

Direct Foreign Investment Strategies and Economic Performance in Ghana and Ivory Coast

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This study examines causal relationships between direct foreign investment (DFI) and economic performance in two Sub-Saharan African countries, from the 1960s to 1980. It is shown that the impact of higher economic performance on DFI depends crucially on the strategy of the investment. Specifically, in Ivory Coast, a superior economic performance enhanced the inflow of export-oriented DFI; but, in Ghana, where DFI took the form of market-development in response to an import-substitution strategy, the effect is ambiguous. A rationale for the results is that DFI for exports are generally consistent with trade liberalization policies that are usually promoted when the economy improves, but DFI for the local market is not. It is also found that economic performance is influenced positively by DFI, especially in an inward-oriented economy because there are fewer biases against such investments.

I. Introduction

The main purpose of this study is to examine the relationship between direct foreign investment (DFI) strategies and economic performance in Sub-Saharan Africa. Foreign capital has been considered useful by less developed countries (LDCs) because it can help to fill in the savings gap (the difference between domestic savings and investment requirements) or the foreign exchange gap (the difference between import requirements and export earnings). The flow of foreign capital into LDCs takes primarily the form of official development assistance (aid), portfolio investment, and DFI.¹ In real terms, aid flow has stagnated since the 1960s. The recent debt crisis has contributed to a contraction of private international lending to the LDCs. Against this background, DFI is considered a necessary and vital source of capital for LDCs, despite lingering suspicion about DFI in a lot of countries.²

Since 1965 the bulk of inward DFI has on average occurred in industrial countries.

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1. Direct foreign investment involves ownership and control of a foreign enterprise; and the foreign investor receives rewards in the form of performance-related profits. With portfolio investment, which consists of the acquisition of ownership without an effective control of a foreign enterprise, capital is provided in return for a contractual obligation to repay the loan at fixed terms. Aid takes many forms, including grants and loans below market rates.
2. The establishment of the Multilateral Investment Guarantee Agency (MIGA) by the World Bank in 1985 is an example of the attempts to promote DFI in LDCs.

Of the remainder, very little DFI has gone to low-income countries where inward DFI comes almost entirely from industrial countries. (See World Development Report (1985)). For instance, from 1969 to 1976 the flow of private DFI to Africa was only 11.5 percent of the total flow from industrial countries to LDCs. Apart from the oil and mineral producing countries, the flow of DFI into the Sub-Sahara region of Africa has been a trickle. (Billerbeck and Yasugi (1979)). DFI in Africa has traditionally come from the United Kingdom and France to countries with past colonial ties, and it has occurred mainly in the manufacturing and extraction industries.

Studies on the flow of DFI into Africa, particularly the Sub-Sahara region, are very few and dated. See, for example, Agodo (1978), Dixon-Fyle (1967), and Reuber (1973). Agodo studied the determinants of US private manufacturing investments in Africa in the 1960s, using data on 33 firms with 46 investments.³ He found that the factors that favorably affected DFI inflow into Africa include the size of the domestic market, the presence of raw materials, and political stability. But lower wages, tax concessions and tariff protection were among the nonsignificant determinants.⁴

Although it is important to explain the determinants of DFI in Africa, and its paucity, a better understanding of the DFI process in Africa can be gained if the analysis considers the strategies of DFI. Reuber (1973) identified some countries in Sub-Sahara Africa that were able to advance their manufacturing sectors through DFI, and this was possible either because of their larger domestic markets (Ghana, Nigeria, and Zaire) or because they acted as sub-regional supply centers (Ivory Coast, Kenya, and Senegal). This suggests that two types of DFI were attracted into these Sub-Saharan African countries. The strategies can be broadly identified as DFI for the local market (IM) and DFI for exports (IE).⁵

IM is done to produce goods or services for sale in the local market. It is induced by inward-oriented strategies that promote import substitution for industrialization.⁶ Inward-oriented strategies are biased in favor of domestic production over exports. The policies generally involve high levels of protection for manufacturing, direct controls on imports and investments, and over-valued domestic currencies. DFI, by multinational firms which "jump the tariff walls", is often attracted to an inward-oriented country. By contrast, IE is done to establish a base for the export of products by foreign firms to the home market or to third-country markets, thereby linking the host economy to the world market. The decision to invest is influenced by costs and the reliability of production. A competitive business climate, which is neutral to export promotion, will attract IE on the basis of comparative advantage. IE is therefore attracted by outward-oriented strategies that emphasize the economic benefits of world market access, and the flexibility in shifting the economy's resources. It is assumed that an outward-oriented strategy involves incentives that are neutral between the export and domestic market, or that

3. Most of the data were from mail questionnaire and direct interviews.

4. The results are generally consistent with the remarks of Dixon-Fyle.

5. For arguments for why the determinants of DFI for the local market may differ from DFI for exports, see Woodward and Rolfe (1993). DFI investment for natural resources, which is sometimes put in a separate category, can be considered as a special subset of investment for exports. See Brewer (1993) for a similar classification.

6. Other reasons for investments for the local market include the desire to serve better a foreign market by developing, through local manufacturing, better relations with distributors, better service to customers, increased opportunities to utilize local inputs, and reduced transportation costs.

actually results in a bias towards producing for the export market. Essentially, DFI strategies are related to trade orientation. And specifically, inward-oriented strategies attract IM while outward-oriented strategies attract IE.

The study uses data on selected Sub-Sahara African countries, from 1960 to 1980. We select Ghana and Ivory Coast to represent countries that attracted primarily IM and IE, respectively, after an extensive data selection process discussed in Section III, and preliminary test results presented in Section IV.⁷ Ghana consistently pursued import substitution policies in the 1960s and 1970s as a means of promoting economic growth and development through “self-reliance”, and as a response to foreign exchange difficulties. See, for example, Huq (1989), and Steel (1972). On the other hand, in 1960 when Ivory Coast achieved independence, the government made a deliberate choice for an outward-oriented development strategy as reflected in the development plans that guided it in the two decades that followed. The export sector was to lead economic growth using foreign capital, foreign labor and imported technology.⁸ This policy was promoted in addition to import-substitution industrialization. See, for example, Alschuler (1980).

In general, we expect a two-way association between DFI and economic performance. DFI is expected to increase real economic output because it increases the domestic stock of real capital. In addition, DFI typically provides a unique package of other resources, including technology, know-how, management, training, and facilities for marketing the product or service. It can also play the role of “tutor” by teaching skills to the local people, or increase economic performance either because foreign subsidiaries may have higher labor (and capital) productivity than their domestic counterparts or because DFI involves export-oriented activities which provide access to new international markets. But DFI could have a negative impact on economic performance. In reality, it is rarely undertaken in a perfectly competitive market. The firms that undertake such investments have market power and can therefore restrict competition and economic performance. DFI may also involve inefficient allocation since most LDCs have distorted market prices due to extensive government intervention in the form of price controls. Therefore, the impact of DFI on economic performance is not clear-cut.

It has also been suggested and shown that higher economic performance can influence positively DFI. See, for example, Agodo (1978), and Reuber (1973). The argument is that an increase in the size and growth of the host market will attract DFI. This view emphasizes the domestic market-seeking strategy of DFI ventures, which has been studied extensively compared to export-oriented DFI.

The empirical results from a two-way causality test of association between economic performance and DFI indicate that the results depend crucially on the strategy of the DFI. It is found that higher economic performance enhanced the inflow of export-oriented DFI in Ivory Coast, but the results are ambiguous for Ghana, which attracted mainly DFI for import-substitution. Policy wise, the results suggest that in a growing economy inward-oriented policies could hurt the inflow of DFI while outward-orientation could promote DFI.

7. See Green (1971) on the different economic strategies pursued in Ghana and Ivory Coast from 1957 to 1967.

8. The policies that regulated DFI were very favorable, including a five-year tax exemption on profits, absence of regulations on technology transfer, and a ten-year reduction of 50 percent in export taxes.

The rest of the paper is as follows. In the next section, we discuss the relationship between DFI strategies, trade orientation, and economic performance. Section III considers the procedure for testing the link between economic performance and DFI, and the data selection. Section IV outlines briefly the Granger (1969) causality test used for the analysis, and empirical results of the two-way association test between DFI and economic performance are also presented. Concluding remarks are given in Section V.

II. DFI Strategies, Trade Orientation, and Economic Performance

Dunning (1981) has argued that there is a DFI-development process or cycle. LDCs will attract DFI since they are in the early stages of economic development while advanced countries are associated with outward DFI. This is because as an economy grows its ownership-locational-internalization (OLI) advantages change. It is an eclectic approach to DFI based on the view that DFI is a response to market imperfections.⁹ Thus the nature and scope of market imperfections affect the international investment position of the country through changes in the OLI advantages. A plausible reason for why LDCs attract inward DFI is that LDCs have more market imperfections than advanced countries, largely because there is more government intervention in LDCs. But market imperfections could increase or decrease inward DFI. (See Brewer (1993)). For example, export controls would lower export-oriented DFI while some import protectionist policies could increase market-development DFI. Therefore the impact of higher economic performance on DFI will depend on the type of DFI that is attracted by economic policies.

Given that the type or strategy of DFI is influenced by trade orientation, the impact of higher economic performance on DFI is dependent on the link between economic performance and trade strategy.¹⁰ Generally, higher economic performance will promote trade liberalization because protection is regarded to be countercyclical. In a study of the structure of protection in 50 developing countries, Erzan *et al.* (1989) found a negative association between income level (measured by GDP per capita) and the level of import duties. See, also, Treffer (1993). Admittedly, the assumption that higher economic performance results in trade liberalization, while plausible, may be simplistic. And ideally, one should look at the evolution of import controls and other protective measures as an economy improves. But unfortunately, such data are not generally available, particularly in developing countries.

By favoring trade liberalization higher economic performance will promote IE. Trade liberalization, which is an outward-oriented strategy, favors IE because protectionism threatens export-oriented investments as it increases both the cost of imported inputs and the relative cost of domestic inputs (as a result of domestic inflation or an appreciation of the domestic currency).¹¹ But the impact of higher economic performance on IM is not entirely clear.

9. One argument emphasizes that industry structure is the source of market power that enables the foreign firm to compete with the domestic firms in the host market. The other argument is that DFI results from market imperfections created by transactions costs that make exporting and licensing inferior to DFI.

10. Alschuler (1988) suggests that the link between the activities of multinational corporations and maldevelopment is influenced by the state's development strategy.

11. It is also possible that per capita GDP may positively affect IE through its interaction with infrastructural development.

Trade liberalization that results from higher economic performance will decrease IM because a reason for IM is the existence of market imperfections, particularly import barriers. On the other hand, an increase in the size of the local market resulting from higher economic output and income could increase IM. Furthermore, an increase in economic output and income is expected to increase the level of imports; and the theory of endogenous protection predicts that higher import penetration could lead to greater protection. The impact of higher economic performance on IM could therefore be positive, making the overall impact ambiguous.

III. Testing Procedure and Data Selection

In this section we discuss the testing procedure and selection of the data for analysis. Based on the previous section, a preferred way to test empirically the effect of higher economic performance on DFI would involve a two-stage methodology. In the first stage, higher economic performance promotes trade liberalization. In the second stage, trade liberalization influence DFI strategy. But it is very difficult, if not impossible, to pursue the two-stage approach because of the difficulty of directly measuring trade liberalization over time, especially in Sub-Saharan Africa.¹² We therefore propose to test directly the link between economic performance and DFI, using causality test.

A causality test is used for two important reasons. First, our incomplete knowledge of the process of economic growth and the determinants of economic expansion make the causality test a promising method of investigating possible relationship between economic performance and another macroeconomic variable. Second, even if a complete model of economic growth can be specified, the lack of data for most developing countries would make the estimation of such a model virtually impossible.

It has been suggested that Ghana, Nigeria, and Zaire attracted primarily IM because foreign firms gained access to those larger domestic markets largely as a result of import substitution policies. For example, the detergents industry in Ghana was established primarily for market-development. (Reuber (1973, p.319)). On the other hand, it can be argued that Ivory Coast, Kenya, and Senegal by acting as supply centers attracted primarily IE. For example, the primary aim of the batteries industry in Kenya was for exports. (Reuber (1973, p.319)). But, before we use these two groups of countries to analyze the link between DFI strategies and economic performance, we will examine further evidence to support the classification of the six countries according to their DFI strategies.

We have argued earlier that IE and IM are consistent with outward-oriented and inward-oriented strategies, respectively. It is therefore necessary to compare the (implied) DFI strategy classifications of the six countries (based on Reuber (1973)) to their trade orientation classifications. In theory, it is straightforward to distinguish between outward-oriented and inward-oriented strategies. But, in practice, it is very difficult because trade strategy typically involves many simultaneous policies and there are also serious data limitations.

Few studies have attempted to classify developing countries according to trade orientation. Given that the classifications of countries are only suggestive (and sometimes, even subjective),

12. A similar problem has hampered econometric work on the relationship between trade orientation and economic growth. See Edwards (1993).

and that Sub-Sahara Africa has no great heritage of outward-orientation, we are mainly interested in the relative rankings of the six countries in previous studies. Table 1 gives a summary of studies that classified at least one IE country and one IM country according to trade orientation in the 1960s and 1970s. Dollar (1992) classified all three IE countries as more outward oriented than the three IM countries. Kenya was considered the most outward oriented and Nigeria was the least outward oriented. While the classification is comprehensive and supports our assumption, there is a severe drawback in terms of the time period covered. The World Bank (1987) study covered two periods, 1963-73 and 1973-85, which closely match the period of our investigation. All the six countries except Zaire (an IM country) were classified. In the 1963-73 period, all the three IE countries were regarded to be more outward oriented than Ghana (IM). But there was no distinction between Nigeria (IM) and Kenya and Senegal (IE countries); thus, there is an inconsistency in the trade orientation and DFI strategy classifications. For the 1973-85 period, all the three IE countries were ranked as more outward oriented than the two IM countries, in support of our assumption. We can therefore determine that among the IE group only Ivory Coast was clearly more outward oriented than both Ghana and Nigeria (IM countries) in the 1960s and 1970s. Heitger's (1987) study suggests that both Ivory Coast and Kenya (IE countries) were more outward oriented than Ghana (IM). This supports the determination from the World Bank study that Ivory Coast is more outward oriented than Ghana.

Table 1 Outward Orientation Rankings of IE and IM Countries

<p>A. The World Bank (1987) Rank (1963-73) 1. Ivory Coast (IE) 2. Kenya (IE) Nigeria (IM) Senegal (IE) 3. Ghana (IM)</p>	<p>Rank (1973-85) 1. Ivory Coast (IE) Kenya (IE) Senegal (IE) 2. Ghana (IM) Nigeria (IM)</p>
<p>B. David Dollar (1992) Rank (1976-85) 1. Kenya (IE) 2. Senegal (IE) 3. Ivory Coast (IE) 4. Zaire (IM) 5. Ghana (IM) 6. Nigeria (IM)</p>	
<p>C. Bernhard Heitger (1987) Rank 1. Ivory Coast (IE): 1970-72 2. Kenya (IE): 1967 3. Ghana (IM): 1968</p>	

IE: Country primarily attracted direct foreign investment for exports.
 IM: Country primarily attracted direct foreign investment for the local market.

The data available for this study consist of annual observations on real DFI flows and real GDP for all the six countries from the 1960s to 1980. Based on the above discussion, we selected Ivory Coast to represent the IE group and Ghana and Nigeria to represent the IM group. Zaire (IM country) was excluded for lack of coverage and Kenya and Senegal (IE countries) were also excluded because they were not consistently ranked as more outward oriented than Nigeria (IM country). Although it can be argued that an import substitution strategy may be compatible with an export promotion strategy (see Liang (1992)), we consider them as alternatives partly for analytical convenience and partly because even where both strategies coexist, the net effect will often be dominated by one strategy.¹³

IV. Test Results

The Granger (1969) test for causality between two variables is employed for this study because it conserves degrees of freedom, it is simple to use, and it can help to avoid spurious correlation.¹⁴ The test indicates that, for two time-series variables, X_t and Y_t , if X improves the prediction of Y , then X (Granger) causes Y .

The estimating equations can be written simply as follows. Let X_t and Y_t be stationary time series with zero means. Then

$$X_t = \sum_{j=1}^k a_j X_{t-j} + \sum_{j=1}^k b_j Y_{t-j} + \varepsilon_t, \quad (1a)$$

$$Y_t = \sum_{j=1}^k c_j Y_{t-j} + \sum_{j=1}^k d_j X_{t-j} + \nu_t, \quad (1b)$$

where ε_t and ν_t are random error terms that are assumed to be identically and independently distributed with means zero and finite covariance matrices.

The test of causality, using Equations (1a) and (1b) requires that: (i) Y_t causes X_t , if some $b_j \neq 0$ in Equation (1a); and (ii) X_t causes Y_t , if some $d_j \neq 0$ in Equation (1b). There is a feedback if both condition (i) and (ii) hold.

The test of causality between DFI and GDP requires that DFI is regressed on its own past values and on the past values of GDP, including an intercept term. Similarly, GDP is regressed on its past values and on the past values of DFI, including an intercept term.

An important issue in test of causality is determining the appropriate lengths of the

13. Since both DFI strategies may coexist in a country, we assume that aggregate DFI is determined as follows: $DFI = a DFI_X + b DFI_M$. DFI is a weighted sum of DFI in the export sector (DFI_X) and DFI in the import-substitution sector (DFI_M). a and b are the shares of the export and import-substitution sectors in the GDP of the economy, respectively; they are assumed to be constants. It is likely that a and b will change as a result of less government intervention, but we expect the changes to occur only slowly (over a relatively long time period). We also assume that $a > b$ and $DFI_X > DFI_M$ in an IE country, but $b > a$ and $DFI_M > DFI_X$ in an IM country. From 1960 to 1980, the ratio of exports of goods to the GDP was 18 percent in Ivory Coast (IE) and 10 percent in Ghana (IM).

14. See, for example, Pierce and Haugh (1977) for other tests of causality.

lags in Equations (1a) and (1b). The following procedure was used. Initially, the length of a lag was set at one in each of the equations in Equations (1a) and (1b). The Ljung-Box Q test for serial correlation is then calculated. The lag length is set at one if the null hypothesis of no autocorrelation is not rejected in either equation, and the F-test of the model was significant. If, otherwise, both equations are re-estimated using additional lags.¹⁵ See Jung and Marshall (1985).

Since the test results of causality are very sensitive to the time period used for the analysis, all the available data are used. DFI is the flow of direct private investment in 1975 constant-price US dollars. It is measured as the ratio of direct foreign private investment (as reported in the balance of payments data in the International Financial Statistics, IFS, various issues), divided by the price level for gross domestic investment (Summers and Heston (1984)). Economic performance is measured by the 1975 constant-price gross domestic product (GDP) in US dollars; Summers and Heston (1984).

The data are yearly observations for the “DFI for the local market” (IM) countries, Ghana (1957-80) and Nigeria (1960-80), and for the “DFI for exports” (IE) country, Ivory Coast (1964-80). Over the period of the analysis each country had, on average, positive inward DFI. The data do not go beyond 1980 because policy reforms associated with structural adjustment programs (in conjunction with the IMF and the World Bank) resulted in the introduction of a wide range of trade liberalization instruments in the second half of the 1980s in almost all LDCs. Furthermore, the debt crises of the 1980s generally promoted temporarily the use of protectionist measures to conserve foreign exchange. Thus it is difficult to distinguish between countries that promoted inward-oriented policies and those that favored outward-oriented strategies in the 1980s.

A precondition for the causality test is that the variables are stationary or that they are integrated of the same order. We therefore discuss first the results of stationarity tests performed on the series for DFI and GDP, using a Dickey-Fuller (1979), DF, test for unit root. The results of the stationarity tests are reported in Table 2A. The results indicate that, in general, the levels of the DFI and GDP variables are nonstationary at the one-percent significance level. (The one-percent significance level is used because of the shortness of the sample sizes). But all the variables are first-difference stationary, at the one percent significance level except the GDP series for Nigeria. We therefore consider the DFI and GDP series to be first-difference stationary. It is then necessary to examine whether a stable long-run relationship exists between the series in each country. This is done using a co-integration test.

A number of procedures for testing co-integration have been suggested; see, for example, Engle and Granger (1987). The three commonly used tests of co-integration are considered here. They are the Co-integrating Regression Durbin-Watson (CRDW), the Dickey-Fuller (DF) and the Augmented Dickey-Fuller (ADF) tests. These tests focus on whether the residuals from the co-integrating regression are stationary.¹⁶

15. The length of a lag will generally depend on the frequency of the data (for example, monthly or yearly), the speed with which information flows through the economy and the sample size (Granger (1969)). Inconclusive results were obtained when the Akaike information criterion (AIC) was used to determine the lengths of the lags. In each case, a longer lag length was always chosen.

16. Apart from these tests, Engle and Granger proposed four other tests for co-integration. These tests are based

on whether the series obey an “error correction” process. Power tests done by Engle and Granger suggest that these tests perform somewhat worse than the simpler DF and ADF tests. They are therefore not considered. The CRDW is considered for its simplicity.

Table 2A Stationarity Tests

		Levels			First-Differences		
		ADF			ADF		
Country	Variable	[No. lags]	PP	Q	[No.lags]	PP	Q
Ghana	DFI ¹	-3.55[0] ^b	-3.53 ^b	0.79	-7.17[0] ^a	-9.39 ^a	0.08
	GDP ¹	-2.14[0]	-2.16	0.12	-4.02[0] ^a	-4.01 ^a	0.09
Ivory Coast	DFI ²	-4.18[0] ^b	-4.26 ^b	0.33	-5.33[0] ^a	-8.76 ^a	0.14
	GDP ²	-2.05[0]	-1.94	0.92	-5.09[0] ^a	-5.97 ^a	0.65
Nigeria	DFI ²	-1.09[0]	-1.18	0.01	-8.35[0] ^a	-7.87 ^a	0.87
	GDP ²	-1.03[0]	-1.15	0.01	-3.95[1] ^b	-2.48	0.28

(1) $x_t = \alpha + \rho x_{t-1} + \varepsilon_t$. (2) $x_t = \alpha + \rho x_{t-1} + \beta_t + \varepsilon_t$.

ADF (Augmented Dickey-Fuller) is the *t*-statistic for the null hypothesis that the series is nonstationary. PP is also the *t*-statistic for the stationarity test, but where the standard errors have been adjusted for possible non-white noise error processes, using the Phillips-Perron (1988) procedure. Critical values are reported in Fuller (1976, p.373), *a* and *b* indicate stationarity at the 1% and 5% significance levels, respectively, *Q* reports the significance levels of the Ljung-Box test for serial correlation.

The results of the co-integration tests are reported in Table 2B. The estimates suggest the existence of co-integration between DFI and GDP at the one percent significance level in all the countries, except Nigeria. The null of no co-integration can be rejected in the IE country (Ivory Coast) and in one IM country (Ghana). Therefore there appear to be long-run equilibrium relations between DFI and GDP in these two countries. The tests for causality are based on those countries. It should be noted that the sample sizes used for the study are 21 and 17 for Ghana and Ivory Coast, respectively. Given the small sample sizes, the findings are tentative and should therefore be interpreted with caution.

Table 2B Cointegration Tests: DFI and GDP

Country	CRDW	ADF [No. lags]
Ghana	1.57 ^a	-3.76[0] ^a
Ivory Coast	2.33 ^a	-4.64[0] ^a
Nigeria	0.84 ^a	-1.63[0] ^c

The estimates are obtained from the following co-integrating regression: $DFI = a + bGDP + e_t$. CRDW reports the Durbin-Watson (DW) test statistic. ADF is the *t*-statistic on the coefficient from regressing the residuals from the co-integrating regression on its lagged values (excluding the constant term). Critical values for CRDW are from Engle and Granger (1987), and those for ADF are from Fuller (1976). *a* and *c* indicate co-integration at the 1% and 10% significance levels, respectively.

Before we present results for the causality tests, we report in Table 3A results which indicate that the IE country attracted more DFI for exports than the IM country. The correlation coefficients suggest a strong positive association between exports and DFI in Ivory Coast (IE). On the contrary, there is a negative relationship between exports and DFI in Ghana (IM); a negative relationship exist because protection switches demand to domestic products and imposes an implicit tax on exports.

Table 3A Correlation between DFI and Exports IE and IM Countries

	IE: Ivory Coast (1960-80)			IM: Ghana (1960-80)		
	DFI _t	DFI _{t-1}	DFI _{t-2}	DFI _t	DFI _{t-1}	DFI _{t-2}
Exports _t	0.70 (0.002)	0.66 (0.01)	0.74 (0.002)	-0.44 (0.04)	-0.53 (0.02)	-0.35 (0.14)

The values reported are Pearson correlation coefficients. Two-sided prob-values are reported in parentheses. DFI: The flow of direct foreign private investment, in 1975 constant-price U.S. dollars. Exports: Exports of goods in 1975 constant-price U.S. dollars. (The nominal values of exports were deflated by the index of export unit values. Source: International Financial Statistics, various issues).

The results of the causality tests between DFI and GDP are reported in Table 3B.¹⁷⁻¹⁸ First, the results indicate that in the IE country the appropriate lag lengths are one in both equations, but the lag lengths are three in the equations for the IM country. Shorter lags in the IE country is likely because countries that attract export-oriented DFI tend to implement policies that favor a market system of allocation; hence, the economy will be more efficient.

Table 3B Causality Test Results

	(i) IE Country: Ivory Coast		(ii) IM Country: Ghana	
	GDP \Rightarrow DFI	DFI \Rightarrow GDP	GDP \Rightarrow DFI	DFI \Rightarrow GDP
Causality:				
<i>t</i> - or <i>F</i> -test	0.002 ^a	0.342	0.421	0.001 ^a
Direction	Positive	Inconclusive	Inconclusive	Positive
Lag	1	1	3	3
<i>Q</i>	0.43	0.25	0.80	0.35
<i>H</i>	0.23	0.20	0.32	0.69
R ²	0.65	0.96	0.26	0.94
No. of obs.	17	17	21	21

Causality reports the prob-values for the joint significance of the lags of GDP in the DFI equation, and vice-versa. It tests the existence of causality. *a* indicates causality at the 1% level of significance. For a one-lag equation, the *t*-test is used; for lags exceeding one, the *F*-test of joint significance is used. Direction is obtained by summing the coefficients on the causal variable, if causality exists. Lag is the length of the regressors in Equations (1a) and (1b). *Q* is the Ljung-Box test of serial correlation in the residuals; the values reported are prob-values. *H* is the prob-value of White's (groupwise) heteroscedasticity test.

17. A referee pointed out that the causality test can allow for the presence of cointegration; see, for example, Toda and Phillips (1993). It will be interesting to consider such a test in subsequent work and extensions of this study.
18. The results were inconclusive when economic output was constructed as GDP per capita, and DFI was measured as a ratio of direct foreign private investment to gross domestic investment. Also, the results were inconclusive when the variables were constructed in growth rates form.

As expected, GDP has a positive impact on DFI in the IE country. A plausible reason is that the strategy of DFI for exports is consistent with trade liberalization policies that are typically pursued as economic performance improves. For instance, the removal of export controls on outputs of DFI projects, and rebates on tariffs on imports for export-oriented investments. This finding generally supports Dunning's (1981) theory that in LDCs economic development should increase inward DFI. However, the results of this study indicate that in the early stages of economic development countries are more likely to attract mostly DFI for exports as their economies grow.

Also, as expected, the results for the IM country indicate that the response of market-development DFI to GDP is ambiguous. A negative impact is generally expected because when DFI takes the form of market-development, partly in response to an import-substitution strategy, an increase in economic performance is expected to cause a reduction in inward DFI. Karikari (1992), using a different database for Ghana, showed that from 1961 to 1988 higher economic performance did cause a slight decrease in inward DFI. However, as argued earlier, the potential negative effect can be offset by an increase in DFI for the local market, which results from a larger domestic market size or from endogenous protection. The ambiguous effect could also be due to the limited scope of trade liberalization as the economy improves. A selective liberalization of trade policies may not be enough to decrease or increase inward DFI.

We have argued that the link between DFI and economic performance implicitly depends on the promotion of trade liberalization policies as the economy improves. This is our suggested explanation. Of course, there may be alternative explanations. For example, in the IE group, a superior economic performance may yield a larger exportable surplus that needs to be processed and therefore DFI for processing exports is attracted. In fact, in Ivory Coast the percentage of processed coffee, cocoa, and timber logs increased from 13 percent of total exports in 1960 to 28 percent in 1970. The processing of agricultural raw materials contributed over 50 percent of value added in manufacturing between 1960 and 1974. (See Alschuler (1988)). And the phenomenal growth rate of agro-industries far surpassed the growth rate of import-substitution industries. These observations are consistent with our suggested explanation of the effect of economic growth on DFI for exports since the economy grew at an exceptional average annual rate of 9 percent between 1960 and 1970, followed by a 7 percent rate from 1970 to 1975. So, this study has attempted to show empirically that a relation exist between DFI strategy and economic performance. And we have offered what we believe is a plausible explanation. However, we hope that this study will encourage future research into the relationship between DFI strategies, trade strategies, and economic performance in LDCs.

In Tables 3B(i) and 3B(ii), the impact of DFI on GDP is positive in the IM country, but inconclusive in the IE country. The inconclusive effect may be due to the fact that protection still lingers in an IE country because outward orientation generally imply a gradual reduction in anti-export bias, but not complete removal of all government intervention in trade. The protection will therefore limit the impact of DFI for exports on economic performance. Thus a policy of selective trade liberalization by a country which is initially inward oriented could reduce the impact of DFI on the economy, compared to complete liberalization. On the other hand, DFI in an inward-oriented country is not constrained in fulfilling its role of reducing

the savings and foreign exchange gaps. The results in Tables 3B(i) and 3B(ii) also suggest different relationships between DFI and economic performance in the IE and IM countries. DFI increases economic performance in an IM country while higher economic performance promotes DFI in an IE country.

V. Conclusion

Direct foreign investment is an important input into the development process in LDCs because of the lack of capital for investment. The results from previous studies suggest a two-way causality between direct foreign investment and economic performance.

Using data for selected Sub-Saharan African countries, from the 1960s to 1980, it is shown that the impact of higher economic performance on direct foreign investment depends crucially on the strategy of the investment. Specifically, export-oriented DFI responds positively to higher economic performance because such investments are consistent with trade policies that are usually promoted when the economy grows. But, if DFI takes the form of market-development in response to an import substitution strategy, higher economic performance has an ambiguous effect on DFI. On the other hand, it is found that DFI improves economic performance especially in the country that attracts DFI for import substitution because there are fewer biases against such investments.

In the last few years inward DFI has swung back towards the LDCs, from the countries in the "triad" of the U.S., the European Community, and Japan. And, many LDCs are reforming their economies by liberalizing trade and permitting DFI. The results from this study suggests that these policy changes in the LDCs will attract mainly DFI for exports as their economic performances improve. Furthermore, to the extent that market-development DFI is largely associated with inward-oriented strategies and export-oriented DFI is largely associated with outward-oriented strategies in LDCs, an important implication of this study is that as an economy grows inward orientation policies could hurt the inflow of direct foreign investment while outward orientation policies could promote direct foreign investment.

Finally, as in statistical analysis involving economic relationships, the results of this study are only suggestive because the relationship between DFI and economic performance may be spurious due to the omission of important variables. The study is based on limited theoretical foundation and is also limited by data considerations. It should therefore be regarded as an attempt to shed some light on the interesting and complex link between DFI strategies, trade orientation, and economic performance.

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