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Foreign Investment in Agriculture

A Medium-Term Perspective in Zambia

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Introduction

In recent years, the role of foreign investment in agriculture, and in particular investment in land, has received significant media attention, with reports of large scale land acquisitions throughout the developing world as food-importing countries across the globe grapple with food security issues and the developed world increases its interest in the production of biofuels. Most of this attention has focused on the process of so-called ‘land-grabbing’, despite the fact that many of the identified acquisitions fail to materialize, either in the scope first reported or indeed at all. The debate around the benefits or otherwise of foreign direct investment in general for developing countries is extensive. Seen by some as a vital source of financial capital accumulation, technology transfer and human capital enhancement (and by definition productivity improvement), it is alternatively seen, particularly in an increasingly globalising world, as a potential source of unwanted foreign influence in immature economies - a risk to national sovereignty and the nation-building enterprise – and a means by which the livelihoods of the people are relegated behind the profit-drive of multi-national corporations. But is foreign interest in the agriculture sector of developing countries really that new and what has changed in the global economy to bring the issue into such stark focus in recent years?

The increased attention led the World Bank to consider its own study of the issue of land acquisition, building on the existing media reporting through a combination of country case studies, yield gap analyses and resource inventories to present its *Rising Interest in Global Farmland: Can it Yield Sustainable and Equitable Benefits?* (World Bank 2011). Essentially a policy document and guide for governments and landowners in considering how to undertake socially acceptable land transfer to foreign owners, the study touches only briefly on the role that foreign investment can play in stimulating and supporting improved productivity in smallholder agriculture and through this, rural development more generally. Here, the study suggests that local communities can benefit from foreign investment in agricultural land through four main channels: provision of public goods and services associated with land compensation; employment generation; access to

technology and markets for smallholders; and payment of taxes to local and central governments (World Bank 2011). An earlier policy paper from the International Food Policy Research Institute paints a similar picture, with the benefits of large-scale land acquisition centered primarily on possible contract farming and out-cropping arrangements involving local smallholders (Von Braun and Meinzen-Dick 2009).

The current paper, which forms part of broader research project considering the potential role of foreign direct investment in stimulating the agricultural transformation in Africa, utilizes investment certificate data from the Zambia Development Agency to map foreign interest in that country's agriculture sector over the 18-year period to 2009. Analyzing this foreign interest over time and space, the paper seeks to challenge the notion of Africa as an abundant and ready source of arable land being consumed by foreign investors, by considering the sociopolitical history of agriculture in the country and the impacts this has had on foreign interest in the sector. The paper seeks to place this empirical consideration within a broader theoretical framework of the role of both agriculture on the one hand, and foreign direct investment on the other, in the development process with a view to determining what can be expected from lead actors in this process. What attracts foreign investors in agriculture, where might such interest be directed and what are the implications for governments and international aid donors?

Section 2 briefly considers the relevant theoretical and empirical literature addressing the role of agriculture and foreign direct investment in development by identifying the mechanisms through which particular investments can be expected to impact the development process. Section 3 introduces the context of the Zambia case, including a brief socioeconomic history of the country since the time of independence, with an emphasis on the agriculture sector. Section 4 presents a preliminary analysis of the investment certificate data obtained from the Zambia Development Agency, and considers the spatial distribution and source of proposed investments, and the questions of potential path dependency that this raises. Section 5 concludes the analysis, indicates some possible policy implications and identifies the next steps in the research project.

Theory and Empirics of Agriculture and FDI

For successful, long-term development to take place, 'agriculture-based countries' (World Bank 2007) must successfully complete an agricultural transformation. The concept of the agricultural transformation is perhaps best articulated by Timmer (1988) and stems from observed historical experience, which dictates that where agriculture exists, no sustainable long-running pattern of economic growth and development has ever been achieved without a fundamental transformation of agriculture – that short periods of growth may occur based on the performance of other sectors despite a backward

agricultural sector, but that such growth is illusory from a development perspective. The concept draws heavily on the intellectual heritage of Kuznets (1955) and Lewis (1954) in which the process of economic development sees the transfer of resources (labor and capital) from a less productive to a more productive sector in a stylized dual sector economy. The point of departure has as its basis both the historical record of development in today's industrialized countries and the reality of neglect cast by development theorists that built upon Lewis's early work. For this, Timmer (1988) identifies an apparent paradox, which sees 1) a uniform and pervasive decline in the contribution of the agriculture sector to the growth process; and 2) an additional uniform and pervasive pattern of agricultural growth accompanying or preceding the growth process.

For Timmer, this apparent paradox gave rise in earlier years to a perception in development circles that agriculture was not important, and became increasingly less important as the development process proceeds. Rather than seeing economic growth as reliant on successful development of the agricultural sector, development theorists saw agriculture simply as a source of cheap labor, capital extraction through taxation and (in the very early stages) an earner of foreign reserves to channel into the nascent industrial sector. This view was challenged in a seminal article by Johnston and Mellor (1961), who identified and articulated five equally important means by which agriculture contributes to the growth process. In doing so, the authors stressed the importance of simultaneously promoting agricultural and industrial development. A productive agriculture was thought to be able to stimulate and support the general development process through: 1) the earning of foreign reserves through export, 2) the transfer of capital to the industrial sector through taxation, 3) the movement of labor from agriculture to more productive and remunerative industrial employment, 4) the provision of a full and cheap source of food and 5) the basis of a ready market for the production of the young industrial sector. With these five factors in mind, and in contrast to many other writers of the time, Johnston and Mellor (1961) consider it vital in the earliest stages of growth to stimulate agricultural productivity improvement, without squeezing the sector into contraction, such that a viable ongoing source of extraction and resource transfer is maintained. After stressing the inevitable difficulties in balancing the competing demands between sectors in a capital-scarce setting "for which no general answer is possible", the authors sketch out a three phase agricultural development process with conducive policy prescriptions, which essentially describes the overall process of what would come to be known as the agricultural transformation. An initial phase involves establishing the necessary preconditions for agricultural growth, whereby economic incentive systems are put in place to enable personal profit from increased investment and productivity. Such preconditions include relevant land reforms. The subsequent phases mark the transformation from a productive and efficient smallholder agriculture to a capital-intensive, labor-scarce agriculture synonymous with the developed world. Inevitably, the focus of the authors

rests on the second of the three phases, and specific areas of policy concern are highlighted to be effective agricultural research, extension programs, strategic input supply (including associated transport facilities), and broad-based education. The important role for government in supporting this developmental approach is clearly evident (Johnston and Mellor 1961).

In another work, Timmer (1992) elaborates on the the prominent role required of government in agricultural development by stressing the historical evidence supporting positive intervention, especially in laying the foundations for the successful 'East Asian Miracle' development experience. In addition to citing this historical evidence, Timmer (1992) surveys much of the agriculture literature from the decades which followed Johnston and Mellor's early intervention in the field. In doing so, the important role of technological change in agricultural development from the 1960s onwards is stressed, which in the form of green revolution resistant crop varieties and improved artificial fertilizers presented the potential for rapid productivity increases in much of the developing world's agriculture (with significant exceptions). In addition, the important role of government investment in supporting infrastructure development is discussed, indicating a dual function in such investments as roads, irrigation and drainage, communications and market facilities: firstly, the ability to 'crowd in' agricultural investment to stimulate longer-run productivity enhancements; and secondly, as a means in itself of generating rural, non-farm employment (Timmer 1992).

With its focus on the endogenous agglomeration of manufacturing industries exhibiting increasing returns to scale, in specific contrast to an agriculture sector exhibiting constant returns to scale, the new economic geography of Krugman (1991) might seem to offer little to the current discussion of foreign investment in agriculture. However, the underlying essence of the model, the reduction of transport costs and the mobility of factors of production, are important. The model seeks to determine where in a simplified dual sector economy as outlined above manufacturing will take place. For Krugman (1991), manufacturers will seek to locate close to main markets, where transport costs are reduced. At the same time, an additional force will lead manufacturers to locate near sources of input supply. Reminiscent of the linkages argument of Hirschman (1958, 1992), Krugman suggests that it will be desirable to live and produce near a concentration of manufacturing because it is less expensive to buy and sell goods (Krugman 1991). There is a factor mobility argument at play in this model. Notwithstanding the assumption of constant returns in agriculture, that sector also possesses the significant need to utilize immobile land. While manufacturing is free to move, agriculture by definition is not. Krugman then concludes that the potential agglomeration forces will depend on the characteristics of the population itself – where a significant proportion of the population continues to works in agriculture and transport costs are high, manufacturing will be dispersed. Where the counter situation exists, agglomeration forces will drive an urban consolidation. In an attempt to reconcile almost two decades of work in the new economic geography field

with consideration of the agricultural periphery, Grüber and Soci (2010) summarize the key literature as essentially describing a range of trade-offs that occur in the economic space, whereby:

- firms cluster in metropolitan areas where transport costs are low and markets for differentiated products are large;
- the broad product market and subsequent opportunities for specialized labor skills encourage migration by workers (who are also consumers);
- high transport and/or commuting costs and land use (factor immobility) foster the dispersion of economic activity; and
- the agglomerations which do occur result from cumulative process with impetus from both the demand and supply side.

Following the rise of the new economic geography and an increase in the absolute and relative value of foreign direct investment from the beginning of international financial deregulation in the 1970s onwards, a large body of literature has focused on investigating the impacts of such investment on host country economies. Primarily empirical in nature, at both the macro and microeconomic level, these studies focus almost exclusively on the industrial (usually manufacturing) sector, where the majority of such investment has historically been targeted. With a small number of exceptions, there is a consensus that theory is principally lacking in this field and that the differing methodologies and data types adopted in empirical studies result in an inability to draw general conclusions. Given the wide empirical literature, with its concomitant narrow foci and different methodologies, heavy reliance will be placed on two recent comparative and categorical works that have sought to draw together the differing strands of foreign direct investment literature. Despite different approaches, the works of Crespo and Fontoura (2007) and Smeets (2008) together highlight the most important themes in the literature and form a strong basis for drawing out those aspects relevant to the current discussion.

Grounded in the knowledge spillover theories from Marshall through Arrow, Romer, Porter and Jacobs (see Glaeser et al 1992 for an excellent summary), the most dominant feature of the literature on foreign direct investment is the identification and analysis of knowledge spillovers, which take practical shape in the form of technological diffusion. Two critical definitional issues thus arise; what is a knowledge spillover and what form does the relevant technology take. In responding to the first issue, Smeets (2008) is careful to distinguish between knowledge spillovers and knowledge diffusion, the first of which relates to an uncompensated externality while the second is an intended or purposeful diffusion of knowledge from one firm to another. Crespo and Fontoura (2007), meanwhile, adopt a broader channels and determinants approach to their analysis. In covering much of the same territory as Smeets (2008), but extending it by not restricting discussion to knowledge spillovers, the authors identifying five separate channels through

which foreign direct investment can enable technological diffusion and five determinant factors which can influence the likelihood or otherwise of such diffusion. Many of these channels and determinants can logically have detrimental as well as positive impacts upon host country economies – a fact borne out in empirical evidence the authors identify. The five channels of diffusion described by Crespo and Fontoura (2007), the first three of which are also highlighted by Smeets (2008), are:

- *demonstration effects* – the introduction of a technology that may have otherwise been too expensive or risky for local producers;
- *labor mobility* – the potential for local workers with experience with, or training from, foreign companies to take improved productivity to local producers;
- *supply linkages* – the backward and forward relationships created by foreign companies with local input suppliers or customers of intermediate inputs produced;
- *export capacity* – similar to a demonstration effect, local producers may follow export-oriented foreign companies by imitating or collaborating on export processes (often too costly for local producers to establish);
- *competition effect* – while restricting the market power of local producers, entry by foreign companies may stimulate increased efficiency in existing resources use or alternatively stimulate adoption of new technologies.

It is clear that a number of these elements are overlapping, while at the same time building upon earlier theoretical work. In this field of study, the supply linkages concept draws heavily upon the theoretical modeling work of Rodríguez-Clare (1996), itself taking the original linkages approach of Hirschman (1958, 1992) as a point of departure. Similarly, the demonstration, competition and labor mobility effects align closely with those aspects arising from the new economic geography. The potential for each of these five channels to result in foreign direct investment spillovers are contingent upon a range of context specific issues. These ‘determinant factors’ for Crespo and Fontoura (2007) or ‘mediating factors’ for Smeets (2008), affect the potential strength or weakness of the channels’ operation. Clearly the most important factor and that most widely discussed in the literature is the concept of *absorptive capacity* – the ability for local producers to actually internalize the potential benefits arising from proximity to foreign producers (which by definition are assumed to display greater productivity). Inherent in this concept is the degree of backwardness or the technological gap between the foreign and local producers. The relation between this gap and the potential for spillovers is not perceived to be linear, as might be conceived by traditional backwardness and convergence theses. Rather, empirical evidence has suggested that too wide a gap restricts the ability of local firms to absorb the new technology, while too small a gap will mean foreign companies will

transmit few benefits to local producers. Smeets (2008) highlights absorptive capacity and spatial proximity as the two key mediating factors for the operation of foreign direct investment channels with respect to knowledge spillovers. For Crespo and Fontoura (2007), spatial proximity plays a lesser role, and comes under the concept of *regional effects*. Again building heavily on the new economic geography, it is noted that labor movement and demonstration effects are likely to have geographic limitations. The empirical evidence to this end presents no clear general finding, but it is interesting to note the suggestion that regional agglomeration effects are impacted by the likely self-selection of foreign investors into regions displaying already high levels of productivity (Monastiriotis and Jordaan 2010). The final three determinant factors outlined by Crespo and Fontoura (2007) are:

- *domestic firm characteristics* – here the size and market-orientation of firms is considered to be integral to potential spillovers;
- *FDI characteristics* – distance from home country (as a proxy for transport costs), cultural and linguistic dimensions, the degree of foreign ownership in a venture, and the mode of entry into the market (for example through greenfield investment or mergers and acquisition) are considered to be relevant, and have each been considered empirically with differing results;
- *other factors* – the authors list here a variety of lesser studied areas including the policy environment (including intellectual property rights regimes), the motivation for the foreign investment (whether it is technology-exploiting or technology-sourcing) and how long the foreign company has been operating in the local environment.

What should we expect of FDI in Agriculture?

Much of the leading debate within the development profession about the potential benefits from foreign investment rests on an expectation of improving agricultural yields (reducing the yield gap) consistent with tapping into a perceived vast untapped proportion of arable land in developing countries (World Bank 2011). The logic is sound: financially-sound investors able and willing to introduce technology and farming methods to underutilized agricultural land can only aid the overall contribution of agriculture to domestic value-added. But is an interest in underutilized land a valid expectation? The conclusion from considering the above suggests this might not be the case. In general, foreign investors have the financial capacity to invest in prime agricultural areas. Over and above a likely capital advantage in land markets, particularly when compared to agricultural smallholders in developing countries, foreign investors also lack the traditional links to specific areas and crop varieties possessed by domestic agents. Consistent with the approach of the new economic geography, yet in a situation where the capital held by the (foreign) agricultural agent is mobile, one would expect that foreign investors in agriculture would seek to invest as close as possible to markets and input suppliers (be these international or

domestic). This would seem to favor a location in the vicinity of major urban centers, simultaneously tending to be those that possess the largest investment in domestic and international transport infrastructure. In seeking to summarize the above with a view to enhancing the establishment of a conceptual framework, one can expect a situation in which foreign investors in agriculture will:

- seek to locate as close as possible to markets (both domestic and foreign);
- seek locations with the best infrastructure to facilitate this;
- as a corollary, will locate where transport and production costs (including taxation costs) are low; and
- self-select into regions of higher productivity, in the case of agriculture this being closely linked to land quality.

The Case of Zambia

Zambia attained its independence from Britain in October 1964. Up to this point, as Northern Rhodesia, it had been closely connected economically with Southern Rhodesia (modern Zimbabwe) and South Africa, and had for a period been in a political and economic federation with Southern Rhodesia and modern-day Malawi, this union dissolving in 1963. Unlike Southern Rhodesia, which experienced a high degree of white settlement, Northern Rhodesia was sparsely populated by settlers, though a number of commercial farmers settled along the line of rail which split the country from south to north and which has maintained a prominent role in the country's economic development. At the time of independence, Zambia had a population of 3.4 million (WDI 2011). Today, the population has risen to 13 million, an increase of 68 percent in the two decades from 1990 at a constant rate in excess of two percent per annum (Census 2010). Zambia is reasonably urbanized, with 39 percent of the population (or in excess of 5 million people) residing in urban areas. This is not a new phenomenon and even in the years before independence, many left rural villages with a view to locating employment in urban centers or in the mining sector, with many travelling further south in Southern Rhodesia and South Africa.

Both before and after independence, Zambia has relied heavily on the mining sector, and in particular copper mining, for economic growth and export earnings. At the time of independence in 1964, the mining sector alone accounted for 49.6 percent of Zambia's GDP. By contrast, agriculture accounted for 11.5 percent and manufacturing and construction a combined 10.4 percent (Saasa 1986). At the same time, mining accounted for a significant proportion of government revenue; copper alone accounting for in excess of 50 percent of tax income in the years before 1970 (Saasa 1986). Because of the enclave nature of the mining sector, the role of foreign economic players and the long-term decline in copper prices from the 1970s onwards, Zambia is often seen as an example of the "resource curse" (see Du

Pleiss 2006 for a review of the literature). The decreasing trend in the overall contribution of the mining sector for much of the post-independence period up until the turn of the century, followed by a Chinese-inspired copper price increase, can be seen in Figure 1.

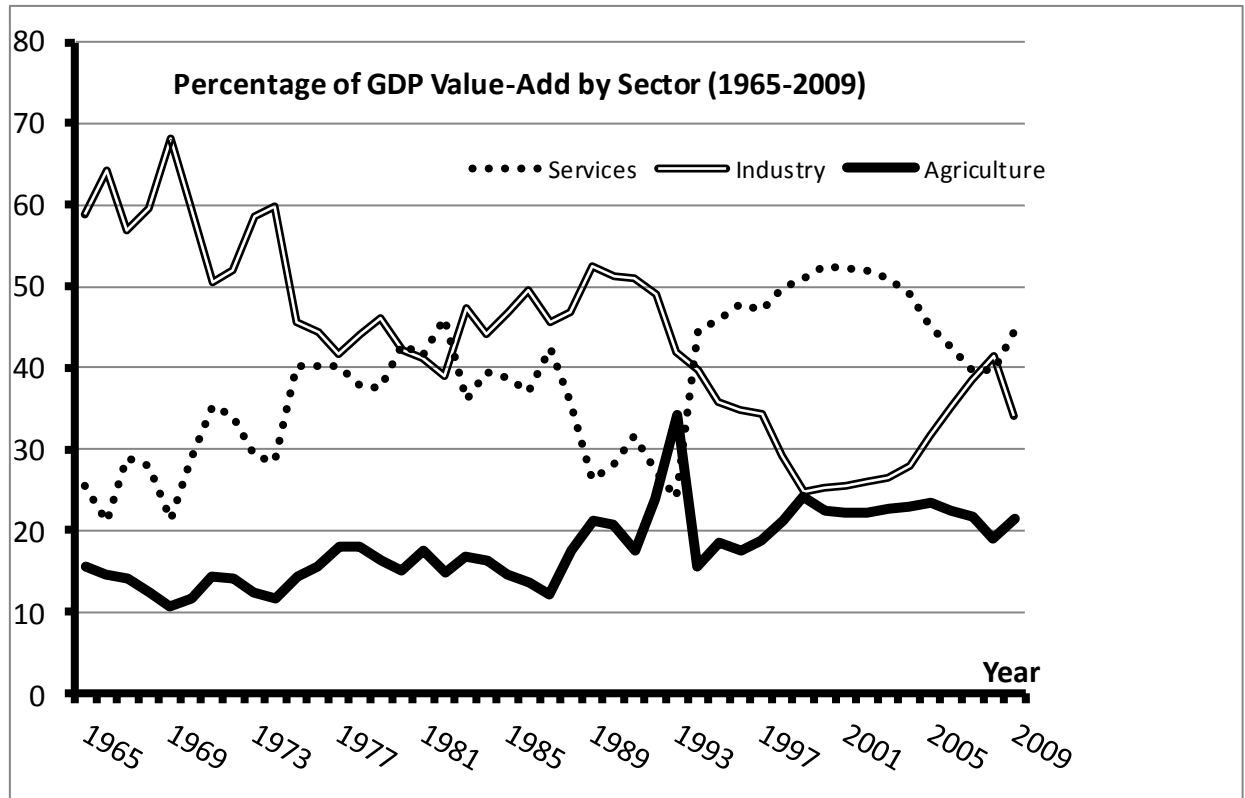


Figure 1: Contribution to GDP value-add by sector, World Development Indicators

Despite the important role of mining and the reasonably high level of urbanization, a majority of the Zambian population remains engaged in the agriculture sector. The most recent estimate puts the percentage of total employment attributed to agriculture in excess of 70 percent (WDI 2011). Fifty-four percent of the country's population resides in the four provinces which border the main rail line running north from the Southern province border town of Livingstone through Lusaka and Central provinces to the Copperbelt. The main road and rail infrastructure are displayed in Figure 2. Yet good fertile land not restricted to existing corridor, nor should the population be considered overly concentrated, despite urbanization processes. Zambia has a significant amount of arable land, with a usage rate of as little as 10 percent at the commencement of our study period (Scott 1995). Scott (1995) also observed a high degree of variation in agricultural productivity, with some commercial farmers generating significant yields far in excess of those of smallholders – though there exists variation among and between smallholders and larger commercial farmers alike. In its *Rising Interest in Global Farmland*, the World Bank (2011) presents a picture of a modern Zambian agriculture sector currently producing at well below its potential based on factors endowments – a ratio of cultivated land to total suitable area

below 30 percent and a yield gap (potential yield minus actual yield) in excess of 80 percent.

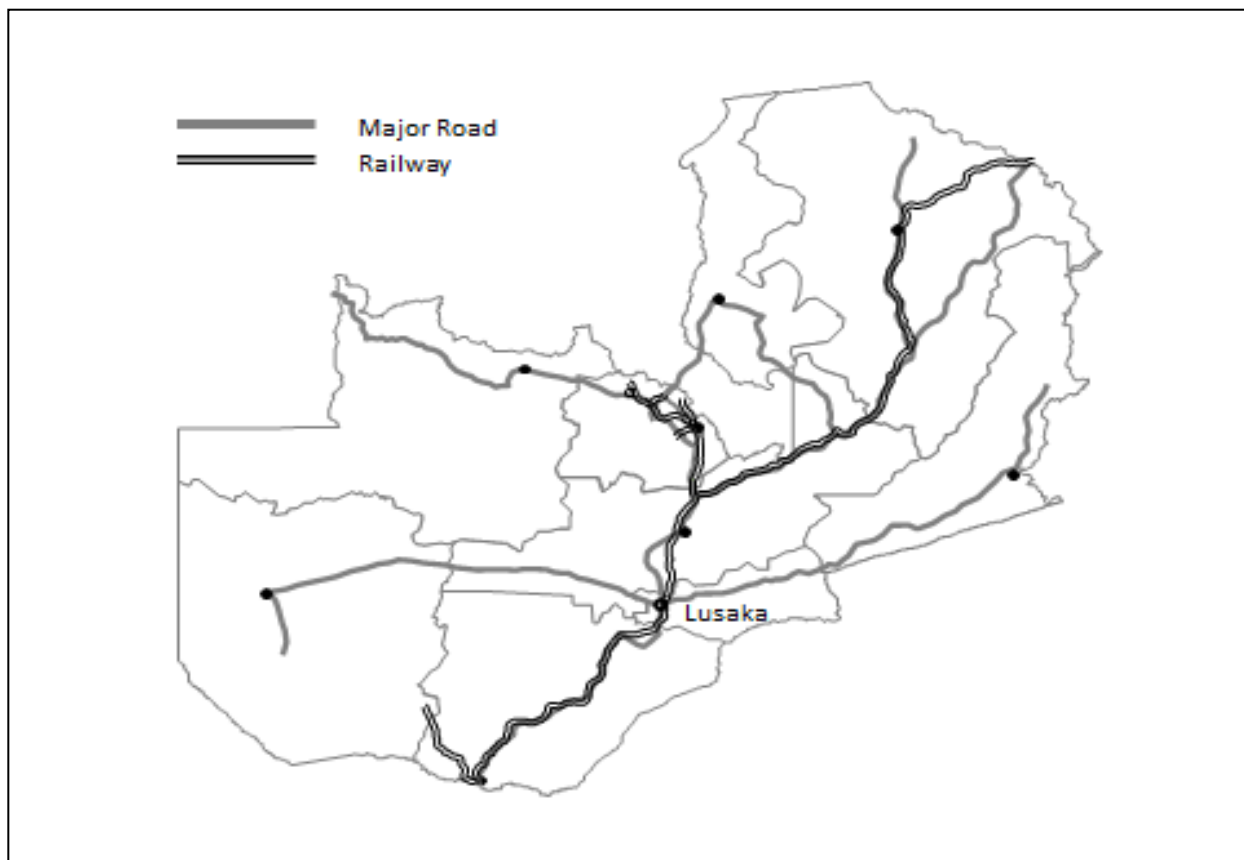


Figure 2: Map of Zambia displaying key transport infrastructure, USAID 1998

These assessments place Zambia in Group 4 of the World Bank farmland typology – those with suitable land available and a high yield gap; in theory suggesting that Zambia has significant scope for improvement in agricultural outcomes and may be considered a good candidate for foreign direct investment in the sector. Of this group, the Bank writes:

Labor supply often constrains expansion by smallholders, implying that not all potentially suitable land is used for crop production. The prospect of outside investment can help foster local development. If migration from other regions is inelastic in the medium term, as is often the case, intensification will require larger farm sizes, and labor-saving mechanization may be the most attractive short-term option. In some cases, the investment needed for this transition can be generated locally. However, if it requires the introduction of new crops and farming systems, large investments in processing, or links to export markets, the amounts of skill and capital available locally may not be sufficient, and outside investors can have a role. In these cases, bringing institutional arrangements, technology, and infrastructure together could thus provide a basis for mutually beneficial and agreed on land transfers. (World Bank 2011; 90)

Foreign investment has played a long-standing role in the Zambian economy, in both the colonial and post-independence periods; this has arisen as both a result of factor endowments and the policies decisions of both the colonial

and independence administrations. Mining was initially opened up by the British South Africa Company in the late 19th century, which was also responsible for the development of the rail infrastructure which linked the country's prime mining areas to the British colonies to the south – an undertaking which has been suggested as impacting on the geographical pattern of development to this day (Moyo et al 1993). Beyond the use of the rail line to service the mining industry, colonial land tenure systems resulted in the majority of land in the rail corridor being made available to a small minority of white settlers operating a commercial agriculture sector. The three-tiered system of land classification incorporated Reserves for the indigenous population operating under customary or traditional ownership; State Land under private leasehold arrangements covering commercial farming, townships and infrastructure; and Trust Lands which were set aside for the common benefit of the population (Moyo et al 1993, Saasa 1986). Through this system, a typical colonial dual economy that essentially saw the exclusion of the indigenous population resulted, with a relatively developed sector and an underdeveloped rural sector whose role was to provide labor and bear social costs.

Saasa (1986) considers the colonial land distribution system as a key to the failure of the emergence of an African agrarian class in Zambia in the years before independence. With much of the State or Crown land distributed on the rail line, and therefore close to markets, Reserve and Trust land could be distributed at distances of up to 600 miles from the main artery. This combined with an agricultural pricing policy in which white farmers could gain prices more than double that of African farmers. The social and economic patterns established in the 60 years of colonial rule to 1964 persisted into the independence era; in 1968, despite there being only 700 registered European farmers, this group accounted for 62 percent of total marketed output (Saasa 1986). A similar issue arose in other key economic sectors as a result of the failure of colonial education policies to adequately equip the indigenous population for the modern economy. While manufacturing, commercial services and large and medium-scale agriculture contributed very little to early GNP, government revenue or export earnings (in stark contrast to mining and despite reasonable growth in the early post-independence years), they like the leading mining sector were also dominated by foreign investors (Saasa 1986).

The new government did little to vary the existing systems of agricultural investment in the years immediately following independence, and Scott (1995) sees the approach to the commercial farming sector in the subsequent decades as one of “benign neglect”; a subsector employing 100,000 people while creating little land pressure. Throughout this period, and despite the official shift to a one-party state, the government remained open to foreign investment with an explicit pro-private sector stance. Indeed, the government continued to welcome foreign investment in the less-sophisticated non-mining sectors even while undertaking a series of nationalization processes in the mining sector (Saasa 1986).

Agriculture was accorded a higher priority in government planning following the economic depression which resulted from the onset of declining world copper prices, and accounted for a significant proportion of government expenditure, rising from 11 percent in 1974-75 to 30 percent in the late 1980s (Moyo et al 1993). This reliance on government support in the form of input subsidies persisted into the 1990s despite widespread privatization and government withdrawals in response to debt-linked structural adjustment programs, indicating that despite notions of shifting government focus, the agricultural sector remained indirectly reliant on the mining sector (Thurlow and Wobst 2006). Specifically in the smallholder sector, but also to an extent in the commercial sector, government agriculture policy contributed to a change in cultivation, with a shift in staple crop from cassava to maize in traditional cassava growing regions. Maize was considered by the government as the “social contract crop”, which saw an emphasis on government expenditure on supporting maize production and marketing, to the detriment of other crop varieties, with a view to maintaining stability in maize-meal pricing in urban centers. The result was over-regulation and distortionary production incentives; the relatively inefficient use of government expenditure on the introduction and encouragement of maize mono-cropping, which had a number of environmental and income impacts (Scott 1995). A diversification of cropping patterns began following the gradual removal of these distortions (Zulu et al 2001) and can be seen in Figure 3 to have continued during the period to 2009.

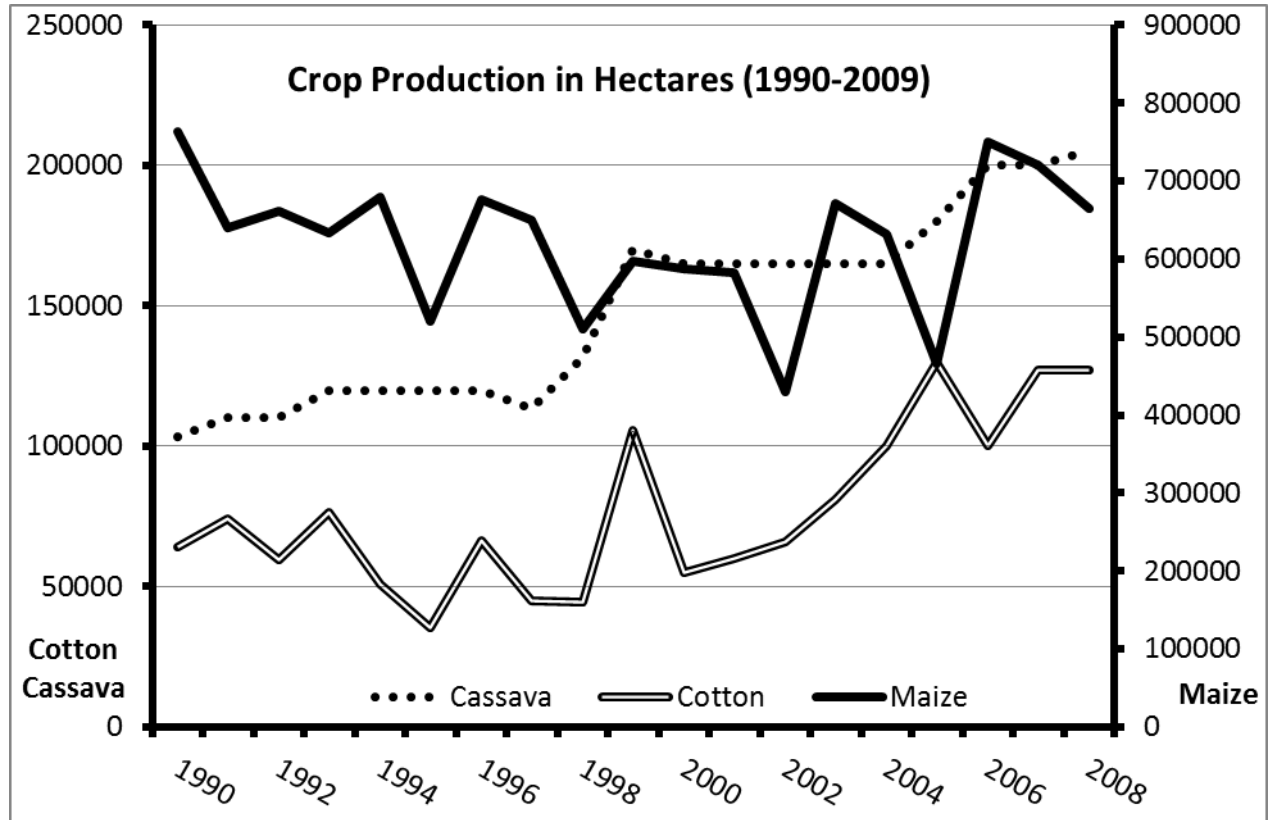


Figure 3: Production of Major Crops in Hectares, FAOSTAT

This brief review of colonial and post-independence experience of agriculture suggests an element of path dependency and institutional influence in the development of the sector throughout the 20th century. The land tenure systems introduced by colonial administrators impacted on initial distribution of land between white settlers and the indigenous population; these decisions themselves being heavily influenced by the critical infrastructure of the north-south rail corridor. Simultaneously, colonial education policies can be argued to have impacted negatively upon the development of an indigenous agrarian class, further widening the disparities within the agriculture sector. Neglect of commercial agriculture and distortionary incentives for smallholder agriculture characterized government policy in the post-independence years, up to and even after the introduction of multi-party democracy in 1992 (the Third Republic), where the analysis of this paper commences.

Analyzing Interest in the Agriculture Sector

Data on investment certificates generated for proposed investments meeting the notification criteria of the Zambia Development Agency were obtained for the years 1992-2009. The data contains information on all proposed investments across all economic sectors notified to the Agency, including information on company name, district, size of investment (in nominal US dollars), expected employment impact and the investment's country of origin. The full data set was analyzed to create a final, amended agricultural subset. With a focus on foreign interest in the agriculture sector, all investments listed as being of purely Zambian origin were removed from the analysis. Those investments in which Zambian investors were joint venture partners with foreign interests were retained. This revision of the data resulted in the removal of 117 observations (18.1 percent), leaving a total of 528. The removal of these observations saw a reduction in the total value of pledged investments in agriculture of 17.2 percent and in expected employment impact by 20 percent, resulting in an overall impression of purely-Zambian notifiable investments in agriculture being more employment intensive on average. Figure 4 provides an overview of the information considered at the aggregate level, deflated to 2000 US dollar levels and minus a significant outlying investment for the 2009 period of a proposed \$250,000,000 by an American and British consortium involved with the Chobe Agrivision Company Ltd. What is perhaps important to consider in the context of the figure is the not insubstantial sums of money being considered with respect to investments in a sector which until very recently, was little considered in discussions of foreign investment in the developing world.

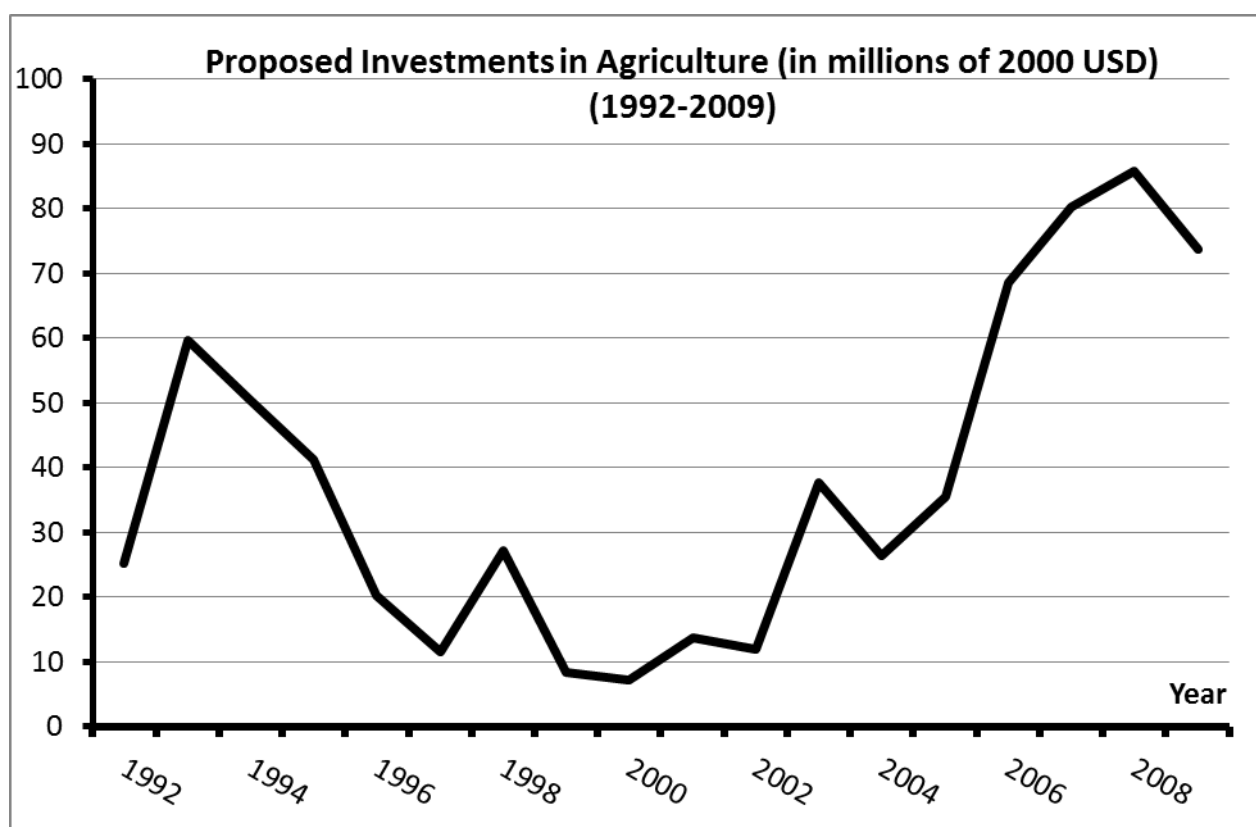


Figure 4: Annual Proposed Investments in Agriculture, author calculations based on Zambia Development Agency data

When considering the available data further, a number of issues arise which demonstrate that the analysis undertaken must be considered preliminary and only indicative in nature. Firstly, the Zambia Development Agency has indicated that the data available may underrepresent foreign investment in the agriculture sector, as government investment priorities, and therefore desire to stringently record investments in specific sectors, have varied over the period in question. This is not a significant issue in the context of the current analysis and could only be expected to enhance the general findings. Secondly, it must be noted that the investment data available results from the application and generation of investment certificates by the Zambia Development Agency. While the process of obtaining such certification suggests a legitimate desire to undertake business activities, the Agency does not undertake follow-up investigations to determine that the size of eventual investments match that initially proposed. This issue does not impact on the current analysis, which focuses primarily on investment intentions – by both source and location – rather than size of the financial capital contribution to the Zambian economy. A third issue arises due to the proposed investment being recorded in nominal US dollar values. While a deflator has been adopted for the above aggregation in Figure 4, subsequent dollar values are at nominal levels. Again, this does not present a particular problem for the current analysis, but will be rectified in future analyses. The fourth and final issue requiring consideration is a concern with data coding. The Zambia Development Agency codes proposed

investment locations by district (of which Zambia has 73). However, there appears to be a bias in the data towards the Lusaka district, which is located in Lusaka province. Since proposed investment in remaining districts of Lusaka province is generally low, it is considered plausible that a range of proposed investments in Lusaka district may have been miscoded, where they exist in outer-lying districts of the province. To overcome this concern, the current analysis only presents the data at the more aggregated, provincial level.

Trends over Time

Figure 5 provides a summary of the data broken into three equal-length periods of six years, and categorized by country of origin. The figures suggest a number of interesting points concerning change in investment patterns over time. Firstly, the number of proposed investments in the initial period following the introduction of multi-party democracy in Zambia was significantly greater than in the periods which followed. At the same time, and notwithstanding the use of nominal dollar values, the average size of investment increases in the latter periods.

1992-1997			1998-2003		
No of Investments	296		No of Investments	107	
Total Pledged Value	202 323 716		Total Pledged Value	104 330 617	
Proposed Employ	37 590		Proposed Employ	11 392	
Country of Origin	Number	% of Total	Country of Origin	Number	% of Total
America and JV	7	2.4	Australian	3	2.8
British and JV	79	26.8	British and JV	19	17.8
Dutch and JV	9	3.1	Dutch and JV	3	2.8
North - Other	33	11.2	North - Other	10	9.3
Chinese	6	2.0	Chinese	10	9.3
Indian and JV	9	3.1	Indian and JV	5	4.7
South African and JV	116	39.3	South African and JV	14	13.1
Zimbabwe and JV	12	4.1	Zimbabwe	39	36.4
South - Other	24	8.1	South - Other	4	3.7

(A)

2004-2009		
No of Investments	125	
Total Pledged Value	560 426 358	
Proposed Employ	11 733	
Country of Origin	Number	% of Total
American and JV	7	5.6
British and JV	26	20.8
Greek and JV	6	4.8
North - Other	19	15.2
Chinese	10	8.0
Indian	5	4.0
South African and JV	23	18.4
Zimbabwe	23	18.4
South - Other	6	4.8

(B)

(C)

Figure 5: Proposed Investments by Country of Origin over Time, author calculations based on Zambia Development Agency data

What becomes clear when assessing the three periods together is that there is a consistency in the origin of investments over time; that is, the countries which were prominent investors in Zambian agriculture at the commencement of the 1990s remain the same countries primarily driving foreign investment in the sector today. In particular, the three major investment sources (by number) are South Africa, Britain and Zimbabwe. While represented continuously throughout the period, Zimbabwean investments are particularly prominent in the years surrounding the vigorous land reform period in that country. There are competing arguments with regard to the influence that Zimbabwean investment has had on Zambian agriculture. More broadly, the prominence of the three countries suggests a continuation of long-standing patterns of economic influence and foreign investment in Zambia, not only pre-dating the introduction of debt-induced structural adjustment programs, widespread privatization initiatives and the subsequent transition to multi-party democracy, but also to pre-independence period in which the land-locked Zambia was beholden to its southern neighbors for markets and export routes.

A consideration of the entire period as presented in Figure 6 raises another point of interest.

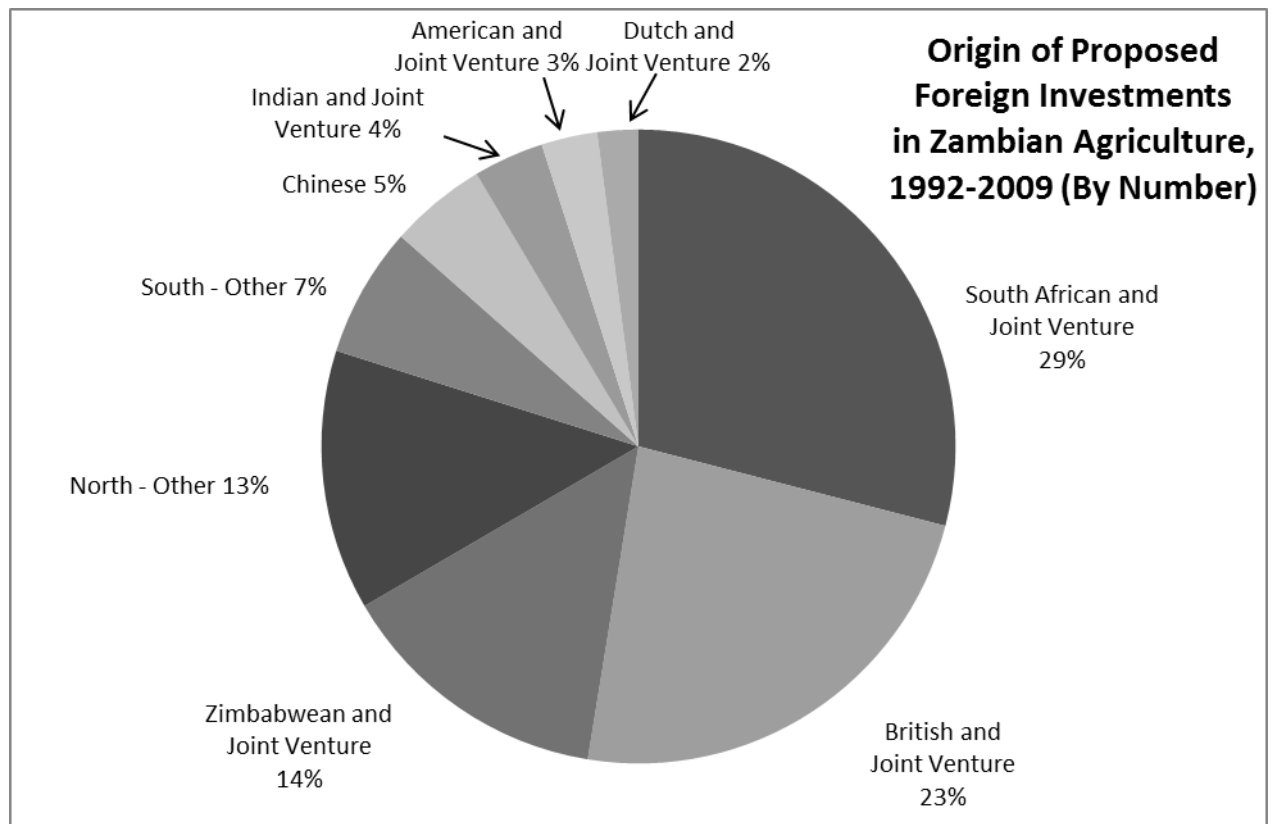


Figure 6: Proposed Investments by Country of Origin for the Full Period, author calculations based on Zambia Development Agency data

What becomes clear is that far from a dominance of foreign investors from the developed world, those seeking to invest in Zambian agriculture are more

broadly representative of the developed and developing world. Even taking into account the presence of South Africa, a regional economic powerhouse and Africa's most developed economy, 58 percent of the investment certificates issued were to investors from the global South. This includes the rising economic giants of China and India, and while by no means prominent in the sample, the two countries are represented throughout the entire 18 year period. Although not the subject of the current analysis, the Zambia Development Agency data demonstrates a much larger and increasing influence of these two countries amongst foreign investors in the manufacturing and minerals sectors.

Dispersion over Space

Returning to the central thesis of the current analysis, Figure 7 provides a geographical representation of the spread of foreign proposed investments in the agriculture sector. Here, the connection between foreign investment and proximity to transport infrastructure appears quite starkly.

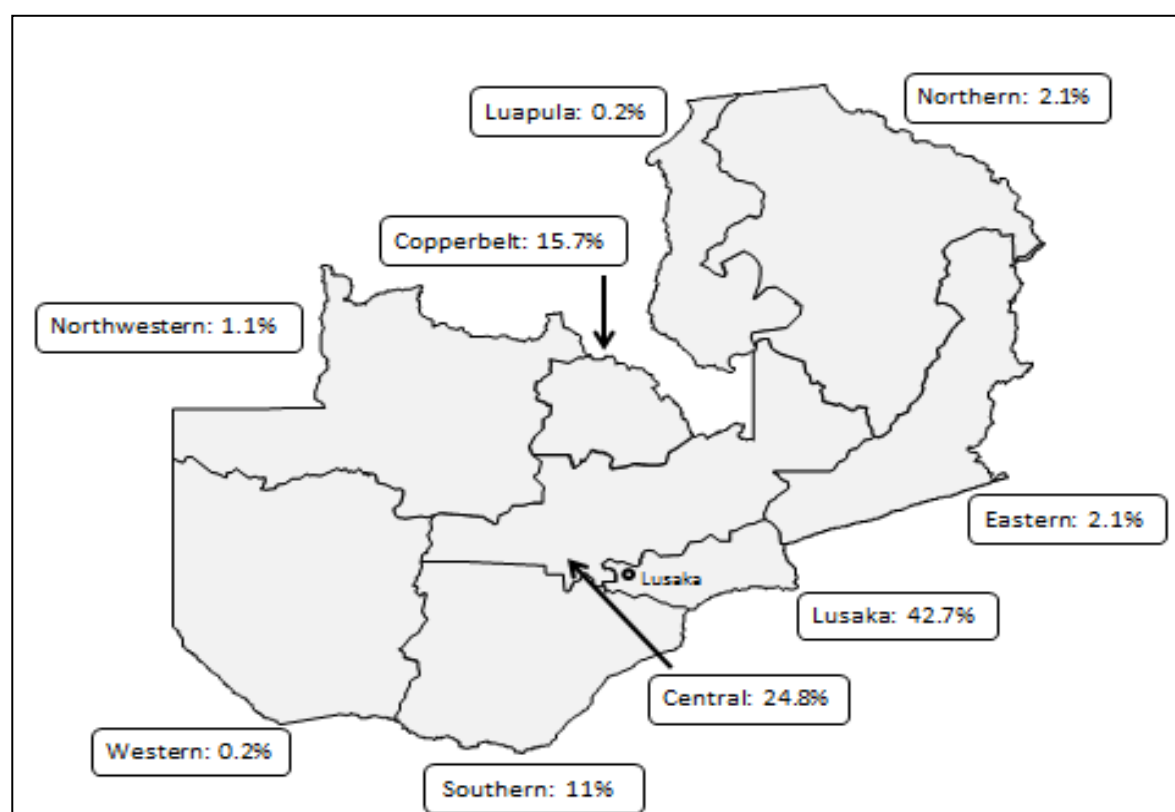


Figure 7: Percentage of Proposed Foreign Investment in Agriculture 1992-2009, by Province

Despite representing no more than 54 percent of total Zambian population at any stage throughout the study period, 94 percent of total proposed investment in agriculture was directed to the four Zambian provinces enveloping the central rail and road corridor between Livingstone and the Copperbelt. A further two percent was directed to the Northern Province,

which supports the majority of the mileage for the Zambian section of the TAZARA railway. Combined with the concentrated markets that urban settings in Copperbelt, Lusaka, Central and Southern provinces provide, the location of foreign investment in agriculture seems reasonably to be driven by transport costs, synonymous with the new economic geography.

Conclusion

Based on theories and empirical analyses of agricultural development, economic geography and foreign direct investment, this paper established a number of expectations regarding foreign direct investment in agriculture, in particular with respect to locational preferences of investors. This framework was then considered in the context of Zambia using investment certificate data for the 18 year period to 2009. In the first instance, the preliminary analysis provided evidence to support the expected locational decisions of foreign investors in agriculture, with proposed investments overwhelmingly located in the vicinity of critical transport infrastructure in the first instance, and secondly in close proximity to urbanized markets. That the urbanized centers have developed around the infrastructure, and that the infrastructure was initially developed to service colonial mining interests, suggests an element of path dependency in agricultural and investment outcomes that persists until today, almost 50 years after Zambia's independence from Britain. Such continuity also arises in the identity of those interested in investing in Zambian agriculture – whereby in excess of 65 percent of proposed investment has its origin in the former colonial power and the traditional economic hegemons of pre-independence Zambia. These findings, if also evidenced elsewhere, have implications for the governments of developing nations and international donors alike. In particular, the findings raise the question of whether the shift away from using aid to develop physical infrastructure (roads, rail, ports), commencing in the 1970s (Timmer 1992) was misplaced. In addition to questioning previous decisions, the findings point towards the necessity to reconsider current aid policies to determine whether further interconnecting regions through infrastructure improvements may assist in stimulating the structural transformation process. This reassessment process is, to some extent, already underway following a significant increase in Chinese aid spending towards the construction of infrastructure in the last decade. The current analysis is preliminary in nature and is conceived as an initial stage of a wider research project. Future research will consider the locational issue in neighboring countries in sub-Saharan Africa, including Mozambique; will further disaggregate the analysis by considering agricultural subsectors and their links to agro-processing investments (listed by the Zambia Development Agency under manufacturing and not considered in the current analysis); and seek to investigate the impact of foreign investment on local systems of production at the micro or district level.

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