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Development Inequality Between Regencies/Cities and Its Impact on Population Migration within the Province of West Nusa Tenggara Period 2020–2024

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Abstract

This research examines the influence of development inequality between districts/cities on population migration in West Nusa Tenggara Province (NTB) in 2020–2024. Using a panel data approach and *the Fixed Effect Model* (FEM) method, The present research examines six independent variables, Gross Regional Domestic Product (GDP) per capita, poverty rate, education level, infrastructure, open unemployment rate, and Human Development Index (HDI), on inward migration as dependent variables. Empirical results based on the Fixed Effect Model estimate show that partially, the variables of infrastructure, unemployment, and HDI have a significant effect on inward migration, while other variables do not. Simultaneously, all independent variables had a significant effect with *an adjusted* R^2 value of 70.95%, indicating that the model has a strong ability to explain interregional migration. Based on these results, this study recommends equitable development policies through poverty alleviation based on local empowerment, improving the quality of infrastructure and education, and creating productive jobs to reduce inequality and control unbalanced migration flows between regions.

Keywords: *Development Inequality, Population Migration, Fixed Effect Model, West Nusa Tenggara Province (NTB)*

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1. Introduction

Equitable regional development is a crucial foundation for achieving community welfare. Balanced growth not only reduces socioeconomic disparities but also strengthens social cohesion and promotes inclusive and sustainable economic progress. Conversely, regional development inequality tends to widen welfare gaps and trigger population mobility from less developed to more advanced areas.

In West Nusa Tenggara Province (NTB), substantial disparities persist in development levels among districts and cities, particularly in infrastructure, education, and other welfare indicators. While certain regions experience relatively rapid growth, others lag behind, leading to uneven progress and welfare disparities. These inequalities affect not only the economic domain but also demographic dynamics, particularly through the phenomenon of population migration.

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The migration phenomenon can be explained through the push–pull theory (Lee, 1966), which posits that population movement is influenced by both repelling and attracting factors. Low income levels, inadequate infrastructure, and high unemployment rates act as push factors, whereas job opportunities, higher income, and access to better public services serve as pull factors. Accordingly, regional development indicators such as Gross Regional Domestic Product (GRDP) per capita, poverty rate, unemployment rate, Human Development Index (HDI), and infrastructure quality potentially exert a strong influence on the direction and intensity of population mobility across regions.

From a theoretical perspective, regional development inequality can also be interpreted through the core–periphery theory proposed by Friedmann (1966), which asserts that economic activities tend to concentrate in core areas, while peripheral regions experience slower development. This dynamic often encourages migration flows from peripheral areas toward growth centers. Similarly, the growth pole theory (Perroux, 1955) suggests that centers of economic activity may generate either a *dispersion effect* that stimulates surrounding regions or a *backwash effect* that deepens regional disparities.

In the context of NTB, inbound migration data reveal significant disparities across districts and cities. Based on secondary data from Statistics Indonesia (BPS, 2021), Mataram City recorded the highest inbound migration rate (20.27%), followed by West Sumbawa Regency (19.22%), Bima City (15.09%), and Dompu Regency (14.08%). Conversely, East Lombok (2.51%) and Central Lombok (3.07%) exhibited the lowest inbound migration rates. These differences indicate that migration patterns in NTB are strongly associated with regional economic development and infrastructure availability. As the province's center of government, education, and services, Mataram City exerts a strong migration pull, whereas areas with predominantly agrarian economies show lower attraction levels.

This phenomenon reinforces the notion that regional development inequality directly shapes inward migration flows, with more developed areas serving as primary destinations for population movement. While several prior studies have examined development inequality in Indonesia (Handayani & Prabowo, 2023; Susanti & Hidayat, 2019; Yusuf & Kurniawan, 2020), limited research has explicitly linked development disparities to migration in NTB Province. Therefore, this study aims to analyze the effect of inter-district development inequality on population migration in NTB during the 2020–2024 period. The findings are expected to contribute to the empirical literature on regional development and provide policy insights to promote more equitable and inclusive regional growth.

2. Theoretical Background

Theory *Migration*

The Push-Pull theory put forward by (Lee, 1966) explains that an individual's choice to migrate is influenced by two groups of factors, namely the driving factors from the place of origin and attracting factors from the destination region. Motivating factors typically arise due to unfavorable socioeconomic conditions, such as low income, limited employment, and lack of infrastructure and public services. On the contrary, attractive factors arise due to the existence of better economic opportunities, higher income levels, and quality of life that is considered more feasible in the destination area. In the context of West Nusa Tenggara Province (NTB), this phenomenon appears when people from areas with relatively low levels of development such as districts that are still lagging behind in terms of infrastructure and job opportunities tend to move to areas with a faster level of economic growth, such as cities or districts that act as centers of economic activities and services. (Lee, 1975) also asserts that each region has a combination of positive, negative, and neutral factors that affect an individual's choice to migrate, alongside the presence of migration barriers (such as cost, distance, and policy) as well as the personal characteristics of the migrants themselves.

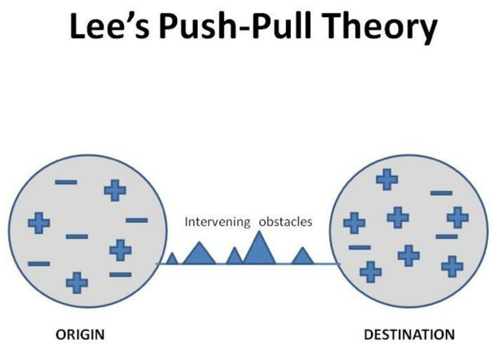


Figure 2. Push-Pull Theory

Meanwhile, the Theory of Labor Mobility put forward by (Todaro, 1970) emphasizes that migration decisions are not only based on the difference in absolute income between regions, but also on expectations of future income (expected income). According to Todaro, a person will decide to migrate if the expected income in the destination area by considering the opportunity to get a job is higher than the income in the area of origin. In other words, migration is a form of labor investment to obtain better economic welfare.

In the context of NTB, this theory is relevant to explain the migration flow from districts with relatively high unemployment rates to areas that offer more employment opportunities and greater income potential. This phenomenon shows that the migration of the population in the province is not only triggered by the difference in current economic conditions, but also by expectations of more promising economic prospects in the destination region.

Development Inequality Theory

The Core–Periphery Theory (Friedmann, 1966) explains that the development process does not take place evenly, but tends to be concentrated in the core region (*Core Region*) which has advantages in access to infrastructure, capital, and technology. These core areas are the center of economic activity and growth, while the suburban areas (*Periperian*) are lagging behind due to limited resources and dependence on core areas.

This inequality often reinforces dominant relationships, where core regions enjoy the accumulation of development outcomes, while the suburbs lag behind in the process of distributing benefits. In the context of West Nusa Tenggara Province (NTB), this theory can be seen from the concentration of economic activity and investment in several more developed districts/cities such as Mataram City compared to other districts that still face limitations in infrastructure and employment opportunities.
The Pole of Growth Theory (Perroux, 1955) asserts that economic development does not spread uniformly, but rather is centered on a specific area that functions as a pole of growth (the *Pole of Growth*). This area usually has a leading sector that encourages economic activity in the surrounding area through two possible effects, namely the spread effect and the backwash effect. The spread effect occurs when the progress of the core region is able to encourage growth in the surrounding area, while the backwash effect occurs when the development of the core region actually attracts resources from the periphery area, thereby widening the gap between regions. In the context of NTB, these two effects can be observed from the inequality between regions with high levels of investment and economic activity compared to regions that are still dependent on the primary sector.

Furthermore, the Williamson Curve (Williamson, 1965) explains the linkage between economic development levels and inequality between regions in takes the shape of an inverted U curve, where inequality initially rises during the early phase of economic development because investment and economic activity are concentrated in certain regions. However, over time, development that extends to other regions will gradually narrow the degree of inequality. This pattern remains pertinent to explain the dynamics of development in NTB, where during the initial phase of economic growth, disparities tend to emerge between districts/cities, but in the long term it is expected that there will be a convergence process through equitable distribution of infrastructure, investment, and access to education.

The Relationship between Development Inequality and Migration

Regional disparities in development significantly influence population migration flows. More developed areas as growth centers or core areas tend to be attractive to residents from less developed areas (suburban areas). Differences in employment opportunities, income, and infrastructure quality make developed areas function as migration magnets, while disadvantaged areas experience population outflows.

Migration can have two different economic consequences. First, the positive impact is in the form of increasing equity (spread effect), if migration is followed by a return of knowledge, skills, and capital from migrants to their areas of origin. Second The negative impact is in the form of an increase in inequality (backwash effect), if the underdeveloped areas lose productive labor and quality human resources. In the context of West Nusa Tenggara Province (NTB), this phenomenon can be observed through the tendency of population migration from districts with low levels of development to regions functioning as economic hubs, including Mataram City and West Lombok Regency. Thus, the relationship between development inequality and migration is reciprocal. Inequality can drive migration, while migration itself can reinforce or even reduce inequality, depending on the direction and quality of human resource flows that occur.

Previous Research and Recent Literature

Several previous studies provide an empirical basis for understanding the relationship between development inequality and population migration in Indonesia. (Sari & Putra, 2018) examined development inequality in Bali Province using the Williamson Index, and found that the level of inequality is quite high, mainly influenced by the difference in GDP per capita and Human Development Index (HDI) between regions.(Susanti & Hidayat, 2019) examined NTB Province using the Williamson Index and the Theil Index, and found significant development inequality, although the study has not linked it to migration phenomena.

Furthermore, (Yusuf & Kurniawan, 2020) analyzed the Eastern Indonesia region with a panel data approach, and concluded that investment, infrastructure, and education have a major influence on development inequality. Similar results were put forward by (Handayani & Prabowo, 2023) at the national level, which showed that improving education and infrastructure contributes to narrowing interregional disparities. In relation to migration, (Prasetyo & Rahmawati, 2021) found that population migration is greatly influenced by employment opportunities and education levels. Meanwhile, (Anwar & Syahputra, 2021) through the logit model shows that income, unemployment, and infrastructure are the main factors driving internal migration. Research (Lestari & Gunawan, 2021) in Central Java Province also found that development inequality is one of the main drivers of migration to areas with higher HDI. In line with that, (Syafruddin, 2022) shows that road infrastructure and education play an important role in menentukan intensitas migrasi di Sulawesi Selatan. Khusus di NTB, (Rahman & Nurhayati, 2023) menggunakan Indeks Williamson dan Indeks Theil to measure development inequalities, and found that education and infrastructure are the main determinants of gaps between regions. Meanwhile (Ramadhan & Putri, 2022) analyzed the relationship between development and migration through multiple regressions, and concluded that high HDI has an attraction to inward migration.

However, most of these studies have not comprehensively linked development inequality to population migration in NTB. Therefore, this study seeks to fill this gap by analyzing the influence of GDP per capita, poverty rate, education, infrastructure, unemployment, and HDI on population migration in NTB Province during the 2020–2024 period.

Research Hypothesis

Based on this frame of thought, this study proposes the following hypotheses:

Parsial hypothesis (H1–H6):

H1: GDP per capita affects **inward migration** in NTB Province.
H2: Poverty affects **inward migration** in NTB Province.
H3: Education affects **inward migration** in NTB Province.
H4: Infrastructure (road length) affects **inbound migration** in NTB Province.
H5: The unemployment rate affects **inward migration** in NTB Province.
H6: HDI affects **inward migration** in NTB Province.

Simultaneous hypothesis (H7):
H7: GDP per capita, poverty, education, infrastructure, unemployment rate, and HDI simultaneously affect inward migration in NTB Province.

3. Methodology

This research employs an explanatory quantitative method to examine and explain the causal relationship between development inequality and population migration between districts/cities in West Nusa Tenggara Province (NTB). The data used is secondary data sourced from official publications of the Central Statistics Agency (BPS) of West Nusa Tenggara Province, the NTB Population and Civil Registration Office (Dukcapil), as well as various other local government publications. The data covers ten districts/cities in NTB during the 2020–2024 period, so it is a data panel, which is a combination of cross-time (*time series*) and cross-regional data (*cross section*).

The object of the study covers all districts/cities in NTB Province, considering that this region shows a fairly high level of development inequality, accompanied by relatively intensive population migration dynamics. This condition provides a strong empirical basis for analyzing how variations in development between regions affect the flow of inward migration.

The dependent variable in this study is inward migration (Y), which is the number of people who moved to a district/city in NTB during the observation period (soul). The independent variables consist of six regional development indicators, namely Gross Regional Domestic Product (GDP) per capita (X_1), poverty rate (X_2), education (X_3) measured through average length of schooling, infrastructure (X_4) as measured by road length, open unemployment rate (X_5), and Human Development Index (HDI) (X_6). All variables were taken from the official data source of BPS NTB and measured in units in accordance with the respective statistical publications.

The empirical model used in this study is formulated in the form of panel data regression, with the following basic equations:

$$\mathbf{Yit = \alpha + \beta 1X1it + \beta 2X2it + \beta 3X3it + \beta 4X4it + \beta 5X5it + \beta 6X6it + \mathcal{E}it}$$

With I indicating the district/city and t indicating the research year (2020–2024). The value α is the constant, β_1–β_6 is the regression coefficient, and εit is the error term.

The selection of the best model is carried out through the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test. Before hypothesis testing, multicollinearity tests, heteroscedasticity tests, and normality tests were carried out to ensure the validity of the model.

Hypothesis testing was carried out by t-test (partial) and F-test (simultaneous), while the value of the determination coefficient (R^2) was used to measure the ability of independent variables to explain population migration variations.

This method is expected not only to illustrate the empirical relationship between development inequality and population migration in NTB Province, but also provide an empirical basis for the formulation of regional development policies that are more equitable and sustainable.

4. Empirical Findings/Result

In this research, the findings are presented beginning with the Classical Assumption Tests, followed by Panel Data Regression Analysis that encompasses model selection tests, namely chow tests, thirst tests, and lagrange multiplier tests. Then it is continued with the Hypothesis Test including the t-test (individual parameter test), the f test (simultaneous significance test) and the determination coefficient test (R^2).

1. Analysis of Model Selection Estimates

Chow Test

The Chow test is used to determine the best model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). The test was carried out by adding dummy variables to see the difference in interceptions between individuals tested using the statistical test F (Iqbal, 2015).

The testing criteria are as follows:

H0 : If the Prob. cross-section F > 0.05, then the correct model is the Common Effect Model.

H1: If the Prob. cross-section F < 0.05, then the correct model is the Fixed Effect Model.

Table. 1 Uji Chow

Redundant Fixed Effects Tests
Equation: PANEL1
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.570819	(9,34)	0.1638
Cross-section Chi-square	17.384914	9	0.0430

Source : Eviews 12

Based on the results of the chow test, it is known that the probability value in *cross-section* f is 0.0273 which means a probability of 0.0430 < 0.05 of the P-value. So from the results of the chow test, it shows that H1 is accepted and H0 is rejected, it can be said *that the fixed effect model* is the right model.

Hausman Test

The Hausman test is used to determine the best model between the Fixed Effect Model (FEM) and the Random Effect Model (REM) by looking at the Probability value of random cross-section using the Eviews application (Widarjono, 2018). Test criteria:

H0 : If the Prob. cross-section is random < 0.05, then the selected model is the Fixed Effect Model.

H1 : If the Prob. cross-section is random > 0.05, then the chosen model is the Random Effect Model.

Table 2 Hausman Test

Correlated Random Effects - Hausman Test
Equation: PANEL1
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.674297	6	0.0485

Source : Eviews 12

Based on the results of the sufficiency test, it is known *that the Chi-Square Statistic* probability value is 12.674297 and the probability value is 0.0485 < 0.05, so the results of the thirst test that have been obtained show that *the fixed effect model* is the right model to use.

3. Estimation of Panel Data Regression Model

From the results of the panel data regression calculation with testing the best model specifications, namely the fixed effect model (FEM). The results of the data processing can be seen as follows:

Table 3. Estimation of Panel Data Regression Model

Dependent Variable: LOG(Y)
Method: Panel Least Squares
Date: 11/03/25 Time: 19:48
Sample: 2020 2024
Periods included: 5
Cross-sections included: 10
Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	199.8377	52.37359	3.815619	0.0005
LOG(X1)	-6.587173	3.476620	-1.894706	0.0667
X2	0.176953	0.252659	0.700365	0.4885
LOG(X3)	3.139432	3.683891	0.852206	0.4001
LOG(X4)	0.621669	0.293060	2.121306	0.0413
X5	0.409946	0.139702	2.934432	0.0059
LOG(X6)	-15.72639	6.855217	-2.294077	0.0281

Source : Eviews 12

Based on the results of the panel data regression using the Fixed Effect Model (FEM) approach, the equation was obtained, namely:

$$\mathbf{Y = 199{,}84 - 6{,}59\ X1 + 0{,}18\ X2 + 3{,}14\ X3 + 0{,}62\ X4 + 0{,}41\ X5 - 15{,}73\ X6}$$

Interpretation of Panel Data Regression Equation:

The constant value of 199.84 indicates that when all independent variables are zero, the inbound migration rate is estimated to be 199.84 percent. This value describes the basic level of migration that is not affected by economic or social factors.

The GDP per capita coefficient (X_1) of -6.59 has a negative sign, which means that the increase in GDP per capita actually decreases the rate of inward migration. This indicates that areas with higher income levels tend to have better economic stability, resulting in lower inbound mobility. This phenomenon can also be interpreted that migration in NTB is more triggered by the search for economic opportunities than by the improvement of welfare in the area of origin.

The poverty rate coefficient (X_2) of 0.18 indicates a positive relationship with inward migration. This means that every 1% increase in poverty levels has the potential to increase inward migration by 0.18%, although the effect is relatively small. This condition indicates that migration in NTB is not only caused by the economic attractiveness of the destination area, but also by socio-economic pressure factors in the area of origin.

The educational variable (X_3) had a positive coefficient of 3.14, indicating that the increase in the average length of school contributed to the increase in inward migration. These results reinforce the view that education expands access to and mobility of the workforce, so that more educated individuals are more likely to move to areas with higher economic opportunities.

The infrastructure coefficient (X_4) of 0.62 also had a positive effect on inward migration. The increase in road length in an area reflects the ease of accessibility and connectivity between regions, which encourages the movement of people towards areas with better facilities and access to transportation.

The variable of open unemployment rate (X_5) shows a positive coefficient of 0.41. This indicates that areas with higher unemployment rates remain attractive to migrant populations, likely because they are economic hubs with potential employment opportunities despite high levels of competition.

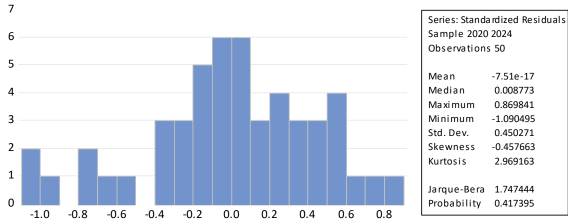
In contrast, the Human Development Index (HDI) variable (X_6) had the largest negative coefficient, which was −15.73. This value shows that any increase in HDI actually significantly reduces the rate of inward migration. These findings indicate that areas with a high quality of life tend to experience more controlled migration, because the level of welfare and access to basic services has been met, so that migration flows are more stable.

4. Classic Assumption Test

The data regression panel has three alternative models, namely Common Effect, Fixed Effect, and Random Effect. The CEM and FEM models use the Ordinary Least Squares (OLS) method, while REM uses Generalized Least Squares (GLS). Classical assumptions test in the OLS approach include autocorrelation, heteroscedasticity, multicollinearity, and normality (Iqbal, 2015).

The normality test is conducted to determine whether the disturbance variable or residual in the regression model follows a normal distribution. A good regression model is expected to have data that are normally distributed (Ghozali, 2018). One method commonly used to test normality is the Jarque–Bera (JB) test. The data are considered normally distributed if the calculated Jarque–Bera (JB) value is greater than the significance level of $\alpha = 5\%$, indicating that the residuals are normally distributed.

Table 4. Normality Test



Source : Eviews 12

Based on the results of the tests that have been carried out, the statistical value of Jarque-bera is 1.747444 with a probability value of 0.417395 which means greater than 0.05. So it can be concluded that the data used in this study is normally distributed.

Multicollinearity Test

The multicollinearity test aims to determine the correlation between independent variables (X) in the regression model (Ghozali, 2011). A good regression model is one that is free of multicollinearity. The test was carried out using Variance Inflation Factor (VIF) and Tolerance values, with the criteria: VIF < 10 and Tolerance > 0.10 indicating that multicollinearity did not occur, while VIF > 10 and Tolerance < 0.10 indicated the existence of multicollinearity.

Table 5. Multicollinearity Test

Variance Inflation Factors
Date: 11/03/25 Time: 19:54
Sample: 2020 2024
Included observations: 50

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2742.993	469386.2	NA
LOG(X1)	12.08689	203827.0	2.940484
X2	0.063836	2086.231	3.062856
LOG(X3)	13.57105	10105.00	6.248088
LOG(X4)	0.085884	592.0035	1.113565
X5	0.019517	36.84722	1.536709
LOG(X6)	46.99400	632547.1	5.060128

Source : Eviews 12

Based on the results of the tests that have been carried out, there are no symptoms of multicollinearity in independent variables because the centered VIF value is < 10 and the tolerance > 0.10 for all variables (Ghozali, 2011). This confirms that the FEM regression model is valid and free from linear dependencies between variables.

Heteroscedasticity Test

The heteroscedasticity test was carried out to test whether in a regression model carried out there was a variance of variants from the residual regression model (Ghozali, 2011). Good data is data that does not have heteroscedasticity. In the test, a glacial test was used where this test was used to find out whether a regression model has an indication of heteroscedasticity by regressing the residual absolute. Heteroscedasticity occurs when the regression result of the residual absolute value of the variable has a significance value of < 0.05. The calculation results of the heteroscedasticity test can be seen from the following table:

Table 6. Glejser Test

Dependent Variable: RESABS
Method: Panel Least Squares
Date: 11/04/25 Time: 06:37
Sample: 2020 2024
Periods included: 5
Cross-sections included: 10
Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.151567	3.617502	1.700501	0.0982
X1	1.38E-05	1.49E-05	0.929423	0.3592
X2	-0.113483	0.123470	-0.919112	0.3645
X3	0.010108	0.255042	0.039634	0.9686
X4	-5.96E-05	0.000252	-0.236568	0.8144
X5	0.049564	0.074011	0.669694	0.5076
X6	-0.000679	0.000493	-1.377442	0.1774

Source : Eviews 12

The test results showed that the probability value of each independent variable was greater than 0.05. It can be concluded that all the data used passed the heteroscedasticity test.

Autocorrelation Test

According to (Ghozali, 2018), the autocorrelation test aims to test whether in a linear regression model there is a correlation between the disruptive error in the t-period and the disruptive error in the t-1 (previous) period. A good regression model is a regression model that is free of autocorrelation. This autocorrelation testing technique uses the Durbin Watson method or the Durbin-Watson test (D-W Test).

Table 7. Durbin-Watson

R-squared	0.798417	Mean dependent var	9.235945
Adjusted R-squared	0.709484	S.D. dependent var	1.002876
S.E. of regression	0.540545	Akaike info criterion	1.861861
Sum squared resid	9.934438	Schwarz criterion	2.473709
Log likelihood	-30.54653	Hannan-Quinn criter.	2.094856
F-statistic	8.977692	Durbin-Watson stat	2.032388
Prob(F-statistic)	0.000000		

Source : Eviews 12

Based on the results of the Durbin–Watson autocorrelation test, a DW value of 2.032388 was obtained. Since these values are between the upper limit (DU = 1.8220) and (4 – DU = 2.178), the regression model shows no autocorrelation symptoms, either positive or negative. Thus, the model fulfills the assumption of error independence.

T Test

Partial tests are used to determine the extent to which independent variables (X) have an individual effect on dependent variables (Y) (Kurniawan, 2008). The test was performed with a significance level of 5% ($\alpha = 0.05$). If the significance value < 0.05, then the independent variable has a significant effect on the dependent variable; On the other hand, if ≥ 0.05, then there is no significant effect.

Table 8. T Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	199.8377	52.37359	3.815619	0.0005
LOG(X1)	-6.587173	3.476620	-1.894706	0.0667
X2	0.176953	0.252659	0.700365	0.4885
LOG(X3)	3.139432	3.683891	0.852206	0.4001
LOG(X4)	0.621669	0.293060	2.121306	0.0413
X5	0.409946	0.139702	2.934432	0.0059
LOG(X6)	-15.72639	6.855217	-2.294077	0.0281

Source : Eviews 12

The results of the partial test showed that the variables of infrastructure (X4), open unemployment rate (X5), and HDI (X6) had a significant effect on inward migration in West Nusa Tenggara Province ($p < 0.05$). The variables of infrastructure and open unemployment have a positive effect, indicating that the increase in both variables encourages an increase in inward migration. On the other hand, HDI has a negative and significant effect, which means that the higher the quality of human development, the tendency of inward migration to decrease. Meanwhile, GDP per capita, poverty, and education had no significant effect ($p > 0.05$). Thus, inbound migration in NTB is more influenced by structural and social factors than macroeconomic factors.

Test F

Simultaneous tests were used to test whether all independent variables together had a significant effect on the dependent variables (Kurniawan, 2008). The test was carried out by looking at the value of the F-statistic significance. If the probability value (F-statistic) < 0.05, then the independent variable simultaneously has a significant effect on the dependent variable; On the other hand, if > 0.05, then there is no significant effect together.

Table 9. Test F

F-statistic	8.977692
Prob(F-statistic)	0.000000

Source : Eviews 12

An f-count value of 8.977692 > 2.43 F-tables and a f-count prob value of 0.000000 < 0.05 were obtained so that it was concluded that all independent variables together had a significant effect on the dependent variables.

Test Determination Coefficient (R^2)

The coefficient of determination (R^2) essentially measures how far a model is able to explain variations in dependent variables. The value is between zero and one. The three categories of determination coefficient levels are:

1. Strong, if the value is more than 0.67
2. Moderate, if the value is more than 0.33 but lower than 0.67
3. Weak, if the value is more than 0.19 but lower than 0.33

Table 10. Test Determination Coefficient (R^2)

R-squared	0.798417
Adjusted R-squared	0.709484

Source : Eviews 12

The r-squared adjusted value is 0.709484 or 70.95%. The value of the determinant coefficient shows that independent variables consisting of X1 (GDP ADHK Per Capita), X2 (Poverty), X3 (Education), X4 (Infrastructure), X5 (Open Unemployment Rate), X6 (HDI) have an effect of 70.95% on the dependent variable Y (Inward migration). But. 29.05% were influenced by other variables that were not used in this study.

5. Discussion

This section discusses the research findings regarding the impact of regional development disparities on population migration in West Nusa Tenggara Province (NTB). The analysis using the Fixed Effect Model (FEM), which have proven to be the most accurate as determined through the Chow and Hausman tests, show the complexity of the relationship between variables in 2020–2024. Partially, infrastructure, the unemployment rate and the Human Development Index (HDI) significantly influence inward migration, while Gross Regional Domestic Product (GDP) per capita, poverty rate, and education do not show a statistically significant effect. These findings indicate that migration in NTB is driven more by accessibility factors and direct employment opportunities, rather than overall macroeconomic indicators.

Although the partial testing highlighted significant key variables, the results of the F-Test simultaneously proved that all independent variables (GDP per capita, poverty, education, infrastructure, unemployment, and HDI) together affect inward migration. These findings support the H7 hypothesis as well as the push-pull theory (Lee, 1966), the concentration of core regions (Friedmann, 1966), the backwash effect (Perroux, 1955), and the dynamics of initial inequality (Williamson, 1965), in which development disparities reinforce migration flows to urban centers. These results are in line with a study (Sodik et al., 2023) on the collective role of infrastructure and HDI in regional mobility. However, the partial ininfluence of GDP and poverty differ from the significant influence of unemployment (Taufiqurrahman, 2023) or investment (Hakim & Rosini, 2022) signaling the unique characteristics of post-pandemic NTB, where external factors such as labor relocation policies intervene in variable dynamics. Meanwhile, the adjusted R^2 determination coefficient of 70.95% shows that the model explains most of the migration variations, with the remaining 29.05% influenced by external factors such as social-migration networks, cultural perceptions, or the impact of post-pandemic digitalization (Arifin, 2025; Firmansyah et al., 2024). This non-economic factor strengthens the migration pattern to core areas such as Mataram City (20.27% inflow) compared to suburbs such as East Lombok (2.51%).

Thus, this finding confirms that development policies in NTB must be holistic, not focused on one aspect only. These findings underscore the importance of a comprehensive development strategy to reduce spatial inequality and the unequal distribution of migration.

6. Conclusion

The findings of the research indicate the presence of tangible development disparity between districts/cities in West Nusa Tenggara Province (NTB), which significantly affects the migration of the population during the 2020–2024 period. Using Fixed Effect Model (FEM) analysis, partially, infrastructure, open the unemployment rate and Human Development Index (HDI) were found to have a significant effect on inward migration, while Gross Regional Domestic Product (GDP) per capita, poverty rate, and education had no statistically significant effect. Simultaneously, the combination of all these independent variables was shown to influence migration, as evidenced by the F test ($p < 0.05$). An adjusted R^2 determination coefficient of 70.11% demonstrates that the model sufficiently explains a significant share of the variability in migration across regions, although about 29.89% of other variations are influenced by external factors such as socio-migration networks, cultural perceptions, and post-pandemic policies that are not covered by the model. These empirical findings confirm that regional development in NTB still faces structural disparities that affect the dynamics of population migration.

Based on these findings, it is recommended that efforts to reduce uneven migration patterns in NTB should be focused on holistic and integrated development strategies, including:

1. Equitable distribution of infrastructure to improve accessibility in suburban areas, to reduce dependence on urban centers such as Mataram City (20.27% of inflows).
2. Management of reducing unemployment by generating productive employment opportunities and implementing vocational training programs in the migrants' origin areas, considering its role as the main pull factor.
3. Optimizing HDI with programs to improve the quality of life in developed regions, to prevent saturation and inhibit the flow of excess migration.
4. The integration of macroeconomic factors such as poverty alleviation and education improvement, although not partially significant, is to support a more balanced simultaneous dynamic in all regions, including East Lombok (2.51% of inflows).

This study is inseparable from a number of limitations, including: (1) it only covers the period 2020–2024, so it has not fully captured the long-term dynamics post-pandemic; (2) focus on NTB Province, so generalizations to other regions in Indonesia need to be done carefully considering the unique regional characteristics; and (3) the variables used were limited to the economic and social development indicators available from BPS data, while non-economic factors such as individual preferences or migration networks were not fully accommodated.

Further Research Suggestions: For future studies, it is suggested to: (1) extend the duration of the research or broaden the geographical scope national level for a more comprehensive comparative analysis; (2) integrate qualitative variables through surveys or mixed panel data to capture non-economic factors influencing migration decisions; and (3) using advanced analytical methods such as spatial gravity models or instrumental variables to identify deeper causal relationships between development inequality and migration.

Reference:

Anwar, B., & Syahputra, H. (2021). Determinants of internal migration in Indonesia: A logit approach. *Journal of Economics and Development*, *22*(2), 150–165.

Arifin, M. (2025). The role of digital payments in driving regional economic growth: Evidence from Indonesian provinces. *Journal of Regional Development Studies*, *33*(1), 45–62.

Firmansyah, R., Dewi, S., & Pratama, A. (2024). The initial impact of the COVID-19 pandemic on regional inequality in Indonesia. *Sustainability*, *15*(18), 13709. https://doi.org/10.3390/su151813709

Friedmann, J. (1966). *Regional development policy: A case study of Venezuela*. MIT Press.

Ghozali, I. (2011). *Multivariate Analysis Application with IBM SPSS 19 Program*. Publishing Agency of Diponegoro University.

Ghozali, I. (2021). *Analisis Multivariat dan Ekonometrika: Teori, Konsep, dan Aplikasi dengan EViews 12*. Badan Penerbit Universitas Diponegoro.

Hakim, L., & Rosini. (2022). Regional income inequality in Indonesia: The role of public and private investment. *Journal of Indonesian Development Economics*, *10*(3), 211–228. https://doi.org/10.20885/ejem.vol15.iss2.art4

Handayani, R., & Prabowo, T. (2023). Education and infrastructure in reducing inequality in Indonesia. *Journal of National Development*, *13*(1), 50–65.

Iqbal, M. (2015). *Applied Econometrics: Theory and Applications with EViews*. BPFE Yogyakarta.

Kurniawan, A. (2008). *Quantitative Research Methods: Theory and Applications to Economics and Business*. Alphabet.

Lee, E. S. (1966). Migration theory. *Demography*, *3*(1), 47–57. https://doi.org/10.2307/2060063

Lee, E. S. (1975). *Population redistribution and economic growth: United States, 1870–1950*. American Philosophical Society.

Lestari, W., & Gunawan, A. (2021). Inequality and regional migration in Central Java. *Journal of Regional Economics*, *8*(3), 180–195.

Perroux, F. (1955). Note on the notion of growth pole. *Ekonomi Appliqué*, *8*, 307–320.

Prasetyo, A., & Rahmawati, N. (2021). Migration is influenced by employment and educational opportunities. *Indonesian Journal of Demography*, *9*(1), 75–90.

Rahman, F., & Nurhayati, S. (2023). Development disparity in NTB: An analysis of Williamson and Theil. *Journal of Regional Economics*, *15*(2), 122–135.

Ramadhan, A., & Putri, R. (2022). Analysis of the relationship between development and migration in NTB. *Journal of Development and Migration*, *11*(4), 210–225.

Sari, D., & Putra, R. (2018). Development inequality in Bali with the Williamson Index. *Journal of Regional Economics*, *10*(2), 100–115.

Sodik, M., Fadli, R., & Hasan, A. (2023). Regional development and income inequality in Indonesia: The role of human resources. *Journal of Emerging Market Economics*, *15*(2), 145–160. https://doi.org/10.20885/ejem.vol15.iss2.art4

Susanti, D., & Hidayat, M. (2019). Development inequality in NTB with the Williamson and Theil Index. *Journal of Development Economics*, *20*(2), 115–

130.
Syafruddin, R. (2022). Infrastructure, education, and migration in South Sulawesi. *Journal of Regional Economics*, *12*(1), 88–104.
Taufiqurrahman, M. (2023). Regional inequality, human resources, and unemployment in Indonesia. *Cogent Economics & Finance*, *11*(1), 2251803. https://doi.org/10.1080/23322039.2023.2251803
Todaro, Member of Parliament (1970). Labour migration and urban unemployment models in less developed countries. In *The American Economic Review* (Vol. 59, Issue 1).
Widarjono, A. (2018). *Econometrics: Introduction and Its Application Accompanied by an EViews Guide*. UPP STIM YKPN.
Williamson, J. G. (1965). Regional inequality and national development processes: A description of patterns. *Economic Development and Cultural Change*, *13*(4), 1–84. https://doi.org/10.1086/450136
Yusuf, A., & Kurniawan, D. (2020). Determinants of regional inequality in Eastern Indonesia. *Journal of Emerging Market Economics*, *12*(3), 200–215.