Encouraging Workplace Health and Nutrition Programs

Beyond public policy, the private sector has an important complementary role to play. The evidence reviewed by Tochibayashi and Ota (2025) and the workplace findings of Bakri et al. (2021) suggest that employer-sponsored nutrition programs, including subsidized healthy meals, on-site health screening, and nutrition education for employees, can generate a measurable return through improved productivity and reduced absenteeism. Policymakers could encourage such programs through incentives or occupational health regulations, so that improvements in healthy living are reinforced simultaneously at the household, community, and workplace levels, in support of both SDG 2 and SDG 3 (Good Health and Well-Being).

Strengthening Data and Monitoring Systems

Finally, the analysis in this study is only as reliable as the underlying data. Indonesia's statistical agencies and line ministries could strengthen the annual collection of hunger and healthy living indicators at the provincial and district level, mirroring the methodology of the Global Hunger Index and the World Bank's Human Capital Index (Kraay, 2018), so that the relationships identified in this study can be monitored and verified more granularly over time. Establishing a shared dashboard that links these indicators to labor productivity statistics would allow policymakers to evaluate, in close to real time, whether investments made under the recommendations above are translating into measurable productivity gains, and would help sustain political attention on SDG 2 and SDG 3 well beyond the current planning cycle.

Limitations and Future Research

This study is subject to several limitations that should be considered when interpreting its findings. First, the analysis relies on secondary, aggregate national-level annual time series data spanning only ten years (2014 to 2023), which limits the statistical power of the model and constrains the ability to generalize findings to the household or individual level. Second, because the hunger level and healthy living indices are constructed as composite national indicators, the model cannot capture regional, urban-rural, or socioeconomic heterogeneity that is known to exist within Indonesia. Third, the very high R Square value obtained (0.925) raises the possibility that both explanatory variables and the dependent variable share a common underlying time trend, such as broader macroeconomic development, which classical linear regression on a short time series cannot fully rule out; a more rigorous test for spurious correlation, such as a cointegration or stationarity test, was outside the scope of this study.

Fourth, the reliability of the hunger level and healthy living measures used in this study depends on the consistency of the underlying GHI and Healthy Living Index publication methodologies over the 2014-2023 period; any revision to these methodologies over time, such as changes in how the GHI's four component indicators are weighted (Global Hunger Index, 2025), could introduce measurement inconsistency that this study was not able to test directly. Finally, as with many SPSS-based regression studies of this kind, the classical assumption tests reported (normality, multicollinearity, and heteroscedasticity) were conducted on a small sample, so their statistical power to detect violations remains limited.

Future research could address these limitations in several ways. Panel data models that combine time series with cross-provincial or cross-district variation would allow researchers to control for regional heterogeneity while still exploiting variation over time. Incorporating additional control variables, such as education levels, income distribution, and public health expenditure, would help isolate the specific contribution of hunger and healthy living to productivity. Researchers could also complement macro-level indices with primary survey

data collected directly from households or firms, following the approach used by Bakri et al. (2021), to better capture the micro-level mechanisms through which nutrition and health translate into productivity gains. Finally, replicating this study across other developing countries with comparable Global Hunger Index profiles would help determine whether the relationships identified here are unique to Indonesia or reflect a more general pattern relevant to the achievement of SDG 2 and SDG 3.

CONCLUSION AND RECOMMENDATIONS

From the findings, this research has been carried out above, the conclusions are as follows:

1) Considering the regression coefficient value, the result of b1 is 0.000 (regression *coefficient* value of X1). This shows that the hunger level is positively influenced by the hunger level variable, meaning that a one unit increase in the hunger level variable will result in a 0.000 increase in economic productivity. Meanwhile, the regression coefficient value of b2 is 0.002 The regression coefficient for X2 is 0.002. This figure shows that healthy life is positively influenced by the healthy life variable, meaning that a one-unit increase in the variable will result in an increase in economic productivity by 0.002.
2) It is therefore concluded that the variables of hunger (X1) and healthy living (X2) are related to the variable (Y) or economic productivity.
3) The sig value of the simultaneous effect of X1 and X2 on Y is 0.000< 0.05, and the calculated F result is 324.186> F table 5.32, according to Figure 4. With that, it is concluded that the alternative hypothesis is accepted, meaning that X1 and X2 have an effect simultaneously.
4) Based on 92.3% or R Square, amounting to 0.925. Thus it can be concluded that there is an influence of 0.925% or 92.5% between the level of hunger and healthy living on economic productivity. The remaining 7.5%, other variables are not included in this study.

Taken together with the theoretical and empirical literature reviewed in this study, these findings suggest that reducing hunger and promoting healthy living should be treated as complementary investments in human capital rather than separate social programs. As outlined in the Policy Implications section above, coordinated efforts spanning social protection, preventive health, and workplace nutrition are likely to yield the greatest gains in economic productivity, in support of Indonesia's progress toward SDG 2 and SDG 3.

ADVANCED RESEARCH

The findings demonstrate that hunger and healthy living significantly influence economic productivity, with the model explaining 92.5% of the observed variation ($R^2 = 0.925$). These results highlight the importance of integrating nutrition, health, and social protection policies as complementary investments in human capital and economic development. Future research

should incorporate additional socioeconomic and demographic factors and employ longitudinal approaches to strengthen causal inference.

REFERENCES

Aziz, A. R., Rahim, H., Rahim, R., Lukito, H., & Syafrizal, S. (2023). The impact of spending online in improving green marketing performance among millennials in various metropolitan cities. *Owner: Journal of Research and Accounting, 7*(2), 1294–1309.

Bakri, K. S., Suharni, Yusriani, Hardi, I., & Septiyanti. (2021). Hubungan status gizi dengan produktivitas kerja karyawan PT. Angkasa Pura I (Persero) Kota Makassar. *Window of Public Health Journal, 2*(6), 1043–1049.

Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, United Nations Children's Fund, World Food Programme, & World Health Organization. (2023). *The state of food security and nutrition in the world 2023: Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum*. FAO.

Fogel, R. W. (2004). Health, nutrition, and economic growth. *Economic Development and Cultural Change, 52*(3), 643–658.

Global Hunger Index. (2025). *Indonesia*. Welthungerhilfe & Concern Worldwide. https://www.globalhungerindex.org/indonesia.html

Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy, 80*(2), 223–255.

Halina, S. (2019). *Study of Bukalapak, Tokopedia and Shopee advertisement copywriting on "Ramadhan" category* [Doctoral dissertation, University of Computer Science, Indonesia].

Kholisoh, N. (2018). The effect of vlog information exposure in the media on attitudes teacher and its impact on student perceptions. *ASPIKOM Journal: Association of Communication Higher Education, 3*(5), 1002–1014. https://doi.org/10.24329/aspikom.v3i5.380

Kraay, A. (2018). *Methodology for a World Bank human capital index* (World Bank Policy Research Working Paper No. 8593). World Bank.

Mawarni, I. (2019). The impact of occupational safety and health implementation on employee productivity in the Palembang oil and gas division of PT Sarana Pembangunan Palembang Jaya. *Journal of Wirtschaft, 3*(9), 1689–1699.

Sen, A. (1981). *Poverty and famines: An essay on entitlement and deprivation*. Clarendon Press.

Tochibayashi, N., & Ota, M. (2025). *Nourishing productivity: How nutrition at work benefits businesses and societies*. World Economic Forum.

Uno, H. B. (2012). *Learning models: Creating creative and effective teaching and learning processes*. PT Bumi Aksara.

World Bank. (2020). *Spending better to reduce stunting in Indonesia: Findings from a public expenditure review*. World Bank