NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMERCE, HUMAN SCIENCES AND EDUCATION

THE CAUSAL RELATIONSHIP BETWEEN FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN NAMIBIA.

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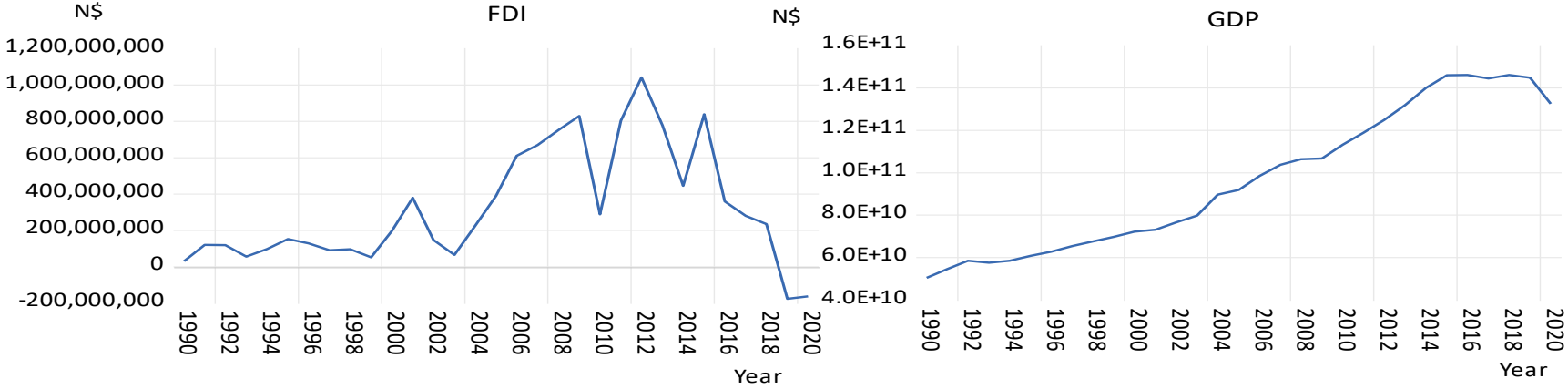
Figure 1: FDI and GDP in Namibia



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CONTENTS

Introduction

- Most developing countries lack the resources needed for investment to improve their economic situations, create jobs, and achieve long-term economic growth and development.

- Foreign direct investment (FDI) can easily transfer capital from capital-abundant regions to countries with a scarcity of capital.

- This is one of the strategies used to address the capital scarcity problem faced by most developing countries.

Introduction…

- First, countries that attract FDI experience higher rates of technological progress due to the "contagion effects" associated with more advanced technologies and management practices introduced (Dritsaki et al., 2004).
- Second, FDI inflows boost capital accumulation and economic growth by bringing in new inputs and technologies (Abbes et al., 2015).
- Third, FDI has the potential to boost domestic firms' productivity through contagion effects (Gregorio and Lee, 1998).
- Fourth, FDI affects human capital in recipient countries when multinational corporations train skilled and unskilled workers (Gregorio and Lee, 1998).
- Finally, foreign investments create jobs directly and indirectly through backward and forward linkages with local suppliers (Borensztein et al. 1998; Li and Liu 2005).

Introduction…

- In previous decades, the relationship between FDI and economic growth sparked a deluge of research from developed and developing countries.
- However, little research has been conducted in small, developing countries such as Namibia.
- The few country studies conducted in developing countries using various methodologies have produced contradictory results, indicating the need for additional research.
- The relationship between the two variables is theoretically supported by neoclassical and endogenous growth models in the economic literature (see Nabende et al., 2001; Almfraji and Almsafir, 2014; Hlavacek and Bal-Domaska, 2016

Introduction…

- Previous research on the relationship between FDI and economic growth used bivariate causality models, potentially leading to variable omission bias.

- The shortcomings of such bivariate Granger-causality models are well documented (NairReichert and Weinhold, 2001; Alfaro et al., 2004; Wang and Wong, 2009; Gui-Diby, 2014; Odhiambo, 2021; Le et al., 2021; Anetor et al., 2021; Duodu and Baidoo, 2022).

- Adding interactive variables to this model could change the results and the direction of causality between the two variables.

Introduction

The current study makes the following contributions:

- First, the autoregressive distributed lag (ARDL) bounds testing approach to cointegration provides realistic and efficient estimates in small samples and outperforms other time-series techniques (Pesaran et al. 1996b).
- Second, the study employs trade openness and broad money as interactive variables to address the variable omission bias problem, which has received little attention in previous studies.
- Third, the ARDL approach aids in the identification of cointegrating vectors (Pesaran et al., 1996b).
- Lastly, this research adds to the scant literature on the relationship between FDI and economic growth in Namibia.

FDI and economic growth in Namibia

- Namibia began attracting FDI after gaining independence in 1990. The Foreign Investment Act of 1990 aimed to attract FDI through tax breaks and a favourable investment climate.

- FDI into Namibia increased significantly from 1998 to 2008 (see Figure 1 below). FDI accounted for 25.6% of gross fixed capital formation (GFCF). During the same period, Namibia received N$25.2 billion in FDI, mostly equity capital and reinvested earnings (BoN, 2012).

- According to the Bank of Namibia (2006), Namibia received significant FDI through Namcot Diamonds, Hardstone Processing, Ramatex Textiles, and Skorpion Zinc Refinery.

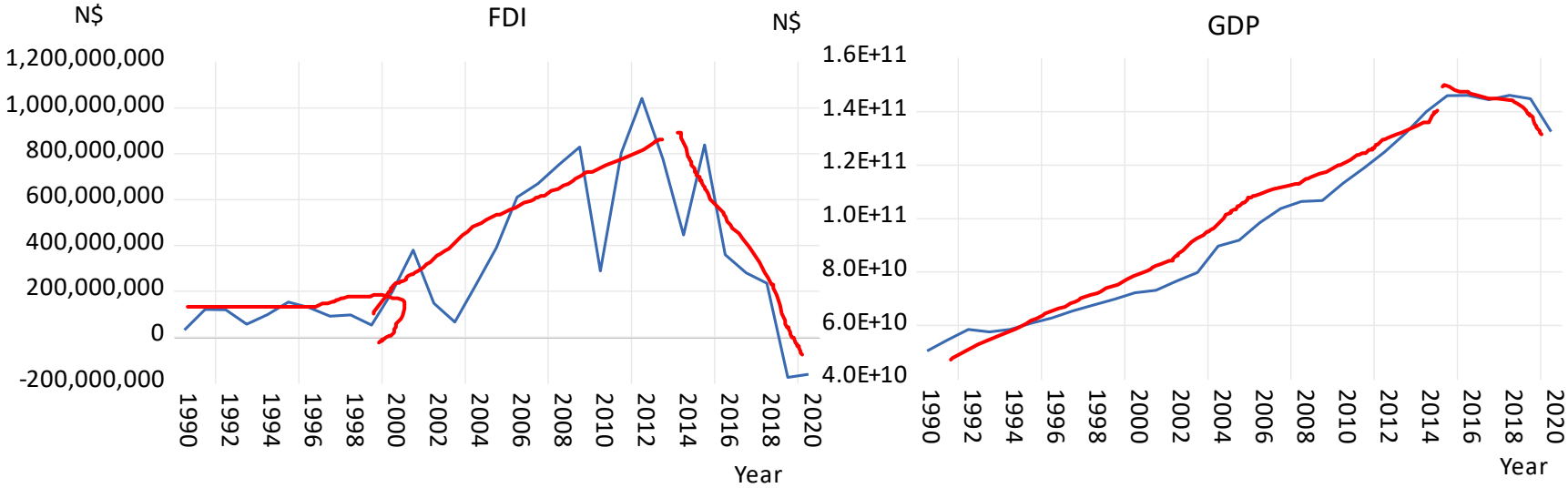
FDI and economic growth in Namibia

- FDI in Namibia totalled N$59.4 billion between 2009 and 2019, with significant investments in the mining sector.

- This increased FDI occurred despite the external shocks imposed on the economy by the 2007–2009 global financial crisis.

- Figure 1 also shows that FDI increased slowly between 1990 and 1997, then significantly increased from 1998 to 2015, before declining significantly.

Figure 1: FDI and GDP in Namibia



FDI and economic growth in Namibia

- Namibia experienced an average annual growth rate of 4.4 per cent between 1991 and 2015, according to the World Bank (2022).
- However, Namibia's economy stagnated in 2016 and entered a recession in 2017, which COVID-19 exacerbated in 2020.
- According to the World Bank (2022), between 1990 and 2015, **investments in mineral extraction, a surge in exports, and increased government spending were the factors that boosted Namibia's economic growth.**
- Namibia was negatively affected by **falling international commodity prices, droughts, weak economic growth in key trading partners (Angola and South Africa), and fiscal consolidation as the government attempted to rebalance the country's finances.**

Summary of empirical literature

Previous research found the following results on the relationship between FDI and economic growth:

- **the neutrality hypothesis**: Kurtishi-Kastrati et al. (2016), Bermejo et al. (2018), Anetor (2020), Ibrahim and Acquah (2021), Malefane (2021), Sopta et al. (2021), and Duodu and Baidoo (2021).

- **the growth-led FDI hypothesis:** Seyoum, Wu, and Lin (2015), Mahembe and Odhiambo (2016), Mahmoodi and Mahmoodi (2016), Saidi et al. (2018), Onafowora and Owoye (2019), Sarker and Khan (2020), Odhiambo (2021), Tanaya and Suyanto (2022) .

Summary of empirical literature…

- **the FDI-led growth hypothesis:** Abbes et al. (2015); Ibrahiem (2015); Seyoum et al. (2015); Abdouli and Hammami (2017); Doku et al. (2017); Sothan (2017); Sunde (2017); Ahmad et al. (2018); Al Am Marcel (2019); Onafowora and Owoye (2019); Latief and Lefen (2019).

- **the feedback hypothesis:** Seyoum et al. (2015), Shahzad et al. (2016), Peng et al. (2016), Kurtishi-Kastrati et al. (2016), Ahmad et al. (2018), Akadiri et al. (2020), Ibrahim and Acquah (2021), Kumari et al. (2021), Malefane (2021), Owusu (2021), Sopta et al. (2022).

Summary of empirical literature…

- The relationship between economic growth and FDI is ambiguous because of the often-conflicting findings in various studies that use different econometric approaches, time frames, and variables.

- Also, most previous studies used panel data analysis, which tends to group countries at different stages of development together. This hides the genuine relationship between FDI and economic growth in individual countries.

Methodology

- Pesaran and Shin (1999) proposed the ARDL approach used in this study, which was later expanded by Persaran, Shin, and Smith (2001).
- Compared to previous cointegration tests, the ARDL cointegration method has the following advantages.
- First, unlike the previous methods, the ARDL approach does not require that all variables be integrated of the same order (Persaran et al., 2001). When all the variables are I(0), I(1), or a combination of I(0) and I(1), the method can be used.
- Second, the ARDL method is not affected by study sample size, implying that it can produce consistent results in both large and small samples (Persaran et al., 2001).
- Third, the ARDL method gives unbiased estimates of the long-run model even when some of the variables used are endogenous (Harris and Sollis, 2003; Belloumi, 2014; Sunde, 2017; Odhiambo, 2021; Owusu, 2021).

Tests for cointegration

$$\Delta GC_t = a_0 + a_1 GC_{t-1} + a_2 FD_{t-1} + a_3 MB_{t-1} + a_4 TO_{t-1} + \sum_{i=1}^{n} \alpha_{1i} \Delta GC_{t-i} + \sum_{i=1}^{n} \alpha_{1i} \Delta FD_{t-i} + \sum_{i=1}^{n} \alpha_{1i} \Delta MB_{t-i} + \sum_{i=1}^{n} \alpha_{1i} \Delta TO_{t-i} + \mu_{1t} \quad [1]$$

$$\Delta FD_t = b_0 + b_1 FD_{t-1} + b_2 GC_{t-1} + b_3 MB_{t-1} + b_4 TO_{t-1} + \sum_{i=1}^{n} \beta_{2i} \Delta FD_{t-i} + \sum_{i=1}^{n} \beta_{2i} \Delta GC_{t-i} + \sum_{i=1}^{n} \beta_{2i} \Delta MB_{t-i} + \sum_{i=1}^{n} \beta_{2i} \Delta TO_{t-i} + \mu_{2t} \quad [2]$$

$$\Delta MB_t = c_0 + c_1 MB_{t-1} + c_2 GC_{t-1} + c_3 FD_{t-1} + c_4 TO_{t-1} + \sum_{i=1}^{n} \delta_{3i} \Delta MB_{t-i} + \sum_{i=1}^{n} \delta_{3i} \Delta GC_{t-i} + \sum_{i=1}^{n} \delta_{3i} \Delta FD_{t-i} + \sum_{i=1}^{n} \delta_{3i} \Delta TO_{t-i} + \mu_{3t} \quad [3]$$

$$\Delta TO_t = d_0 + d_1 TO_{t-1} + d_2 GC_{t-1} + d_3 FD_{t-1} + d_4 MB_{t-1} + \sum_{i=1}^{n} \vartheta_{4i} \Delta TO_{t-i} + \sum_{i=1}^{n} \vartheta_{4i} \Delta GC_{t-i} + \sum_{i=1}^{n} \vartheta_{4i} \Delta FD_{t-i} + \sum_{i=1}^{n} \vartheta_{4i} \Delta MB_{t-i} + \mu_{4t} \quad [4]$$

ARDL ERROR CORRECTION MODEL

- $\Delta GC_t = \varphi_1 + \sum_{i=1}^{n} \theta_{1i} \Delta GC_{t-i} + \sum_{i=1}^{n} \theta_{2i} \Delta FD_{t-i} + \sum_{i=1}^{n} \theta_{3i} \Delta MB_{t-i} + \sum_{i=1}^{n} \theta_{4i} \Delta TO_{t-i} + \lambda_1 ECT_1(-1) + {}_{1t}$

[5]

- $\Delta FD_t = \varphi_2 + \sum_{i=1}^{n} \gamma_{1i} \Delta FD_{t-i} + \sum_{i=1}^{n} \gamma_{2i} \Delta GC_{t-i} + \sum_{i=1}^{n} \gamma_{3i} \Delta MB_{t-i} + \sum_{i=1}^{n} \gamma_{4i} \Delta TO_{t-i} + \lambda_2 ECT_2(-1) + \mu_{2t}$

[6]

- $\Delta MB_t = \varphi_3 + \sum_{i=1}^{n} \pi_{1i} \Delta MB_{t-i} + \sum_{i=1}^{n} \pi_{2i} \Delta GC_{t-i} + \sum_{i=1}^{n} \pi_{3i} \Delta FD_{t-i} + \sum_{i=1}^{n} \pi_{4i} \Delta TO_{t-i} + \lambda_3 ECT_3(-1) + \mu_{3t}$

[7]

- $\Delta TO_t = \varphi_4 + \sum_{i=1}^{n} \rho_{1i} \Delta TO_{t-i} + \sum_{i=1}^{n} \rho_{2i} \Delta GC_{t-i} + \sum_{i=1}^{n} \rho_{3i} \Delta FD_{t-i} + \sum_{i=1}^{n} \rho_{4i} \Delta MB_{t-i} + \lambda_4 ECT_4(-1) + \mu_{4t}$

[8]

Unit root tests

Panel 1: Augmented Dickey-Fuller Test				
Variable	**Stationarity of all variables in Levels**		**Stationarity of all variables in First Differences**	
	Without Trend	With Trend	Without Trend	With Trend
lnGC	-2.482972	-2.780356	-6.586026***	-2.812646
lnFD	-2.700015	-2.793953	-6.814702***	-6.918882***
lnMB	-0.899114	-2.355991	-5.156246***	-5.042345***
lnTO	-1.489870	-2.465348	-4.143357***	-4.403123***
Panel 2: Phillips-Peron Test				
Variable	**Stationarity of all variables in Levels**		**Stationarity of all variables in First Differences**	
	Without Trend	With Trend	Without Trend	With Trend
lnGC	-2.409176	-2.760893	-7.175467***	-8.512130***
lnFD	-2.633166	-2.802307	-7.232489***	-7.195010***
lnMB	-0.898538	-2.355991	-5.168968***	-5.057923***
lnTO	-1.505853	-2.385954	-7.397736***	-11.40080***

Table 1: Unit root tests

Note: ***, ** and * signify stationarity at the 1%, 5% and 10% significance levels, respectively.

Tests for cointegration

Dependent variable	Function	F-Statistic
lnGC	lnGC(lnFD, lnMB, lnTO)	3.9383*
lnFD	lnFD (lnGC lnMB , lnTO)	4.5804**
lnMB	lnMB (lnGC, lnFD, lnTO)	6.6259***
lnTO	lnTO (lnGC, lnFD, lnMB)	3.8403**

Asymptotic Critical Values						
Pesaran, Smith & Shin (2001), Page 300, Table CI (iii) Case III	1%		5%		10%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
	4.29	5.61	3.23	4.35	2.72	3.77

Table 2: The bounds test for cointegration
Note: ***, ** and * signify statistical significance at 1%, 5% and 10% levels, respectively.

The Granger causality results

Dependent variable	Short-run F-Statistic [probability]				Long-run ECT_{t-1} [t-statistics]
	ΔlnGC	ΔlnFD	ΔlnMB	ΔlnTO	
ΔlnGC	-	-3.373572 [0.0151] **	-3.580192 [0.0043***]	0.019103 [0.8912]	-2.884228 [0.0080] ***
ΔlnFD	9.280237 [0.0054] ***	-	3.667819 [0.0430] **	0.013120 [0.9097]	-4.743074 [0.0001] ***
ΔlnMB	0.597587 [0.4470]	0.275028 [0.6048]	-	-3.052432 [0.0076***]	-6.586860 [0.0000] ***
ΔlnTO	3.352943 [0.0154] **	3.263132 [0.0172**]	3.671638 [0.0104] ***	-	-6.229342 [0.0000] ***

The Granger causality results

- First, the results summarised in Table 4 demonstrate the feedback causality between FDI and economic growth in Namibia. The feedback causality results obtained apply to both short and long runs. The F-statistics, which are statistically significant at 5%, confirm short-run bidirectional causality from FDI to economic growth and economic growth to FDI.
- Second, the study finds short-run unidirectional causality from the interactive variable (money supply) to economic growth and FDI at 1% and 5% levels of significance, respectively.
- Third, at a 5% significance level, the study finds short-run unidirectional causality from FDI and economic growth to the interactive variable (trade openness).
- Finally, the findings show short-and long-run bidirectional causality between trade openness and money supply at a 1% level of significance, as supported by significant F-statistics and the coefficients of the error correction terms, which are negative and significant, as expected.

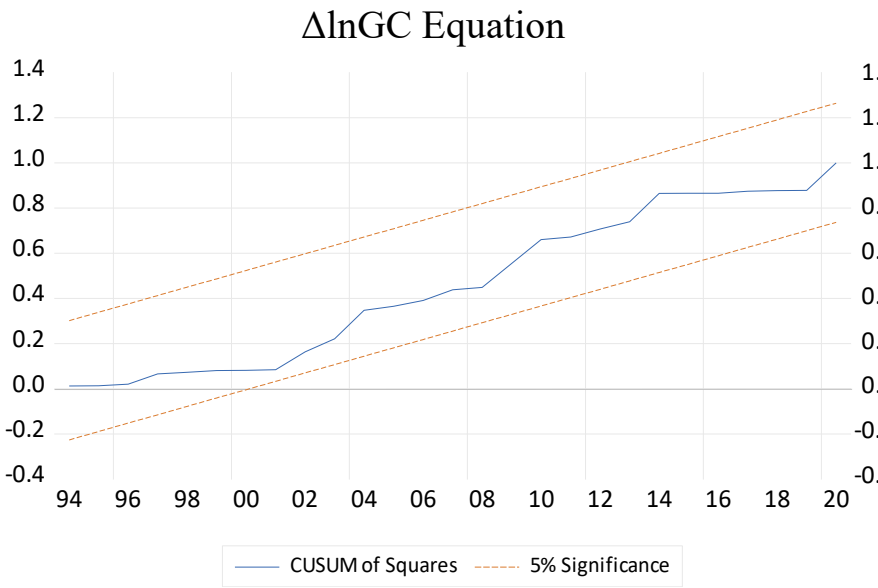
Robustness checks of the results

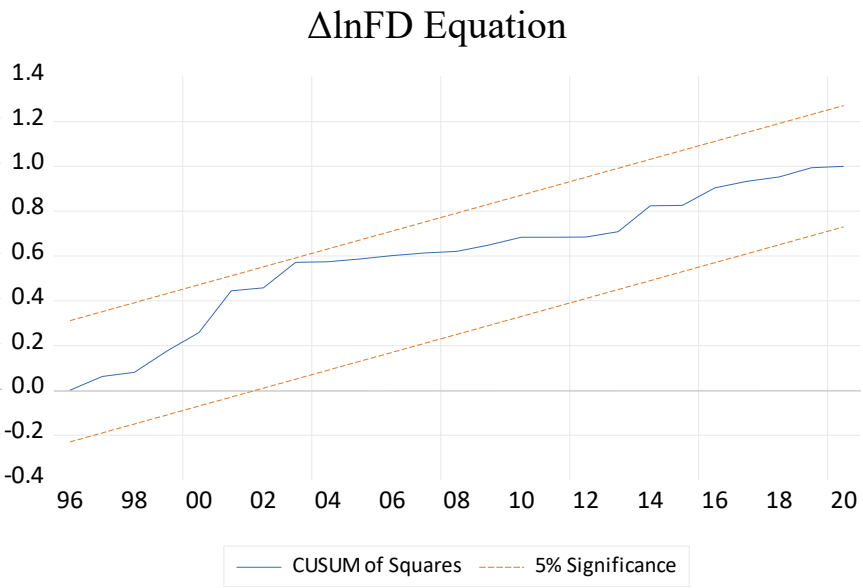
- Normality (Jarque-Bera Test)
- Heteroscedasticity (ARCH test)
- Autocorrelation
- Model Specification (Ramsey RESET test)
- Parameter stability tests (CUSUM of squares Test)

Robustness checks of the results…

Equation ⟹ / Diagnostic test	Statistic [probability]			
	$\Delta lnGC$	$\Delta lnFD$	$\Delta lnMB$	$\Delta lnTO$
Normality	1.634649 [0.4416]	2.373080 [0.3052]	51.51355 [0.0000]	1.671105 [0.4336]
Autocorrelation	3.478706 [0.1756]	0.014876 [0.9926]	5.779445 [0.0556]	1.883367 [0.3900]
Heteroscedasticity (ARCH)	0.680162 [0.4095]	0.459575 [0.4978]	0.218116 [0.6405]	1.080689 [0.2985]
Ramsey RESET	0.853616 [0.3647]	0.044328 [0.8350]	0.230470 [0.6357]	0.069987 [0.7937]

CUSUM of Squares





Conclusion and recommendations

- The findings support the feedback hypothesis between FDI and economic growth.
- This may imply that Namibia's FDI inflows from 1990 to 2015 may have been driven by robust economic growth and a stable macroeconomic environment (caused by prudent economic policies).
- However, the resource-seeking FDI that Namibia primarily received boosted economic growth but had little effect on employment, which has stubbornly remained above 20% since the country became independent in 1990. This is because this type of investment is usually capital intensive.

Conclusion and recommendations

- The current study's findings have important policy implications. As previously stated, attracting foreign direct investment is critical for Namibia as it boosts the financial resources needed for investment purposes domestically.
- Besides attracting resource-seeking FDI in mining, the government must create incentives to attract FDI in manufacturing.
- This would aid in addressing Namibia's high unemployment, which persisted despite significant FDI inflows into the capital-intensive mining sector.
- Manufacturing investments have been found to outperform other types of investments in job creation since they are generally labour intensive.
- To attract more inward FDI, the government should continue to improve its macroeconomic policies, reduce barriers to inward FDI, improve physical infrastructure, improve the efficiency of the financial services sector, encourage investment and trade, and continue to invest in human capital.

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Thank You.