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Export Processing Zones as Productive Policy: Enclave
Promotion or Developmental Asset?
The Case of Ghana

Kilian Koffi

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Department of International Development

London School of Economics and Political Science

Houghton Street

London

WC2A 2AE UK

Tel: +44 (020) 7955 7425/6252

Fax: +44 (020) 7955-6844

Email: d.daley@lse.ac.uk

Website: http://www.lse.ac.uk/internationalDevelopment/home.aspx

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Export Processing Zones as Productive Policy: Enclave Promotion or Developmental Asset?

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Abstract (100)

Global integration and production fracturing offer a plethora of opportunities within Global Value Chains (GVCs). Foreign Direct Investment (FDI) is crucial in this process, and offers wide scope for backward linkages to the broader economy. In expectance of such benefits, Governments have engaged in various kinds of productive policy measures, including Export Processing Zones (EPZ). However, the costs of races to the bottom to accommodate foreign investors may outweigh the benefits. This research empirically investigates the creation of linkages from FDI within Ghana's EPZs, and finds that without a broader supportive policy environment such a policy may lead to enclave development, rather than provide a foundation for broad-based development.

Acknowledgements

List of Abbreviations and Acronyms

AC	Advanced Country
ASEAN	Association of Southeast Asian Nations
DC	Developing Country
DMO	Domestic Market Orientation
ECOWAS	Economic Community of West African States
EPZ	Export Processing Zone
ERP	Economic Recovery Programme
EU	European Union
FDI	Foreign Direct Investment
GIPC	Ghana Investment Promotion Centre
GVC	Global Value Chain
IEA	International Economic Association
IP	Industrial Policy
IP	Industrial Policy
IPA	Investment Promotion Agency
ISI	Import Substitution Industrialisation
ISIC	International Standard Industrial Classification
ITS	International Trade System
JV	Joint Venture

MENA   Middle East and North Africa

MNC   Multinational Corporation

NBSSI   National Board for Small-Scale Industries

NIC   Newly Industrialised Countries

NPP   New Patriotic Party

NSI   National System of Innovation

NSO   National Statistical Office

OECD   Organisation for Economic Co-operation and Development

POE   Privately Owned Firm

PSD   Private Sector Development

R&D   Research & Development

SAP   Structural Adjustment Programme

SME   Small & Medium sized Enterprise

SOE   State-Owned Enterprise

SSA   Sub-Saharan Africa

UNIDO   United Nations Industrial Development Organisation

WOE   Wholly-Owned Enterprise

WTO   World Trade Organisation

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1. Introduction

Transportation innovations, such as the jet engine and containerisation of produce, have laid the foundation for a dramatic surge in world trade, emphasised by leaps in information and communication technology. In parallel, a revolution in production and managerial processes worked to obviate the enormous vertically integrated firms of the early 20th century whilst, debt crises in large parts of the developing world allowed scope for institutionalising greater levels of trade openness and the liberalisation of capital markets through neoliberalism. Whilst developing economies have specialised in line with comparative advantage, so have firms by increasingly specialising in core competencies; focussing on narrow capabilities and outsourcing or offshoring less profitable parts of their production processes. Flows of direct foreign investment (FDI) have followed, growing an average of 17% over the period of 1980 to 2000, before dipping briefly during the mid-2000s and picking up at high pace again in the early 2010s (UNCTAD 2014). This process has provided entry into the global production system by allowing those developing countries flexible enough to specialise in the lower rungs of new *global* value chains; and has shifted policy rhetoric from *whether* to participate in global trade,

to *how* to do so effectively (Kaplinsky 1998, 2014; Wade 2013; Rodriguez-Clare 2008).

The developing world, and Africa specifically, has the potential to take advantage of this opportunity to (1) fill the so-called financing gap stemming from perpetually low saving rates and extraordinary levels of capital flight, unfavourable external borrowing capacity and aid fatigue (see e.g. Sachs; Brett 2009) and (2) pursue industrialisation. By processes of *thinning* in vertical or parallel value chains, and *thickening* in additive or sequential value chains (Kaplinsky & Morris 2012), countries can maximise so-called spillovers from FDI and embark on a process of broad-based economic development. In order to do so, not only active courtship of MNCs is needed, but also productive policy to maximise synergy between foreign firms and the domestic private sector.

Export processing zones (EPZs) are such a policy, paraded as the magical developmental bean of the East Asian New Industrialised Countries (NICs); they offer great possibilities in creating domestic backward linkages, which may in turn foster technological spillovers, and catalyse exports (Rodriguez-Clare 1996; Joverick 2004). However, SSA has had little success with EPZs, with just 9% of global zones in 1990 and 10% in 2006, which generate few jobs (ILO 2007) and rely heavily on textile products, with limited growth or linkage potential (Kaplinsky 1993; Jenkins 2004). **This paper argues that this is to be expected; without being embedded in a**

larger policy environment that can support the creation of linkages by fostering a dynamic entrepreneurial private sector, EPZs may lead to _enclave development._

Evaluation of the successfullness of EPZs as a policy initiative can therefore only be confucted in the context of the wider political and economic policy environment in which they exist or have been implemented. Therefore, this paper adopts a mixed approach to systemically analyse backward linkages from FDI in the Ghanaian context. The author works from a macro-level picture to micro-level analysis, in order to shape an understanding of the seedbed in which EPZs are expected to take root. This is accomplished by investigating three determinants of linkages from FDI: **ownership**, **technology** and **infrastructure** (OTI), in the context of a fourth, the **policy environment**. The African context is pertinent; little structural change has taken place, whilst persistent reliance on commodity seems unwise in the context of slowing global growth. Ghana is specifically interesting because it made a dramatic transition from socialism at independence - in which successive governments all but destroyed nascent capitalism - to the International Finance Institutions' (IFI) star pupil in terms of liberalisation, privatisation and deregulation in the late 1980s. Yet while FDI has been actively courted since the mid-1990s, it seems as if these schemes may not have created a dynamic interactive system of foreign and domestic firms, but rather a dual-sector like economy in which FDI operates in enclave-like

capacity. This is what the author seeks to explore by asking (1) has the Ghanaian policy environment failed to calibrate OTI in such a manner that an FDI-private sector nexus is inexistent? If so (2) do EPZs fail to foster linkages in this context?

The following part of this paper contains a theoretical foundation on the interaction between FDI and global value chains. Section 3 hones in on the role of industrial policy within this changing nature of global production, with specific reference to EPZs. In order to gain an understanding of the Ghanaian context, section 4 provides a chronological examination of the crucial relationship between the state and the private sector since independence.

Section 5 outlines the author's a methodological framework in relation to FDI linkage creation in Ghana and its EPZs, including a model proposed by the author that evaluates backward linkages with reference to the aforementioned OTI determinants. The penultimate section (6) provides the empirical results of this model, as well as a political economy analysis of the policies and actions taken by the Ghanaian government to attempt embedding FDI in the national economy. Section 7 concludes.

2. Global Value Chains and Foreign Direct Investment

2.1 Outward Foreign Direct Investment: the Multinational Corporation

As MNCs are the conduits of FDI, understanding the motivation that drives their cross-border investments is therefore crucial to evaluating policies aimed at attracting them. The theory of FDI was revolutionised by Hymer who argued in Coasian fashion that by trading knowledge internally, MNCs can act faster than two spatially distant firms, which have to re-negotiate conditions each time (Hymer 1968). Conventionally, FDI and MNCs were explained by neo-classical, macro-economic theory, which justifies foreign investment by the divergent costs of productions between home and host countries[1] (Bain 1956). At the time, the novelty of Hymer's theory was that it merged production costs and micro-economic perspectives on product differentiation, and emphasised the concept of control over *competitive advantages* in **imperfect** markets. According to Hymer, firms that operate in a foreign market are at an informational, cultural and familiar disadvantage in comparison to incumbent firms, exacerbated by exchange rate risk. To be profitable an incoming firm should therefore posses some form of market power or 'firm-specific advantage' like a strong brand name, marketing and management skills, economies of scale or cheaper sources of finance. Due to technological superiority such a firm may then introduce new products in the foreign market, and make monopoly profits

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[1] The foundation of Ricardian comparative advantage.

whilst protecting its specific advantages (Sodersten 1970; Hymer 1976; Graham & Krugman 1989; Soderston & Reed 1994).

Whilst comprehensive, Hymer's theory is unable to predict location and temporal FDI decisions as it ignores factors influencing a modern firm's decision to invest abroad such as local government policy, market conditions and size, and the reaction of rival firms to foreign entry. This led to four major theories: (1) the Product Life-Cycle (PLC) theory by Vernon (1966), (2) Knickerbocker's oligopolistic theory (1973), (3) the internalisation theory by Buckley and Casson (1976), which moved the conceptualisation of FDI from a country-level analysis to an industry and firm level approach, and (4) the OLI[2] or eclectic approach by Dunning (1977; 1979). Dunning's paradigm is widely regarded as the most comprehensive and ground-breaking work on FDI theories, and as it integrates the other major theories, adding location theory as a third component to the oligopolistic and internalisation theories, it functions as this paper's foundation for understanding FDI.

According to Dunning the "OLI triad of variables determining FDI and MNC activities may be likened to a three-legged stool; each leg is supportive of the others, and the stool is only functional if the three legs are evenly balanced" (1998: 45). The first variable consists of **ownership** advantages vis-à-vis other firms in the form of both tangible and intangible assets

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[2] Acronym for ownership, internalisation, and location

such as trademarks, production techniques, entrepreneurial skills, and
returns to scale - essentially Hymer's aforementioned firm-specific
advantages. These reduce production costs and allow a firm to sufficiently
outweigh the costs of servicing an unfamiliar or distant market (Hirsch
1976)[3]. The second encompasses the merits to **internalisation** of these
advantages rather than engaging in licensing or joint venture activities[4].
The third concerns advantages to using a firm's internalised ownership
advantages in one foreign market **location** over another, dependent on
Ricardian endowments like raw materials, a disciplined labour force, and
proximity to markets, but also the regulatory and commercial environment
such as market structures, special taxes or tariffs, and the absence of high
risk or uncertainty.

Locational elements provide the ultimate deciding factor when it comes to
FDI (table 1). This is pertinent to this paper since locational factors are at
least partially in the hands of host governments.

Advantage Entry	Ownership	Internalisation	Location
Licensing	Yes	No	No
Export	Yes	Yes	No
FDI	Yes	Yes	Yes

Source: Dunning (1980)

Table1: Dunning's Eclectic (OLI) Paradigm

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[3] Similar ownership endowments may be developed by any firm; home context
determines divergence between firms however (Dunning 1980).

[4] Internalization theory is strongly rooted in Coase's Theory of the Firm (1937).

2.2 Inward Foreign Direct Investment: Spillovers

From a host country perspective, evidence suggests that FDI should *ideally* create productive assets outside of the current capability of that country. Subsequently, through a variety of mechanisms, spillovers should raise its cumulative productivity, technological sophistication, and hence economic composition (Javorick 2004; Görg et al. 2011). Indeed, Blomström and Kokko (1998) emphasise the benefits of FDI on capital formation, employment, exports[5] and technology. Firstly, MNCs are likely to introduce new technologies and specifically drive diffusion (even as they aim to limit leakages) through user exposure to new products and imitation processes by domestic firms. Secondly, the nature of the firm-specific advantages of MNCs means that market entry is thought to force domestic firms to achieve higher levels of productivity and efficiency in order to stay competitive (Blomström & Kokko 1998; Girma et al. 2008). However, these claims are not without criticism, as a growing set of theorists has pointed out that MNCs may in fact outcompete local business to replace imperfect markets with exploitative monopolies that avoid taxation and repatriate profits, whilst fostering limited spillovers (Aitken & Harrison 1999; Rodrik 1999; Görg and Strobl 2001; Lipsey 2004).

This disagreement sparked a wave of empirical studies based on the groundwork of Caves and Globerman, which attempt to quantify spillovers

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[5] Market access and catalyst effect (Johansson 1997).

(Caves 1974; Globerman 1975). Focussing on productivity, these studies generally employ an industry's mean capital labour ratio ($\frac{K}{L}$) as a dependent variable, and measure the partial impact of foreign-owned capital. Many find a significant influence of FDI on host country firms conditional on the relative level of productivity of these firms (Blomström & Persson 1983; Blomström & Wolff 1994; Javorick et al 2009; Suyanto et al 2009; and Wang et al 2015). With reference to SSA specifically, several authors have found a more ambiguous link between FDI and host productivity (Managi & Bwalya 2010; UNIDO 2010).

2.3 Linkages

Investment (foreign or domestic) into any sector has the potential to create *linkages*: channels through which information, material, and capital can flow back and forth between different economic actors and sectors, creating networks of economic interdependence. Hirschman (1981) defined three types: fiscal, consumption, and production linkages. Production linkages are particularly relevant as they refer to the relationship between backward (upstream) supplying industries and forward (downstream) processing sectors. Forward linkages are theorised to occur infrequently, as both foreign and domestic lead firms have an incentive to prevent technology and knowledge spillovers in fear of competition (Javorick 2004). Firms may however attempt to outsource intermediate goods upstream,

increasing demand for intermediate products, and creating the possibility for economies of scale for local suppliers. Moreover, in order to cut costs firms may explicitly transfer knowledge, and stimulate production management and technology innovation within domestic firms (Joverick ibid.). Such backward linkages are widely acknowledged to occur in the presence of MNCs (Din 1994; Rodriguez-Clare 1996; Kiyota et al. 2008).

The possibility of backward linkages therefore provides a plausible alternative to Singer's (1950) enclave development hypothesis, which stipulates that lead firms in resource sectors will fail to stimulate linkages in developing countries due to limited supplier capabilities. However Kaplinsky (2014) finds that nascent civil society and new policy regimes are forcing foreign firms to employ more domestic inputs, thus *thickening* additive value chains. Simultaneously, buyer-driven demand for green products means lead firms are often required to fund upgrades of their entire value chain. In support of this thesis, several studies have found considerable backward linkages in the African resource sector (Bloch and Owusu 2012; Morris et al. 2012; Mbayi 2013; Kaplinsky & Morris 2014).

FDI may thus be seen as an appropriate solution to the resource gap, providing countries are able to reap any benefits. Indeed, the elusive nature of linkages means that it is crucial to understand the characteristics that maximise their occurrence and quality in terms of *stickiness* (Kaplinsky 2013) and content. The existing literature focuses on four determinants

that combine the two: (1) ownership, (2) hard and soft infrastructure[6], (3) technological absorptive capacity, and (4) the policy environment (Kaplinsky 2013).

Firstly, **ownership** is argued to have a distinct effect on the likelihood of linkage creation. For instance, there is consensus amongst many authors that majority-foreign owned companies (or JVs)[7] are more apt to create linkages than wholly owned firms (WOE) or MNCs (1) due to the informational advantage of domestic firms in sourcing, and (2) the likelihood of higher technological requirements for MNCs (Javorick 2009; Zhang et al. 2010; UNIDO 2013; Fatima 2015). In this vein, Stiglitz argues that JVs incorporate the best aspects of entrepreneurial privately owned firms (POEs) and the best of the bureaucratic MNCs (Stiglitz 2013). Furthermore, backward linkages may differ depending on the regional and national identity of a given investor. For example, Zhang et al. (2010) use a multivariate approach to demonstrate that a higher diversity of foreign investors leads to higher quality linkages, presumably because of increased scale and scope in newly introduced technologies.

Secondly, the significance of levels of **infrastructure** is emphasised throughout the literature. Physical infrastructure is seen to affect spillovers mostly by enabling geographical concentration within a country; proximity

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[6] Hard infrastructure consists of physical networks necessary to allow modern economic activity; soft infrastructure of the financial, educational, and legislation institutions needed to uphold economic, health, and social standards of a country.
[7] With the distinction lying in the division of decision-making power

increases the likelihood of demonstration and imitation effects positively impacts upon human capital accumulation and labour turnover, as well as enhancing inter-firm linkages (Angel 1989; Aitken et al. 1997; Enright 2000 & 2003)[8]. To illustrate, these mechanisms are confirmed by a convincing study on Mexican manufacturing by Jordaan (2005). In contrast, Clare (1996) argues that reducing the costs of communication may reduce local sourcing, as MNCs will be better able to coordinate material needs with far-off headquarters.

Thirdly, the importance of **technological absorptive capacity** [9] is emphasized by a plethora of papers on linkages (Keller 1996; Caves 1999; Glas & Sagg 1998; Blomström & Kokko 2003). The concept of a technological gap is strongly embedded in the literature on catch-up growth (e.g. Gerschenkron 1962), with several authors interchangeably using absorptive capacity and the differentials in the level of development between host and home country. Focussing on this technological gap, productivity differences between foreign and local firms in the same industry are used to confirm the importance of absorptive capacity (Haddad and Harrison 1993; Blomström & Wolf 1994; Jordaan 2005). Using a measure of R&D spending by local firms to proxy for the National System of Innovation (NSI), Kinoshita (1999, on the Czech Republic) and

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[8] Economic geography literature provides a thorough understanding of this.

[9] Host country ability to absorb new knowledge from international investment.

Kathuria (2001, on India) show a strong positive relation between R&D expenditure and market interaction with foreign firms.

Importantly, Zhang et al. (2010) find that an 'intermediate' knowledge gap between domestic and foreign firms in an industry allows for efficient linkage creation, and hence argue for the deliberate intervention by governments to allow those investments that are at a sizeable technological reach of domestic firms; Saxena (2011) corroborates these findings with her study of India. The logic behind this mechanism is that a small gap implies limited scope for potential externalities, and "the size of potential gains is positively related to the willingness of managers to invest in skills and capacity that allow knowledge transmissions to take place" (Rodrik 2005: 2106). In other words, a measured gap can function as a metaphorical carrot for domestic firms.

The nature of the three determinants above underlines the necessity of the fourth: **the policy environment**, specifically the willingness and capacity of the state to define and implement effective strategies to promote linkages. As Saxena puts it, "an entrepreneurial society acts a conduit for knowledge spillovers" (2011: 1285) and hence governments should calibrate an environment conducive to domestic enterprise engagement with foreign firms. There is therefore a crucial role for developing country governments to control the pace and regularity of foreign entry (Wang et al. 2012) and the diversity of investments (Zhang et al. 2010) to force the incidence of

spillovers. Furthermore, the appropriate ministries should be involved in regulating the level of export orientation of foreign (and domestic) firms as simple export orientation is not sufficient for spillovers; in fact, domestic-market orientation (DMO) appears to be the most conducive to backward linkages (Fatima 2015; Jenkins 2004; Girma & Görg 2002).

Whilst many authors argue that individual (O, T or I) factors are crucial to linkage development, the importance of the greater policy environment cannot be understated in allowing them to function in tandem. The above points to the necessity of a strong state willing and able to shape a business environment that allows indigenous capacity to build up so that the private sector can interact with foreign capital on an equal level, and create linkages. These developments do not appear automatically, indeed a *developmental* state may be required that employs sector-specific industrial policy, and is involved in tight collaboration with the business sector on top of the provision of this conducive environment. This will be addressed in the following chapter.

3. Industrial policy

The cumulative failure of state-led growth in SSA and Latin America, allowed neo-liberal orthodoxy to claim that the state is 'incapable of

picking winners' (Easterly 2009; Summers 2011; Williamson 2012) and hence industrial policy (IP), which is defined here as policies aimed at shaping the sectoral allocation of the economy, became conflated with inefficient government protection of favoured industries and cronyist activities at the expense of economic growth. The agreed IFI wisdom was that IP couldn't be tried in lesser-developed countries as compulsive politics, pervasive corruption, and inadequate bureaucracies were said to make it ineffective or even counterproductive.

Yet, the developmental role of the state has steadily regained acceptance amongst scholars since the 1990s (Rodrik 2004; Chang 2008; Wade 2014). Firstly, the assumption that governmental failure outweighs market failure seems biased, as markets are ultimately a political construct (Chang 2003). Secondly, when it comes to knowledge deficiencies, late developers have the advantage of 'dynamically' growing countries as a policy-example, whilst the low-technological content of domestic industries means that coordination requires but limited ability. Indeed, Stiglitz (2013) argues that even broader or simplistic industrial policies have positive effects as long as the "playing field is titled towards sectors with positive spillovers" (p.10). Thirdly, there is space for rent seeking[10] in every type of public policy, yet IP is the only type that is actively discouraged.

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[10] The inexhaustible argument against the median African state

Fourthly, policymakers in the developing world have realised that innovation and entrepreneurship have not miraculously appeared in early or late developers; and that many advances countries (ACs) have actively supported domestic industries by more covert IP means such as R&D funding [11], and indirect subsidies for the past century. The revisionist literature on the East Asian miracles (or NICs) has unveiled the extensive nature of the targeted policies that respective governments used in order to effectuate catch-up growth, in stark contrast with earlier work that championed these countries as pioneer of *laissez-faire* export-led growth. Wade (1990), Amsden (2001), Chang (2003), as well as others argue that the most successful developing nations intervened to provide comprehensive subsidization of manufacturing industry in order to "shift the center of gravity of their economies away from primary product-based assets toward knowledge-based assets, the essence of economic development" (Amsden 2001; 8). As a result, the NICs built up industries far beyond their comparative advantages at the time (Chang 2003).

Fifth, the Great Recession of 2008 has demonstrated the extent to which developed countries are willing to go to protect their economies by means of subsidies, printing money, and bailing out (inefficient) industries, which has justified renewed interest in industrial policies within developing

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[11] The US government accounted for almost 50% of national R&D for much of the 20th century (Laredo & Mustar 2001)

countries (DCs). Further, the failure of any accepted economic models[12] to predict the occurrence, let alone the magnitude, of the crisis has led to a comprehensive revaluation of the ways in which, many academics regarded previously held conventional wisdom vis-à-vis the role of the state in the economy (Wade 2014).

Finally, a significant proportion of economists now argue that specialisation according to static comparative advantage does not drive economic growth. Instead, according to Lin's (2013) *new structural economics*[13], it is the structural transformation of economies driven by industrialisation, technological innovation, and industrial diversification that bring economic growth. According to this theory, since the private sector will fail to make the necessary investments, a strong state is required to guide an economy towards its dynamic comparative advantage, by modelling itself after countries with comparable endowments but higher levels of income[14]. Thus, there appears to be a definitive role for IP, or rather *productive policy*[15], which once "considered anathema among mainstream economists and in the public discourse, [...] has [therefore] become a matter of almost common sense" (Stiglitz et al. 2013: 6; IEA 2012).

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[12] Which generally do not incorporate finance in their calculations.

[13] Inspired by Kuznets' 1966 work on long-run economic transformation.

[14] See Lin 2013 for a complete review of this theory.

[15] Used interchangeably from hereon.

3.1 Policy Space

Whilst this paradigm shift appears to have impacted upon developmental and governmental thinking, the international consensus on the implementation of productive policy is determined by the WTO, whose conventions prevent the use of most hard policies as they used by the NICs such as tariffs. Paradoxically, it does allow for more soft measures such as amelioration of Dunning's location factors. For governments in Africa, this means that the available policy space should be used to craft two-pronged approaches to productive policy, consisting of attracting "good" FDI (within reach of domestic supplier capability), whilst drastically expanding the capabilities of domestic entrepreneurs and the infrastructure that supports them. By default, this approach will be context specific, and the tools individual countries can use may vary.

3.2 Export Processing Zones

The basic premise behind the EPZ is the creation of an agglomeration of manufacturing activity (Porter 1985; Enright 2000 & 2003) where foreign firms agree to settle in and export from, in return for exemptions on duty for imports of capital and intermediate goods, a steady supply of low-cost labour, and various other incentives. An EPZ is expected to entice foreign investors, launch local manufacturers into world markets, and become embedded in the creation of an industrial structure capable of developing

independently (Basile and Germidis 1984; Warr 1990). Firms within EPZs often function as "catalysts" for domestic firms to start exporting, as there is a strong rationale for local firms to internalise new superior technology and leapfrog the trial-and-error process involved in average innovation (Johansson 1997; Driffield et al. 2002). Indeed, Tetsu's (2006) general equilibrium model suggests that EPZs have the greatest positive effect when they foster strong backward linkages. As with FDI, research indicates that countries should aim to attract segments of GVCs to EPZs, or risk the possibility of enclave-development when linkages fail to emerge. The debate surrounding EPZ use is therefore divided. The neo-liberal perspective views them as a second-best solution used to avoid full-scale trade liberalisation and argue that EPZs will fail to attract domestic investment due to lower returns, whilst inflows of capital will usurp labour from labour-intensive sectors (Hamada 1974; World Bank 1989; Madani 1999; OECD 2007). Others underline the potential for EPZs to function as a substitute to the 'shock therapy' of immediate liberalisation (Rodrik 1999).

Case studies of EPZs have come to a multitude of conclusions. For instance, Kaplinsky (1993) finds that EPZs focused on unskilled labour-intensive export processing in the Dominican Republic led to *immiserising*[16] growth due to a pursuit of static comparative advantage, while studies of Mexico's maquiladora programme found it to be a

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[16] A paradoxical situation in which economic growth leads to actors being ultimately worse off

precedent for free trade in line with neo-liberal orthodoxy (Castillo and Acosta 1993; Berry et al. 1997). Schrank (2001), compared South Korea and the Dominican Republic, arguing that legacies of ISI drive cross-national variation in EPZ success; he stipulates that countries without a relatively developed industrial base will be unable to provide inputs to EPZs, exports to world markets, or support a political coalition able to construct an enabling policy environment. Moreover, the author posits that EPZs are likely to be a function of larger state capacity since their level of embededness will depend on the same factors that foster linkages. Indeed, country and industry specific characteristics affect the type and quality of spillovers greatly, including a broad set of socio-economic, structural, and locational indicators (Miyagiwa 1986; Basu 1996a; Konings 2010; Kaplinsky 2013).

It is therefore instructive to understand the political and economic forces that have shaped the climate in which EPZs are expected to proliferate. From this perspective, state-business relationships are particularly salient in relation to capable private sector willing (in terms of risks) and technologically able to interface with foreign firms, which will be discussed in the next section.

4. Ghana: the early developmental state?

4.1 1957-1983

Since 1960, the median year of African independence, state-business relationships have defined economic development, and hence influence policy choices available today. To understand FDI-focussed industrial policy in SSA, and Ghana specifically, it is therefore illustrative to view it in the perspective of continent-wide development narratives since. Leaders such as Ghana's Nkrumah sought to shake off the shackles of underdevelopment and dependence (Killick 1978; Austen 1987; Kennedy 1996; Mkandawire 2015) and reinforced by the contemporary academic consensus on industrialisation as the engine for growth, embarked on national industrialisation projects by means of ISI (Lall 2005; Rodrik 2007; Hesse 2008). The inherited institutional endowment of most African countries meant that the state was the only national organisation capable of picking winners and providing finances for these efforts (Mkandawire 2010). Therefore, across the continent governments placed considerable emphasis on parastatals in more socialist countries like Ghana and Tanzania, while industrialisation by invitation was the norm for more right-leaning countries like Côte d'Ivoire (e.g. Campbell 1995). In both cases, this meant automatic stifling of potential indigenous capitalists (see e.g. Lubeck 1987; Ridell 1993), whilst the fears of rival sources of authority and ethnic rivalries led to deliberate undermining of such a class emerging.

Nkrumah confined local capitalism to small-scale operations, and a few insiders with special access to soft infrastructure[17] such as import licenses (Bates 1981; Opoku 2008) in a system dubbed *suppressive capitalism* by Illiffe (1973). This handicapped the emergence of a capitalist class in two specific ways. Firstly, it gave enormous influence to the state through its cocoa-purchasing marketing board (CMB)[18], and the subordination of private property to the needs of the state. Secondly, import controls to accumulate foreign exchange reserves meant existing domestic enterprises were unable to import required inputs, leading to collapse and large-scale migration of capitalists (Williams 1967; Killick 1978). Nkrumah's destructive policies led to his overthrow in 1966, and a brief reversal of statist economic rhetoric, which saw the attempted privatisation of 68% of the manufacturing industry (Due 1969). Yet these efforts were unsuccessful in stimulating indigenous capitalism due to an absence of financial capital, and the subsequent coup of 1972 renewed suppression of native entrepreneurship (Williams 1967; Kennedy 1977), causing massive capital flight and informalisation, whilst chronic mismanaged macro-economic policies and (new) inefficient SOEs led to high inflation. The Rawlings' government (1981-1983) further fuelled anti-capitalist sentiment and called for a destruction of the 'propertied classes' (Jeffries 1989); the regime

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[17] A term borrowed from Kaplinsky (2013).

[18] The CMB held a monopoly on cocoa purchases, paying farmers far below world prices.

violently regulated markets, and banned the import of raw materials (Ahiakpor 1991).

Cumulatively, the immediate post independence period of Ghana was thus marked by an entrenching sense of distrust between the government and domestic as well as foreign investors, which impacts heavily on the stock of indigenous entrepreneurship available to this day.

4.2 Structural Adjustment and beyond

Economic recovery programmes (ERP) during the 1980s sought to shift public opinion and support in favour of the private sector as the state promoted PPP schemes and mostly ceased harassment of entrepreneurs (Lyon 1999; Opoku 2008). Formally, the government recognised that the future of Ghana's development lay in private sector export-led growth and hence efforts were made towards using local capitalism for a renewed industrialisation push. In this vein, the government adopted a liberal investment policy, with the goal of attracting foreign investment whilst promoting JVs (Arthur 2002).

The few indigenous manufacturing firms that remained after years of parastatal dominance and protectionism, were small, inefficient, and operated far below capacity (Opoku 2008). Hence, while trade liberalisation spurred high manufacturing growth rates in the short run, output quickly stagnated. In fact between 1995 and 1999, an average of over 470 firms

collapsed a year (CEPA 2000), and as costs of production rose, imports became cheaper further strangling former infants (Riddell 1993; Lall 1995; Opoku 2008).

Nevertheless, while manufacturers frequently appealed to the state for protection to save local industries from extinction, the official consensus in the state was to uphold neoliberal policies. According to Handley (2008), this disjuncture between the state's vision and the needs of society was due to the limited development of a united business class able to influence politicians or policy making, with state-business relations in Ghana have remaining incapacitated by neo-patrimonialism and rent-seeking. In the long run these events may prove detrimental for the cohesive capitalism that typifies successful private sector driven development in many late developers and was a trademark of the developmentalist ideology of the NICs (Chang 1994; Evans 1995; Kohli 2004; Taylor 2007), and hence impact on the ability for private sector actors to engage with foreign investors in a capable manner.

4.2.1 Investment Promotion and the Ghana Free Zone programme

In this context, attraction of FDI became a priority for the Ghanaian government as signified by the adoption of a new mining code (1986), and new investment code (1994). In 1995, the Ghana Free Zone (GFZ) programme was launched to establish EPZs in a bid to promote the processing and manufacturing of goods, and market the country as a trade

and investment gateway to West Africa (Angko 2014). In a slight variation on the normal practices, the programme allows enterprises to be located within physical EPZs, and anywhere throughout the country in what is known as the Single-Factory scheme (GIPC 2015). Since inception, four physical zones have been designated in Tema, Ashanti, Sekondi and Shama Whilst the literature on backward linkages of EPZs in general is very limited, a small number of studies have been conducted on the GFZ. John Kuada (2005) provides a relatively comprehensive analysis based on very limited data, while Angko's (2014) work lacks analytical depth. The literature that does exists points to the fact that even though views of the private sector have improved since the ERP, it still does not have the ability to compete on the international stage (Arthur 2006; Mensah 2012).

In order for an EPZ to have developmental qualities, and hence warrant its high costs, backward linkages should occur. The author posits that in order to evaluate whether this is the case, it is crucial to analyse the situation empirically, and investigate findings along with the larger political economic developments since the 2000s: Ghana's self-proclaimed *golden age of business.*

5. Methodology

5.1 Ownership, Technology, and Infrastructure (OTI) within Policy (P)

Building on Kaplinsky's four determinants, (1) **o**wnership, (2) **t**echnological absorption, (3) **i**nfrastructure, and (4) the **p**olicy environment, the author proposes the following identity in order to analyse the existence and creation of backward linkages:

$$Linkages\ from\ FDI = \ (\text{OTI}|\text{P}) \qquad\qquad (1)$$

The reasoning behind this approach is that the policy environment of any given country will determine the range of possible outcomes within O, T, and I factors respectively. Therefore the author will test the following hypothesis:

H_1: in a policy environment that fails to calibrate OTI to enable a private sector-FDI nexus, backward linkages from FDI will not emerge

Leading on from this, the author tests a second hypothesis:

H_2: in the context of a missing private sector-FDI link, EPZs will resemble enclaves in the host economy

To isolate specific variable effects, the analysis will be two-fold: firstly, the author proposes an empirical model to quantify the interaction between OTI and backward linkages. Secondly, results of the empirical model will be

contextualised by performing a political economy evaluation of the policy environment in Ghana with respect to OTI. Finally, the GFZ programme will be placed within this broader context

5.2 Data

The empirical model created for the analysis makes use of the Ghana sample [19] in UNIDO's Africa Investor Survey (AIS 2010), which was conducted from 2010 to 2011 and covers over 700 variables for 7000 firms from 19 different SSA countries. The data is based on face-to-face interviews with managerial representatives from selected private domestic firms, joint ventures[20] and MNCs (fig. 1), and verified by means of UNIDO field checks, algorithmic consistency checks, and repeat visits to respondents.

The strength of this survey lies in the fact that it involves cooperation of specifically mandated implementation committees comprised of investment promotion agencies (IPAs), national statistical offices (NSOs) and main private sector organisations (UNIDO 2011). Furthermore, the questions posed allow a comprehensive insight into investment decisions and

Figure 1: ownership in Ghana

34.2%

57.7%

8.1%

Domestic
Joint-Venture
Foreign

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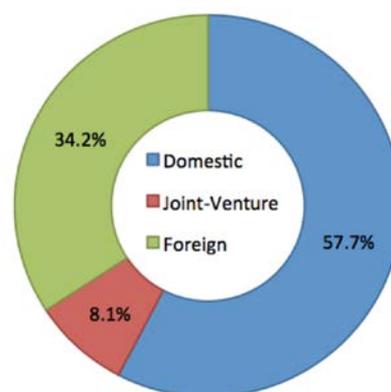
[19] Summary statistics in Appendix 2.

[20] Between 10% and 90% foreign ownership.

incentives, local procurement, R&D and technology adoption, as well as the origins of specific investments. It therefore provides a formidable foundation for this research.

5.3 The Model

5.3.1 Dependent variable

The dependent variable (BL_i), a proxy for backward linkages, is equivalent to the ratio of the value of locally produced inputs to total inputs for a given $firm_i$

5.3.2 Control variables

The base model, on which each subsequent model builds, includes measures of physical capital intensity, proxied for by the capital-labour ratio (KL), and logs of human-capital (L), physical capital (K) and sales (S), to function as proxies for size. Therefore, the base model is as follows:

$$BL_i = a_i + \beta_1 \ln(K)_i + \beta_2 \ln(L)_i + \beta_3 \ln(S)_i + \beta_4 (KL)_i + \beta_5 \ln(Age)_i +$$
$$\beta_i(O)_i + \beta_i(T)_i + \beta_i(I)_i \; \varepsilon_i \tag{2}$$

Where the $\beta_i's$ O, T, and I takes on values for the various proxies of the independent variables (below).

5.3.3 Explanatory variables

Ownership

From the theoretical discussion in section 3.2 it is clear that ownership can be analysed from a number of perspectives. Firstly, there is the potential difference between WOE's and JV's, with the latter viewed as more beneficial for backward linkage creation according to the literature (Zhang et al. 2010).

Secondly, there is the question of nationality, which can be directly addressed as the dataset provides us with the country origins of the surveyed investors. The first step then is to determine whether foreign firms compare unfavourably with domestic firms in terms of backward linkage creation. Subsequently the depth of the dataset allows us to increase our level of detail in a stepwise manner: investors from the global North and South, regional origin, and finally specific country of origin (e.g. China).

The coefficient of foreign ownership is hypothesised to be negative, while Northern investors are predicted to be less likely to foster backward linkages than Southern investors, since they are less familiar with the market. Yet in line with the current debate on Chinese investment into Africa, the authors predict limited backward linkages compared to other investors, ceteris paribus.

Technological Absorption

Due to a lack of one definite measurement, absorptive capacity is generally proxied for by assessing the level of capabilities in the local economy (e.g.

human capital), evaluating the National System of Innovation (NSI), or quantifying the gap between firm capabilities and the particular demands of a given industry (Kaplinsky 2013).

Since the data allows segregation by ISIC code and capital intensity, it is possible to approximate the level of input sophistication likely to be required by a specific investor. Hence, a statistically significant fall in the level of backward linkages for a higher level of technological sophistication, points to the potential existence of a technological gap.

Infrastructure

Since general indicators of infrastructure quality are fixed per country, it is usually challenging to identify a proxy that will measure the effects of infrastructure on individual firms' backward linkage creation. Since, the AIS data provides information on the amount of time a given firm takes to obtain its operating license, this information can function as a proxy for soft infrastructure.

A proxy segregating the sample by location will measure hard infrastructure, the author anticipates that backward linkages will be ambiguous in the countryside, as capacities are likely to be lower than in cities, whilst access to imports will be lower in the countryside.

5.3.4 Model specification

The dependent variable can take on any value in the interval **[0,1]**, including large clustering at either end[21]. It therefore poses a problem for standard regression models, which can either account for dichotomous responses (0 or 1), or a percentage within the interval **(0,1)**. A possible solution for this type of data is a two-step model in which values within the interval **(0,1)** are transformed into logs, whilst values of 0 are artificially inflated to be marginally different from zero. Indeed, to circumvent this inherent difficulty, other analyses of backward linkages have used either a variation on tobit-regression models (e.g. Görg et al. 2011), or linear models with log transformations (e.g. Kiyota 2008).

Whilst these models perform relatively well for panel data, the author argues that for cross-sectional, single country data, a **fractional probit regression** model as proposed by Papke and Wooldridge (1996, 2008a), is more suitable. Indeed, the probit function allows the author to estimate the effects of the independent variables whilst maintaining robust and relatively small standard errors. Furthermore, a one-part model is the most appropriate for analysing the results from a utility maximising decision (2008), which the author assumes the decision to source locally falls into. The model therefore becomes:

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[21] The response satisfies $0 \leq y \leq 1$, with observations of $P(y = 0) > 1$ and $P(y = 1) > 0$ occurring; i.e. companies that source all their inputs either inside or outside of the country.

$$E(y|x) = \Phi(\beta_0 + x\beta) = \Phi(\beta_0 + \beta_1 \ln(K)_i + \beta_2 \ln(L)_i + \beta_3 \ln(S)_i + \beta_4 (KL)_i +$$

$$\beta_5 \ln(Age)_i + \beta_k (Proxies)_k) \tag{3}$$

Where $\beta_k(Proxies)_k$ takes on the value of the proxies suggested above[22].

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6. Findings

6.1 Main empirical results

The output of equation 3 (table 2) provides us with the estimated marginal effects of the specified covariates on the dependent variable BL_i, however to calculate the magnitude we will need to estimate the conditional effects by differentiating BL_i with respect to our variables of interest.[23] The first set of models consists of estimations of the different proxies for ownership (O) effects, the second set features the sectoral proxies for technological absorption (T), and the third set estimates the effects of soft and hard infrastructure (I) respectively.

6.1.1 Ownership

First, focussing on the general distinction between domestic and foreign investors (model O.1), the sign of the *foreign* category of the *ownership* coefficient shows a strongly significant negative partial effect on the dependent variable. This finding corroborates the idea presented above: that **spillovers do not automatically occur from merely attracting FDI**. Indeed, differentiating the value for foreign ownership suggests that foreign companies in Ghana source 23.3% less inputs locally than domestic firms,

Table 3: Partial effects of *zone*

Origin	#	dy/dx	%diff
ASEAN	5	-0.315 ***	-
other OECD	5	-0.301 ***	1.4%
ECOWAS	7	-0.297 ***	1.8%
China	21	-0.287 ***	2.8%
MENA	32	-0.249 ***	6.6%
EU	59	-0.228 ***	8.7%
South Africa	4	-0.212 *	10.3%
India	30	-0.168 **	14.7%
US	8	insig.	-

note: dy/dx signifies discrete change
from base level, ceteris paribus

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[23] See appendix 4

ceteris paribus. Considering then the coefficient on the JV categorical dummy, JV's are 4.8% more likely to source locally than fully foreign owned firms.

Having established the comparatively negative effect of foreign ownership on local input share, it is be interesting to split FDI origins into those from the Southern and Northern hemispheres respectively (model O.2). Significant to 1%, the categorical variables South and North both show negative signs corroborating the earlier hypothesis; differentiating, contrary to expectations **Southern investors in the sample are 4.8% less likely to source locally than Northern investors are**. This finding implies that the 'familiarity' of developing countries with one another is not necessarily a guarantee for reciprocal development. However, to shed further light on the different effects of ownership origin, the analysis moves to yet another categorical variable.

The *Zone* categorical variable divides the sample into regional origins by economic grouping. [24] Differentiating all categories (apart from the insignificant US) with respect to *BL*, yields the results in table 3. For ease of analysis, the region with the most negative partial effect (ASEAN) has been taken as the base category, with the other regions measured in comparison (%diff). The picture that emerges is not as clear-cut as the hemispherical distinction above suggests, instead there seems to be a

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[24] Excluding the US, South Africa, India and China, reflecting their relative size and economic strength within their respective regions.

more **multifaceted correlation between an investor's origin and respective likelihood of engaging in backward linkages**. Again it is important to note that neighbours (ECOWAS) do not necessarily guarantee development-oriented results. However, Indian FDI interestingly seems to have the largest propensity for sourcing inputs locally. Comparatively, Chinese, Filipino, and Korean (other OECD) investors seem to fall behind the other large blocs, while the EU and the Middle East paired with North Africa (MENA) feature in the middle range.

These findings suggest that **it is crucial for the Ghanaian government to actively lobby investors from certain origins, if it seeks to maximise the FDI embedness in the economy.** Furthermore, it may be prudent to investigate the specific behaviour of these investors, for which this study lacks the scope.

6.1.2 Technological Gap

Moving to the second model set, focus is shifted to technological absorptive capacity (T). Splitting the sample into three levels of relative capital intensity (primary, secondary, tertiary), the estimates (T1) show that the model dummy for the secondary sector is insignificantly different from the base level (primary sector). Seeing as the primary sector forms such a small part of the sample, it seems reasonable to try another model (T2), which combines the two and differentiates them from the tertiary sector. This yields a strongly significant negative partial effect (to 5%), whilst the

constant remains very significant, justifying the decision to merge the categories.

Figure 2: Sector % by ownership

Figure 2: Sector % by ownership

Differentiating the value for *Tertiary* (Appendix 5), the model predicts that **companies operating in the tertiary sector are 12.8% less likely to source locally than are companies in either the primary or secondary sector.** This finding lends credence to the claim that the indigenous private sector has an inability to supply more 'technologically advanced' actors. Furthermore, it shows foreign firms shouldn't necessarily be encouraged to invest in the tertiary sector, even though they are currently 1.5 times more likely to than both domestic and joint venture firms (fig. 2).

Focussing on the secondary sector specifically, the fitted values of the dependent variable shows that of those firms operating in the secondary sector, **domestic firms source around 42% of their inputs locally, whilst the same figure is only 9.5% for all non-domestic firms** (Appendix 6). What is important to note is that foreign and domestic firms are proportionally distributed across the manufacturing sub-sectors, and hence the difference in sourcing patterns cannot be explained by technological *requirements* per se.

Delving into the secondary sector further, the focus is placed on a few sub-sectors by ISIC-code with relatively high overall activity[25]. Looking at the average value for local input usage (table 4), there is strong divergence between domestic and foreign firms on a sub-sectoral level.[26] Moreover, in most sectors foreign firms appear to make no use of local suppliers, even though these seem to be sufficiently capable to supply to domestic firms in the same sector. Interestingly, domestic firms in the non-metallic product and machinery & equipment sectors (26 & 29) appear to use predominantly domestic inputs, whilst the foreign firms in these sectors use none. In fact, only in the basic metals section are domestic and foreign firms on par with wood manufacturing and furniture coming close. This shows that **there exists a clear disjuncture between domestic suppliers**

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[25] This includes sectors with more than ten firms; apart from machinery and equipment, which the author believes to be a systematically important sector.

[26] These interactions are mostly robust as shown in the *interaction* column (appendix 7).

and foreign firms, which on the surface does not seem to stem from a sort of technological gap.

6.1.3 Infrastructure

To investigate the third pillar of our framework, the author turns to soft infrastructure. Using the base model with zonal dummies, a continuous variable *Licensing Time* (I.1) is added. As predicted, the estimated coefficient is negative (to 1% significance). Differentiation shows that a partial effect of -.000895 (appendix 5), which means that the average

Table 4: Manufacturing and local input %

Sector		Local input use and firms				Interaction
ISIC	Name	Domestic	#	Foreign	#	
15	Food & Beverages	58.4%	15	8.1%	8	***
20	Wood manufacturing	62.3%	26	38.7%	9	non-sig
24	Chemical products	36.9%	17	3.3%	12	non-sig
25	Rubber & Plastics	5.7%	7	1.9%	22	***
26	Non-metalic products	75.6%	16	0.0%	4	***
27	Basic metals	31.0%	10	35.0%	3	**
28	Fabricated metal	34.9%	22	6.3%	16	non-sig
29	Machinery & Equipmt	67.0%	3	0.0%	2	***
36	Furniture	40.0%	5	22.5%	4	***

notes: ISIC according to ISIC Rev.3 2-digit codes
* $p<.1$; ** $p<.05$; *** $p<.01$

impact of each extra day spent waiting on licensing, reduces the average share of locally sourced inputs by approximately .089% or **8.9%** for every 100 days. Hence, efforts to increase the general business climate can considerably contribute to fostering backward linkages.

Turning to hard infrastructure, the categorical variable *City* compares investments into rural Ghana with those in Greater Accra and Kumasi, the largest coastal and inland national industrial hubs respectively (I.2). Both

dummies are significant, and predict that **companies located rurally are more likely to source domestically than those located in the cities**. Furthermore, differentiating the dummy values for Accra and Kumasi with respect to the dependent variable shows that **companies in Kumasi source approximately 11% more inputs locally than those in Accra**. This makes sense as locations in the countryside will have limited access to imports, but also poses a clear dilemma, as industrialisation for export is more beneficial close to sea- and airways.

Emulating the procedure in section 6.1.2, the average numbers for domestic and foreign firms respectively can be compared. Captured in table 5, it is noteworthy that when controlling for access to modern infrastructure, **domestic firms source approximately four (4) times more locally than foreign firms in all cases**. However closer scrutiny of the numbers reveals that in fact, foreign firms are much closer to parity with domestic firms in the city areas than in the rural areas (column X). Hence, modern infrastructure does seem to have a benefit in the search for backward linkages from FDI.

6.1.4 OTI in summary

Cumulatively, the findings presented above demonstrate an enclave like status quo of FDI, as MNCs fail to become properly embedded into the

local economy in terms of backward linkages. What is clear however is that there is a complex relationship between backward linkages and the OTI determinants. Firstly, **there seems to be a greater endogenous propensity for backward linkages connected to investments from specific regions** (e.g. India, South Africa, and the EU). Secondly, **there appears to be a disjuncture between the indigenous ability to supply domestic firms versus foreign firms, in all sectors.** Thirdly, **the availability of modern infrastructure seems to promote imports rather than local supply**. Hence, we need to look at the wider political economy, to understand the disjuncture between the intent behind actively attracting foreign investment, and the apparent failure to create a private sector able to adequately interact with it.

6.2 The policy environment of the Golden age of Business (2000 – present)

6.2.1 the New Patriotic Party (NPP) and the private sector

The NPP was resolved to preside over a so-called "Golden age of business" for Ghana, which would build on the liberal policies implemented by its predecessors, enhance private property protection, and improve basic service delivery (Arthur 2006). Recognising the need for participation in the global economy, a pillar of economic policy was the promotion of externally oriented (private sector) trade and industry. In this vein, the NPP

introduced three strategic documents in the mid-2000s: the Private Sector

Development Strategy (PSDS) phase I (2005-2009), phase II (2010-2015),

and the Ghana National Industrial Policy, to be catalysed by the former

two. Cumulatively, these initiatives were intended to develop a thriving

private sector by creating a more business friendly investment climate and

spurring economic transformation. The intention was to specifically reduce

the costs and risks of doing business, reducing the infrastructure deficit,

and developing an efficient financial sector to increase private sector

access to affordable credit and innovative products (Mensah & Addo

2012).

The launch of the President's Special Initiative (PSI) is a prominent example

of the efforts within PSDS I. It embodied a range of policies targeting the

private sector, ranging from increased subsidies for current comparative

and competitive advantages such as cassava, textiles and garments (Apraku

2002), to an export roundtable providing targeted credit facilitation, aid in

market access, product development management and quality assurance

(Arthur 2006). Similarly, the public procurement law was intended to

deepen local technological capabilities to some extent: modelled on similar

steps taken by the NICs, local enterprises were to be given preference in

bids for government contracts. If managed effectively, these policies were

hoped to be a source of risk-mitigation for entrepreneurs and equip

indigenous SME's with the capabilities to engage with MNCs more

professionally and eventually compete with them. However, the functioning of such initiatives can only succeed in the context of a broader enabling framework for business, which appears patchy at best.

Firstly, access to long-term funds for both business start-up and expansion, one of the major problems faced by domestic entrepreneurs SSA-wide, cannot be guaranteed. Several schemes have been set up to guarantee relatively low-costs loans backed by government guarantees through the National Board for Small-Scale Industries (GoG 2003), necessary to support an environment in which firms are able to react to market signals and supply those businesses slightly higher up in the production chains. However, the proposed cheap loans have failed to materialise, with 'micro-credit' from the NBSSI charging over 20% interest (Arthur 2008). Meanwhile, existing private lending institutions are reluctant to lower their evaluation criteria, further worsening the gap as most private business lack well-articulated management structures (Evans 1999; Berman 2003).

Secondly, there appear to be pervasive chasms in infrastructure, demonstrated by a lack of access to information on external markets, inadequate physical infrastructure, and regular power outages both in urban and rural areas (Kufour 2008; Mensah 2012). This strongly hinders marketing sophistication of local firms and negatively influences their reliability as well as potential investment (Kwaku 2002). Furthermore, it means firms lack the dynamism generally associated with the SME sector

and have a *pre-capitalist* orientation towards production (Berman 2003), exacerbated by general disdain for universalised quality standards stemming from the history of unbounded infant industry protection (Arthur 2006).

Thirdly, the Ghana Investment Promotion Centre (GIPC), has been mandated to actively court FDI by means of "incentives and marketing strategies […], dissemination of investment opportunities [and] promotional activities … to present Ghana as an ideal investment destination" (GIPC Act 2013: 2). Yet it seems to have failed in attracting the type of FDI that would invest in developing local suppliers or spur the broader development as evidenced by the model above. In this case, attempts by governments to attract capital in the form of FDI by offering special tax breaks are not likely to yield the expected beneficial effects if the regulatory quality is low (Busse & Groizard 2008).

Hence, there seems to be an inherent chasm between the conviction of the spoils from FDI, and an actual systematic approach to fostering these benefits. The failure of the government to adequately coordinate and support the private sector means that entrepreneurs are discouraged to take on risks. Consequently related and supporting industries are failing to emerge and SMEs are limited in their market interactions to the indigenous market and 'less substantial' MNCs (Opuku 2010). Reflecting on our earlier findings, it may thus be that foreign companies simply prefer to

make use of cheaply imported inputs rather than depend on unstable, under sourced and inadequately staffed local firms, whilst domestic firms do not have this choice.

6.3 Export Processing Zones

The shortcomings of the broader political economy naturally reflect on the potential for a complex policy such as EPZs to function properly. Indeed, if suppliers are generally unable to connect to foreign firms, there is no reason they would be able to in a context of duty-free imports. In order to evaluate whether this is the case for Ghana's EPZs, a new model is estimated using the base from section 5.3.4 (table 6). As a proxy for EPZs, the reported response on whether a company has benefitted from tax incentives and correlate this with their location is used. This leaves 22 companies[27], 18 in Accra/Tema and another 4 in Sekondi/Takoradi. The zonal dummy is dropped from the model to focus the analysis on the difference between within- and without-EPZ foreign firms.

The estimated coefficient for the EPZ dummy is negative as expected (being foreign by default). However, what is surprising is the fact that at first glance it seems to be significantly smaller than the dummy for non-

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[27] 23 in fact, but the author eliminates one (1) since it has not responded to any questions.

EPZ firms. This implies that firms in EPZs create fewer backward linkages than those without: indeed, differentiating the partial effects of the categorical variable, it appears that EPZ-based firms use 2.6% less local inputs than those outside.

That firms in EPZs seems to create relatively fewer linkages is not surprising considering the broader OTI analysis of the previous section. Further, it corroborates Kuada's qualitative analysis, which finds that linkage creation in Ghana's EPZ is generally weak. He argues that relationships between domestic firms and foreign firms are "dormant", generally because suppliers are not seen to be *reliable* (Kuada 2005). Putting this in perspective, it is illustrative to look at the reasons given the sampled EPZ companies for why they have previously cancelled local orders (Figure 2). Almost 75% of respondents cite uncompetitive prices, poor quality of service and product, or infrastructure. Therefore it seems that the policy environment that guides the private sector as a whole, indeed reflects heavily on the success of this specific industrial policy as hypothesised at the beginning of this paper.

This means that there is a missing link between the state's intent let the private sector create the support industries needed to capture externalities from FDI, and the provision of institutions capable of driving the development of such capacity (Mensah 2012). This situation leaves domestic firms dependent on the benevolence of foreign firms in terms of

technological upgrades, leading to an exploitative relationship (Kuada 2005).

7. Conclusion

The analysis within this paper illustrates the way in which EPZs are a reflection of the broader national policy environment, and that linkage determinants for FDI in general strongly influence those in EPZs in particular. The subsequent exploration within this paper has demonstrated that backward linkages have essentially failed to emerge between FDI and the Ghanaian private sector. Indeed, with reference to the first hypothesis, the paper emphasises that this stems from a persistent disjuncture between intent and action of the Ghanaian government, manifested by a (1) failure to selectively attract "good" FDI, (2) adequately support the private sector in its capacity to interact with foreign firms, and (3) plug the holes in hard and soft supporting infrastructure.

Hence, the spoils from climbing the metaphorical developmental ladder by means of FDI-facilitated GVC participation will fail to materialise if a country lacks capabilities for embedding said FDI, for instance by supplying multinationals. From a developing country policy perspective, the analysis therefore shows that simply having industrial policy in place is not a guarantee for success; it is crucial to devise measures that are tailored

towards maximising the *developmental* potential of such policies, by facilitating the nexus between FDI and domestic entrepreneurship.

The author recognises that this study is limited in scope, since the single-year data provides but a snapshot of the current situation. However, the author is convinced that the included findings are pertinent in the context of continuing shifts in the global economy, with indications that a fourth wave of globalisation is likely to take place.

African countries are in an optimal position to take advantage of such a shift, with a burgeoning young population, increasing literacy rates, and surplus employment. The author suggests that in order to board the boat this time around, the Ghanaian government and governments in similar countries have a prominent role to play in priming the environment for embedded foreign enterprise. This means pro-active intervention within the economy, and fostering the type of state-business relationships that worked so well in the NICs.

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Appendices

Appendix 1: Variables of interest

Variable	Description	H_0
Dependent		
LocShare	Proxy for backward linkages, BL_i, ratio of the value of inputs sourced locally over the value of total inputs for firm$_i$	
Control		
logK	Log of the total value of fixed assets for firmi	−
logL	Log of the total number of full-time employees at firm$_i$	−
logS	Log of the total turnover ($) for firm$_i$	−
KL	Ratio of the value of total fixed assets ove rtotal number of employees for firm$_i$	−
Proxies		
Foreign	dummy variable that takes on 1 if firm's ownership is >10% foreign, 0 if not	−
Ownership	categorical variable that takes on 0 if firm$_i$ is a domestic firm (<10% foreign ownership), 1 if the firm is a Joint Venture (>10% and < 90% foreign ownership), and 2 if the firm is foreign (>90% foreign ownership)	?
Hemisphere	dummy variable that takes on 1 if the firm is an investor from the Global South, and 2 if the investor is from the Global North	−
Zone	categorical variable that takes on values between 1-9 for different regional dummies: ASEAN, China, ECOWAS, MENA, US, EU, RSA, India, and other OECD (South Korea and Japan)	?
Sector	Categorical variable that takes on the value 1-3 depending on the predominant sector of activity for firm$_i$: 1 = Primary sector, 2 = Secondary sector, 3 = Tertiary sector	−
License	Continuous variable measuring the amount of days it has taken firm$_i$ to obtain a license to start operations	−
City	Categorical variable taking on 0-2 depending on the location of firm$_i$: 0 = rural, 1 = Greater Accra, 2 = Kumasi	+

Appendix 2: Summary Statistics

2.1 Summary statistics for continuous variables

	Obs	Mean	Std. Dev.	Min	Max
LocShare	314	0.274	0.385	0	1
logK	394	12.447	2.415	5.237	20.495
logL	414	3.574	1.170	1.099	8.006
logS	397	13.055	2.528	6.584	20.488
KL	395	63k	555k	0	1M
License	396	69.775	75.187	0	365

2.2 Correlations

	LocS.	logK	logL	logS	KL	For.	O.S.	h.s.	Zone	Sector	Lsnc	City
LocShare	1											
logK	-0.23	1										
logL	-0.26	0.70	1									
logS	-0.39	0.78	0.71	1								
KL	-0.02	0.29	0.04	0.19	1							
Foreign	-0.40	0.26	0.25	0.36	0.06	1						
Owneship	-0.39	0.22	0.20	0.30	0.01	0.96	1					
Hemisphr	-0.36	0.30	0.29	0.39	0.02	0.91	0.84	1				
Zone	-0.35	0.27	0.27	0.39	-0.03	0.92	0.88	0.90	1			
Sector	-0.18	-0.15	-0.12	-0.03	-0.04	0.18	0.21	0.11	0.12	1		
License	-0.13	0.09	0.02	0.04	-0.02	0.04	0.01	0.06	0.04	-0.05	1	
City	-0.14	-0.08	-0.06	-0.06	0.00	0.05	0.07	-0.01	0.04	0.05	0.12	1

Appendix 3: Fractional Probit Regression

A fractional response y satisfies $0 \leq y \leq 1$, possibly with $P(y \square 0) \square 1$ or $P(y \square 1) \square 0$ (or both). Assume y is the dependent variable of covariates $\mathbf{x} \square (x_1,...,x_K)$, i.e. the focus is on the mean response of y. Therefore if $\mathbf{x}$ is

exogenous, the goal is to estimate $E(y|\mathbf{x})$. Papke & Wooldridge (1996) proposed modeling this in the way of

$$E(y|x) = G(x\theta)$$

(4)

Where $G(\cdot)$ is a known nonlinear function that satisfies $0 \leq G(\cdot) \leq 1$, The corresponding derivatives with respect to the index $x\theta$ are $g(x\theta) = \partial G(x\theta)/\partial x\theta$, which are then associated with the appropriate *link functions*, the function that relates the linear predictor $x\theta$ to the conditional expected value $\mu = E(y|x)$ (Ramalho et al. 2001).The model defined by the (4) can then be consistently estimated by a robust quasi-maximum likelihood (QML) method based on a Bernoulli log-likelihood function, given by

$$LL_i(\theta) = y_i \log[G(x_i\theta)] + (1 - y_i)\log[1 - G(x_i\theta)]$$

(5)

In which the estimator of θ is defined by

$$\hat{\theta} = \arg\max_\theta \sum_{i=1}^{N} LL_i(\theta) \tag{6}$$

And is consistent and asymptotically normal, regardless of the true distribution of y conditional on x (Papke & Wooldridge 1996). The final model with the probit link function $\Phi(x\theta)$ is thus given by,

$$E(y|x) = \Phi(\beta_0 + x\beta) = \Phi(\beta_0 + \beta_{1x1} + \dots + \beta_{kxk}) \tag{7}$$

Appendix 4: Differentiation of the covariates of a Fractional Probit

Because Φ is strictly monotonic, the coefficients from estimating equation (7) give the directions of the partial effects. Therefore, to interpret discrete changes in one or more of the explanatory variables, we calculate the marginal effect of a right-hand side (RHS) variable's one-unit change on the value of $E(y|x_i)$, ceteris paribus

$$\frac{\partial P(y_i|x_i)}{\partial x_i} = \Phi(x_i\beta)\beta \tag{8}$$

Appendix 5: Marginal effects

Using (8) we can differentiate the calculated coefficients (b) for the estimated models in section 6.1-6.3:

Obs.	293		

Model O.1	b	se	p
JV	-0.185	0.0639	0.004
Foreign	-0.233	0.0387	0.000
Obs.	297		

Model T.1	b	se	p
Tertiary	-0.128	0.0464	0.006
Obs.	283		

Model O.2	b	se	p
South	-0.242	0.0398	0.000
North	-0.194	0.0516	0.000
Obs.	296		

Model T.2	b	se	p
Tertiary	-0.132	0.049	0.008
Obs.	284		

Model I.1	b	se	p
Licensing Time	-0.001	0.0003	0.0018
Obs.	285		

Model O.3	b	se	p
ASEAN	-0.308	0.0314	0.000
China	-0.286	0.0502	0.000
MENA	-0.252	0.0526	0.000
ECOWAS	-0.294	0.0464	0.000
EU	-0.233	0.0461	0.000
India	-0.174	0.0710	0.014
US	0.141	0.1687	0.402
RSA	-0.217	0.0982	0.027
OECD	-0.297	0.0405	0.000

Model I.2	b	se	p
Gr. Accra	-0.243	0.0572	0.000
Kumasi	-0.130	0.0683	0.057
Obs.	285		

Appendix 6: fitted values

Plugging the desired values for the categorical values into model T2

$$BL_i = a_i + \beta_1 \ln(K)_i + \beta_2 \ln(L)_i + \beta_3 \ln(S)_i + \beta_4 (KL)_i + \beta_5 \ln(Age)_i + \beta_i (Zone)_i + \beta_i (Sector)_i + \varepsilon_i$$

We get a 42.77% average share of locally sourced inputs for domestic firms operating in the primary or secondary sector, and 9.05% for foreign firms

Appendix 7: Sectoral interaction model

Below is the interactional model of the various manufacturing sectors (by ISIC code) with the ownership dummy

	T3		
Controls			
logK	0.120		(1.40)
logL	-0.224		(-1.58)
logS	-0.251	**	(-3.02)
KL	0		(1.87)
Ownership			
Foreign	-1.282	***	(-3.30)
ISIC			
20	0.0358		(0.11)
24	-0.697		(-1.85)
25	-2.315	***	(-4.94)
26	0.191		(0.48)
27	-1.160	**	(-2.78)
28	-1.041	**	(-2.68)
29	-0.434		(-0.66)
36	-1.517	*	(-2.40)
Foreign#ISIC			
Foreign*20	0.816		(1.52)
Foreign*24	0.0727		(0.10)
Foreign*25	1.756	**	(2.90)
Foreign*26	-3.938	***	(-7.81)
Foreign*27	1.757	*	(2.28)
Foreign*28	0.723		(1.09)
Foreign*29	-3.039	***	(-4.03)
Foreign*36	1.953	**	(2.66)
_cons	2.772	***	
N	191		

z statistics in parentheses

* p<.1   ** p<.05   *** p<.01