



Determinants of Foreign Direct Investment and Economic Growth in Regencies/Cities in Bali Province

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Abstract

In developing countries such as Indonesia, economic growth faces two main constraints: human resources and capital accumulation. Bali Province, as an integral part of the Republic of Indonesia, exhibits a unique pattern of economic growth compared to other provinces. More specifically, between 2012 and 2024, Bali's economic growth experienced fluctuations in line with the crises that occurred during this period. This study covers the period 2012–2024 with 117 observation points using panel data. The purpose of this research is to analyze the direct and indirect effects of population size and the Human Development Index (HDI) on foreign direct investment (FDI) and economic growth in the regencies/municipalities of Bali Province, employing path analysis techniques. The results show that both population size and HDI have a positive and significant effect on FDI. Population size has a positive and significant effect on economic growth, HDI also has a positive and significant effect on economic growth, and FDI has a positive and significant effect on economic growth across Bali's regencies/municipalities. Furthermore, population size and HDI indirectly influence economic growth through FDI. The findings of this study are expected to provide valuable input for the Provincial Government of Bali in formulating strategies to enhance FDI as a driver of sustainable economic growth, by optimizing the role of population, improving human resource quality, promoting a more equitable distribution of investment to non-tourism regions, and regulating investment flows in tourism areas to ensure balanced economic growth across all regencies/municipalities in Bali Province.

Keywords: Population, Human Development Index, Foreign Direct Investment, Economic Growth

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I. Introduction

Foreign direct investment (FDI) is widely acknowledged as a critical driver of long-run economic performance in developing economies through capital deepening, technology transfer, managerial spillovers, and access to global markets. Seminal and subsequent studies show that FDI can augment domestic savings, ease foreign exchange constraints, and raise total factor productivity—provided that host-economy fundamentals allow absorption of advanced technologies and practices (Borensztein, De Gregorio, & Lee, 1998; Iamsiraroj & Ulubaşoğlu, 2015). In the investment-led growth tradition, the Harrod–Domar framework highlights the pivotal role of investment in expanding productive capacity and sustaining demand, implying that external capital inflows such as FDI can accelerate growth when the incremental capital–output ratio and savings/investment rates are favorable (Arsyad, 2010). Complementing this macro view, Dunning's eclectic OLI paradigm explains *where* multinational enterprises choose to locate, emphasizing location advantages that include market size and labor quality (Dunning & Lundan, 2008). Endogenous growth models add that human capital and innovation determine whether technology brought by multinational firms translates into persistent productivity gains (Romer, 1986, 1990; Lucas, 1988). Taken together, these perspectives suggest a coherent channel: local market scale and human development shape the attraction of FDI, while FDI in turn propagates growth.

Indonesia's Bali Province provides a salient laboratory for investigating these mechanisms. Bali's economy is structurally distinctive within the Indonesian archipelago: tourism and its directly linked activities (accommodation, food services, trade, transportation, finance, and creative industries) dominate regional value added and employment, creating strong service-sector linkages but also exposing the economy to global demand shocks (Sanjaya, Wimba, & Kawiana, 2019). Aggregate indicators underscore both dynamism and vulnerability. The province suffered a sharp contraction during the COVID-19 pandemic—Bali recorded one of the steepest output declines nationally in 2020—yet it rebounded briskly as borders reopened, with real growth surpassing the national average in 2023 and 2024 (Bank Indonesia, 2024; BPS, 2025). Over the same period, realized FDI in Bali rose markedly, from roughly IDR 4.22 trillion in 2020 to IDR 24.21 trillion in 2024, reflecting renewed investor confidence in post-pandemic recovery and the persistence of Bali's global brand in hospitality and lifestyle sectors (BPS, 2025). These stylized facts are consistent with the OLI logic—market potential and specialized amenities attract capital—but they also raise deeper questions about the *foundations* of Bali's FDI and growth nexus.

A closer look at the spatial economy reveals pronounced concentration. FDI inflows gravitate toward the southern growth corridor—Badung, Denpasar, and Gianyar—where international gateways, infrastructure, and hospitality clusters are densest. Meanwhile, regencies such as Jembrana, Bangli, Klungkung, and Karangasem attract far less foreign capital, mirroring disparities in infrastructure readiness, market access, and human development indicators (BPS, 2025). This pattern raises concerns about an uneven geography of opportunity and the risk that shocks—health, geopolitical, or environmental—propagate more severely through a narrowly specialized, spatially concentrated base. It also motivates a policy imperative to leverage FDI for more resilient, inclusive growth by improving fundamentals in lagging areas and diversifying investment beyond core tourism. For such policy design to be evidence-based, subnational determinants of FDI and their growth transmission channels must be rigorously identified.

Within this agenda, two host-economy fundamentals warrant particular focus: population size and the Human Development Index (HDI). Population size is a standard proxy for market scale and labor availability; larger populations offer richer demand bases and deeper talent pools, strengthening the business case for local production rather than export-based servicing and typically encouraging market-seeking FDI (Dunning & Lundan, 2008). Empirically, multi-country and Indonesia-specific studies have linked population or market size positively to FDI inflows (Çeviř & Camurdan, 2007; Sanusi, Kuncoro, & Herianingrum, 2019). In a province like Bali—where tourism is inherently demand-driven—population dynamics may matter not only by scaling consumption and service demand but also by shaping urbanization patterns and the supply of workers with sector-specific skills.

Human development, captured by the HDI, matters for different but complementary reasons. In the OLI paradigm, the *location* component embeds not only geography and infrastructure but also labor quality. Firms internalize know-how and organizational routines yet still require local workforces capable of adopting, maintaining, and co-innovating around imported technologies. A higher HDI typically correlates with better education and health outcomes and a higher standard of living, which together increase labor productivity and reduce training costs. Both cross-country and Indonesia-provincial evidence support a positive association between human capital and FDI attraction (Noorbakhsh, Paloni, & Youssef, 2001; Prasetyo, 2020). Endogenous growth theory further predicts that human capital amplifies the growth returns to FDI by strengthening absorptive capacity—only sufficiently skilled economies can fully exploit the technology and managerial spillovers that FDI brings (Borensztein et al., 1998; Romer, 1990). In Bali's context, the regencies with consistently higher HDI—Denpasar and Badung—also tend to host larger, more sophisticated hospitality and service ecosystems, hinting at a joint evolution of skills, amenities, and foreign capital (BPS, 2025).

Yet, despite this strong theoretical and empirical background, two gaps remain in the subnational Indonesian literature. First, many studies estimate FDI–growth regressions without explicitly modeling how local fundamentals *feed into* FDI as an intervening mechanism. In other words, they focus on the direct paths (e.g., human capital → growth) but do not quantify the mediated path (human capital → FDI → growth). Given Bali's service orientation—where foreign investors often bring brand standards, ICT systems, and process innovations—testing FDI's mediating role is crucial to understand how demographics and human development translate into output. Second, provincial and national studies often proxy “development” by per-capita income rather than a composite like HDI, thereby omitting multidimensional aspects of human capital that are especially relevant for knowledge- and service-intensive activities (Noorbakhsh et al., 2001; Dunning & Lundan, 2008). Substituting HDI for income promises a tighter conceptual fit to Bali's investment reality.

This paper addresses these gaps by reframing a regency/city panel analysis for Bali covering 2012–2024 ($N = 117$). The study quantifies the direct effects of population size and HDI on FDI and on economic growth (PDRB at constant prices) and the indirect effects mediated by FDI, using a two-equation path framework estimated with pooled OLS and robust standard errors. This design offers several advantages. First, mediation analysis distinguishes whether population and HDI influence growth primarily through FDI (consistent with OLI and Harrod–Domar channels) or also directly (consistent with endogenous growth mechanisms). Second, the 2012–2024 window spans pre-pandemic expansion, the 2020 collapse, and the subsequent recovery, allowing estimates to reflect regime shifts relevant for policy. Third, the subnational granularity leverages cross-sectional variation across nine regencies/cities, capturing Bali's spatial heterogeneity in market size, human development, and investment concentration (BPS, 2025).

The expected signs are grounded in the literature. We anticipate a positive population → FDI effect due to market-seeking motives, and a positive HDI → FDI effect due to labor-quality advantages (Dunning & Lundan, 2008; Çeviř & Camurdan, 2007; Noorbakhsh et al., 2001). We also expect positive population → growth and HDI → growth effects, reflecting both demand/scale channels and human-capital productivity effects (Romer, 1986; Lucas, 1988). Finally, we expect FDI → growth to be positive, consistent with investment-led and spillover mechanisms documented widely for developing economies and Indonesia

(Borensztein et al., 1998; Iamsiraroj & Ulubaşoğlu, 2015). The central empirical question is whether FDI *significantly mediates* the effects of population and HDI on growth in Bali's service-intensive economy, and how large those indirect effects are relative to the direct effects.

Beyond hypothesis testing, the inquiry has immediate policy salience. Bali's recovery has reignited investment, but the concentration of FDI in the south and the province's high exposure to international travel cycles call for a two-track strategy. One track deepens the province's comparative advantage in high-value tourism and related services through continued upgrading of skills, digital infrastructure, and environmental quality. The other expands *where* and *what* FDI targets—by addressing infrastructure bottlenecks, strengthening local capabilities, and promoting investment pipelines in sectors adjacent to tourism (e.g., agro-processing linked to culinary tourism, health and wellness services, creative industries, and clean transport). Evidence that HDI and population significantly raise FDI—and that FDI mediates their effects on growth—would justify policy packages that tie human-capital programs and urban service improvements to place-based investment incentives in under-served regencies (Bank Indonesia, 2024; BPS, 2025).

It is also necessary to acknowledge the risks surrounding FDI-led expansion. International production networks are undergoing reconfiguration amid geopolitical tensions, climate imperatives, and digitalization; tourism faces evolving preferences and sustainability constraints; and capital flows can be volatile. Strategy must therefore favor *quality* FDI—projects with strong local linkages, training components, environmental stewardship, and diversification potential—over purely speculative or enclave investments. Theoretically, this recognizes that not all FDI has equal growth multipliers; empirically, it implies that the same mediating channel (FDI) can transmit positive or muted effects depending on sectoral composition and local absorptive capacity (Borensztein et al., 1998; Giroud & Ivarsson, 2020). In Bali, where natural and cultural assets are core to competitiveness, aligning FDI with sustainable land-use planning and community welfare is not only socially desirable but economically prudent.

Methodologically, the study adopts a parsimonious path model to remain transparent and interpretable to policy stakeholders. The first equation relates FDI to population and HDI; the second relates growth to population, HDI, and FDI. We use natural logs for FDI and PDRB to reduce skewness and interpret elasticities, and we estimate pooled OLS with heteroskedasticity-robust (HC3) standard errors after checking classical assumptions—an approach suited to the panel's modest size and the objective of decomposing total effects into direct and indirect components. While more elaborate estimators (fixed effects, random effects, instrumental variables, or dynamic panels) can further address unobserved heterogeneity and endogeneity, the chosen design offers a clean mapping from theory to coefficients and enables the Sobel test to evaluate mediation (Baron & Kenny, 1986; Sobel, 1982). We explicitly recognize these identification limits and, in later sections, suggest directions for future research that combine mediation with panel-data methods better equipped for causal inference.

In summary, this paper examines whether and how population size and human development shape FDI inflows and economic growth across Bali's nine regencies/cities over 2012–2024, with a particular emphasis on the mediating role of FDI. By replacing the conventional per-capita income proxy with HDI, and by testing mediation at subnational scale during a period punctuated by an unprecedented tourism shock, the study contributes three advances. First, it provides new evidence on the *mechanism* through which local fundamentals translate into output—i.e., via FDI—rather than only on reduced-form associations. Second, it offers a multidimensional view of “development” better aligned with the skills- and service-intensive character of Bali's economy. Third, it illuminates actionable levers for *balanced* growth—investing in human capital and urban services to attract quality FDI in lagging regencies—thereby complementing efforts to upgrade already dynamic destinations (Dunning & Lundan, 2008; Noorbakhsh et al., 2001; Bank Indonesia, 2024).

Consistent with these aims, the study addresses the following research questions:

1. To what extent does population size directly affect FDI inflows across Bali's regencies/cities?
2. To what extent does human development (HDI) directly affect FDI inflows?
3. Do population size and HDI directly and positively affect regional economic growth (PDRB at constant prices)?
4. Does FDI directly and positively affect regional economic growth?
5. Does FDI mediate the effects of population size and HDI on regional economic growth, and what is the magnitude of these indirect effects relative to the direct effects?

By answering these questions, the paper seeks to ground Bali's post-pandemic investment and development strategy in an empirically validated framework that recognizes the intertwined roles of market size, human capital, and foreign investment. The central hypothesis—validated in many international studies but underexplored at Indonesia's subnational scale—is that FDI is both an outcome of strong fundamentals and a transmission mechanism through which those fundamentals become sustained growth (Borensztein et al., 1998; Iamsiraroj & Ulubaşoğlu, 2015). In a region where shocks are likely to recur and where

II. Research Methodology

The research method employed in this study adopts a quantitative explanatory design aimed at testing causal relationships among variables through hypothesis-driven analysis. Quantitative research is grounded in the positivist paradigm, which assumes that social phenomena can be measured objectively and analyzed statistically to infer patterns and causal linkages (Creswell & Creswell, 2017). This approach is appropriate because the study seeks to quantify the direct and indirect effects of population size and the Human Development Index (HDI) on economic growth, mediated by foreign direct investment (FDI), across regencies and cities in Bali Province.

The research utilizes secondary panel data covering nine regencies/cities over the period 2012–2024, combining cross-sectional and time-series dimensions to enhance variability and reduce collinearity among predictors. Panel data analysis is advantageous because it captures both spatial and temporal heterogeneity, thereby improving the efficiency of estimates compared to pure cross-sectional or time-series models (Gujarati & Porter, 2013). The variables include economic growth measured by Gross Regional Domestic Product (GRDP) at constant prices, FDI inflows in Indonesian rupiah, population size in thousands, and HDI as a composite index of education, health, and living standards.

To operationalize the conceptual framework, the study applies path analysis, an extension of multiple regression that decomposes total effects into direct and indirect components, allowing the assessment of mediation (Baron & Kenny, 1986; Sobel, 1982). Path analysis is suitable because the research hypothesizes that FDI serves as an intervening variable linking population and HDI to economic growth. Two structural equations are estimated: the first models FDI as a function of population and HDI, while the second models economic growth as a function of population, HDI, and FDI. All monetary variables are transformed into natural logarithms to stabilize variance and interpret coefficients as elasticities.

Estimation is conducted using Ordinary Least Squares (OLS) under a pooled panel specification, complemented by heteroskedasticity-robust standard errors (HC3) to address potential violations of homoskedasticity assumptions (Gujarati, 2003). Diagnostic tests for multicollinearity, normality, and autocorrelation are performed to ensure model validity. The significance of mediation is tested using the Sobel test, which evaluates whether the indirect effect of an independent variable on the dependent variable through a mediator is statistically different from zero (Sobel, 1982).

The choice of this methodological framework is consistent with prior empirical studies on FDI and growth that employ panel regression and mediation analysis to uncover structural relationships (Noorbakhsh, Paloni, & Youssef, 2001; Iamsiraroj & Ulubaşoğlu, 2015). By integrating robust econometric techniques with a theoretically grounded model, the research design ensures both internal validity and policy relevance, providing evidence-based insights into how demographic and human development factors interact with foreign investment to shape regional economic performance.

III. Results and Discussion

3.1 Results

1. Descriptive Statistics

Table 1. Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
JP	117	173900	938200	469565.51	205500.457
IPM	117	62.95	85.22	73.6859	5.65144
LN_FDI	117	18.76	30.23	25.4793	2.52940
LN_PDRB	117	27.83	31.27	29.9845	.86902
Valid N (listwise)	117				

The dataset comprises 117 observations from nine regencies/cities in Bali Province over the period 2012–2024. Table 1 summarizes the descriptive statistics of the variables. Population size ranges from 173900 to 938200, with a mean of 469565, indicating substantial demographic variation across regions. The Human Development Index (HDI) varies between 62.95 and 85.22, with an average of 73.69, reflecting generally high human development levels but with notable disparities among regencies. Foreign Direct Investment (FDI), expressed in natural logarithms, has a mean of 25.48, while economic growth (measured by GRDP at constant prices) averages 29.98. The wide dispersion of FDI values suggests significant concentration in certain areas, particularly Badung and Denpasar, which are major tourism hubs.

2. Model Diagnostics

Table2. Autocorrelation Test Results

Equation	Durbin-Watson
I	1,112
II	1,056

Classical assumption tests were conducted prior to estimation. The first structural equation (FDI as the dependent variable) satisfied normality and homoskedasticity assumptions, while the second equation (economic growth as the dependent variable) exhibited heteroskedasticity. To address this, robust standard errors (HC3) were applied. Durbin–Watson statistics (1.056–1.112) indicated no autocorrelation, and Variance Inflation Factor (VIF) values below 2 confirmed the absence of multicollinearity.

3. Regression Results

Table 3. Determination Coefficient Results

Persamaan	R Square	Adjusted R Square
1	0,414	0,404
2	0,727	0,720

The path analysis employed two regression models estimated using pooled OLS with robust standard errors. The first model explains FDI as a function of population and HDI, yielding an adjusted R^2 of 0.404, indicating that 40.4% of the variation in FDI is explained by these predictors. The second model explains economic growth as a function of population, HDI, and FDI, with an adjusted R^2 of 0.720, suggesting strong explanatory power.

Based on the test results in Table 3 the value or coefficient of determination of sub-structural equation I is 0.404. This means that the ability of the variables of the population and human development index to explain the variation of dependent variables, namely FDI of 0.404 or 40.4%. Meanwhile, the remaining 59.6% is explained by other variables outside the model. Meanwhile, the magnitude of the error value for the sub-structural equation model I is $.R^2e = \sqrt{1 - adjR^2} = \sqrt{1 - 0,404} = 0,772$

Based on the test results in table 3, the value or coefficient of determination of sub-structural equation II is 0.720. This means that the ability of the variables of the population scale, human development index and FDI in explaining the variation of dependent variables, namely economic growth of 0.720 or 72%. Meanwhile, the remaining 28% is explained by other variables outside the model. Meanwhile, the magnitude of the error value for the sub-structural equation model II is $R^2e = \sqrt{1 - adjR^2} = \sqrt{1 - 0,720} = 0,529$

Line Coefficient Test

Sobel (1982) Sobel (1982)_{ab}

$$LnFDI_{it} = 0,280JP_{it} + 0,429IPM_{it} \quad (4.1)$$

$$LnGDP_{it} = 0,377JP_{it} + 0,348IPM_{it} + 0,269LnFDI_{it} \quad (4.2)$$

From the results of the regression equation above, the following path diagram results can be described.

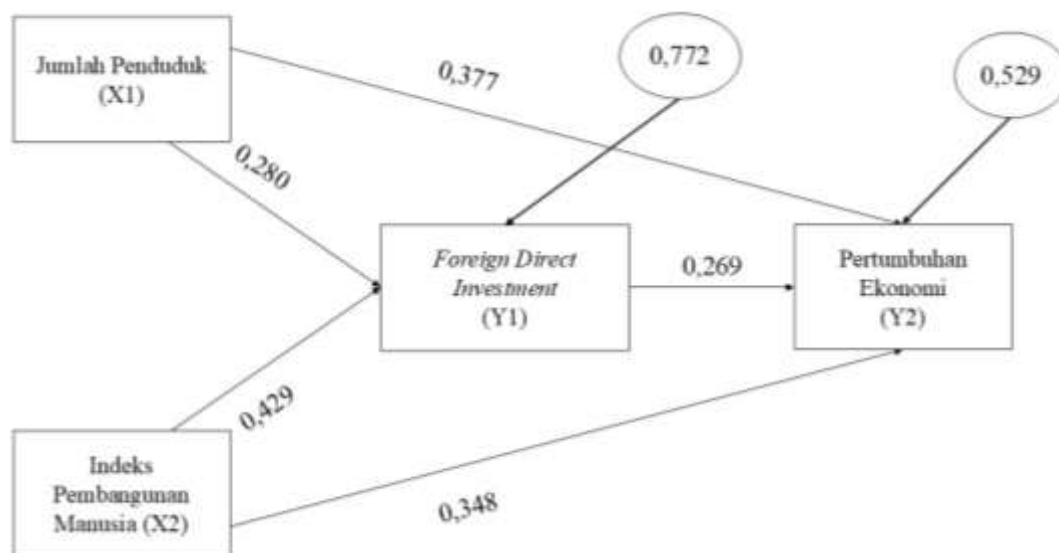


Figure 1 Path Chart Results

Based on the regression results, the magnitude of direct, indirect, and total influence can be calculated. The magnitude of the direct *effect* of each independent variable on the dependent variable can be determined from the standardized regression coefficient of the regression results. The magnitude of the indirect *effect* can be determined by multiplying the regression coefficient of $X \rightarrow M$ by $M \rightarrow Y$. Meanwhile, the *total effect* can be calculated by adding the *direct effect* and *indirect effect coefficients*.

The magnitude of direct influence, indirect influence, and total influence are presented in the following table.

Table 4. Value of Direct Effect, Indirect Effect, and Total Effect

Jalur	Direct Effect	Jalur	Indirect Effect	Total (DE+IE)	Effect
JP → FDI (b1)	0,280	JP → Fadi → GDP (B1*B5)	0,075	0,355	
IPM → FDI (b2)	0,429	IPM → FDI → GDP (b2*b5)	0,115	0,544	
JP → GDP (b3)	0,377				
IPM → GDP (b4)	0,348				
FDI → GDP (b5)	0,269				

4. Mediation Analysis

The Sobel test was applied to assess the mediating role of FDI. The indirect effect of population on economic growth through FDI is 0.075 ($t = 2.356$, $p < 0.05$), while the indirect effect of HDI through FDI is 0.115 ($t = 2.965$, $p < 0.01$). These findings indicate that FDI partially mediates the relationship between both population and HDI with economic growth. The total effect of population on growth is 0.355, and the total effect of HDI is 0.544, combining direct and indirect pathways.

5. Interpretation

The empirical evidence supports the theoretical propositions of the OLI paradigm and endogenous growth theory. Population size, as a proxy for market potential and labor supply, significantly attracts FDI, while HDI, reflecting human capital quality, enhances both FDI inflows and economic performance. Furthermore, the positive and significant mediation effect underscores the strategic role of FDI as a transmission channel through which demographic and human development factors translate into higher regional output. These results highlight the importance of integrated policies that simultaneously improve human capital and investment climate to sustain inclusive economic growth in Bali Province.

3.2 Discussion

The empirical findings confirm the theoretical expectations derived from the Harrod–Domar model, the OLI paradigm, and endogenous growth theory. First, the positive and significant effect of population size on FDI supports the market-seeking hypothesis within the OLI framework (Dunning & Lundan, 2008). Larger populations represent broader domestic markets and a more abundant labor supply, both of which reduce operational risks for multinational enterprises. In the context of Bali, regencies such as Denpasar and Badung, which have higher population densities, consistently attract greater FDI inflows. This pattern suggests that investors prioritize regions offering both demand potential and workforce availability, particularly in sectors like tourism, hospitality, and supporting services.

Second, the strong positive relationship between HDI and FDI underscores the importance of human capital quality as a location advantage. Higher HDI values reflect better education, health, and living standards, which collectively enhance labor productivity and reduce training costs for foreign investors. These results align with previous studies emphasizing that human development is a critical determinant of FDI inflows in developing economies (Noorbakhsh, Paloni, & Youssef, 2001). In Bali, regencies with superior HDI scores—such as Denpasar and Badung—are also the primary destinations for foreign investment, reinforcing the argument that human capital is a key driver of investment attractiveness.

Third, the positive and significant effect of FDI on economic growth validates the investment-led growth hypothesis articulated in the Harrod–Domar model. FDI contributes not only by augmenting the capital stock but also by facilitating technology transfer, managerial expertise, and integration into global value chains (Borensztein, De Gregorio, & Lee, 1998). In Bali, FDI inflows have supported the expansion of tourism infrastructure, hospitality services, and related industries, generating multiplier effects across the regional economy. However, the concentration of FDI in the southern corridor raises concerns about spatial inequality and vulnerability to sector-specific shocks, such as those experienced during the COVID-19 pandemic.

The mediation analysis provides additional insights by demonstrating that FDI serves as a critical transmission channel through which demographic and human development factors influence economic growth. Both population size and HDI exert significant indirect effects on growth via FDI, indicating that improvements in these fundamentals not only have direct impacts but also enhance the province's capacity to attract foreign capital, which in turn accelerates output expansion. This finding resonates with endogenous growth theory, which posits that human capital amplifies the productivity gains from external investments by improving absorptive capacity (Romer, 1990; Lucas, 1988).

From a policy perspective, these results highlight the need for a dual strategy. On one hand, Bali must continue to invest in human capital development—through education, vocational training, and healthcare improvements—to sustain its attractiveness to high-quality FDI. On the other hand, efforts should focus on geographic diversification of investment by improving infrastructure and business ecosystems in less-developed regencies such as Jembrana, Bangli, and Karangasem. Such measures would reduce regional disparities and enhance economic resilience against external shocks. Furthermore, given Bali's heavy reliance on tourism, policymakers should encourage FDI in complementary sectors such as creative industries, agro-processing, and health services to mitigate vulnerability and promote sustainable growth.

Finally, while the study provides robust evidence of the FDI-mediated growth mechanism, it acknowledges certain limitations. The use of pooled OLS, despite robust standard errors, does not fully address potential endogeneity or unobserved heterogeneity. Future research could employ fixed-effects or dynamic panel

estimators, as well as incorporate institutional quality and sectoral FDI composition, to refine the analysis. Nevertheless, the current findings offer strong empirical support for the proposition that population dynamics and human development are foundational to attracting FDI and fostering long-term economic growth in Bali.

IV. Conclusion and Recommendations

Conclusion

This study examined the determinants of Foreign Direct Investment (FDI) and its role in mediating the relationship between population size, human development, and economic growth across nine regencies/cities in Bali Province during 2012–2024. Using a path analysis framework with panel data, the findings provide several key insights.

First, both population size and the Human Development Index (HDI) significantly and positively influence FDI inflows. This result confirms the theoretical predictions of the OLI paradigm, where market size and labor quality constitute critical location advantages for multinational enterprises. Regions with larger populations and higher HDI scores—such as Denpasar and Badung—consistently attract greater foreign investment, reflecting the combined effect of demand potential and skilled human resources.

Second, population size and HDI also exert direct positive effects on economic growth, consistent with endogenous growth theory, which emphasizes the role of human capital and demographic dynamics in sustaining long-term growth. At the same time, FDI demonstrates a significant positive impact on regional output, validating the investment-led growth hypothesis and highlighting the importance of foreign capital in augmenting domestic resources, transferring technology, and enhancing productivity.

Third, mediation analysis reveals that FDI serves as an important transmission channel through which population and HDI influence economic growth. The indirect effects, particularly for HDI, underscore the strategic role of human capital in attracting foreign investment and amplifying its growth impact. These findings suggest that improvements in education, health, and living standards not only enhance productivity directly but also strengthen the province's capacity to leverage external capital for development.

From a policy perspective, the results imply that Bali's economic strategy should prioritize human capital development and balanced spatial distribution of investment. While the southern corridor remains the primary destination for FDI, efforts to improve infrastructure, skills, and business ecosystems in less-developed regencies are essential to reduce regional disparities and build resilience against sector-specific shocks. Furthermore, diversifying FDI beyond tourism into sectors such as creative industries, agro-processing, and health services will help mitigate vulnerability and promote sustainable, inclusive growth.

In conclusion, the study provides robust empirical evidence that demographic and human development fundamentals are not only critical for attracting FDI but also for ensuring that foreign investment translates into broad-based economic progress. Future research should address potential endogeneity and incorporate institutional quality and sectoral FDI composition to deepen understanding of the mechanisms linking FDI and growth in subnational contexts.

Recommendations

Based on the findings of this study, several strategic recommendations can be proposed for policymakers and stakeholders to enhance the role of Foreign Direct Investment (FDI) in promoting sustainable and inclusive economic growth in Bali Province:

1. **Strengthen Human Capital Development**
Given the significant influence of the Human Development Index (HDI) on both FDI inflows and economic growth, the provincial government should prioritize investments in education, vocational training, and healthcare. Programs aimed at improving workforce skills—particularly in digital literacy, hospitality management, and language proficiency—will enhance labor productivity and attract high-quality foreign investors. Expanding access to health services and improving living standards will further reinforce Bali's competitive advantage as an investment destination.
2. **Promote Balanced Regional Development**
The concentration of FDI in the southern corridor (Badung, Denpasar, and Gianyar) underscores the need for spatially inclusive policies. Infrastructure development—such as transportation networks, digital connectivity, and utilities—should be accelerated in underdeveloped regencies like Jembrana, Bangli, Klungkung, and Karangasem. Coupled with targeted investment incentives,

these measures can reduce regional disparities and create new growth poles beyond the tourism-dominated areas.

3. Diversify Investment Sectors

To mitigate the vulnerability associated with Bali's heavy reliance on tourism, the government should encourage FDI in complementary and emerging sectors. Potential areas include agro-processing linked to culinary tourism, creative industries, health and wellness services, and environmentally sustainable transportation. Diversification will not only stabilize the economy against external shocks but also generate broader employment opportunities and value-added activities.

4. Enhance Investment Climate and Governance

Simplifying licensing procedures, ensuring legal certainty, and improving transparency in land-use planning are essential to maintain investor confidence. Establishing a one-stop service center for investment facilitation and providing fiscal incentives for projects with strong local linkages and sustainability commitments can further strengthen Bali's attractiveness to foreign investors.

5. Focus on Quality and Sustainability of FDI

Beyond increasing the volume of FDI, emphasis should be placed on attracting projects that deliver long-term benefits, including technology transfer, workforce training, and environmental stewardship. Screening mechanisms should prioritize investments aligned with Bali's cultural and ecological values to ensure that economic gains do not compromise social and environmental sustainability.

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