



# International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531  
(Print & Online)

<http://gssrr.org/index.php?journal=JournalOfBasicAndApplied>



---

## Foreign Direct Investment and Productivity Growth of Ghanaian Manufacturing Firms

Ronald Essel\*

*University of Cape Coast (UCC), College of Distance Education (CoDE), University Post Office, Private Mail  
Bag (P.M.B), Cape Coast, 03321, Ghana  
Email: [esselronald@yahoo.com](mailto:esselronald@yahoo.com)*

### Abstract

This paper examines foreign direct investment (FDI) effect on the productivity of local manufacturing firms in Ghana. By using a firm level panel data of eight subsectors in the Ghanaian manufacturing industry covering the period, 1992 - 2003, the paper examines labour productivity of local firms by following the methodology of Kohpaiboon (2005) which begins with the Cobb Douglas production function. Appropriate diagnostics are carried out for the adoption of the models for the empirical estimation. The regression results revealed a significant FDI effect on local manufacturing firms' productivity. It was found that there is a direct link between FDI and productivity of local manufacturing firms in Ghana. All the key variables of the productivity model, i.e. FDI, capital stock, technological spillover and quality of labour had positive effect on local manufacturing firms' productivity. This means that with more FDI inflows, local firms are able to have the needed funds to invest in technology to improve upon productivity, more funds to invest in labour for them to acquire the needed skills to improve upon productivity and more funds to increase their capital to improve upon productivity. All the control variables included in the regression models, i.e. firm age and firm size, proved to have significant effects on local manufacturing firms' productivity. This means that larger firms in the Ghanaian manufacturing industry are likely to perform better than smaller firms. Firms which have been in existence for long (older firms) also have the potential of performing better than firms which have not be in existence for long (newer firms). This is because firms gain experience as they stay for long in the manufacturing industry. They are able to learn from their mistakes and perform well. The findings of this study have relevant implications for government economic policy.

**Keywords:** Foreign direct investment (FDI); Ghana; Labour productivity; Manufacturing firms.

---

\* Corresponding author.

## **1. Introduction**

Foreign Direct Investment (FDI) is a transaction in which an investor based in one country acquires assets in another country with the intent to manage that particular asset [1]. FDI has been viewed as a major stimulus to economic growth in developing and less developed countries (LDCs). FDI is considered beneficial not only because it brings in much-needed capital, but generates employment and presumably contributes to enhanced economic growth as it provides access to advanced technologies and spillovers, technological or otherwise, especially in local manufacturing industries [2, 3]. Enticing multinational enterprises (MNEs) to set up affiliations is placed high on the policy agenda in many countries, especially developing ones, as their entry would bring in much-needed capital, new production technologies, marketing techniques and management know-how all of which would stimulate economic growth [4]. Whilst all of these potential benefits of FDI are viewed as important, particular emphasis is placed on technological gains in the productivity and competitiveness of the domestic industry. As a result, the expectation of gaining from technological externalities or spillovers associated with FDI, persuades many developing and LDCs to offer various incentives in order to attract FDI [4].

Until the 1970s many developing countries – in Latin-America, South-East Asia as well as Africa– were rather reluctant towards foreign investment and pursued a policy of import substitution [5]. But during the past three decades – mainly as a result of Structural Adjustment Programs (SAP) that started in the late 1970s – most developing countries have opened up their economies [6]. As part of the liberalization policies and stimulated by international donors such as the World Bank and the IMF, low income countries are increasingly adopting policies to attract FDI. Such policies are based on the belief that FDI could contribute importantly to the growth and development of these nations [7].

The relationship between FDI and economic growth has been and continues to be a subject of considerable academic and research interest. While economic theory univocally predicts a positive impact of FDI on economic growth, empirical evidence is mixed. Much of the empirical research findings in this area have produced differing opinions and results. Some authors have found that an increase in FDI to a country leads to increased economic growth while others have found either the reverse or no relationship at all [8]. The empirical results vary largely across countries, sectors and firms. This indicates that the impact of FDI on host country economy is very heterogeneous and conditional on diverse factors, some of which include the type of FDI, country specific trade policy regime, macroeconomic stability, the sector and the technology gap between the foreign investor and the host economy (i.e. the absorptive capacity of the host economy). There is therefore limited comprehensive country specific research studies to establish the relationship, and the interaction between FDI and productivity growth with specific emphasis on the manufacturing industry.

This research is therefore motivated by this observable fact. For Ghana, there is limited empirical study that has been undertaken to establish the linkages. This study therefore seeks to examine the linkages between FDI and productivity with country and sector specifics (manufacturing industry of Ghana). In Ghana, there has been a much more liberalized regime for FDI, addressing investors' concern, privatizing public enterprises and actively promoting investment, all of which are geared towards creating an enabling environment to boost investor

confidence. Also a number of policy initiatives such as the adoption of the SAP and Economic Reform Program (ERP) have been made in an attempt to promote FDI. The government has promised a golden age for business and this pro-business attitude is believed to provide assurance to foreign investors [9]. The current government since its inception into office in January 2017 has pledged to stimulate economic growth and development via public private partnership (PPP) involving both local and foreign investors.

In Ghana, the principal law on FDI is the Ghana Investment Promotion Centre (GIPC), Act (Act 478), which was established in 1994 and governs investments in all sectors of the economy, except the mining and mineral industry [which is governed by the Minerals and Mining Act of 1986 as amended in 1994 and managed by the Minerals Commission] and the oil and gas industries [which is governed by the Petroleum, Exploration and Production Provision of 1984 (P.N.D.C. L84) which is administered by Ghana National Petroleum Corporation (GNPC)]. The birth of the Ghana Free Zones Program (GFZP), came with the establishment of the Ghana Free Zones Board (GFZB) in August 1995 by an Act of Parliament — The Free Zones Act, 1995 (Act 504), which was instituted to encourage and promote investment in specific sectors of the economy as tax reliefs and exemptions are applied to business entities operating in such zones.

The Ghana Free Zone Program (GFZP), Ghana Gateway Program (GGP) and Ghana's vision 2020 development program (GV2020DP) are some, of the implementing programs under the Ghana Free Trade and Investment Gateway Program (GFTIGP) which, was designed to create an atmosphere that promotes the injection of foreign capital and resources, lowers the cost of doing business in Ghana and provides infrastructural services of international quality to investors. An appreciation of the impact of FDI on Ghanaian manufacturing firms is important to policy makers and FDI's ability to increase labour productivity and create positive technological spillover effects on domestic firms will be a vital stimulant to the government to reduce bottlenecks and boost more FDI inflows.

The major constriction the study envisages is access to current data. The study employed the Regional Programme on Enterprise Development (RPED) data whose newest wave is 2002. Ghana has experienced many new developments since 2002. These include "seat of government change-over" and changes in the macroeconomic indicators or variables such as inflation, interest rates, depreciation of the domestic currency, GDP among others. This study foresees that this constraint may not give out findings which are consistent with the current economic situation in Ghana. The rest of the paper is organized as follows: Section 2 discusses the general pattern of FDI flows beginning with the global trend, African trend and the Ghanaian trend. Section 3 discusses relevant literature on FDI and productivity growth. Section 4 outlines the materials and methods deployed for the study. Section 5 discusses the results. Section 6 concludes with some recommendations.

## **2. General pattern of FDI flow**

### ***2.1 The Global Trend***

FDI is recognised in many quarters as a key driver of economic growth, particularly in developing economies which account for an ever-increasing proportion of global FDI inflows. It is in this light that most countries

especially developing ones have adopted initiative programs to encourage FDI inflows into their respective economies. [10] reported that, world FDI flows grew strongly in rates well above those of global economic growth or trade. According to [10] the recorded world inflows of FDI, increased by an average of 13% a year during 1990-97. During 1998-2000, the average increment of the world inflows of FDI was nearly 50 % a year. World FDI inflows reached a figure of US\$1.5 trillion in 2000, the highest as at the time. This massive rise in FDI inflows across the world was largely driven by large cross-border mergers and acquisitions (M&As) as well as improved macroeconomic conditions, strengthened profits of Transnational Corporations (TNCs), boosted stock market valuations, rising business confidence and a general worldwide favourable policy climate. World FDI inflows fell to US\$0.7 trillion in 2001. The sudden drop in FDI flows in 2001 is related to depressed stock market sentiments and business cycles, both of which led to a massive decline in M&A's investments especially in the developed countries [11].

According to [12], global FDI inflows increased by 27% in 2004 and 29% in 2005, after three years of declining flows. This is not surprising as Multinational Enterprises (MNEs) and the international business community have realised the need and the accompanying benefits to be derived in investing their resources in lucrative business ventures around the world. The period from 2003 witnessed a consistent rise in global FDI inflow reaching a record high in excess of US\$2.0 trillion in 2008 [13]. The world recorded a cumulative FDI inflow of US\$1.19 trillion in 2009 [14]. This increased slightly by 9% to US\$1.30 trillion in 2010 and further by 16% to US\$1.52 trillion in 2011 [15]. According to [16], global FDI fell by 18% to US\$1.35 trillion in 2012. Economic fragility and policy uncertainty in a number of major economies gave rise to caution among investors. Furthermore, many TNCs re-profiled their investments overseas, including through restructuring of assets, divestment and relocation.

Global FDI flows however rose by 11% in 2013 to an estimated US\$1.47 trillion, up from a revised US\$1.35 trillion in 2012 [16]. This was due mainly to cross border M&A's which also increased by 5% in 2013. According to [17], Global FDI inflows fell by 16% in 2014 to US\$1.23 trillion, down from US\$1.47 trillion in 2013. The decline in FDI flows was influenced mainly by the fragility of the global economy, policy uncertainty for investors and elevated geopolitical risks. New investments were also offset by some large divestments. The decline in FDI flows was in contrast to growth in GDP, trade, gross fixed capital formation and employment. Global FDI inflows increased from US\$1.23 trillion in 2014 to US\$1.7 trillion in 2015 and further to US\$1.87 in 2016 [18] but declined by 23% to US\$1.43 trillion in 2017 [19]. According to [19], the fall in the 2017 FDI global inflows was cause in part by a 22% decrease in the value of cross-border M&As and in part by a 14% decline in the value of greenfield investment - an indicator of future trends. According to [19], projections for global FDI in 2018 shows fragile growth. Global flows are forecast to increase marginally, by about 5% to US\$1.5 trillion, but remain well below the average over the past decade. Higher economic growth projections, trade volumes and commodity prices would normally point to a larger potential increase in global FDI in 2018.

However, risks are significant, and policy uncertainty abounds. Escalations and broadening of trade tensions could negatively affect investment in global value chain. In addition, tax reforms in the US and greater tax competition are likely to significantly affect global investment patterns.

## **2.2 The African trend**

The years 2005, 2006, 2007, and 2008 witnessed inflows worth US\$36 billion, US\$50 billion, US\$62 billion and US\$72 billion, respectively. Year 2008 recorded the highest flow of FDI to the African continent. Inflows to Africa, which peaked in 2008 according to [13] were largely due to investments into the continent's extractive industries even though inflows also targeted consumer-oriented manufacturing and service industries. In 2009 however, the continent experienced a drop in FDI inflows by over 19% to US\$59 billion and a further decline by 50.8% to US\$29 billion in 2010. This decrease in FDI is particularly serious for the region, because FDI accounts for about a fifth of gross fixed capital formation [14]. This makes FDI an important source of technology transfer, jobs creation, revenue and an overall improvement in the living standards of people in the region. According to the [15], FDI inflows to Africa as a whole declined for the third successive year, to US\$42.7 billion in 2011. The decline in FDI inflows to the continent in 2011 was caused largely by the fall in North Africa; in particular, inflows to Egypt and Libya, which had been major recipients of FDI, came to a halt owing to their protracted political instability. In contrast, inflows to sub-Saharan Africa recovered from US\$29 billion in 2010 to US\$42.7 billion in 2011, a level comparable with the peak in 2008. A rebound of FDI to South Africa accentuated the recovery. The continuing rise in commodity prices and a relatively positive economic outlook for sub-Saharan Africa are among the factors contributing to the turnaround. The overall fall in FDI to Africa was due principally to a reduction in flows from developed countries, leaving developing countries to increase their share in inward FDI to the continent (from 45% in 2010 to 53% in 2011 in Greenfield investment projects).

FDI inflow into the African continent however increased by 31% to US\$56 billion in 2012. It dropped again by 3.6% to US\$54 billion in 2013 which figure the continent maintained in 2014. FDI declined further by 4.8% to US\$51.41 billion in 2015. FDI improved by 3% to US\$53 billion in 2016 and dropped again by 21% to US\$42 billion in 2017. According to [18] the decline in FDI inflows to the African continent since 2015 was due in large part to the lingering macroeconomic effect of the 2014-2016 oil price slump, with flows to commodity-exporting countries declining more so than to diversified economies. Moving forward the report suggested that Africa FDI inflows may strengthen by 20% in 2018 to US\$50 billion – as commodity exporting economies continue to recover from the commodity price slump.

## **2.3 The Ghanaian Trend**

Ghana is ranked 114<sup>th</sup> among 190 economies in the ease of doing business, according to the latest rankings of the World Bank Doing Business Report 2018. The rank of Ghana improved to 114 in 2018 from 120 in 2017. Ease of doing business in Ghana average 90.55 from 2008, reaching an all-time high of 120 in 2017 and a record low of 60 in 2010. According to [20], Ghana's abundant natural resources, fast growth trajectory and relative political stability augur for strong foreign investment inflows. Ghana witnessed fluctuating FDI inflows during the period, 1993–1999. After 1999, FDI inflows assumed a declining trend up to the year 2002 [9].

The country experienced an increase in FDI inflows during the periods, 2003 - 2006. The upsurge in FDI during the period, 2002–2006 could be attributed to government's economic policies, including the decision to join the

Heavily Indebted Poor Countries (HIPC) initiative in 2001, which helped in stabilising the economy as well as attracting more FDI into the country. Also, foreign investors were reassured by the strong pro-business attitude of the government – which promised a golden era for business [9]. Ghana's net FDI inflow rose steadily in 2003 from US\$137 million through to US\$4.9 billion in 2012 but dropped to US\$3.94 billion in 2013. The 2013 decline can be attributed to political uncertainty the nation went through during its eight (8) months of presidential election petition at the country's highest court (supreme court of Ghana) which resulted in most foreign investors adopting a "wait and see" attitude as against the normal practice of investing freely without any panic or apprehension [21]. FDI into the country increased to US\$4.7 billion in 2014 but declined to US\$3.2 billion in 2015. FDI increased again to US\$3.5 billion in 2016 but dropped again by 6.6% to US\$3.25 billion in 2017 [22]. According to [19], the decline in FDI in 2017 was attributed to fiscal consolidation and self-imposed reductions in government investment spending. Ghana is the fourth largest recipient of FDI in Africa according to [19]. Projections made by [19] suggest that in 2018, FDI inflows into Ghana should go up in view of substantial investment made by the Italian group Eni (with a 44% stake in Sankofa gas field) to develop the large gas field of Sankofa.

### **3. Literature review**

#### ***3.1 Theories of Foreign Direct Investment***

Theoretical studies on FDI have led to a better understanding of the economic mechanism and the behaviour of economic agents, both at micro and macro level allowing the opening of new areas of study in economic theory. To understand FDI, one must first understand the basic motivations that cause a firm to invest abroad rather than export or outsource production to national firms. The Internationalisation theory seeks to explain the growth of TNCs and their motivation for achieving FDI. The theory explains why, when external markets for supplies, production, or distribution fails to provide efficiency, companies can invest FDI to create their own supply, production, or distribution streams. The theory was developed by [23] and then by [24,25]. Initially, the theory was launched by [26] in a national context and [27] in an international context. In his doctoral dissertation, [27] identified two major determinants of FDI. One was the removal of competition. The other was the advantages which some firms possess in a particular activity [27,23], who founded the theory demonstrates that TNCs are organising their internal activities so as to develop specific advantages, which then to be exploited. Internalisation theory is considered very important also by [28], who uses it in the eclectic theory, but also argues that this explains only part of FDI flows. The idea of internalisation was developed by [24] when he developed models between the two types of integration: vertical and horizontal. Vertical FDI implies that the MNEs decomposes the production process into stages according to factor intensity whereas horizontal FDI implies that the MNEs locates production close to the final market, duplicating the production process and thus serving foreign markets by local production. The author of the concept of firm-specific advantages, Reference [27] demonstrates that FDI take place only if the benefits of exploiting firm-specific advantages outweigh the relative costs of the operations abroad.

The trend of FDI flow theory is another set of theories which seeks to explain why firms in the same industry often undertake FDI at the same time, and why certain locations are favoured over others as a target for FDI.

The observed pattern of FDI flows can be explained by the following theories. Following Competitors: One theory that explains FDI pattern is based on the idea that firms follow their domestic competitors overseas. First expounded by [29], the theory is based on oligopolistic industries. A critical competitive feature of such industries is interdependence of the major players. These firms tend to imitate each other's FDI strategy. The second theory that explains FDI pattern is based on the product life cycle hypotheses propounded by [30]. According to [30], firms undertake FDI at particular stages in the life cycle of the product they pioneered. They invest in other advanced countries when local demand in those countries grows large enough to support local production. They subsequently shift production to developing countries when product standardisation and market saturation give rise to price competition and cost pressures. Investment in developing countries is seen as the best way to reduce cost.

The eclectic paradigm developed by [28] is a mix of three different theories of FDI (O-L-I): 1. "O" from Ownership advantages: This refer to intangible assets, which are, at least for a while exclusive possesses of the company and may be transferred within TNCs at low costs, leading either to higher incomes or reduced costs. But TNCs operations performed in different countries face some additional costs. Thereby to successfully enter a foreign market, a company must have certain characteristics that would triumph over operating costs on a foreign market. These advantages are the property competences or the specific benefits of the company. The firm has a monopoly over its own specific advantages and using them abroad leads to higher marginal profitability or lower marginal cost than other competitors [28, 31, 32]. 2. "L" from Location: When the first condition is fulfilled, it must be more advantageous for the company that owns them to use them itself rather than sell them or rent them to foreign firms. Location advantages of different countries are the key factors to determining who will become host countries for the activities of the TNCs. 3. "I" from Internalisation: Supposing the first two conditions are met, it must be profitable for the company the use of these advantages, in collaboration with at least some factors outside the country of origin [28, 31, 32]. This third characteristic of the eclectic paradigm OLI offers a framework for assessing different ways in which the company will exploit its powers from the sale of goods and services to various agreements that might be signed between the companies.

Export theory is a culmination of a study by [33], who investigated the nature and causes of wealth of nations. The underlying argument of the export theory is that "countries need to export goods and services in order to generate revenue to finance imports which cannot be produced indigenously"[34, 35]. Normally, Gross Domestic Product (GDP) is used as a proxy of a country's economic potency and it provides an estimate of the value of goods and services produced in a country in a specified period. Studies that have been undertaken to ascertain whether international trade influences GDP assume that as exports increase, *ceteris paribus*, the GDP of a country rises and fuel economic growth. The export theory can be interpreted in a way that the performance of exports has a stimulating effect to a country's economy, especially in form of technology spillovers [36]. According to [37], in view of the demands of international markets such as continuous innovation and improved efficiency, there is increased specialization which encourages utilization of economies of scale.

Another theory that seek to explain FDI is the Market Imperfection Theory. According to [38], firms only invest overseas if they can capitalize on those capabilities that their competitors in the foreign country do not have with the hope of making high returns. It is argued that the global markets are imperfect. It is this market imperfection

that results in comparative advantage for MNEs in a specific market. It is the market power that provides an advantage. Usually it is the large MNEs that enter into the global market. Because of their size they do have considerable competitive advantage against the local competitors. MNEs strive to take advantage of imperfections in national markets. These imperfections for products translate into market opportunities such as economies of scale, managerial or technological expertise, financial strength and product differentiation, among others. According to this theory, firms invest overseas such that they can control more markets, increase their profitability and create oligopolies.

The International Production Theory states that the tendency of firms to invest overseas is dependent on a cost-benefit analysis of particular factors in both its home country and the receiving country. This theory explicitly states that the decision to invest in a country is dependent not only on the anticipated returns but could also on country specific factors like barriers to entry, political stability, cost of capital and production, economies of scale and demand for products. According to [39], firms may invest in countries where labour and raw materials are comparatively cheaper in order to minimize costs. This partly explains the movement of FDI to Asia; specifically China and India where the cost of labour is relatively cheaper than the rest of the world.

Neo-Classical trade theory states that free trade in goods means that there is no need for international flows of capital and labour to achieve factor price equalisation. The Neo-Classical model is therefore able to assume that capital and labour are immobile between countries. FDI therefore cannot be explained by Neo-Classical trade theory. FDI is incorporated into the Neo-Classical framework by [40] as a result of barriers to trade in goods. Factor prices are equalised by the movement of capital between countries; it is exported by capital-abundant countries until the returns are equalised. If barriers to trade are then liberalised (such as via GATT post 1947), capital flows are not rationalised because FDI is now part of the factor endowments of the host-country - sunk and fixed costs. New FDI flows however, will reflect changes in factor prices. Reference [40] concluded that Trade barriers encourage FDI (or migration), trade liberalisation neither reduces FDI nor increases trade, restrictions on factor mobility increase trade flows, FDI is therefore shown to be a response to distortions in a perfectly competitive equilibrium, FDI (or migration) and trade are therefore substitutes. The author in [40] assumes that trade and FDI are substitutes. His model can explain import-substituting ('tariff-jumping') FDI but not network FDI. If higher trade barriers lead to greater FDI then post-1945 trade liberalisation should have led to falling FDI. The evidence overwhelmingly suggests that trade and FDI are complements. Reference [40]'s model unable to explain this relationship. The author in [40] has been criticised on the following grounds:

- In the Neo-Classical framework, countries cannot be outward and inward investors simultaneously since cross-flows of FDI cannot exist.
- The rapid growth of international business since the 1960s suggests that trade liberalisation does not mean that markets tend towards perfect competition. Rather the opposite; there is a need for an 'imperfect markets' approach.

Modernization theorists proclaim that there is a natural order through which countries ascend to what is seen as higher developmental stages. The theorists recommend that developing countries follow in the footsteps of

developed countries and overcome endogenous barriers to exogenously motivated development through industrialization, liberalization, and opening up the economy. The ability to overcome these barriers will depend on how endowed the country is with production factors such as labour, capital, and natural resources. The modernization school views FDI as a prerequisite and catalyst for sustainable growth and development. For FDI to fulfil its crucial role, economies have to be freed from distorting state interventions and opened to foreign investment and trade. This stance is reflected in the big bang theories (postulating immediate all-encompassing privatization in Eastern Europe) and structural adjustment norms (transforming economic and political structures to overcome poverty in Latin America and Africa).

Dependency theory, which flourished between the 1960s and 1980s, is a critic of the modernization theory. The theory, seeks to achieve more equal wealth, income, and power distributions through self-reliant and collective action of developing nations. Dependency theories see the cause of underdevelopment primarily in exploitation by the industrialized nations. The dependency school's major contribution to the FDI field is its focus on the consequences of FDI in developing countries and its critical analysis of western development paradigms that regard FDI as unequivocally positive. It hypothesizes that whereas FDI may show a positive impact in the short run, it has an adverse negative effect on economic growth in the long run. The short run effect is attributed to perceived increase in savings, investments and consumption, which create immediate economic impact while in the long run; the effect of accumulation of FDI is due to intervening mechanisms of dependency such as decapitalization and lack of linkages [41, 42] through "vertical linkages.

The Theory of Exchange Rates on Imperfect Capital Markets is another theory which tried to explain FDI. Initially the foreign exchange risk has been analyzed from the perspective of international trade. The authors in [43, 44] analyzed the influence of uncertainty as a factor of FDI. In the only empirical analysis made so far, [44] shows that real exchange rate increase stimulated FDI made by USD, while a foreign currency appreciation has reduced American FDI. The author in [44] concludes that the dollar appreciation has led to a reduction in U.S. FDI by 25%. However, currency risk rate theory cannot explain simultaneous FDI between countries with different currencies. The sustainers argue that such investments are made in different times, but there are enough cases that contradict these claims.

Production cycle theory developed by [30] was used to explain certain types of FDI made by U.S. companies in Western Europe after the Second World War in the manufacturing industry. The author in [30] believes that there are four stages of production cycle: innovation, growth, maturity and decline. According to [30], in the first stage the U.S. TNCs create new innovative products for local consumption and export the surplus in order to serve also the foreign markets. According to the theory of the production cycle, after the Second World War in Europe has increased demand for manufactured products like those produced in USA. Thus, American firms began to export, having the advantage of technology on international competitors. If in the first stage of the production cycle, manufacturers have an advantage by possessing new technologies, as the product develops also the technology becomes known. Manufacturers will standardize the product, but there will be companies that will copy it.

Thereby, European firms have started imitating American products that U.S. firms were exporting to these

countries. US companies were forced to perform production facilities on the local markets to maintain their market shares in those areas. This theory managed to explain certain types of investments in Western Europe made by U.S companies' between 1950-1970. Although there are areas where Americans have not possessed the technological advantage and FDI were made during that period.

### ***3.2 Empirical Literature***

Empirical literature concerning the relationship between FDI and economic growth is mixed. A number of empirical studies document evidence of strong positive FDI effects on domestic firms. Other studies have found negative impacts of FDI on local firms and yet still others found no clear link between the two [8]. FDI has been generally accepted as being positive to the host country in view of the numerous accompanying benefits such as the introduction of capital to augment domestic stock of capital, technological transfer which benefits affiliate (direct introduction) and non-affiliate firms (by way of change in labour employment and imitation), knowledge spillover, employment opportunities to the indigenous citizens as well as enhanced economic growth of the host country [2, 3]. There are several ways in which FDI can stimulate economic growth as identified by different scholars. First, through capital accumulation, FDI is expected to be growth enhancing in that more new inputs are incorporated into production [45]. Economic growth may additionally result from a wider range of intermediate goods in FDI-related production [46]. Second, FDI is considered to be an important source of technological change and human capital augmentation [45]. Technological change occurs simultaneously through the process of capital deepening, as new varieties of knowledge-based capital goods are introduced, and through the human capital augmentation, as productivity-increasing labour training, new skills acquisition, alternative advanced management practices and organisational innovations take place [3]. More importantly, FDI leads to what is called "technology diffusion" – the transmission of ideas and new technologies, productivity spillovers, sharing and implementation of know-how, knowledge transfer [2], all of which are important factors of economic development. Technological change occurs not only within the FDI- recipient firm, but also in the overall economy, due to the spillover effects such as positive externalities, are enhanced by FDI [2].

Other important outcomes of FDI include increase in consumer choice, enabling household to smooth consumption over time, provision of support for pension funds and retirement accounts [47], improving tax collection on the local and state levels [39], as well as possible increase in domestic investment stemming from increased competition [48]. Furthermore, FDI is believed to improve efficiency of the locally owned firms [49; 50]. Broadly speaking, the efficiency of firms in the host economy is supposed to be increased in direct and indirect ways. Though by the direct effect it meant that FDI will contribute to the productivity of the sector in which a foreign firm operates. It has been suggested that foreign firms are capable of affecting the levels of productivity and growth rates in the industries they enter, as well as promoting skill upgrading, increased employment, and increased innovation [51, 52, 53, 54].

Some studies [55] find that whenever firms in open sector are owned domestically, productivity is not very high. They use cheap labour force as a source of comparative advantage. This is in contrast to the foreign-owned firms in the same sectors, which hire more expensive labour, but benefit from higher productivity [1].

On the other hand, cross-sector, or indirect, effects are also present whenever labour and knowledge are moving from sector to sector, technology diffusion occurs [50]. Moreover, more productive foreign firms stimulate healthy competition in the domestic market [56]. In addition to the reasons mentioned above, FDI is believed to be especially important for economies in transition because these countries have much potential human capital, but lack the technology and capital necessary for development and growth [50]. FDI is seen as serving as a stimulus for capital accumulation and technology transfer in these economies. Moreover, as is widely known and understood, transitional economies lack capital and financial means, and they have to rely on foreign assistance. During the transition period, a country is faced with reorienting its production and consumption structures and rebuilding its capital stock as a whole, since the capital stock inherited from the past is old and inadequate for the new market situation. Consequently, the speed of the transition may be related to the ability of a country to stimulate capital inflows [57]. According to [56], FDI elicits technology spillovers, creates a more competitive business environment, enhances business development and contributes to international trade integration, all of which contribute to economic growth. Most studies conducted in this area have shown that the host country stands to gain from FDI through technological spillover effects.

Reference [50] conducted a study on FDI and its effects on economic growth and they found a positive impact of FDI on host countries. Researchers such as [58, 59, 60, 61] among others, noted that FDI brings much needed physical capital, new technology, managerial and marketing talents and expertise, international best practices of doing business as well as increased competition. These resources may have the potential to be diffused into indigenous firms thereby creating more innovation and productivity growth.

The author in [1] examined the effect of FDI on productivity of firms in Ghana by using a panel of 200 firms within the Ghanaian manufacturing industry spanning from 1991 to 2002. The results indicate that firms with high proportion of foreign capital are more productive than those with low or no foreign capital. This he attributed to the fact that, firms with more foreign capital injection are in a better position to employ advanced forms of technology, employ managers with better international exposure and skills in modern management techniques, adopt good corporate governance and management practices, and may have better access to credit from the international financial markets. The study however, did not find any significant effect of spillovers from FDI on the productivity of domestic firms. Spillovers from FDI may not be high enough to warrant any significant effect on the productivity of domestic firms. It is also likely that the absorptive capacity of domestic firms in Ghana is not strong enough to generate positive spillovers from FDI.

The authors in [62] examined the export-decision and export performance within the Ghanaian manufacturing sector on a panel of plants from 1991 to 2002. They used a probit model, which revealed that FDI has a positive effect on firms' decision to export. The random effect results also revealed a positive relationship between FDI and export performance. Growth in export activities in host countries has also been said to be an important contribution of FDI [63, 64]. While the literature on the effects of foreign presence on productivity and wages in developing countries is growing, the evidence is decidedly mixed and varies greatly among countries and industries [65]. This may be particularly true for countries in Africa, specifically sub-Saharan Africa (SSA), which tend to be quite different from countries in Asia or Latin America in many respects.

The authors in [49] also conducted a research on FDI, Competition and Industry Performance. The research investigates the productivity effects of inward and outward FDI using industry and country level data for 10 manufacturing sectors in seventeen (17) OECD countries over the period 1973 to 2001. According to the researchers, the longtime window allows them to construct country level FDI stocks which they used in the empirical estimation.

They relate industry level output in a country to its inward and outward FDI stocks in a production function framework. The study, following the Cobb-Douglas production function regressed gross production on capital, labour, material cost, domestic R & D capital stock and R & D capital stock in abroad. By including the domestic as well as the foreign knowledge (R & D) stock, they control for national and international knowledge spillovers. They also control for the potential impact of FDI through imported intermediaries via including materials in the production function. The study argues that any impact of FDI work identified is due to direct compositional effects (e.g. foreign investors are more productive and therefore increase industry level productivity) as well as changing competition in the host country. Their findings show that there are, on the average, productivity benefits from inward FDI, although they identified a number of countries which, on aggregate, do not appear to benefit in terms of productivity. The study also found out that, a country's stock of outward FDI, is on average, negatively related to productivity.

The authors in [66] investigated the effect of market structure and technology diffusion on productivity using industry and country level data for eleven manufacturing sectors in seventeen OECD countries from 1970 to 1995, with US as the benchmark. Their study focused on FDI as the main channel of technology diffusion. They used technology diffusion (proxy - US patent applications and royalty fees) and market structure (proxy - Price Cost Margin) as their key variables while controlling the country specific variables such as Human capital, R&D intensity, Government spending, Sunk cost, Openness, Geographic distance. Their study is similar to this study, in that, they used FDI, a channel of technology diffusion as the determinant of productivity growth but different in the sense that market structure was used as a determinant of technological advancement and thus productivity. This study focused solely on FDI and technological spillover as the main determinant of local manufacturing firm's productivity growth.

The authors in [67] researched into the relationship between competition, technological advancement and growth. They proposed that Managers ordinarily will not adopt technological change in view of the associated private cost such as staff training and reorganization cost. According to them, in the face of competition, technologically laggard firms are forced to catch up by adopting technologically advanced way of operations. They proposed that, high competition is the main driving force behind technological adoption and hence productivity increments. The study, regressed growth on competition, R&D intensity, Human capital, government trade policy, firm size, cost of innovation and import penetration. This study also proposed that the entry of foreign firms into the manufacturing industry, introduces competition, which puts technologically laggard firms on their feet to be competitive by adopting new technologies and this leads to productivity increment.

Many studies do not find a univocal positive growth-effect related to FDI inflows but find instead that certain

conditions need to be fulfilled in order to benefit from FDI. The author in [68] noted that technological spillover effects are not automatic but depends on both country specific factors and trade policy regime. The authors in [69] found that a country's capacity to benefit from FDI externalities is limited by local conditions, such as the development of local financial markets or the educational level of the country's population. These findings were consistent with those of [70, 71, 72] who found that only countries with well-established financial markets benefit from FDI. The authors in [2, 73] found that FDI contributes more to growth than domestic investment when the country has a highly educated workforce that can exploit the FDI spillovers. The authors in [2] indicated that, the interaction of FDI and human capital had important effect on economic growth, and suggest that the differences in the technological absorptive ability may explain the variation in growth effects of FDI across countries. They suggest further that countries may need a minimum threshold stock of human capital in order to experience positive effects of FDI. The author in [74] finds similar results and concludes that FDI can be a strong instrument of development, but only if a certain threshold of human capital, well developed infrastructural facilities and a stable economic climate is attained in the host country. The author in [75] show that the impact of FDI on growth is larger for countries that pursued a policy of export promotion rather than import substitution. In the context of export promoting trade regimes they find that FDI is more growth-enhancing than 26 domestic investments.

The findings of the study are consistent with those of [76] who found that the impact of FDI on growth depends on the trade policy of a host country; in export-promoting countries, FDI would increase growth, while it would have no impact in a country with an import substitution trade policy. Likewise, the authors in [77] found that FDI has a significant positive impact on economic growth of developing countries but that the magnitude of the impact is also dependent on the conditions in and characteristics of the host country. In a similar study the author in [78], using panel data found that FDI enhance economic growth in developing countries but not in developed countries. The authors in [3, 2] also found that where a relationship between FDI and economic growth exists, it tends to be because of the relevant host country characteristics such as human capital.

The authors in [79] find no evidence of the importance of education but they argue that FDI has a positive growth-effect only when the country is rich enough. They report that FDI exerts a positive effect on economic growth, but that there seems to be a threshold level of income above which FDI has positive effect on economic growth and below which it does not. The explanation was that only those countries that have reached a certain income level can absorb new technologies and benefit from technology diffusion, and thus reap the extra advantages that FDI can offer. The authors in [80] support the theory of a positive growth effect of FDI and indicate that a sufficient level of human capital is needed and that the technology gap may not be too large, for experiencing a positive growth impact from FDI. The author in [81] analyzed data from 11 developing countries in Latin America and Asia using the co-integration and Granger causality test and found that FDI enhanced economic growth in only five of the eleven countries. The author in [81] also found that a key benefit of FDI to recipient countries is technology transfer and spillover efficiency. However, he indicated that this benefit does not automatically occur, but rather depends on the recipient countries' absorptive capabilities, which include a liberal trade policy, human capital development, and an export-oriented FDI policy.

According to the author in [82], positive economic growth is achieved only when the level of investment

surpasses the amount required to restore depreciated capital, which in so doing allows the next cycle to recur on a bigger level with more products than the current cycle. Studies in China and India have detected that FDI has a positive impact on the economic growth of the two countries especially at the micro level. In their study, [45] analyzed the relationship between FDI and economic growth in the provinces of China. The findings of their study indicate that there exists a positive relationship between FDI and economic growth, which was partly attributed to the high technical awareness of the work force. These findings indicate that a threshold of development, or absorptive capacity, needs to be attained before a country is able to take advantage from the spillover effects of FDI. The authors in [77] asserts that even though FDI is positively correlated with economic growth, host countries require minimum human capital, economic stability and liberalized markets in order to benefit from long-term FDI inflows. Interestingly, the authors in [83] found that direct long-term impact of FDI on output is significant and positive for comparatively economically less advanced Philippines and Thailand, but negative in the more economically advanced Japan and Taiwan. Hence, the level of economic development may not be the main enabling factor in FDI growth nexus. On the other hand, the endogenous school of thought opines that FDI also influences long-run variables such as research and development (R&D) and human capital [84, 85]. In summary the influence of FDI on host country economy be it positive or negative largely depends on the several variables that are entered alongside it in the test equation. These variables include the initial per capita GDP, education attainment, domestic investment ratio, political instability, terms of trade, black market exchange rate premiums, and the state of financial development.

Some studies also suggest that the presence of foreign firms in domestic market have impacted negatively on both the performance of local firms and the economy of the host country. This is because the presences of foreign firms shrinks the market share of indigenous firms or may lead to their exit as it impose an undue market competition on home firms [86]. Some skepticism also remains and centres largely on the repatriation of profits by these firms instead of reinvesting the retained earnings in the developing host country [70, 87]. In the studies conducted by [88, 89, 90], they discovered that FDI may have a negative impact on GDP growth. The authors in [86] also found in their work conducted on Foreign Presence, Spillovers, and Productivity that the presence of foreign firms in a sector has a negative effect on domestically owned firms but a positive effect on most foreign firms. They also realized that competition and profit effect of foreign presence leads to the shrinking of local firms' market shares [55, 79]. The authors in [55, 79] draw attention to the fact that the initial stages of the development and/or transition to the market economies, FDI may have a negative impact on the recipient economy.

This fact is referred to as a "market stealing" effect, when domestic firms are so unproductive compared to the foreign ones, that foreign owned firms drive domestic producers out of the market. The author in [91] found that while FDI enhances productivity as compared to domestic investment, there is no indication of positive short run spillover. The author in [91] further explains that in the short run, FDI may unfavourably have an effect on domestic investment by "capturing" part of the market share which may lead to a reduction in capacity utilization by the domestic firm.

However, it has also been argued that FDI may lower or replace domestic savings and investment, transfer technologies that are low level or inappropriate for the host country's factor proportions, target primarily the

host country's domestic market and thus not increase exports, inhibit the expansion of indigenous firms that might become exporters, and not help in developing the host country's dynamic comparative advantages by focusing solely on local cheap labour and raw materials [11]. Profit repatriation is typically higher in Africa and lower in South Asia and Central and Eastern Europe [92]. Moreover, the authors in [6, 93] argue that the stability of FDI is often overstated since there are other ways than repatriating FDI to flee a country in financial crisis, for example through changes in the capital account.

Also the cost of enticing these foreign firms which takes the form of tax relieves and fiscal incentive as well as political lobbying (foreign firms pressuring host country to institute trade policies and other regulation in their favour at the detriment of the host nation) may far outweigh the benefit associated with FDI inflow into host country. In their working paper for the International Monetary Fund [70] concluded that because of the absence of consistent indication of the positive impact of FDI to a country's economic growth, host countries should assess the costs of attracting foreign direct investments at the expense of domestic investment. According to [87], countries are better off promoting domestic investment than providing incentives to attract foreign direct investments.

#### **4. Materials and methods**

##### ***4.1 Data***

The study employs the Regional Program on Enterprise Development (RPED) data set for its analysis. The data set contains a panel survey of firms operating within the Ghanaian manufacturing sector. It covers 12 years (waves) of data, collected in seven rounds over the period 1992 to 2003. Rounds I – III are annual surveys collected under the Regional Program on Enterprise Development (RPED) organised by the World Bank. Rounds IV-VI covers two years each. Round VII covers three years. The data was collected by a joint effort of the following organisations: the Centre for the Study of African Economies (CSAE), the University of Oxford, the University of Ghana, Legon and the Ghana Statistical Office. The original sample of 200 firms, which were first surveyed in 1992, was drawn on a random basis from firms contained in the 1987 Census of Manufacturing Activities.

The firms constituted a panel which was intended to be broadly representative of the size distribution of firms across the major sectors of Ghana's manufacturing industry. These sectors include food processing, textiles and garments, wood products and furniture, metal products and machinery. For approximately half of the original sample, the data was obtained in all waves. New firms entered the survey in later waves in order to make up for the firms which dropped out and keep the sample at a similar size throughout the period covered. RPED dataset has the advantage of containing a large number of firms over a long period of time and information on many firm characteristics as noticed by the authors in [86]. It also contains pre-calculated price deflators which allow the derivation of real output and input prices. Price indices for each year were calculated based on the prices of each firm's most important goods. Where the prices of a firm's goods were unavailable, information on prices of similar goods across firms or subsector averages were used [94, 86].

Table 1 shows the composition of the sample used in this study. In terms of size, medium sized firms account for 67.2% of the sample, with staff strength of between 6 and 29. Micro-sizes firms also represent 8.5% of the sample with less than 6 employees. The garment sub-sector reveals the highest percentage of the total sample with 22.36%, followed by the furniture sub-sector (21.95%), and metal sub-sector (21.95%), bakery sub-sector (9.76%), wood sub-sector (9.35%), chemical sub-sector (6.91%), textiles sub-sector (4.07%), and machine sub-sector (3.66%). Majority of the manufacturing firms are suited in Accra, accounting for about 58.76% of the sample size. The remaining firms are situate at Kumasi (30.93%), Takoradi (6.19%) and Cape Coast (4.12%).

**Table 1:** Composition of the sample

| <b>Variable</b>    | <b>Freq</b>  | <b>%</b>      | <b>Cum</b> |
|--------------------|--------------|---------------|------------|
| <b>Firm size:</b>  |              |               |            |
| Micro (1–5)        | 305          | 8.50          | 8.50       |
| Small (6–29)       | 872          | 24.30         | 32.80      |
| Medium (30–99)     | 2,411        | 67.20         | 100.00     |
| <b>Total</b>       | <b>3,588</b> | <b>100.00</b> |            |
| <b>Sub-sector:</b> |              |               |            |
| Garment            | 660          | 22.36         | 22.36      |
| Bakery             | 288          | 9.76          | 32.11      |
| Textiles           | 120          | 4.07          | 36.18      |
| Wood               | 276          | 9.35          | 45.53      |
| Furniture          | 648          | 21.95         | 67.48      |
| Metal              | 648          | 21.95         | 89.43      |
| Machine            | 108          | 3.66          | 93.09      |
| Chemical           | 204          | 6.91          | 100.00     |
| <b>Total</b>       | <b>2,952</b> | <b>100.00</b> |            |
| <b>Location:</b>   |              |               |            |
| Accra              | 2,052        | 58.76         | 58.76      |
| Kumasi             | 1,080        | 30.93         | 89.69      |
| Takoradi           | 216          | 6.19          | 95.88      |
| Cape Coast         | 144          | 4.12          | 100.00     |
| <b>Total</b>       | <b>3,492</b> | <b>100.0</b>  |            |

#### **4.2 Model estimation**

The study used single factor productivity measure that regressed productivity determinant on FDI and other explanatory variables (capital stock, labour quality, firm size, firm age). The study assumed that FDI is a determinant of efficient productivity.

#### **4.3 Measuring Productivity**

The study measured productivity by beginning with the Cobb-Douglas production function as used by the

authors in [86, 68]. This production function was used to determine single factor productivity (that is, labour productivity). The measure of productivity was based on gross output and value added concept.

$$Y_j^d = A_j^d (L_j^d)^{\alpha_1} (K_j^d)^{\alpha_2} e^{\varepsilon_j}, \quad (1)$$

Where  $Y_j^d$  represents output (value added);  $L_j^d$ ,  $K_j^d$ , and  $A_j^d$  denote the number of workers, capital stock, and total factor productivity (TFP);  $\varepsilon_j$  is a random disturbance term; the subscript  $j$  denotes the locally owned  $j$ th industry. The study adopted some other explanatory variables from the authors in [66, 95] to be part of the model which aided in the capturing of the relationship between FDI and productivity. This study also included quality of labour (QL) as one of the explanatory variables.  $QL_{i,t}$  is the log of labour quality of the  $i$ th firm proxied by sum of the firm level weighted average of education and tenure for each employee (work experience), multiplied by the number of employees [86, 87]. A high quality of labour is likely to contribute to an increase in value added per worker. Firm age (FMAGE) was also included as one of the explanatory variables. Firm age was measured by the number of years a firm has been in business. Experienced gained by older firms in the market helps them to reduce cost and become more productive and efficient [96]. Firm age is thus seen to have a positive impact on productivity. As a result, a positive sign is expected for this variable. The size (SIZE) of a local manufacturing firm is very important in determining whether a firm can cope with increasingly FDI inflows and technological advancement in the manufacturing industry. Size is measured as the number of workers employed within the manufacturing sector. The RPED dataset categorizes firm size as micro (1 – 5 employees), small (6 – 29 employees), medium (30 – 99 employees) and large (above 100 employees). Size is included because the study believes that the size of a firm determines productivity. Larger firms are expected to perform well and increase productivity than smaller firms. As a result of this, a positive relationship is expected between productivity and firm SIZE. This study used some subsector dummies and location dummies like [89] did to ensure sector specific effect. In the RPED data, eight subsectors were used. They include textiles, chemicals, wood, machine, garment, bakery, furniture and metal. Each subsector's dummy = 1.

### The Labour Productivity Model

$$LP_{i,t} = \beta_1 K_{i,t} + \beta_2 QL_{i,t} + \beta_3 FOR_{i,t} + \beta_4 TECH_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 FMAGE_{i,t} + \theta + \mu_j + \varepsilon_{it} \quad (2)$$

Where:

- $LP_{i,t}$  is the log of labour productivity. Gross labour productivity is measured as the quantity index of gross output divided by the quantity index of labour input. Labour productivity based on value added is measured as the quantity index of value added divided by the quantity index of labour input.
- $\beta$  Represents the coefficients of the explanatory variables.
- $K_{i,t}$  is the log of capital stocks of locally owned  $i$ th industry. This is measured by the monetary worth of all

machinery, equipment and buildings (total fixed asset). It is expected that the higher the capital stock, the higher the felt impact on productivity. A positive coefficient sign on this variable is therefore expected.

- FOR is the log of foreign presence proxied by the share of foreign ownership as used by the authors in [86]. A positive coefficient sign on this variable is expected.
- TECH is technological spillover and it is measured by the output share of foreign firms to total industry as used by the author in [68].
- $QL_{i,t}$  is the Quality of labour. This variable has been included because firms which invest more in their labour force are expected to increase productivity because skilled labours are able to work hard to improve upon productivity. Specifically, it is the average years of schooling plus the average tenure (experience) of workers in a firm, multiplied by the number of workers. This measure of average labour quality was constructed by Francis Teal from the raw data and is commonly used in work with this dataset [94]. A positive coefficient sign on this variable is expected.
- $SIZE_{i,t}$  is the size of firms in the manufacturing industry. The size (SIZE) of a local manufacturing firm is very important in determining whether a firm can cope with increasingly FDI inflows and technological advancement in the manufacturing industry. Size is measured as the number of workers employed within the manufacturing sector. Size is included because the study believes that the size of a firm determines productivity. Larger firms are expected to perform well and increase productivity than smaller firms. As a result of this, a positive relationship is expected between productivity and firm SIZE.
- $FMAGE_{i,t}$  is the firms' age. Firm age is measured by the number of years a firm has been in business. Experienced gained by older firms in the market helps them to reduce cost and become more productive [96]. Firm age is thus seen to have a positive impact on productivity. As a result, a positive sign is expected for this variable.
- $\theta, \mu_j$  are the dummies for location and sub-sector, respectively. Location has been included because firms in different locations in Ghana are not expected to perform in the same direction. In the RPED data, eight sub-sectors and four locations were used. The sub-sectors are garment, bakery, textiles, wood, furniture, metal, chemical and machine. The locations are Accra, Kumasi, Takoradi and Cape Coast. Firms in Takoradi and Cape Coast may incur little cost on production than firms in Accra and Kumasi. This is as a result of the different standard of living in these areas.
- $\varepsilon_{i,t}$  is the error term
- Subscript i and t denote the locally owned manufacturing firm and time index, respectively.

It can be noticed from the above model that capital, quality of labour, FDI, technological spillover, size and firm age; all have impact on labour productivity of local manufacturing firms. However there could be a bi-causal relationship between labour productivity and FDI. This is because the presence of foreign firms in the manufacturing industry could impact positively on the productivity of local manufacturing firms. It can also be argued that high labour productivity can attract FDI as noticed from the empirical literature reviewed previously. In the light of the above, a second regression is run with FDI as the dependent variable to ascertain the extent to which labour productivity actually influences the attraction of FDI. The regression model is as

follows:

$$FOR_{i,t} = \beta_1 K_{i,t} + \beta_2 QL_{i,t} + \beta_3 LP_{i,t} + \beta_4 TECH_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 FMAGE_{i,t} + \theta + \mu_j + \varepsilon_{it} \quad (3)$$

Where FOR represent FDI, K represent capital. QL represents quality of labour, LP represents labour productivity, TECH represents technological spillover, SIZE represents size of the firm, FMAGE represents firm age.

$\beta$  represents the coefficients of the explanatory variables. Subscript i and t denote the locally owned manufacturing firm and time index, respectively.  $\theta, \mu_j$  are the dummies for location and sub-sector, respectively.  $\varepsilon_{i,t}$  is the error term.

It can also be noticed from the main model (Model 2) that quality of labour can impact considerably on labour productivity of local manufacturing firms and hence FDI inflow into an economy. As such a third regression is run with quality of labour as the dependent variable to ascertain the extent to which quality of labour actually influences labour productivity and hence the attraction of FDI. The regression model is as follows:

$$QL_{i,t} = \beta_1 K_{i,t} + \beta_2 FDI_{i,t} + \beta_3 TECH_{i,t} + \beta_4 EDU_{i,t} + \beta_5 EXP_{i,t} + \theta + \mu_j + \varepsilon_{it} \quad (4)$$

Where QL represents quality of labour, K stands for capital, FDI represents foreign direct investment, TECH stands for technological spillover within the manufacturing industry, EDU represents level of education, EXP. stands for experience of employees (number of years of work).  $\beta$  Represents the coefficients of the explanatory variables. Subscript i and t denote the locally owned manufacturing firm and time index, respectively.  $\theta, \mu_j$  are the dummies for location and sub-sector, respectively.  $\varepsilon_{i,t}$  is the error term. The study expected the independent variables to have a direct positive relationship with the dependent variable.

It must be noted however that, the three regression models were run simultaneously using STATA software.

## 5. Results

### 5.1 Descriptive statistics

The descriptive statistics is presented in table 2 below. The mean level of labour productivity is 15.95. The mean log of capital stocks is 14.34. The mean foreign presence (i.e. share of foreign ownership) is 11.81%. The mean log of technological spillover measured by the output share of foreign firms to total industry is 2.01. The mean quality of labour is 12.22. The average firm age is estimated at 19 years. The variances in observations is explained by the unbalanced panel nature of the dataset as some of the firms were not operational for the entire

period of investigation.

**Table 2:** Descriptive statistics

| <i>Variable</i>         | <i>Mean</i> | <i>Std. dev.</i> | <i>Min.</i> | <i>Max.</i> | <i>Obs.</i> |
|-------------------------|-------------|------------------|-------------|-------------|-------------|
| Labour productivity     | 15.9566     | 2.1043           | 8.9876      | 20.2010     | N=2030      |
| Capital                 | 14.3425     | 2.9785           | 9.2081      | 24.5031     | N=2020      |
| Foreign ownership       | 11.8107     | 25.5602          | 0           | 100         | N=3355      |
| Technological spillover | 2.0177      | 4.9502           | 1.8950      | 25.3610     | N=1970      |
| Quality of labour       | 12.2256     | 2.3501           | 8.0854      | 22.9645     | N=1900      |
| Firm age                | 19.0102     | 12.5552          | 0           | 76          | N=2350      |

**5.2 Regression results**

The study began the data analysis first with correlation matrix. Correlation test was conducted in order to check multicollinearity problem. The main intention for performing this test was to avoid a situation where two or more explanatory variables with high correlation would be included in the productivity model. Table 3 present the correlation matrix with labour productivity as the dependent variable against the other independent variables.

**Table 3:** Correlation matrix of the variables

|           | Lab. Prod | SIZE | T'Spil | FOR  | Lab Qly | Fmage | Capital |
|-----------|-----------|------|--------|------|---------|-------|---------|
| Lab. Prod | 1.00      |      |        |      |         |       |         |
| SIZE      | 0.60      | 1.00 |        |      |         |       |         |
| T'Spil    | 0.19      | 0.29 | 1.00   |      |         |       |         |
| FOR.      | 0.15      | 0.20 | 0.10   | 1.00 |         |       |         |
| Lab Qly   | 0.40      | 0.52 | 0.30   | 0.37 | 1.00    |       |         |
| Fmage     | 0.09      | 0.26 | 0.04   | 0.12 | 0.20    | 1.00  |         |
| Capital   | 0.04      | 0.11 | 0.06   | 0.01 | 0.01    | 0.11  | 1.00    |

The correlation matrix for the equation of the productivity model shows that, all the independent variables could be included in the regression model because the correlation between them was not high. They all recorded correlation figures which were below 0.60. To determine the exact effect to use, whether firm fixed effect or random effect estimation approach for a panel data of this kind to run the regression equations, Hausman Specification Test was performed on the variables. The result of the test shows that it is appropriate to use firm fixed effect because the hypotheses concerning the test proved to be consistent under both the null and the alternate hypothesis for the fixed effect. The Hausman Specification Test results have been reported on the regression results tables i.e. tables 4 (Labour productivity regression results), table 5 (FDI regression results) and table 6 (quality of labour regression results), respectively. Table 4 below, presents the regression result of the productivity model with labour productivity as the measure of firms' productivity.

**Table 4:** Regression result: Determinants of labour productivity ( $LP_{i,t}$ ) of local manufacturing firms in Ghana

| Variables         | Coefficient               | Standard Error |
|-------------------|---------------------------|----------------|
| Intercept         | 4.529***                  | 0.404          |
| Capital           | 0.089***                  | 0.027          |
| FOR               | 0.152**                   | 0.111          |
| TECH              | 0.007**                   | 0.018          |
| Labour Quality    | 0.002***                  | 0.002          |
| SIZE              | 0.919**                   | 0.186          |
| FMAGE             | 0.086***                  | 0.049          |
| Location Dummies  | YES                       |                |
| Subsector Dummies | YES                       |                |
| Observation       | 183                       |                |
| R Square Between  | 80.26                     |                |
| R Square Overall  | 79.50                     |                |
| Adjusted R Square | 78.21                     |                |
| Hausman Test      | Prob.> F, Chi2 (9) = 0.00 |                |

Source: Author's computation done with STATA Software. \*\* & \*\*\* represents 5% and 1% levels of significance respectively.

It is evident from the result presented in table 4 that, the key independent variable, i.e. FDI, attained the right theoretical sign and is significant at 5% level of significance in the productivity regression model. The positives coefficient recorded for FDI confirms the study's hypothesis that FDI inflows into the Ghanaian manufacturing industry have a positive effect on local firm's productivity. Productivity increased with increased FDI inflow. This means that, as more FDI inflows are recorded in the Ghanaian manufacturing industry, more physical capital is introduced for local firms to expand their businesses, more modern and international business practices are adopted for effective production processes to meet the international standards, more competition is introduced which put laggard firms on their toes to improve upon their performance and new technologies are

introduced. This result is consistent with the findings of authors like [49, 50, 60], who found that FDI inflows have a positive effect on host countries.

Capital attained the right theoretical sign of positive and was significant at 1% level of significance in the labour productivity model. Capital having a positive relationship with labour productivity means that as capital increases as a result of more FDI inflows, local manufacturing firms are able to produce more, have more money for expansion, more funds to train the human resource capacity, more modern techniques for production and more funds to invest in technology which helps in employing more effective and efficient means of production. The result of the two variables in the equation conforms to the findings of [68] who found a positive relationship between capital, capital-to-labour ratio and labour productivity.

TECH was used to represent technological spillover which looks at the effect of the gap between foreign firms' technology and that of local firms. With more FDI inflows, technological advancement that is introduced in the market by foreign firms has an effect on local firms' productivity. The exact effect, whether positive or negative was revealed by the results of regression model. TECH recorded a positive theoretical sign and was significant at 5% level of significance in the labour productivity model. TECH recording a positive theoretical sign in the labour productivity model mean that local firms benefit from the spillover effect that foreign firms advance technology bring into the local manufacturing industry. Local firms benefit from foreign firms' technology by imitating the foreign firm's technology as well as through labour mobility. Local manufacturing firms benefit from technological spillover because with more technological advancement, local firms are able to use fewer resources to achieve higher productivity.

Quality of labour obtained the expected theoretical sign of positive in the Labour productivity model and was significant at 1% level of significance. The measurement of quality of labour takes into account education and experience of employees as well as the remuneration of the employees and thus the positive sign gotten proves that well trained, paid and experience employees are likely to increase productivity to help attract more FDI inflows. With more FDI inflows, more funds are obtained by local firms to train their labour on the job for them to be up-to-date with modern techniques of production which helps to increase productivity per worker and FDI attractions. This finding conforms to the findings of the authors in [86, 68] who found a positive relationship between quality of labour and productivity.

This study controlled for size in the labour productivity model to see its effect on productivity of local firms. The size of a firm is very important and determines the productivity level and as well as FDI inflows. Size obtained the expected theoretical sign of positive in the labour productivity regression model and was significant at 5% level of significance. Therefore size obtaining positive sign means that firms with high number of workers are expected to perform better in terms of productivity and FDI attraction than firms with small number of workers.

Firm age is one control variable the study included in the productivity model to see the effects it has on local manufacturing firms' labour productivity. The expected theoretical sign of positive was attained in the labour productivity regression model and firm age was also significant at 1% level of significance as indicated on the

regression equations reported on table 4. This implies that firms which have been operating within the manufacturing industry for long tend to perform well in terms of productivity per worker than newer firms operating within the same manufacturing industry. This is as a result of the fact that after so many year of existence in the manufacturing industry, firms acquire a lot of experience which saves them from repeating mistakes. Older firms also learn from their mistakes and perform better to increase productivity. Table 5, below, present the regression results with FDI as the dependent variable.

**Table 5:** Regression result: Determinants of foreign direct investment

| Variables           | Coefficient               | Standard Error |
|---------------------|---------------------------|----------------|
| Intercept           | 1.788***                  | 0.699          |
| Capital             | 0.093***                  | 0.029          |
| Labour Quality      | 0.033**                   | 0.002          |
| TECH                | 0.028**                   | 0.019          |
| Labour Productivity | 0.175***                  | 0.129          |
| SIZE                | 0.211**                   | 0.232          |
| FMAGE               | 0.021***                  | 0.055          |
| Location Dummies    | YES                       |                |
| Subsector Dummies   | YES                       |                |
| Observation         | 183                       |                |
| R Square Between    | 48.85                     |                |
| R Square Overall    | 52.69                     |                |
| Adjusted R Square   | 50.49                     |                |
| Hausman Test        | Prob.> F, Chi2 (9) = 0.00 |                |

Source: Author’s computation done with STATA Software. \*\* & \*\*\* represents 5% and 1% levels of significance respectively.

(  $FDI_{i,t}$  ) within the local manufacturing industry in Ghana

The study thought it wise to run a three regression model simultaneously with labour productivity, FDI, and quality of labour as the dependent variables. The FDI regression model, as reported on the table 5 shows that all the key variables, that is, labour productivity, technological spillover and quality of labour, firm size and firm age are all determinants of FDI inflow in the Ghanaian manufacturing industry. It is clear from the result presented in table 5 that the key independent variable, that is, labour productivity (LP) attained the right theoretical sign and is significant at 1% level of significance in the FDI regression model. The positives coefficient recorded for LP means that the contribution of workers in the productivity of local manufacturing firms in Ghana has an impact on FDI inflows in the country. If workers perform creditably well and are able to produce enough per head, it goes a long way to increase production. As productivity increases, the profitability level of the firms also increases. If we have a situation where productivity is high, then it presents a high opportunity for more FDI inflows into the firms because foreign investors want to get value for their money and

would invest in profitable ventures.

Quality of labour also recorded a positive coefficient and was significant at 5% level of significance. QL recording a positive theoretical sign means that when more employees with good educational background and experience are employed, they are able to perform better on the job, putting forth their skills and abilities, to increase productivity and as productivity increases, it attracts more FDI inflows into the manufacturing industry of Ghana.

Capital, another key variable in the FDI model also attained a positive theoretical sign and was significant at 1% level of significance. This means that with more capital, the manufacturing firms would have more funds to acquire more fixed assets needed to increase productivity for the firm to produce more. By producing more, profitability level increases and as profitability level increases, foreign investors will be attracted to invest in those profitable firms, as such FDI inflows increases.

TECH also attained a positive theoretical sign and it was significant at 5% level of significance in the FDI model. This means that, when advanced technology is introduced in the market by FDI inflows, more funds are made available to the local firms especially when the funds are injected directly into the local manufacturing firms. The local firms are able to embark upon expansion programs to improve and expand their firms. They are able to have access to more funds to invest in research and development to improve upon their technology. FDI introduces high competition in the local manufacturing industry. When competition becomes intense, it forces the technological laggard local manufacturing firms to keep up with the competition by improving upon their technology. This result conforms to the findings of [67, 66], who found a positive relationship between technological spillover and productivity.

This study controlled for size in the FDI model to see its effect on productivity of local firms. The size of a firm is very important and determines the productivity level and as well as FDI inflows. Size obtained the expected theoretical sign of positive in the FDI models and was significant at 5% level of significance. Size obtaining positive sign means that firms with high number of workers are expected to attract more FDI inflow than firms with small number of workers.

Firm age is one control variable the study included in the FDI model to see the effects it has in attracting more FDI into the manufacturing industry. The expected theoretical sign of positive was attained in FDI regression model and firm age was also significant at 1% level of significance as indicated on the regression equations reported on table 5.

This implies that firms which have been operating within the manufacturing industry for long tend to attract more FDI inflow than newer firms operating within the same manufacturing industry. This is as a result of the fact that after so many year of existence in the manufacturing industry, firms acquire a lot of experience which saves them from repeating mistakes. Older firms also learn from their mistakes and perform better and this situation attracts more FDI inflow. Table 6, below presents the regression result with Quality of Labour as the dependent variable.

**Table 6:** Regression result: Determinants of quality of labour of local manufacturing firms in Ghana.

| Variables         | Coefficient               | Standard Error |
|-------------------|---------------------------|----------------|
| Intercept         | 2.039***                  | 0.125          |
| Capital           | 0.075**                   | 0.011          |
| FOR               | 0.043***                  | 0.041          |
| TECH              | 0.147***                  | 0.008          |
| EDU               | 0.025**                   | 0.005          |
| EXP               | 0.048**                   | 0.019          |
| Location Dummies  | YES                       |                |
| Subsector Dummies | YES                       |                |
| Observation       | 183                       |                |
| R Square Between  | 76.00                     |                |
| R Square Overall  | 64.00                     |                |
| Adjusted R Square | 50.10                     |                |
| Hausman Test      | Prob.> F, Chi2 (9) = 0.00 |                |

Source: Author’s computation done with STATA Software. \*\* & \*\*\* represents 5% and 1% levels of significance respectively.

The study wanted to find out the determinants of quality of labour. This was necessitated by the fact that quality of labour has proven in the first two regression models to have stronger impact on productivity and FDI inflows. The regression results proved that education of workers, experienced of workers, capital of the firm, foreign presence and TECH all have significant impact on Quality of labour. All these key variables mentioned obtained the positive theoretical signs. Education of workers obtained a positive theoretical sign and was significance at 5% level of significance. This means that if workers are well educated, that is, have at least the senior secondary school certificate, they are able to perform better on the job. This is as a results of the fact that educated workers are able to come up with fantastic ideas due to the skills they acquire from school to help grow the firm. Educated people are more creative and innovated and they bring all these to bear to help shape the firm. Experience as a key variable also obtained a positive theoretical sign and was significant at 5% level of significance. Experience worker fall on their previous experience to work hard and avoid similar mistakes they may have encountered in their previous jobs. They build upon their experience to make their current job more successful. The combination of employee level of education and their experience on the job goes a long way to determine employee remuneration. So therefore that workers with good educational background coupled with a consideration experience level are paid well which culminate into high employee satisfaction on the job leading to high quality of labour which influence employee performance on the job.

The presence of foreign firms in the industry, coupled with the associated capital injection in the industry and the associated technological spillover that comes with their presence also have influence on the work done by workers hence quality of labour. This is evidenced in the positive theoretical signs obtained by FOR, TECH and Capital and they were all significant at 1%, 1% and 5% levels of significance, respectively.

## **6. Conclusion**

The study examined the impact of FDI on productivity growth of Ghanaian manufacturing firms. A sample of two hundred selected firms in the RPED data were selected for the study. These firms fall within the textiles, garment, wood, machinery, bakery, furniture, metal and chemical subsectors in the Ghanaian manufacturing industry. The main objective of the study was to examine the effect of FDI on productivity in the manufacturing sector of Ghana. The RPED data was employed for the analysis and the Cobb Douglas production model was followed to develop a productivity model which sort to regress labour productivity on FDI, capital stock, technological spillover, firm age, firm size, quality of labour and many other variables included in the productivity model. Some of these variables were adopted from [68] who conducted a similar study in the Thai manufacturing industry.

The regression results revealed a significant FDI effect on local manufacturing firms' productivity. It was found that there is a direct link between FDI and productivity of local manufacturing firms in Ghana. All the key variables of the productivity model, i.e. FDI, capital stock, technological spillover and quality of labour have positive effect on local manufacturing firms' productivity. This means that with more FDI inflows, local firms are able have the needed funds to invest in technology to improve upon productivity, more funds to invest in labour for them to acquire the needed skills to improve upon productivity and more funds to increase their capital to improve upon productivity. This finding is in line with the findings of early authors in the area of FDI and productivity like [66, 67, 49] among others.

All the control variables included in the regression model, i.e. firm age and firm size, proved to have significant effect on local manufacturing firms' productivity. This means that larger firms in the Ghanaian manufacturing industry in terms of number of employees are likely to perform better than smaller firms. Firms who have being in existence for long also have the potential of performing better than firms who have not be in existence for long. This is because firms gain experience as they stay for long in the manufacturing industry. They are able to learn from their mistakes and perform well.

### **6.1 Recommendations**

The findings of this paper provide useful hits regarding economic policy direction of Ghana. Results from this study have shown that FDI has a positive impact on productivity. The study therefore recommend the following:

- The government should embark upon economic policies which seeks to attract more FDI inflows into the country. Such policies should focus on enticing FDI into specific sectors of the economy and regions of the country to stimulate and boost rapid economic growth.
- The macroeconomic indicators such as inflation, interest rates, exchange rates etc. should also be stabilized because foreign investors look at the macroeconomic indicators to determine whether it is worthwhile investing in the country.
- Local manufacturing firms should also be encouraged to invest in more research and development programs to ensure that new and modern techniques which seek to improve upon productivity are

adopted in order to increase productivity as well as offering capacity building programs for its employees so that workers would be in a position to absorb any new technology introduced into the country via FDI.

- Future studies in this area should consider placing much emphasis on total factor productivity, which is a variable which accounts for effects in total output not caused by inputs. It is also hoped that further studies in this area will employ a more detailed data on Sub-Saharan African countries to conduct the study in order to see the impact of FDI and technological spillover of the Sub-Saharan African countries on local African firms' productivity

### **Acknowledgements**

This paper is based on my M. Phil finance thesis. I am extremely grateful to my two supervisors Prof. Joshua Abor – Dean of the University of Ghana Business School and a Researcher with the African Economic Research Consortium as well as Dr. Simon K. Harvey, Senior lecturer at the Department of Finance, University of Ghana Business School for their time, inputs, comment, advice and overall direction which has made this study a reality. I would also like to express my gratitude towards the seminar participants for their useful comment and suggestions at the Department of Finance, University of Ghana Business School Seminar Series and my anonymous reviewers of this paper. I am also highly grateful to my family especially Ms. Patricia Issabella Essel for the monetary and mental support that has seen me through this study. Finally, the ultimate appreciation belongs to Almighty God, for granting me grace, that has seen me through this research.

### **References**

- [1]. J. Abor. "Foreign direct investment and firm productivity: evidence from firm-level data", *Global Business and Economics Review*, Vol. 12, No.4, pp. 267–285, 2010.
- [2]. E.J. Borensztein, J. De Gregorio and J.W. Lee. "How Does Foreign Direct Investment Affect Economic Growth?", *Journal of International Economics*, Vol.45, No.1, pp. 115-135, 1998.
- [3]. L.R. De Mello. "Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data", *Oxford Economic Papers* Vol. 51, No. 1, pp.133-51, 1999.
- [4]. A. Kohpaiboon. "Vertical and Horizontal FDI Technology Spillovers: Evidence from Thai Manufacturing," *ERIA Discussion Paper Series*, Aug. 2009.
- [5]. L. Colen, M. Maertens and J. Swinnen. "Foreign Direct Investment as an engine for economic growth and human development: A review of the arguments and empirical evidence," Working paper prepared for the IAP P6/06 Project, Working Package FDI-1, 2008.
- [6]. P. Nunnenkamp. "To what extent can foreign direct investment help achieve international development goals?", *The World Economy*, Vol. 27, No.5, pp. 657-677, 2004.
- [7]. E. Asiedu. "On the determinants of foreign direct investment to developing countries: is Africa different? ", *World development*, Vol.30, No.1, pp.107-119, 2002.
- [8]. IMF. "Foreign Direct Investment Report on Emerging Economies", 2008.
- [9]. UNCTAD. "Investment Policy Review Ghana", United Nations Conference on Trade and Development, New York and Geneva, 2003.

- [10]. IMF. "Foreign Direct Investment Trends and Statistics", 2003.
- [11]. UNCTAD. "Transnational Corporations and Export Competitiveness", World Investment Report, New York, United States, 2002.
- [12]. UNCTAD. "World Investment Report", 2005.
- [13]. UNCTAD. "World Investment Report", 2009.
- [14]. UNCTAD. "World Investment Report", 2010.
- [15]. UNCTAD. "World Investment Report", 2012.
- [16]. UNCTAD. "World Investment Report", 2013.
- [17]. UNCTAD. "World Investment Report". Reforming International Investment Governance, Geneva Switzerland, 2015.
- [18]. UNCTAD. "World Investment Report", 2017.
- [19]. UNCTAD. "World Investment Report", 2018
- [20]. Business Monitor International. "Ghana Business Forecast Report", 4 edition, 2013.
- [21]. Ghana Investment Promotion Centre. "Quarterly Investment Report", 2013.
- [22]. Ghana Investment Promotion Centre. "Quarterly Investment Report", 2018.
- [23]. P.J. Buckley and M.C. Casson. The Future of the Multinational Enterprise, London: Homes & Meier, 1976.
- [24]. J.F. Hennart. A theory of multinational enterprise, Michigan: University of Michigan Press, 1982.
- [25]. M. Casson. Alternatives to the Multinational Enterprise, London: Macmillan, 1979.
- [26]. R.H. Coase. "The nature of the firm", *Economica*, (New series), No. 4, pp. 387-405, 1937.
- [27]. S.H. Hymer. "The international operations of national firms: a study of direct foreign investment." Ph.D., MIT, Subsequently published by Cambridge, MA: MIT Press, 1976.
- [28]. J.H. Dunning. "The determinants of international production", *Oxford Economic Papers* 25, 1973.
- [29]. F.T. Knickerbocker. *Oligopolistic Reaction and Multinational Enterprise*. Boston: Harvard Business School Press, 1973.
- [30]. R. Vernon. "International Investment and International Trade in the Product Cycle". *Quarterly Journal of Economics*. Cambridge. pp. 191, 1966.
- [31]. J.H. Dunning. "Toward an eclectic theory of international production: Some empirical tests", *Journal of International Business Studies*, issue 11, 1980.
- [32]. J.H. Dunning. "The Eclectic Paradigm of International Production: A restatement and some possible extensions", *Journal of International Business Studies*, issue 19 (Spring), 1988.
- [33]. A. Smith. "The Wealth of Nations edited by R.H. Campbell and A.S. Skinner". The Glasgow edition of the Works and Correspondence of Adam Smith, Vol. 2b, pp. 678, 1976.
- [34]. K. Coutts and W. Godley. "Does Britain's balance of payments matter anymore?" in *The Economic Legacy 1979-1992*, J. Michie (Ed.), London: Academic Press, 1992, pp. 60-67.
- [35]. J.S.L. McCombie and A. Thirlwall. "The re-emergence of the balance of payments constraint", in *The Economic Legacy, 1979-1982*, J. Michie (Ed.), London: Academic Press, 1992, pp. 68-74.
- [36]. D. Marin. "Is the Export-Led Growth Hypothesis Valid for Industrialized Countries?", CEPR Discussion Paper No. 362, Centre for Economic Policy, 1992.
- [37]. P. Temple. "Overview: understanding Britain's economic performance: the role of international trade",

- in Buxton, A.P. Chapman and P. Temple (Eds), Routledge, London: Britain's Economic Performance, 1994, pp. 31-56.
- [38]. S.H. Hymer. "The Efficiency (Contradictions) of Multinational Corporations", American Economic Review Papers and Proceedings, Vol. 60, No.1, pp. 441-448, 1970.
- [39]. R.J. Carbaugh. International Economics, Ohio: South-Western College Publishing, 2000.
- [40]. R. Mundell. "International Trade and Factor Mobility". American Economic Review, Vol.47, No.1, pp. 321-335, 1957.
- [41]. C. Stoneman. "Foreign Capital and Economic Growth". World Development. Vol.3, No.1, pp. 11-26, 1975.
- [42]. D. O'Hearn. "TNCs, intervening mechanisms and economic growth in Ireland: A longitudinal test and extension of Bomschier model". World Development, Mar. 1990.
- [43]. T. Itagaki. "International Trade and Factor Mobility", American Economic Review, Vol.47, No.1, pp. 321-335, 1981.
- [44]. D.O. Cushman. "Real Exchange Rate Risk, Expectations and the Level of Direct Investment", Review of Economics and Statistics, Vol.67, No.2, pp. 297-308, 1985.
- [45]. J.P. Buckley, J. Clegg and C. Wang. "The impact of inward FDI on the performance of China's manufacturing firms". Journal of International Business Studies, Vol.33, No.4, pp. 637-655, 2002.
- [46]. R. Feenstra and L. Markusen. "Accounting for Growth with New Inputs", International Economic Review. pp. 429-447, 1994.
- [47]. C. Guilleermo, L. Leonardo and R. Carmen. "Inflow of Capital to developing Countries in the 1990s", The Journal of Economic Perspective. Vol 10. Issue 2. Spring, pp. 123-139, 1996.
- [48]. L.R. De Mello. "Foreign Direct Investment in Developing Countries: A Selective Survey", The Journal of Development Studies, Vol. 34, No.1, pp. 1-34, 1997.
- [49]. J. Bitzer and H. Görg. "Foreign Direct Investment, Competition and Industry Performance," The World Economy, Wiley Blackwell, Vol. 32. No.2, pp. 221-233, 2009.
- [50]. H. Thiam. "Foreign Direct Investment and Productivity: Evidence from the East Asian Economies." Staff Working Paper 03, United Nations Industrial, 2006.
- [51]. J. Abor and S. Harvey. "Foreign Direct Investment and Employment: Host Country Experienc", Macroeconomics and Finance in Emerging Market Economies, Vol.1, No.2, pp. 213-225, 2008.
- [52]. M. Blomström. "Foreign Investment and Productive Efficiency: The Case of Mexico", Journal of Industrial Economics, Vol.35, No.1, pp. 97-110, 1986.
- [53]. M. Blomström and H. Persson. "Foreign Investment and Spillover Efficiency in an Underdeveloped Economy: Evidence from Mexican Manufacturing Industry", World Development, Vol.11, No.1, pp. 493-501, 1983.
- [54]. H. Görg and E. Strobl. "Multinational Companies and Productivity Spillovers: A Meta-Analysis", Economic Journal, Vol.111, pp. F723-F739.
- [55]. Schoors, Koen, and Van der Tol, Batoldus. "The Productivity Effect of Foreign Onwnership on Domestic Firms in Hungary". EEA Venice Conference Paper, 2002.
- [56]. OECD. "FDI, maximizing benefits, minimizing costs", 2002.
- [57]. P. Garibaldi, N. Mora, R. Sahay and J. Zettelmeyer. "What Moves Capital to Transition Economies?!",

IMF Staff Papers, 48, International Monetary Fund, Washington D.C, 2001.

- [58]. S. Lall. "Less Developed Countries and Private Foreign Investment: A Review Article", *World Development*, Vol 2. No.4, pp. 43-48, 1974.
- [59]. R. Findlay. "Relative Backwardness, Direct Foreign Investment, and Transfer of Technology: A Simple Dynamic Model", *Quarterly Journal of Economics*, Vo. 92, No. 1. pp. 1- 16, 1978.
- [60]. P. Romer. "Endogenous technological change". *Journal of Political Economy*, Vol. 98, No.1. pp. 71–103, 1990.
- [61]. P. Loungani and A. Razin. "How Beneficial is Foreign Direct Investment for Developing Countries?", *Finance and Development*, Vol. 38, No.2, pp. 1-7, 2001.
- [62]. J. Abor, C.K.D. Adjasi and M. Hayford, "How Does Foreign Direct Investment affects the Export Decisions of Firms in Ghana?" *African Development Review*. Vol. 20, No. 3, pp. 446-465, 2008.
- [63]. B.J. Aitken, G.H. Hanson, and A.E. Harrison. "Spillovers, Foreign Investment and Export Behaviour", *Journal of International Economics*, Vol. 43, No.1, pp. 103–32, 1997.
- [64]. D. Greenaway, N. Sousa and K. Wakelin. "Do Domestic Firms Learn to Export from Multinationals?" *Research Paper 2001/11, Leverhulme Centre for Research on Globalisation and Economic Policy, University of Nottingham*, Nov. 2001.
- [65]. M. Blomstrom and A. Kokko (1997). "The Impact of Foreign Investment on Host Countries: a Review of the Evidence," *World Bank Research Paper*, 1745, 1997.
- [66]. Y.W. Cheung and G. Pascaul. "Market structure, Technology spillover, and persistence in productivity Differentials," *International Journal of Applied Economics*.
- [67]. P. Aghion, C. Harrison and J. Vickers. "Competition and Growth with Step-by-Step Innovation: An Example," *European Economic Review*, Vol.41, No. (3-4), pp. 771-782, 1997b.
- [68]. A. Kohpaiboon. "Foreign Direct Investment and Technology Spillover: A Cross-Industry Analysis of Thai Manufacturing," *World Development*, Vol.34, No.3, pp. 541–556, 2005.
- [69]. M. Carkovic and R. Levine. "Does Foreign Direct Investment Accelerate Economic Growth?", Eds:Theodore H. Moran, Edward M. Graham and Magnus Blomström, Washington, DC: Institute for International Economics, 2005, pp. 195-220.
- [70]. L. Alfaro, A. Chanda, S. Kalemli-Ozcan and S. Sayek. "FDI and Economic Growth; The Role of Local Financial Markets", *Journal of International Economics* Vol.64, No.1, pp. 113-134, 2004.
- [71]. J.B. Durham. "Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth". *European Economic Review*, Vol.48, No.1, pp. 285-306, 2004.
- [72]. N. Hermes and R. Lensink. "Foreign Direct Investment, Financial Development and Economic Growth". *The Journal of Development Studies*, Vol.40, No.1, pp. 142-163, 2003.
- [73]. B. Xu. "Multinational enterprises, technology diffusion, and host country productivity growth", *Journal of Development Economics*, Vol. 62, No. 2, pp. 477-493, 2000.
- [74]. V.N. Balasubramanyam. "The Multilateral Agreement on Investment (MAI) and Foreign Direct Investment in Developing Countries", *Discussion Paper 16, Lancaster University*, 1998.
- [75]. V.N. Balasubramanyam, M. Salisu and D. Sapsford. "Foreign Direct Investment and Growth in EP and IS Countries", *Economic Journal*, Vol.106, No.434, pp. 92-105, 1996.

- [76]. J.N. Bhagwati. "Anatomy and consequences of exchange control regimes: Studies in International Economic Relations", National Bureau of Economic Research, Vol. I. No.10, New York, 1978.
- [77]. M. Bengoa and B. Sanchez-Robles. "Foreign direct investment, economic freedom, and growth: New evidence from Latin America", *European Journal of Political Economy*, Vol.19, No.3, pp. 529–545, 2003.
- [78]. A. Johnson. "Host country effects of foreign direct investment: The case of developing and transition economies". JIBS Dissertation Series No. 031, Andreas Johnson and Jönköping International Business School ISSN 1403-0470 ISBN 91-89164-64-4, 2005.
- [79]. M. Blomstrom, R.E. Lipsey and M. Zejan. "What Explains Growth in Developing countries?" NBER Discussion Paper, 1994.
- [80]. X. Li and X. Liu. "Foreign Direct Investment and Economic Growth: an increasingly endogenous relationship", *World Development*, Vol.33, No.1, pp. 393-407, 2005.
- [81]. K.H. Zhang. "How does foreign direct investment affect economic growth in China?" *Economics of Transition*, Vol. 9, No.3, pp. 679-693, 2001.
- [82]. D. Ray. *Development Economics*. Princeton: Princeton University Press, 1998.
- [83]. A. Bende-Nabende and J.L. Ford. "FDI, policy adjustment and endogenous growth: Multiplier effects from a small dynamic model for Taiwan 1959–1995". *World Development*, Vol.26, No.7, pp. 1315–1330.
- [84]. P. Romer. "Increasing returns and long run growth". *Journal of Political Economy*, Vol.94, No.1, pp. 1002–1038.
- [85]. R.E.J. Lucas. "On the mechanics of economic development". *Journal of Monetary Economics*, Vol. 22 No.1, pp. 3–42. 1988.
- [86]. A. Waldkirch and A. Oforu. "Foreign Presence, Spillovers, and Productivity: Evidence from Ghana," *Munich Personal RePEc Archive*, 2008.
- [87]. Y. Tandon. "Fallacies about the Theory of FDIs: Its Ideological and Methodological Pitfalls", presented at the 4<sup>th</sup> Conference of International Economists, Havana, Cuba, on the Theme of —GLOBALIZATION AND DEVELOPMENT PROBLEMS, 2002.
- [88]. E.F Oteng-Abayie and J.M. Frimpong. "Bounds Testing Approach to Cointegration: An Examination of Foreign Direct Investment Trade and Growth Relationships." *American Journal of Applied Sciences*, Vol.3, No.1, pp. 2079-2085, 2006.
- [89]. B.J. Aitken and A.E. Harrison. "Do Domestic Firms Benefit from Direct Foreign Investment?" Evidence from Venezuela, *American Economic Review*, Vol. 89, No.1, pp. 605-618.
- [90]. B.J. Aitken, A.E. Harrison and R.E. Lipsey. "Wages and Foreign Ownership. A Comparative Study of Mexico, Venezuela, and the United States", *Journal of International Economics*, Vol. 40, No.1, pp. 345-371.
- [91]. A. Harrison. "Determinants and Consequences of Foreign Investment in three Developing Countries", in *Industrial Revolution in Developing Countries: Micro Patterns of Turnover, Productivity and Market Structure*, M. Roberts, J. Tybout (eds), Oxford: Oxford University Press, 1996.
- [92]. A. Sumner. "Is foreign direct investment good for the poor?" A review and stock-take, *Development in Practice*, Vol.15, No. (3-4), pp. 269-285, 2005.

- [93]. R. Hausmann and E. Fernández-Arias. “Foreign Direct Investment: Good Cholesterol?” Working Paper 417, Inter-American Development Bank, pp. 27.
- [94]. F. Teal. “A note on the Data for Ghanaian Manufacturing Firms: 1991-1997”, Centre for the Study of African Economies, University of Oxford, 2002
- [95]. Chuang and Hsu. “FDI, trade, and spillover efficiency: evidence from China’s manufacturing sector,” *Applied Economics*, Vol.36, No.1, pp. 1103–1115, 2004.
- [96]. F. Teal. “Manufacturing Firms in Ghana: Comparing the 1987 and 2003 Censuses”. Centre for the Study of African Economies, University of Oxford, 2000.