# The Influence of Indonesia's National Economic Policy on Human Resource Development in Humbang Hasundutan Regency

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***ABSTRACT***

*This study is motivated by the growing importance of national economic policies in supporting human resource development at the local level, particularly in regions facing geographical limitations and constrained local capacity. The purpose of this research is to examine the influence of Indonesia's national economic policies on human resource development in Humbang Hasundutan Regency, North Sumatra. A quantitative approach was employed, with data collected through a survey of 223 civil servants working at the local Department of Education. Multiple regression analysis was used to assess the effects of five dimensions of national economic policy, namely infrastructure development, deregulation and investment climate, downstreaming and industrialization, social welfare programs, and economic digitalization. The findings indicate that all five policy dimensions have a positive and significant effect on human resource development, with the combined model explaining 52% of the variance. Infrastructure development and social welfare programs exhibit the strongest individual effects. The study concludes that coordinated and integrated economic policy implementation plays a crucial role in enhancing human resource capacity, while also highlighting contextual challenges related to geographical accessibility, digital inclusion, and limitations in local institutional capacity.*

***Keywords****: Economic Digitalization, Human Resource Development, Infrastructure Development, National Economic Policy, Social Welfare Programs.*

## INTRODUCTION

The strategic development of Human Resources (HR) has become a core pillar of Indonesia's national economic policy in the contemporary era. Increasingly, the government recognizes that a country's most valuable asset lies not merely in its natural resources but in the quality of its people. This awareness has encouraged a gradual shift in the national development paradigm, moving away from resource-based growth toward a human-capital-oriented approach. Within this framework, a skilled, adaptive, and innovative workforce is viewed as a critical foundation for responding to global economic complexities and for achieving sustainable and inclusive development (Natalia, 2020; Nugroho & Supangkat, 2021).

This policy orientation is reflected in a range of interconnected national initiatives aimed at strengthening human resource quality. Among these are the Pre-Employment

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Card Program (*Kartu Prakerja*), which seeks to enhance workforce skills and employability; reforms in vocational and higher education through the Kampus Merdeka initiative, designed to better align education with labor market demands; and the mobilization of the Dana Indonesian endowment fund to support long-term investment in education, culture, and innovation (Gilbert, 2023). Collectively, these policies are intended to improve labor productivity, strengthen competitiveness, and increase Indonesia's workforce capacity, from the national level down to local communities (Sutawi, 2022).

Despite the comprehensive nature of these national policies, their effectiveness is highly dependent on local contexts. Indonesia's vast geographical diversity, coupled with variations in economic structure and socio-cultural conditions, often creates a gap between policy formulation at the central level and practical implementation in the regions (Meilana, 2023). In many cases, particularly in more remote or peripheral areas, limitations in infrastructure, accessibility, and local institutional capacity constrain the translation of national policy goals into tangible outcomes. As a result, the impact of economic and human resource policies can vary significantly across regions (Munastiwi, 2021).

Within this broader context, Humbang Hasundutan Regency in North Sumatra provides a meaningful case for closer examination. The region possesses considerable strategic potential while simultaneously facing distinctive development challenges. As one of the key gateways to the Lake Toba Super Priority Tourism Destination, Humbang Hasundutan is well-positioned to benefit from increased investment, economic activity, and employment opportunities associated with tourism development (Pandyaswargo et al., 2021; Wang, 2023). These opportunities highlight the importance of preparing local human resources to effectively participate in and benefit from regional economic growth.

At the same time, Humbang Hasundutan confronts structural challenges commonly experienced by Indonesia's hinterland regions. Rugged geographical conditions can limit physical access to education, training, and capacity-building programs. The local economy remains largely dependent on traditional agriculture, which often offers limited prospects for skill diversification and income growth (Pranata & Rivai, 2021). In addition, the ongoing risk of brain drain persists, as educated and skilled young people tend to migrate to urban centers in search of better employment opportunities. These factors can weaken the local impact of national human resource development policies if not addressed through context-sensitive implementation (Setiowati, 2023).

This article argues Indonesia's national economic policies have successfully established an essential framework and provided catalytic funding for human resource development in Humbang Hasundutan, their effectiveness is significantly moderated by local infrastructural constraints, geographical conditions, and labor market dynamics (Boeke et al., 2020). Accordingly, the analysis begins with a review of the relevant national economic policies, followed by an examination of how these policies are implemented and perceived at the district level. The discussion then identifies key challenges and emerging opportunities that shape human resource development outcomes in the region.

Although national economic policies aim to improve the overall quality of human resources, few studies have explored the impact of each dimension of these policies on human resource development in geographically challenging areas such as Humbang Hasundutan. Therefore, the purpose of this study is to fill the gap in empirical studies examining the impact of national economic policies in outlying areas and to provide empirical evidence that can be used to improve research and policy implementation to be more responsive to the local context.

## LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

### The Effect of Human Resource Development

Indonesia's national economic policy represents a comprehensive framework designed to transition the economy from resource-based to human-capital-driven growth. This

framework encompasses multiple interconnected dimensions that collectively shape the country's development trajectory. Infrastructure development serves as the foundational element, with empirical evidence demonstrating that each 1% increase in infrastructure investment contributes 0.3-0.4% to GDP growth. The Trans-Java toll road project exemplifies this impact, reducing inter-city travel time by 30-40% and decreasing logistics costs by 22-25%. However, sustainable infrastructure development requires adequate maintenance and integrated planning, as inadequate maintenance can reduce economic returns by 30-40% over a decade (Noorani et al., 2025).

Concurrently, Deregulation and investment climate reforms have been implemented through the Job Creation Law, which consolidated regulations from 79 laws into a coherent framework. These reforms reduced business registration time from 47 days (2018) to 13 days (2022) and eliminated 1,214 restrictive regulations across 14 business sectors. The Downstreaming and industrialization policy, particularly in the mineral sector, has dramatically increased nickel derivative exports from $1.2 billion (2014) to $20.8 billion (2022), while creating employment that expanded from 35,000 to 215,000 workers. Fiscal and monetary policies have maintained macroeconomic stability through prudent management, with Indonesia's debt-to-GDP ratio maintained at around 40%, below the alert threshold for emerging economies (Tuty et al., 2025).

H1: Infrastructure development policy has a positive effect on human resource development.
H2: Deregulation and investment climate policy have a positive effect on human resource development.
H3: Downstreaming and industrialization policy have a positive effect on human resource development.

**The Effect of Social Welfare and Economic Digitalization**

The social welfare dimension of Indonesia's economic policy demonstrates a strong commitment to human capability development, in line with Sen's (2014) capability approach, which views development as the expansion of people's abilities rather than solely economic growth. Within this framework, the Family Hope Program (*Program Keluarga Harapan*/PKH) has become a flagship social protection initiative aimed at reducing poverty while improving human capital outcomes. Empirical evidence shows that PKH has contributed to a reduction in extreme poverty by 1.5 percentage points and has increased school participation rates by 3.2 percentage points, particularly among vulnerable households.

A key factor enhancing the effectiveness of social welfare policy is the digital transformation of social assistance delivery systems (Rahajeng, 2023). The adoption of digital platforms has significantly improved transparency and efficiency, reducing budget leakage from approximately 15% to only 3% and shortening distribution time by around 40%. This shift has strengthened the accuracy and timeliness of benefit distribution, ensuring that assistance reaches targeted beneficiaries more effectively (Ernawati, 2021). Moreover, the impact of digitalization extends beyond social protection programs into the broader economy. Since 2018, the value of e-commerce transactions in Indonesia has grown at an average annual rate of 35%, reflecting the rapid expansion of the digital economy and increased public engagement with online markets (Wen, 2022).

Digitalization has also generated substantial opportunities for Micro, Small, and Medium Enterprises (MSMEs). Studies indicate that MSMEs adopting digital technologies experience productivity gains of up to 25% and market expansion of up to 40%, highlighting the role of digital tools in enhancing business performance and competitiveness (Ulfha, 2025). Nevertheless, significant challenges remain. Persistent digital divides and relatively low levels of digital literacy continue to limit the inclusiveness of digital transformation, particularly in rural and remote areas.

H4: Social welfare programs has a positive effect on human resource development.

H5: Economic digitalization policy has a positive effect on human resource development.

**The Effect of National Economic Policy on Human Resource Development**

Human Resource Development (HRD) refers to organized processes aimed at increasing individual and organizational performance by improving skills, knowledge, and motivation, and it plays a strategic role in enhancing workforce capability (Ulfha, 2025). HRD encompasses structured activities such as training, education, and professional development, which are critical for fostering competence and competitiveness both within public and private institutions. In the public sector context, effective HRD contributes to improved bureaucratic efficiency, enhanced quality of services, and stronger institutional capacity by aligning employee capabilities with organizational goals and policy implementation requirements (Mubaraq et al., 2024). Research shows that targeted HRD strategies in governmental agencies, including training programs, career development initiatives, and performance feedback mechanisms, significantly influence employee productivity, job satisfaction, and organizational effectiveness.

The success of HRD initiatives is typically evaluated through a combination of quantitative metrics, such as participation rates in training activities, competency assessments, and performance scores, alongside qualitative improvements in service delivery and employee engagement processes (Retno et al., 2024). Key indicators of successful HRD include increased employee competence, higher productivity outcomes, greater job satisfaction, and improved adaptability to change in work environments, reflecting both individual and systemic growth (Tuty et al., 2025). These indicators align with broader conceptualizations of HRD as a planned, continuous effort to develop employee skills and organizational performance. In the context of education offices specifically, HRD ensures that civil servants are equipped not only to implement educational policies effectively but also to support teachers and manage programs efficiently, ultimately contributing to the broader goal of human capital development that underpins Indonesia's economic transformation strategy.

H6: All economic policy variables has a positive effect on human resource development.

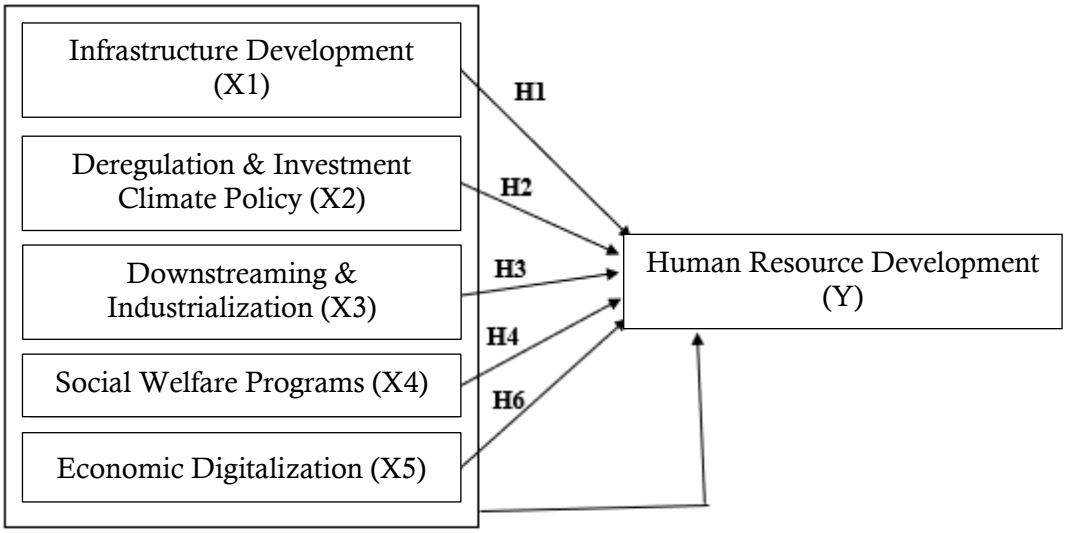


**Figure 1**. Conceptual Framework

Figure 1 illustrates the study's conceptual model explaining the relationship between national economic policy dimensions and Human Resource Development (HRD). Five independent variables, namely infrastructure development (X1), deregulation and

investment climate (X2), downstreaming and industrialization (X3), social welfare programs (X4), and economic digitalization (X5), are hypothesized to have direct effects on HRD (Y), as indicated by hypotheses H1 to H5. Each arrow points directly to the dependent variable, suggesting that every policy dimension is expected to contribute to the improvement of human resources. In addition, hypothesis H6 represents the combined or simultaneous influence of all independent variables on HRD.

## RESEARCH METHODS

This methods section describes the quantitative research design applied in this study. A quantitative approach was selected because it enables the objective measurement of relationships among variables through statistical analysis. This design is appropriate for addressing the research objective, which focuses on examining the influence of national economic policies on human resource development. By employing a quantitative framework, the study seeks to produce findings that are systematic, measurable, and replicable, thereby allowing an assessment of reliability and validity. The methodological description is presented in sufficient detail to support critical evaluation and to facilitate future replication of the research.

The population of this study consisted of all 500 Civil Servants (*Pegawai Negeri Sipil*/PNS) employed at the education office of Humbang Hasundutan Regency. The unit of analysis was the individual civil servant. To ensure representative coverage of key population subgroups, such as differences in rank, position, and organizational unit, a stratified random sampling technique was adopted (Pranata, 2024). The required sample size was calculated using Slovin's formula with a 5% margin of error, resulting in a minimum sample of 223 respondents. To mitigate the risk of non-response or incomplete questionnaires, the sample size was increased to 230 individuals.

Data were collected using a self-administered questionnaire. This method was chosen due to its efficiency in collecting data from a relatively large number of respondents, its ability to protect respondent anonymity, and its suitability for quantitative analysis (San, 2022). Questionnaires were distributed directly to selected respondents within the office environment, accompanied by a cover letter explaining the purpose of the study, assuring confidentiality, and informing participants of their right to withdraw at any time. Respondents were given one week to complete the questionnaire. Of the 230 questionnaires distributed, 223 were returned and deemed usable for analysis, resulting in a high response rate of 97%. This strong level of participation substantially reduces the likelihood of non-response bias.

The collected data were analyzed using IBM SPSS Statistics version 25.0. The analysis began with descriptive statistics to summarize respondent characteristics and the distribution of responses across research variables. Inferential statistical analysis was then conducted to examine the relationships among variables (Albrakat, 2023). Construct validity was evaluated using Confirmatory Factor Analysis (CFA), while instrument reliability was assessed through Cronbach's Alpha coefficients. To test the effects of the independent variables on the dependent variable, Multiple Regression Analysis was employed. Prior to regression analysis, classical assumption tests were performed, including assessments of linearity, homoscedasticity, independence of errors, and normality of residuals, to ensure the robustness of the results.

## RESULTS

Table 1 shows that the demographic profile reveals a predominantly experienced workforce, with 60.1% of respondents having 6-15 years of service and 44.8% belonging to the 36-45 age group. The educational background shows strong qualifications, with 70% holding bachelor's degrees and 20.1% possessing master's degrees, indicating a highly educated sample population. This composition suggests that respondents possessed adequate experience and educational background to provide informed assessments of human resource development initiatives, enhancing the credibility of the collected data.

**Table 1.** Demographic Characteristics of Respondents

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 94 | 42.2% |
| | Female | 129 | 57.8% |
| Age | 25-35 years | 67 | 30.0% |
| | 36-45 years | 100 | 44.8% |
| | 46-55 years | 45 | 20.2% |
| | >55 years | 11 | 5.0% |
| Length of Service | <5 years | 56 | 25.1% |
| | 6-15 years | 134 | 60.1% |
| | >15 years | 33 | 14.8% |
| Education Level | Diploma (D3) | 22 | 9.9% |
| | Bachelor's (S1) | 156 | 70.0% |
| | Master's (S2) | 45 | 20.1% |

Based on Table 2, the descriptive analysis indicates generally positive perceptions across all variables, with mean scores ranging from 3.78 to 4.12 on a 5-point scale. infrastructure development (X1) received the highest mean score (M=4.12, SD=0.68), suggesting respondents recognized significant improvements in physical infrastructure. human resource development (Y) and social welfare programs (X4) both averaged 4.05, indicating positive assessment of these dimensions. Economic digitalization (X5) showed the highest variability in responses (SD=0.79), reflecting diverse experiences with digital transformation initiatives. The relatively high minimum scores (2.0-3.0) across variables indicate generally consistent positive perceptions among respondents.

**Table 2.** Descriptive Statistics of Research Variables

| Variable | Mean | Std. Deviation | Min | Max |
|---|---|---|---|---|
| Infrastructure Development (X1) | 4.12 | 0.68 | 2.5 | 5.0 |
| Deregulation & Investment (X2) | 3.95 | 0.72 | 2.0 | 5.0 |
| Down streaming & Industrialization (X3) | 3.78 | 0.75 | 2.5 | 5.0 |
| Social Welfare Programs (X4) | 4.05 | 0.70 | 3.0 | 5.0 |
| Economic Digitalization (X5) | 3.85 | 0.79 | 2.0 | 5.0 |
| Human Resource Development (Y) | 4.05 | 0.72 | 2.5 | 5.0 |

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Table 3 shows that the confirmatory factor analysis demonstrated strong construct validity with all factor loadings exceeding the recommended threshold of 0.5, ranging from 0.74 to 0.86. Composite Reliability (CR) values ranged from 0.85 to 0.91, all exceeding the 0.7 benchmark, indicating excellent internal consistency. Average Variance Extracted (AVE) values ranged from 0.59 to 0.72, all above the 0.5 threshold, confirming adequate convergent validity. These results establish that all measurement instruments were both valid and reliable for testing the research hypotheses, ensuring the accuracy of subsequent statistical analyses.

**Table 3**. Confirmatory Factor Analysis Results

| Construct | Indicator | Factor Loading | CR | AVE | Cronbach's Alpha |
|---|---|---|---|---|---|
| Infrastructure Development (X1) | X1.1 | 0.78 | 0.87 | 0.63 | 0.87 |
| | X1.2 | 0.82 | 0.87 | 0.63 | |
| | X1.3 | 0.79 | 0.87 | 0.63 | |
| | X1.4 | 0.75 | 0.87 | 0.63 | |

| Construct | Indicator | Factor Loading | CR | AVE | Cronbach's Alpha |
|---|---|---|---|---|---|
| Deregulation & Investment (X2) | X2.1 | 0.81 | 0.89 | 0.67 | 0.89 |
| | X2.2 | 0.84 | 0.89 | 0.67 | |
| | X2.3 | 0.79 | 0.89 | 0.67 | |
| | X2.4 | 0.82 | 0.89 | 0.67 | |
| Downstreaming & Industrialization (X3) | X3.1 | 0.76 | 0.85 | 0.59 | 0.85 |
| | X3.2 | 0.80 | 0.85 | 0.59 | |
| | X3.3 | 0.77 | 0.85 | 0.59 | |
| | X3.4 | 0.74 | 0.85 | 0.59 | |
| Social Welfare Programs (X4) | X4.1 | 0.83 | 0.88 | 0.65 | 0.88 |
| | X4.2 | 0.79 | 0.88 | 0.65 | |
| | X4.3 | 0.81 | 0.88 | 0.65 | |
| | X4.4 | 0.80 | 0.88 | 0.65 | |
| Economic Digitalization (X5) | X5.1 | 0.77 | 0.86 | 0.61 | 0.86 |
| | X5.2 | 0.82 | 0.86 | 0.61 | |
| | X5.3 | 0.79 | 0.86 | 0.61 | |
| | X5.4 | 0.78 | 0.86 | 0.61 | |
| Human Resource Development (Y) | Y.1 | 0.85 | 0.91 | 0.72 | 0.91 |
| | Y.2 | 0.83 | 0.91 | 0.72 | |
| | Y.3 | 0.86 | 0.91 | 0.72 | |
| | Y.4 | 0.82 | 0.91 | 0.72 | |

Based on Table 3, Cronbach's Alpha values for all constructs ranged from 0.85 to 0.91, significantly exceeding the minimum reliability threshold of 0.70. The high reliability coefficients indicate excellent internal consistency and measurement precision across all variables. Human resource development (Y) showed the highest reliability ( $\alpha$ =0.91), followed by deregulation & investment (X2) ( $\alpha$ =0.89) and social welfare programs (X4) ( $\alpha$ =0.88). The overall reliability for all constructs combined was 0.93, demonstrating exceptional measurement consistency throughout the research instrument.

**Table 4.** Coefficient Determination

| Model | Value |
|---|---|
| R | 0.721 |
| R Square | 0.520 |
| Adjusted R Square | 0.515 |
| Std. Error of Estimate | 0.451 |

Table 4 shows the regression model demonstrated strong explanatory power with a multiple correlation coefficient (R) of 0.721, indicating a substantial relationship between the independent variables and human resource development. The R square value of 0.520 reveals that the five policy variables collectively explain 52.0% of the variance in human resource development outcomes. The adjusted R square (0.515) confirms the model's robustness after accounting for sample size and number of predictors. The standard error of estimate (0.451) indicates relatively precise prediction capability for the regression model.

**Table 5.** ANOVA Results

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 48.215 | 5 | 9.643 | 105.327 | 0.000 |
| Residual | 44.512 | 217 | 0.205 | | |
| Total | 92.727 | 222 | | | |

Based on Table 6, the ANOVA results indicate that the regression model is statistically significant ($F(5,217) = 105.327$, $p < 0.001$), indicating that the combination of five economic policy variables significantly predicts human resource development outcomes. The extremely low significance value ($p = 0.000$) confirms that the relationship between the independent variables and the dependent variable is not due to chance. The large F-

value relative to the residual mean square demonstrates that the model explains significantly more variance than would be expected by random chance alone.

**Table 6.** Regression Coefficients

| Variable | (B) | Std. Error | Standardized Coefficients (Beta) | t-statistic | Sig. | p-value |
|---|---|---|---|---|---|---|
| Constant | 1.225 | 0.204 | | 6.005 | 0.000 | 0.000 |
| Infrastructure Development | 0.248 | 0.068 | 0.235 | 3.647 | 0.000 | 0.007 |
| Deregulation & Investment | 0.195 | 0.072 | 0.184 | 2.708 | 0.007 | 0.011 |
| Downstreaming & Industrialization | 0.183 | 0.071 | 0.173 | 2.577 | 0.011 | 0.002 |
| Social Welfare Programs | 0.216 | 0.069 | 0.204 | 3.130 | 0.002 | 0.004 |
| Economic Digitalization | 0.207 | 0.070 | 0.196 | 2.957 | 0.004 | 0.000 |

Table 6 presents the results of the multiple regression analysis examining the effects of the independent variables (X1–X5) on the dependent variable. The constant value of 1.225 ($p < 0.001$) indicates the baseline level of the dependent variable when all independent variables are held constant. All five independent variables show positive and statistically significant effects on the dependent variable, as indicated by their significance values being below 0.05. Variable X1 has the strongest standardized effect ($\beta = 0.235$, $p < 0.001$), suggesting that it is the most influential predictor among the variables in the model. This is followed by X4 ($\beta = 0.204$, $p = 0.002$) and X5 ($\beta = 0.196$, $p = 0.004$), which also demonstrate relatively strong positive contributions. Variables X2 ($\beta = 0.184$, $p = 0.007$) and X3 ($\beta = 0.173$, $p = 0.011$) show positive and significant, although comparatively smaller, effects. The constant term was significant ($p<0.001$), indicating substantial baseline human resource development beyond what is explained by the policy variables. All variance inflation factors (VIF) were below 5, confirming the absence of multicollinearity issues among predictors.

Based on Table 6, all six research hypotheses were supported by the statistical analysis. H1 received the strongest support ($\beta=0.235$, $p<0.001$), indicating that infrastructure development has the most substantial impact on human resource development. H6 was also strongly supported ($R^2=0.520$, $p<0.001$), confirming that the combined effect of all five policy variables significantly explains human resource development outcomes (Setiowati, 2024). The results demonstrate that national economic policies collectively create an ecosystem that substantially enhances human resource capabilities, with each policy dimension contributing uniquely to overall development.

**Table 7.** Correlation Matrix between Variables

| Variable | X1 | X2 | X3 | X4 | X5 | Y |
|---|---|---|---|---|---|---|
| Infrastructure Development (X1) | 1.000 | | | | | |
| Deregulation & Investment (X2) | 0.624** | 1.000 | | | | |
| Downstreaming & Industrialization (X3) | 0.587** | 0.598** | 1.000 | | | |
| Social Welfare Programs (X4) | 0.635** | 0.612** | 0.578** | 1.000 | | |
| Economic Digitalization (X5) | 0.601** | 0.589** | 0.563** | 0.627** | 1.000 | |
| Human Resource Development (Y) | 0.687** | 0.642** | 0.598** | 0.673** | 0.654** | 1.000 |

*Note: **p < 0.01*

Table 7 shows that all variables showed significant positive correlations at the 0.01 level, ranging from moderate to strong relationships. Infrastructure development (X1) exhibited the strongest correlation with human resource development (Y) ($r=0.687$, $p<0.01$), followed by social welfare programs (X4) ($r=0.673$, $p<0.01$) and economic digitalization (X5) ($r=0.654$, $p<0.01$). The inter-correlations among independent variables ranged from 0.563 to 0.635, indicating related but distinct constructs that measure different aspects of national economic policy. The pattern of correlations supports the

theoretical framework proposing interconnected policy influences on human resource development.

## DISCUSSION

The findings of this study provide strong empirical support for all six research hypotheses, demonstrating significant relationships between Indonesia's national economic policies and human resource development in Humbang Hasundutan Regency. The regression model explains 52% of the variance in human resource development outcomes, indicating that the selected policy dimensions have substantial explanatory and predictive power at the local level.

Infrastructure development plays a crucial role in expanding access to education and training facilities, including online learning platforms. This result is consistent with Aschauer's (1989) argument that physical infrastructure forms the basis of economic growth (Munastiwi, 2021; Setiowati, 2023; Bennett et al., 2023; Setiowati, 2024). In Humbang Hasundutan, improvements in transportation infrastructure have increased access to education and training facilities, while digital infrastructure has enabled online learning. Nevertheless, uneven infrastructure accessibility due to rugged terrain continues to limit policy effectiveness in remote areas, reinforcing the importance of integrated planning and maintenance as emphasized by Soetanto (2020), Sitompul (2022), Marianti (2023), and Tuty et al. (2025).

Reforms related to deregulation and the business climate also contribute positively to HRD, although the magnitude of the effect is moderate. Theoretically, regulatory reforms can stimulate a more dynamic business environment, fostering job creation and opportunities for skills development (Fafurida, 2020; Darwono, 2022). However, the modest impact observed in this study may reflect local implementation constraints, such as limited administrative capacity and gaps between policy formulation and execution, highlighting the need for stronger localization of regulatory frameworks (Soetanto, 2020; Trisnasari, 2020; Sahara, 2021; Sitompul, 2022; Marianti, 2023).

Downstreaming and industrialization policies, particularly in tourism-related sectors, were found to influence HRD by increasing demand for skilled labor. This finding supports Porter's (1990), which suggests that value-added industries promote higher skill requirements. However, given the early stage of industrial transformation in the district, vocational and technical education aligned with emerging industry needs remains crucial for enhancing the policy's long-term impact, as also reflected in previous research (Fafurida, 2020; Soetanto, 2020; Trisnasari, 2020; Tuwo, 2021). The relatively smaller effect size reflects the district's early stage of industrial transformation and the need for stronger vocational and technical education aligned with emerging industry demands, while also considering environmental sustainability concerns highlighted by Sahara (2021), Sitompul (2022), Purnamasari et al. (2022), Hapsari (2022), and Marianti (2023), and Sukran (2025).

Social welfare programs such as PKH play an important role in expanding access to education and health services, providing a solid foundation for human capability development consistent with Sen's capability approach. The integration of digital systems in social assistance distribution has strengthened program effectiveness by reducing leakage and improving targeting precision. This suggests that combining social protection with technological innovation can significantly enhance human development outcomes (San, 2022).

Digital transformation significantly contributes to HRD by increasing access to digital learning and training platforms. This aligns with concepts of the Fourth Industrial Revolution, where digital technologies expand access to skills development (Schwab, 2016). Nevertheless, persistent digital literacy gaps and limited connectivity, especially in rural and remote areas, remain barriers that constrain policy effectiveness. Addressing these gaps through targeted digital inclusion efforts could further enhance the contribution of digitalization to HRD (Komatsu, 2020; Putra, 2020; Hilyana, 2021).

When all policy dimensions are considered together, they form a synergistic effect that supports sustainable human resource development. This integrated perspective suggests that infrastructure, deregulation, industrialization, social protection, and digitalization collectively create an ecosystem conducive to HRD. The findings underscore the importance of policy coherence and cross-sector coordination to achieve comprehensive development outcomes, reinforcing insights from existing scholarship on integrated policymaking (Tonny, 2020; Dahliah, 2020; Sumarsono, 2023).

## CONCLUSION

This study concludes that Indonesia's national economic policies have a significant influence on human resource development in Humbang Hasundutan Regency. The findings show that the five policy dimensions, namely infrastructure development, deregulation and investment climate, downstreaming and industrialization, social welfare programs, and economic digitalization, jointly contribute meaningfully to improvements in human resource development, with the model explaining 52% of the observed variation. Among these dimensions, infrastructure development and social welfare programs demonstrate the strongest individual effects, while economic digitalization shows considerable potential despite existing implementation barriers.

The implications of this study highlight the importance of adopting integrated and well-coordinated policy approaches to strengthen human resource development. Physical and social infrastructure function as essential foundations, while other economic policies act as complementary drivers that reinforce human capacity building. These results provide empirical support for policymakers to align national policy implementation with local conditions and institutional capacities. Nevertheless, several limitations should be acknowledged. The focus on a single regency restricts the generalizability of the findings to other regions with different socioeconomic and geographical contexts. In addition, the cross-sectional research design and reliance on self-reported data may not fully capture the long-term impacts of policy interventions. Based on these findings, it is recommended that policymakers enhance cross-sector policy coordination, strengthen local institutional capacity, and expand infrastructure access and digital literacy, particularly in remote areas. Future research is encouraged to employ longitudinal designs, including multiple regions, and adopt mixed-method approaches to gain deeper insights into policy mechanisms and local moderating factors influencing human resource development.

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