Spillover Effects on Manufacturing Value-Added (MVA) and Economic Growth Activities

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Developing countries seek to attract multinational firms to build modern manufacturing industries, and especially to get access to knowledge and modern technologies. Foreign Direct Investment (FDI) can influence host country's macroeconomic performance, can improve host country's absorptive capacity, and can be a source of spillovers (IMF, 1997; UNCTAD, 2000). We conducted the ordinary least square (OLS) regression analyses to determine if FDI has emerged as a source of spillover effects on host country's economic growth and value-added activities for the Sub-Saharan African (SSA) countries. To test the presence of spillovers, we measured the impact of education (absorptive capacity), trade (openness), and FDI on economic and manufacturing value-added (MVA) activities. We found that independent variables do not always exert a positive effect on economic and manufacturing growth activities. We concluded that improving conditions that are conducive to FDI may experience economic growth and spillovers in manufacturing value-added activities.

Keyword: Multinational enterprises (MNEs), foreign direct investment (FDI), spillovers, manufacturing value-added (MVA), economic.

1. Introduction

Multinational enterprises (MNEs) have played an important role in the transmission of capital, technology and knowledge, manufacturing strategies and value systems, and especially in the development of emerging economies. The literature on foreign direct investment studies shows strong evidence of spillover benefits that accrue to host countries, see Blomstrom (1989) for Mexico, Caves (1974) for Australia, Globerman (1979) for Canada, Mansfield and Romeo (1980) for the United States, Liu (2002) for China, and Sinani and Meyer (2004) for Estonia. These studies have concluded that FDI increases domestic productivity levels, and that FDI enables the transfer of technology know-how, managerial knowledge, and marketing skills. However, other scholars have argued that FDI creates distortions in the domestic market, and that effects of spillovers are not automatic, but are affected by economic and technological as well as sociological factors (Kokko 1996). While some empirical studies on developing countries show negative spillover effects (Aitken and Harrison 1999) on Venezuela, Kathuria (2000) on India, Konings (2001) on Bulgaria and Romania), other studies have found insignificant spillover benefits: Haddad and Harrison (1993) on Morocco, Djankov and Hoekman (2000) on Czech Enterprises and Kluger (2001) on Columbia.

In light of these conflicting studies, an empirical study of spillover effects in sub- Saharan African (SSA) countries would be a valuable contribution to knowledge about FDI spillover and its particular impact on host economies. This study is of special importance because Africa as a whole and SSA particularly are still under-researched in the international business arena. Published empirical studies on spillover effects on growth and value-added activities that focus exclusively on SSA as a whole are almost nonexistent. Therefore, the study of international technology spillover effects on productivity and economic growth, and on value- added activities in the industrial and manufacturing sectors for the economies of SSA, is an important contribution to the international business and industrial literature.

Studies on technology diffusion across developed countries have been reported by Howitt (2000), Parente and Prescott (2000), Gross and Helpman (1991), and Eaton and Kortum (2001). Our study emphasizes best practices spillovers in the manufacturing sector, because this is the sector where international technology diffusion is most likely to materialize. This paper investigates the effect of multinationals on host countries' economic growth and tries to determine whether host countries have benefited from WCM strategies and best practices, marketing and management skills, and other intangible benefits brought by multinational enterprises. Specifically, we wish to examine whether foreign direct investment and trade are potential sources of spillovers in the SSA. We conclude with recommendations as to what SSA countries must do to improve environmental factors that affect and attract FDI inflows, and especially world-class multinational companies.

2. Spillovers

Multinationals are important vehicles of technology and skills, management methods, and training which serve as powerful forces for economic growth and development in host countries. Investment made by multinationals in developing countries can lead to the transfer of best practices, marketing skills, and knowledge to local firms. In turn, best practices, knowledge, and technology transfers can lead to quality and productivity growths, as well as to other positive externalities (Graham 1996). FDI is associated with the host country's economic growth activities in different ways: First, foreign firms bring their best technologies, management techniques, and marketing expertise to the local market, and can affect economic growth in a favorable way. Second, because foreign firms want to maximize their profits by competing and trying to outperform local or international rivals, they also increase competition in the host country. This increased competition is often accompanied by the so-called 'spillover effect' in the manufacturing industries. Finally, multinational enterprises may improve the productivity of local firms when providing technical and training assistance to improve a supplier's product quality and other requirements (Smarzynska 2002). The transfer of knowledge or technology (Caves 1974) and the training of labor (Buckley and Casson 1976) increases manufacturing productivity. Foreign firms also help increase the productivity and product quality of local suppliers, and consequently provide better use of economies of scale for domestic firms (Ozawa 2000). Ozawa (2000) states also that multinationals bring knowledge and technology skills, which serve as powerful forces for economic development and social upgrading, and that countries can mutually benefit from interactions with each other in terms of trade and investment opportunities.

The presence of multinational enterprises does not automatically guarantee positive spillover effects. In a study of 88 multinational subsidiaries spread across six countries, Lall (1977) found that FDI had a negative impact in one-third of the cases, while two-thirds of the cases ex-

perienced a positive impact. Some empirical studies at industry level have found positive associations between foreign presence and sectoral productivity (Caves 1974; Globelman 1979; Blomstrom 1983; Blomostrom and Wolf 1994). Haddad and Harrison (1993) in Morocco, and Aitken and Harrison (1999) in Venezuela have not found a positive correlation between foreign presence and productivity of local firms based on firm-level panel data. A recent study by Smarzyka (2003) found a positive correlation between productivity spillovers and vertical linkages in transition economies.

Whether or not any particular foreign investment will be beneficial or detrimental to the host country depends on several host country characteristics, such as: investment climate, technological and overall economic factors, infrastructure and cultural differences, and absorptive capacity (Blomstrom 1989; Blomstrom and Kokko 1998). Cohen and Levinthal (1989) and Burger (1999) emphasize that firms that invest in training and technology will obtain additional learning over time as they achieve comparative advantages in external knowledge exploitation capabilities.

In light of these conflicting studies, the question stills remains as to what extent multinational enterprises' activities in the countries of SSA have affected economic growth and value-added activities. This research explores these issues by studying the impact of foreign direct investment, trade, and absorptive capacity on economic and manufacturing value-added growth activities on the host economies. We assume that spillover effects are directly or indirectly reflected in GDP growth, as well as in manufacturing value-added activities.

3. World Class Manufacturing (WCM) Best Practices

Hayes and Wheelwright (1984) were the first to use the term 'world class manufacturing' (WCM). They described WCM strategies as a set of best practices that lead to superior performance. This has been echoed by Voss (1995), who describes WCM as a subset of the 'best practices' paradigm of operations strategy. Schonberger (1996) states that the application of WCM strategies leads to superior customer service, higher quality, continuous improvement, employee involvement, benchmarking, and just-in-time delivery (JIT). Schonberg (1996) defines WCM strategies as manufacturing practices that focus on improving operations and productivity, strive to eliminate waste, create lean organizations, and commit to continuous quality improvement. Hayes and Wheelwright (1984) summarized WCM practices as improving workforce skills and capabilities, providing management technical competence, competing through quality, developing true workforce participation in management, developing internal manufacturing engineering capabilities, and focusing on incremental manufacturing improvement approaches. Monplaisir (1995) stressed the role and importance of such manufacturing strategies as JIT manufacturing, flexible and lean manufacturing, cellular and concurrent engineering, and agile manufacturing. Table 1 lists some of the strategies and best practices associated with being world class.

The application of WCM strategies by multinationals is a particular channel for spillovers through the linkages between the MNE affiliates and local suppliers, as well as customers. Lall (1980) states that MNE and supplier interactions help increase the productivity and efficiency of local firms in different ways: by demanding reliable high-quality products delivered on time; by training and providing management expertise; by providing technical assistance, i.e., information to suppliers that can help improve product quality and innovation. Findlay (1978) argued that the rate of technological progress in the host country is increased through a contagious effect from the more advanced technology, marketing and management practices used by foreign affiliates,

that improvements in technology, efficiency, and productivity stimulate growth, and that the contribution of FDI to growth is the result of technology and manufacturing best practices spillovers. We assumed that the adoption of WCM best practices would affect host country's economic and value-added growth activities.

Table 1 Manufacturing Best Practices

Automated Storage/Retrieval Systems	Kanban System
Cellular manufacturing	Manufacturing Rationalization
Computer-Aided Design	Material Requirements Planning
Computer-Aided Manufacturing	Modular Design and Construction
Computer-Integrated Manufacturing	Quality Circles
Concurrent Engineering	Robotics
Design for Manufacturability	Statistical Process Control
Flexible Manufacturing Systems	Synchronous Manufacturing
Just-in-Time Delivery	Synchronous Balanced Loading
Just-in-Time Inventory Control	Target Pricing and Costing
Just-in-Time Manufacturing	Total Preventive Maintenance
Lean Manufacturing	Total Quality Control

4. Factors that Affect Knowledge Transfers

The presence of multinational enterprises alone does not automatically guarantee positive spillover effects. In the FDI literature, several factors have been found to affect the size and nature of foreign direct spillovers, including host country characteristics such as political and legal factors, technological and overall economic factors, infrastructure, and cultural differences (Blomstrom 1989; Blomstrom and Kokko 1998). Our study emphasizes the importance of factors such as the absorptive capacity base in the host country, and the degree of trade openness in the economy (Balasubramanyan *et al*. 1996 and 1998; Borensztein et al 1998; Weinhold 2001) that affect spillover effects. Thus we examine the effects of FDI, trade, and absorptive capacity on economic and manufacturing value-added growth activities.

4.1 Absorptive Capacity

Absorptive capacity has not received much attention in SSA countries, and is yet to be fully investigated. In this study, we assume that if FDI is efficiently absorbed, it will have some measurable positive impact on the host economy's productivity growths, such as GDP per capita and manufacturing value-added. The literature on absorptive capacity emphasizes the importance of the host country's or recipient's own learning capabilities, such as human capital to benefit from technology and knowledge transfers by multinationals (Lall 1996). Zahra and George (2002) state that host country or local firms need to develop internal capacities, and invest in learning and R&D in order to experience spillover benefits. Nelson and Phelps (1966) argue that an adequate level of educational infrastructure and human capital is necessary before foreign technology beneficially influences domestic productivity. For example, the ability of Asian economies to absorb foreign technologies is due to their educated and skilled labor force (Nelson and Pack 1999). Other studies on multinational spillovers state that the level and efficiency of a host coun-

try's social infrastructures, education, and training of local workforce should positively impact linkage creation (Dunning 1993).

Coe et al. (1997) found an interaction effect between foreign R&D stocks and education levels, and concluded that a highly educated workforce is more likely to use advanced foreign technologies effectively. Borensztein et al. (1998) and Xu (2000) find a threshold level of human capital that is necessary for foreign direct investment to exert beneficial effects on growth. FDI affects and stimulates the economic growth of host countries, and at the same time promotes trade (Xu, 2000). In this study, we define absorptive capacity as a firm's ability to value, assimilate, and apply new knowledge, or as the limit of knowledge and technological information that a firm can absorb. We believe that absorptive capacity determines the effectiveness of technology and knowledge transfers and the contribution of FDI to a host country's efficiency.

Dunning (1981) states that human capital development impacts FDI inflows positively. A well-educated, trained, and capable skilled labor force in private and public sectors is internationally competitive and facilitates FDI spillovers (Schneider and Frey 1985).We chose to approximate human capital development by the host country's gross secondary school enrollment, because the literacy rate by itself does not show whether pupils actually have professional qualities desirable for private investors (Gudlach 1994). UNESCO (2004) defines gross secondary school enrollment as 'the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers.' Gundlach (1994) argues that a true human capital measurement ought to indicate a population's attainment of skills and knowledge. However, due to the unavailability of data on labor forces that have completed secondary or tertiary education, we chose gross secondary percent enrollment instead to estimate absorptive capacity.

4.2 Trade

Trade is an important determinant of foreign investment, because it creates openness to the rest of the world (Markusen 1995). The effect of trade on FDI is complex, that trade deficits may stimulate inward FDI, while surpluses indicate a strong economy and may encourage FDI inflows (Yannopoulos 1990; Torrisi 1985). Ellingsen and Warneryd (1999) argue that trade can induce more foreign investment by establishing production facilities, even for countries that are more protective. Trade can facilitate FDI by persuading firms to unbundled their production processes and distribute the components to local markets (McKeown 1999). Coe and Helpman (1995) state that international trade facilitates technology spillovers across economies and transmission of knowledge and technology across borders, and can improve a country's growth rate by importing knowledge from more advanced countries and by attracting more FDI.

Because innovation and R&D activities are limited in most SSA countries, it is primarily through trade with developed countries that SSA may profit from higher levels of technological development. A country's trade orientation may stimulate and attract FDI, and can affect a country's industry and manufacturing sectors (Jun and Singh 1996). Countries improve economic growth rates through international trade, and we hypothesized that economic and manufacturing value-added growth depends on trade openness. 'Trade is defined as the sum of exports and imports of goods and services measured as a share of gross domestic product,' (WDR 2004). The larger the share of exports and imports in GDP, the more likely for a country to have an open economy

(Harrison and Revenga 1995). Thus we assume that trade is positively associated with FDI spill-over effects.

4.3 Foreign Direct Investment

World Bank (2004) defines FDI as the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is also the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. We use FDI as percent of GDP, because it allows us to adjust the level of foreign investment for the size of the host country's economy. Thus, normalizing the level of investment is useful because the size of a country's GDP is relevant to the amount of FDI that it receives, and allows us to compare the level of FDI between countries.

5. Methodology

The objective of this study was to analyze and investigate the effects of FDI, trade, and absorptive capacity on economic growth and manufacturing value-added activities. Data collection, the research instrument, hypotheses, and analysis results are presented in the following sections.

5.1 Data

The data assembled for this study covers the period 1990 to 2002. We collected data on annual FDI (percent GDP), GDP per capita growth rate, manufacturing-value added percent growth, and absorptive capacity as measured by education (secondary percent gross enrollment), and trade (percent GDP) from the World Bank's development indicators database.

5.2 Hypothesis

The extensive theoretical literature on the mechanisms by which the inflow of FDI, trade or degree of openness, and absorptive capacity enhance the flow of technology across frontiers was discussed in previous sections, and we carried out this study at country level. The objective was to investigate and to test the impact of spillover effects on economic and manufacturing-value added growth. Therefore, the dependent variables for growth models are GDP and MVA growth, and the independent variables are FDI, trade, and absorptive capacity (education). We hypothesized that manufacturing value-added and economic growth activities are impacted by absorptive capacity, trade, and FDI. We constructed our models using both the Pearson product correlation and the Ordinary Least Square (OLS) regression methods.

5.2.1 Hypothesis 1(H1): Economic Growth Model (GDPGROWTH)

We hypothesize that Gross Domestic Product per Capita percent Growth (GDPCGROWTH) for country i (i = a SSA country) will be a function of FDI (percent GDP), trade (percent GDP), and absorptive capacity (percent secondary education enrollment). Algebraically, the model is stated as follows:

H1: $GDPCGROWTH_i = \beta_0 + \beta_1(FDI) + \beta_2(Trade) + \beta_3(Education) + \varepsilon_1$

where GDPCGROWTH is GDP growth per capita (annual percent growth), FDI is foreign direct

investment expressed as percent GDP, trade is trade as percent GDP, and education is percent secondary school enrollment. Note that β_0, β_1, β_2, β_3 are coefficients of regression, and ε_1 is a residual of regression. The economic growth hypothesis is similar to that of Borensztein, de Greprio, and Lee (1998) and Easterly (2001).

5.2.2 Hypothesis 2 (H2): Manufacturing Value-Added (MVA) Growth Model

Manufacturing Value-Added percent Growth (MVAGROWTH) for country i will be a function of FDI (percent GDP), trade (percent GDP), and absorptive capacity (percent enrollment secondary education). Algebraically, the model is stated as follows:

H2: MVAGRO WTH = $\chi_0 + \chi_1(\text{FDI}) + \chi_2(\text{Trade}) + \chi_3(\text{Education}) + \varepsilon_2$

Where MVAGROWTH is manufacturing value-added growth (annual percent growth), FDI is foreign direct investment expressed as percent GDP, trade is trade as percent GDP, and education is percent secondary school enrollment. Note that χ_1, χ_2, χ_3 are coefficients of regression, while ε_2 is a residual of regression.

The manufacturing sector was chosen because it is a major structural component and significant indicator of a host country's economy activity. MVA is an economic growth determinant and reflects the availability of human resources and capital. MVA is a cornerstone of WCM strategies, and the development of the manufacturing sector is one of the driving forces associated with sustainable development progress. Data on manufacturing value-added are presently compiled in accordance with the UN International Standard Industrial Classification (ISIC) Revision 3, and are in current U. S. dollars. 'MVA refers to industries belonging to ISIC divisions 15-37. Value-added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources,' (WDR, 2004). Manufacturing value-added is also an indication of a country's absorptive and technological capabilities, and we hypothesize that manufacturing value-added growth depends on: FDI inflows (percent GDP), trade openness (trade percent GDP), and absorptive capacity (education: percent secondary school enrollment).

Table 2: Spillover Hypotheses

Model	**Dependent Variable**	**Independent Variables**
<u>Hypothesis 1</u> GDP per Capita Growth Model (GDPGROWTH)	GDP per Capita Growth (annual % growth)	Education (School enrollment, secondary % gross) FDI (% GDP) Trade (% GDP)
<u>Hypotheses 2</u> Manufacturing Value-Added Growth Model (MVAGROWTH)	Manufacturing Value-Added (annual % growth)	Education (School enrollment, secondary % gross). FDI (% GDP) Trade (% GDP)

6. Results

Regression findings are discussed in this section. We used ordinary least squares regression methods to determine the estimated regression line and to predict the value of the response variable or combination of values of the predictor variables. The goodness-of-fit statistics such as R-square, adjusted R-square, and standard error of the estimate were used to determine whether or not the overall model contributes information for the prediction of the dependent variable. However, the F-test statistic, with supporting measure of reliability $\alpha < 0.10$, was used to make inferences about the overall adequacy of the estimated regression model. Coefficients having p-values less than 0.10 (p-value < 0.10) were assumed to be statistically significant. T-test and two- tailed p-values were also noted to address the ability of each individual independent variable to predict the dependent variable.

In the previous sections, we hypothesized that each of the growth models is a function of FDI, trade, and absorptive capacity. We performed OLS regression analysis between the dependent variables (GDPCGROW-GDP growth per capita, MFGVAGRO- manufacturing value-added growth), and the independent variables (FDI expressed as percent GDP; TRADE as percent GDP; EDUCATION as percent secondary school enrollment).

6.1 GDP per Capita Growth (GDPCGROWTH) Model

The GDP growth model was based on the assumption that FDI, absorptive capacity, and trade have positive impacts on economic growth. However, the regression analysis showed that the model did not significantly predict any spillover effects in terms of GDP per capita growth on more than fifty percent of SSA tested. Overall, the GDP growth regression model significantly predicted spillover effects in only thirteen countries out of twenty seven tested. In terms of individual independent variables, FDI, trade, and absorptive capacity were significant in five, ten, and four countries respectively. Note that SSA includes at least forty seven countries, but due to unavailability of data, we only ran regression analyses for twenty seven countries.

Table 3: Example of Regression Analysis Results (Kenya)

	GDP per Capita Growth (GDPCGROWTH) Model	MVA Growth (MFGVAGROWTH) Model
Constant	9.471 (0.237) [1.292]	20.571 (0.012) [3.339] **
FDIGDP	0.075 (0.953) [0.061]	-0.428 (0.691) [-0.415]
TPERGDP	-0.007 (0.906) [-0.122]	-0.056 (0.304) [-1.108]
EDUCATIO	-0.349 (0.087) [-1.993] *	-0.539 (0.008) [-3.654] ***
R-Square	0.395	0.660
Adjusted R-Square	0.135	0.514
Std. Error Estimate	1.520	1.278
No. of Observations	11	11
Degrees of Freedom	10	10
F-statistic	1.520	4.531 **
Significance	(0.291)	(0.046)

p-values in parenthesis; t-values in brackets

*** = Significant at 99 percent confidence interval ** = Significant at 95 percent confidence interval

6.2 Manufacturing Value-Added Growth (MFGVAGROWTH) Model

We hypothesized that the MVA growth model is a function of FDI, trade, and absorptive capacity (education). The regression results suggest that the model significantly predicted the dependent variable (MVA growth) in thirteen countries out of 27 SSA tested. Overall FDI, trade, and education were significant in four, three, and seven cases (countries) respectively.

7. Summary and Conclusion

The purpose of this study was to examine the role that FDI, trade, and human capital play in affecting economic and manufacturing growth activities in SSA countries. The economic theory of FDI argues that foreign capital fosters economic growth, and that the presence of multinational companies is associated with positive externalities. Like previous studies, the results of this study show mixed results, and we found conflicting evidence regarding the impact of multinational enterprises and FDI on economic growth activities for SSA the countries. We found that FDI inflows do not always exert a positive effect on economic growth activities. This does not imply that FDI inflows are unimportant for economic growth and value-added activities, but the appropriate inference is that our findings should be viewed with skepticism, because there are many other studies that confirm the positive and significant effects of FDI on economic growth, and models that assume homogeneity across countries should be regarded with caution.

The coefficients of control variables were often negative and sometimes significant. Indeed, most variables turn out to be insignificant and sometimes have negative signs in the equation. The low levels of percentage of people who have completed secondary school and low levels of FDI inflows may have contributed to the negative, although sometimes insignificant, effects on growth activities. Therefore, SSA countries still need high levels of human capital to exploit technology and knowledge spillovers associated with FDI. Results with negative coefficients should be treated with caution, and further research is needed to understand the factors that lead to such results across countries. Even though spillovers could have been weakened by low levels of human capital and type of FDI, multinational companies may have contributed more to imports than to exports. Most SSA countries including in SSA are still net importers of manufactured goods, and manufacturing exports have consistently exceeded manufacturing value-added. Even in the manufacturing sector, SSA countries are probably still confined to labor-intensive processes that involve low-skilled assembly-type operations. Therefore, it may be misleading to look simply at the nature of the final manufactured product, because much of the value-added activities do not accrue in this process. Most developing countries compete with each other by virtue of their cheap labor, rather than by any other criterion. Consequently, FDI-based exports that rely on intensive labor may not provide sustained economic growth, and it is not surprising that increased manufactured volumes are not translated into higher real value-added growth.

Our study focuses on manufacturing value-added activities and emphasizes the creation, acquisition, and transmission of knowledge by multinational enterprises across international boundaries. Regression results show a negative correlation between education and MVA spillover measures, and this confirms that a low level of education does not foster spillover benefits. Countries need to develop educated and skilled people who can learn and use knowledge, technology, marketing and management skills brought by multinational enterprises. SSA countries need to foster a dynamic infrastructure environment and develop effective communication sys-

tems; create innovative research centers and collaborate with universities; and try to acquire WCM strategies and assimilate them to local needs.

Some of the East Asian and Latin America economies provide a good case of countries that have benefited directly or indirectly from FDI. Those countries have increased employment and technology know-how, training, and education. They are now integrated into the global market, and because of spillover benefits, they have improved their international competitiveness and human development index, economic growth, and composite international country risk rating. SSA countries should focus their policies on making effective use of WCM strategies for economic and social development. Then countries can gain substantial economic growth and technology spillovers by choosing free trade investment policies, by attracting multinational companies, and by developing human capital.

To attract more FDI and to be able to compete in the globalization era, SSA governments must improve their policies, establish a regulatory framework, eliminate corruption, and improve communication and infrastructure. It is evident that FDI spillovers are affected by government policy. Policies that discourage, constrain, and regulate FDI, will prevent spillover benefits, while policies that encourage FDI will facilitate technology transfer, and therefore potential spillover benefits**.**

8. Further Work

In addition to secondary school percent enrollment, such other measures as human development index, tertiary enrollment, number of scientist and engineers, number of skilled workers who have completed at least two years of college, could be used as metrics of absorptive capacity, and for the testing of spillover effects once they are available. In this study, we assumed that spillover benefits depend heavily on FDI inflows. However, disaggregated FDI data are particularly vital, because host country benefits depend specifically on the type of investment made. Therefore, further research on spillover using disaggregated data would be a valuable contribution, and most desirable.

Further research on the use and application of WCM strategies by multinationals and their subsidiaries in SSA, using both surveys and questionnaires to elicit information on quality, cost, flexibility, and reliability and innovation improvements, is needed to investigate spillovers in the manufacturing sector.

Moran (1998) argues that a host country's investment climate is an important determinant of the magnitude of spillovers. He suggests that a liberal investment climate attracts more dynamic FDI that exhibits the best management practices. Moran (1998) also suggested that a stable and friendly investment climate encourages export-oriented operations that are integrally tied into the MNEs' global sourcing and operations, and that it is in the best interests of the parent firm to provide its affiliates or subsidiaries with the newest and best technology, and persistent training and continuous improvement in the areas of quality control and development of human resources management. Hence it will be useful to investigate the effect of investment climate, such as political risk and FDI risk on economic and value-added activities, or if the absence of spillovers in some SSA countries may have been the result of government restrictions on foreign investors.

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