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8 Geese Flying to Ghana? A Case Study of the Impact of Chinese Investments on Africa's Manufacturing Sector

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ABSTRACT

China has significantly changed its engagement mode with Africa, shifting from trade of natural resources to investment in industrial sectors. This article uses Ghana as a case study to examine why and how Chinese investors come to set up factories in Africa's challenging business environment. Through first-hand scoping study on the ground, the author reveals that the pressure of China's industrial upgrading and the vast potential of Africa's growing market are the main drives for Chinese manufacturers. Clustering and industrial zones proved to be effective instruments to help Chinese manufacturers grow in Ghana. The clustering of numerous small and medium-sized enterprises also facilitates linkage building between Chinese projects and the local economy. The 'flying geese' phenomenon is emerging in Ghana's manufacturing sector, but the weak macro-economy and the lack of industrial supports largely slow down the progress of Chinese investments and reduce the spillover effects.

A new Trend of Chinese investments in Africa

Background

The trend and focus of Chinese engagements with Africa has changed during the last five years. As Chinese economic growth slows down and more emphasis is given to the development of hi-tech industries, raw material imports from Africa to China decrease rapidly. While China imported minerals and petroleum worth US\$62.07 billion in 2011, counting for 66.58% of its total imports from Africa, the value of imported minerals and petroleum dropped to US\$35.37 billion in 2015.¹ However, Chinese investment in Africa kept growing steadily during the same period. China's outward foreign direct investment (FDI) stock in Africa grew from US\$16.24 billion in 2011 to US\$34.69 billion in 2015.² That is to say, the amount of China's FDI stock in Africa grew 21% annually during this period, making China the fastest growing source of FDI in Africa.³ Among the investments, the manufacturing sector has become the main focus. As of January 2015, 46.5% of Chinese investments in Africa were reported to be in manufacturing, 44.5% in mining, 24.2% in construction and 7.7% in

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¹United Nations Commodity Trade Statistics Database, 2017, accessed 20 October 2020, <https://comtrade.un.org/db/>.

²National Bureau of Statistics of the People's Republic of China (PRC), China's outward FDI stock by country 2015, accessed 1 December 2017, <http://data.stats.gov.cn>.

³Irene Yuan, Sun Kartik, and Jayaram Omid Kassiri, *Dance of the Lions and Dragons: How Are Africa and China Engaging, and How Will the Partnership Evolve?* (McKinsey & Company, 2017), p. 23. Likewise, an United Nations Conference on Trade and Development (UNCTAD) report has also noted that China is the fastest growing investor in Africa. See UNCTAD, *World Investment Report 2017: Investment and the Digital Economy* (United Nations Publication, 2017).

agriculture.⁴ In recent years, the Chinese government also actively encourages manufacturing firms to invest and expand cooperation overseas. Both the Belt and Road Initiative and the State Council's Guiding Opinions mention manufacturing investments in developing countries as a key area of governmental support.⁵ At the China–Africa Johannesburg Summit in December 2015, collaboration in industrialization and manufacturing was put as the priority of future bilateral cooperation plans.⁶

The new trend brings up many new questions. Africa, especially Sub-Saharan Africa, is a challenging place for manufacturing projects. Insufficient infrastructure, unskilled workers, inappropriate governance, lack of upstream and downstream supports, unfavorable macro-economic conditions and other factors seriously hinder industrial development in most African countries.

The manufacturing value of Sub-Saharan Africa only accounts for 1.24% of the world manufacturing value as of 2015.⁷ In this context, people are eager to ask: Why do Chinese firms increase their investments in Africa's manufacturing sector? Do they have more opportunities in Africa to survive or succeed in the harsh business environment? How will these new investments impact the continent? Will they bring employment and technology to local people and substantially contribute to Africa's long-awaited industrialization?

Existing literature

Research on the motive and impact of Chinese manufacturing investments in Africa is very limited. Especially, there are few empirical studies on this topic. Not long before, G. A. Donovan and Mike McGovern still asserted that 'scarcely any Chinese manufacturing firms have set up plants employing local workers',⁸ Raphael Kaplinsky as well wrote in 2008 'there is no evidence that Chinese firms will begin to use sub-Saharan Africa as a manufacturing base'.⁹ Only more recently, several studies revealed that Chinese investors have gradually set their foot in Africa. Song Hong depicted how Chinese invest in light and textile industries in Nigeria to enjoy a market with less fierce competition and establish an early-bird advantage.¹⁰ Zhao Suisheng observed that Chinese enterprises responded to Africans' complaints and have increasingly set up manufacturing factories in the continent.¹¹ Gu Jin surveyed Chinese private firms and found that some of them began with trading and later moved to set up factories for manufacturing. The most common reasons mentioned were the attraction of African markets and the competitive pressure of Chinese market.¹² Shen Xiaofang revealed that an increasing number of Chinese private firms work in labor-intensive manufacturing sectors in Africa for the purpose of accessing the market, and obtaining cheap labor and raw materials.¹³ Dollar, Chen, and

⁴Ministry of Commerce of the PRC, Database of Registered Outward FDI Projects, accessed 1 January 2015, http://wszw.hzs.mofcom.gov.cn/fecp/fem/corp/fem_cert_stat_view_list.jsp.

⁵Ministry of Foreign Affairs of the PRC, 'Vision and actions on jointly building silk road economic belt and 21st century maritime silk road', 28 March 2015. State Council of the PRC, '国务院关于推进国际产能和装备制造合作的指导意见' ['Guiding opinions on the promotion of international capacity cooperation and equipment manufacturing'], 30 May 2015.

⁶Ministry of Commerce of the PRC, '中非合作论坛约翰内斯堡峰会“十大合作计划”经贸领域内容解读' ['Explanation of "ten cooperation plans" in FOCAC Johannesburg summit regarding the economy'], 15 December 2015.

⁷The World Bank, Country manufacturing, value added 2015, accessed 1 December 2017, <https://data.worldbank.org/indicator/NV.IND.MANF.ZS>.

⁸G. A. Donovan and Mike McGovern, 'Africa: risky business', *China Economic Quarterly* 11(2), (2007), p. 24.

⁹Raphael Kaplinsky, 'What does the rise of China do for industrialization in Sub-Saharan Africa?', *Review of African Political Economy* 35(1), (2008), p. 20.

¹⁰Hong Song, 'Chinese private direct investment and overseas Chinese network in Africa', *China and World Economy* 19(4), (2011), pp. 118–122.

¹¹Suisheng Zhao, 'A neo-colonialist predator or development partner? China's engagement and rebalance in Africa', *Journal of Contemporary China*, 23(90), (2014), pp. 1033–1052.

¹²Jing Gu, 'China's private enterprises in Africa and the implications for African development', *European Journal of Development Research* 21(4), (2009), pp. 575–577.

¹³Xiaofang Shen, 'Private Chinese investment in Africa: myths and realities', *Development Policy Review* 33(1), (2015), pp. 83–106.

Tang, relying on Ministry of Commerce (MOFCOM)'s database of Outward FDI registrations, analyzed the business patterns of Chinese investments in Africa, which are allocated mainly in service and manufacturing sectors, and suggested that Chinese firms may be more inclined to seek profits in tougher environments.¹⁴ However, these studies have not examined the effects of the manufacturing investments and their impacts on Africa's industrialization.

Based on the 'flying geese' model, that countries tend to be leaders and followers in producing for global value chains, Justin Lin Yifu proposed in 2011 that Chinese manufacturers were ready to shift their production bases to Africa because of the changing comparative advantages. China's rising wages would force Chinese firms to shift the bases of labor-intensive manufacturing to Africa, where abundant labor supply and inexpensive wages would make the continent a booming manufacturing center for the global market.¹⁵ However, his argument has not received much support from the ground evidence so far. There are only a handful of Chinese-owned shoe factories and garment factories in Ethiopia and Tanzania aiming to relocate their production base from China.¹⁶ Furthermore, such investments are known to be 'footloose' (easy to move to other locations). The main reason for their arrival is preferential treaties like African Growth Opportunity Act (AGOA) and financial incentives from African countries. When the policies change, foreign investors may quickly leave without having a long-lasting impact on local manufacturing, as Tang's study on southern Africa's textile and garment sectors revealed.¹⁷

Deborah Brautigam also borrowed the term 'flying geese' in her investigation of Chinese influences on manufacturing in Mauritius and Nigeria, but with a slightly different perspective. She noticed that foreign investment and trade may facilitate certain productions to shift from more advanced industrialized countries to less advanced countries. The shift of production may deal with export processing, like Hong Kong investments in Mauritius's Export Processing Zone (EPZ) in the 1970s, or with domestic or regional production to replace the expensive imports, like Asian engagements in Eastern Nigeria's automotive parts manufacturing. In either case, local people learned the operations by working for or partnering with Asian firms. Subsequently they set up their own factories.¹⁸ Yet, she only analyzed two small samples from the last century. It is not clear whether new Chinese investments will have the same spillover effects to other African countries.

Research methodology

To shed light on the reasons, outcomes and impacts of recent Chinese manufacturing investments, Ghana is chosen for an in-depth case study. First, Ghana is one of the main destinations for Chinese manufacturing investments in Africa. According to data on investment approvals by China's Ministry of Commerce, 70 out of 154 registered investment projects to Ghana are reported to be engaging with manufacturing, making it number seven in terms of number of manufacturing registrations in sub-Saharan Africa (see Table 1). Second, the industrial distribution in Ghana is diverse, unlike Democratic Republic of Congo (DRC), Zambia and Zimbabwe, where more than 50% of the registered projects concentrate on mineral processing. A balanced distribution across sectors may help us better understand the comprehensive effects of Chinese investments. Third, the

¹⁴Wenjie Chen, David Dollar, and Heiwai Tang, 'Why is China investing in Africa? Evidence from the firm level', *World Bank Economic Review*, (2016), accessed 20 September 2017. doi:10.1093/wber/lhw049.

¹⁵Justin Y. Lin, 'From flying geese to leading dragons: new opportunities and strategies for structural transformation in developing countries', *World Bank Policy Research Working Paper* (5702), (2011). <https://openknowledge.worldbank.org/handle/10986/3466>, accessed 20 September 2017.

¹⁶Justin Y. Lin and Yan Wang, 'Chaoyue Fazhan Yuanzhu' [*Going Beyond Aid*] (Beijing: Beijing University Press, 2015), pp. 162–172.

¹⁷Xiaoyang Tang, *The Impact of Asian Investment on Africa's Textile Industries* (Carnegie–Tsinghua Center for Global Policy, 2014), pp. 16–21.

¹⁸Deborah Brautigam, 'Close encounters: Chinese business networks as industrial catalysts in sub-Saharan Africa', *African Affairs* 102(8), (2003), pp. 447–467.

Table 1. Distribution of registered investment projects in major African countries

	DRC	Ethiopia	Ghana	Nigeria	South Africa	Tanzania	Zambia	Zimbabwe
Agro-processing & Food	3	9	13	17	3	17	17	14
Textile & Leather	0	31	7	18	25	12	3	7
Wood & Paper	2	2	7	19	3	3	8	3
Petro & Chemicals	2	7	5	14	4	4	4	3
Rubber & Plastics	0	2	3	15	6	2	1	1
Mineral Processing	58	31	18	14	25	16	69	42
Equipment Manufacture	3	32	16	68	33	23	19	8
Recycling and others	0	3	1	7	4	2	2	0
Total	68	117	70	172	103	79	123	78

Source: Chinese Ministry of Commerce, as of January 2015.

relatively small size of the country makes it easier to grasp the state of investments in the entire country with limited time and financial resources.

The MOFCOM approval list is based on voluntary reports of Chinese firms that plan to invest in Ghana, but that may not actually end up implementing the projects.¹⁹ The other two sources are the registration lists of Chinese companies from the Ghana Investment Promotion Centre (GIPC) and the Ghana Free Zones Board (GFZB).²⁰ Using these sources, the author mapped the overall state of Chinese investments in Ghana's manufacturing sector. Table 2 reports the number of Chinese firms registered to invest in Ghana according to three separate sources.

This article's findings are based primarily on the results of field research conducted in Ghana from 6 July to 31 July 2014. Out of 183 registered Chinese manufacturing investors in Ghana according to the GIPC and GFZB lists, the author visited 33 companies from mainland China and 2 companies from Hong Kong for in-depth interviews. GIPC's list of registration covers the period from 2004 to 2014. This period covers most of the currently operating Chinese investments. Only one Chinese plastics factory (Shifa) and one Chinese pharmaceuticals company (Sanbao) were found to have started before 2004, and both were existing firms that were sold to new owners from China. Two manufacturers from Hong Kong (Ghana Carton and Andy Chou) were established long ago and were still operating. None of these four investors was on the GIPC list, but Sanbao is in the list of GFZB.

The author tried to reach all of the Chinese companies on the GIPC list with the contact information given by the GIPC but were unsuccessful in more than 60% (113) of the attempts. Some phones had been switched off and others did not answer. As the economic situation in Ghana was deteriorating in 2014, a large number of Chinese businessmen were said to have left the country for an extended vacation or even for good. Among the others, four reported that they were only trading and had never engaged in manufacturing. Another five companies used to have manufacturing activities but had stopped production and were only trading. Six companies were repeats of a single company, and one was actually an incorrectly registered Ghanaian owned

Table 2. Number of Chinese firms registered to invest in Ghana

	GIPC	GFZB	Before 1994	Hong Kong	MOFCOM
Total Chinese projects	560	4	N/A	N/A	154
Projects registered in manufacturing	179	4	N/A	N/A	70
Confirmed manufacturers in operation	28	4	1	2	9

Source: Ghana Investment Promotion Centre (GIPC) as of July 2014; Ghana Free Zones Board (GFZB) and Chinese Ministry of Commerce as of January 2015.

¹⁹Xiaofang Shen also found that the number of Chinese investment projects are several times higher than those reported by the MoC in all six of the African countries in her study. See Shen, 'Private Chinese investment', p. 90.

²⁰The GIPC is a government agency that encourages and promotes investments in Ghana. It registers, monitors and keeps records of all enterprises in the country, except for those in the free zones. The GFZB was established by the government in August 1995 to construct and operate free zones in Ghana. It collects information on registered firms in the free zones.

company. The status of firms on the list was inquired about with other Chinese investors and Chinese officials working in Ghana. The author was ultimately able to visit or talk to approximately 56% (28 of the remaining 50 manufacturers on the GIPC list) to collect detailed information. In addition, four Chinese manufacturing companies were registered with the GFZB, including Sanbao Pharmaceutical, Rider Steel, Rebecca Wig and S.F. International. All of these are large companies with investments of more than US\$10 million. For a reference point, only 9 out of the 33 confirmed Chinese projects in Ghana are included in the MOFCOM database.

For each company, the firm's history and data was obtained using a semi-structured, open-ended questionnaire. Interviewees included factory owners, managers, Chinese employees and Ghanaian employees in each firm. In addition, officials from the Chinese embassy, leaders of the Chinese Chamber of Commerce, several Ghanaian entrepreneurs and Ghanaian officials in the GIPC, the GFZB, the Ministry of Trade and Industry, the Association of Ghanaian Industries and the Ghana Plastic Manufacturers Association were met with. Through semi-structured interviews, interviewees expressed their viewpoints about the impact of Chinese and Asian investments on local development and the extent of technology transfer. They also provided insights into local policy frameworks and the general business environment related to Asia–Ghana economic interactions.

Diverse investments in Ghana's manufacturing sector

Overview of Sino–Ghanaian economic ties

This article's fieldwork coincided with a serious economic setback in Ghana. When Ghana discovered the Jubilee oilfield in 2007, people expected that the oil wealth would advance the development of a stable and democratic nation. Yet three years after oil production began in Ghana, the country realized that the development of its oil production was progressing much slower than originally anticipated.²¹ The public finance deficit counted approximately 12% of the gross domestic product (GDP) in 2012 and 2013. It in turn caused inflation to rise to 14.8% in 2014.²² The US dollar/Ghanaian cedi exchange rate fell from 1.9 in August 2012 to 3.8 in August 2014. The government finally decided to seek financial help from the International Monetary Fund in August 2014, recognizing that the country's economy was in peril.

Since 2000, the Chinese government and Chinese banks have offered a large number of concessional and commercial loans to Ghana for infrastructure construction in the telecom, energy, fishing and transportation sectors. In particular, on 16 December 2011, the China Development Bank and the Ghanaian government signed an ambitious master facility agreement. The US\$3 billion commercial rate loan was to be divided into two equal tranches. Twelve projects were identified as eligible for financing by January 2012, including roads, ports, railways and industrial zones.²³ The loan was supposed to be secured and repaid by Ghana's oil revenue, despite criticism from the opposition party for using oil revenues as a guarantee. However, the Ghanaian cabinet later canceled the second tranche of US\$1.5 billion due to the country's precarious external debt situation.

Trade between China and Ghana is not balanced as the value of China's exports to Ghana is much more than its imports from Ghana (see [Figure 1](#)). Although China started to import oil from Ghana after 2010, which boosted the volume of imports significantly, the trade surplus is still immense. The main commodities China exported to Ghana as of 2014 included machinery and

²¹Celeste Hicks, 'Ghana struggling to translate oil money into development gains', *The Guardian*, 3 February 2014, accessed 2 April 2018, www.theguardian.com/global-development/2014/feb/03/ghana-oil-money-development-gains.

²²Matthew M. Bigg and Kwasi Kpodo, 'Once a model for Africa, Ghana's economy loses its shine', *Reuters*, 13 June 2014, accessed 2 April 2018, www.reuters.com/article/2014/06/13/us-ghana-economy-idUSKBN0E00KD20140613.

²³Ministry of Finance of Ghana, 'US\$3 billion term loan facility agreement between China Development Bank (CDB) and Government of Ghana (GoG)', 1 May 2012, accessed 2 April 2018, https://www.mofep.gov.gh/sites/default/files/reports/economic/CDB_Loan_Summary_050112.pdf.

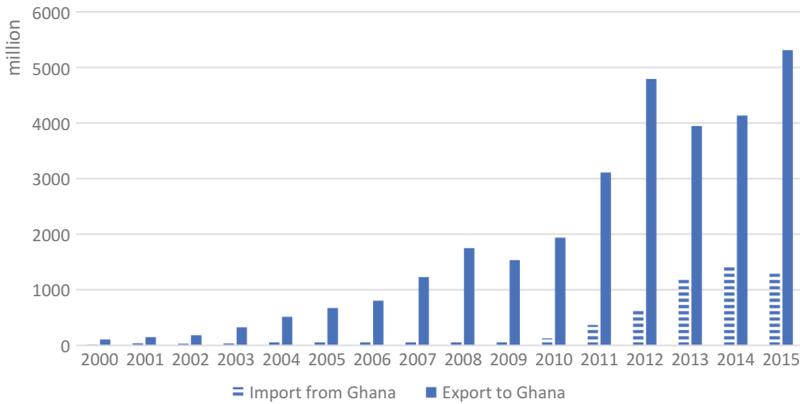


Figure 1. Trade between China and Ghana 2000–2015 (in US\$).

Source: UN Comtrade.

vehicles (26.14%), glass and metal ware (21.47%), garment and footwear (18.92%) and chemicals, plastic and rubber (14.1%).

Since 2009, the amount of Chinese FDI toward Ghana has been growing steadily, making China a top investing country in Ghana as of 2014 (see Table 3). However, the author was not able to identify the allocation of FDI by sectors from the available statistics. Through research on the ground, it was found that Chinese investment has spanned multiple industries of Ghana's manufacturing sector, ranging from plastics recycling and pellet production to steelmaking and steel products. The effect of Chinese investment on each industry is varied, due to industry-specific issues, competition, resources and the local economic environment.

Plastics recycling and pellet production

Although Ghana's economy was declining rapidly in the middle of 2014, the plastics recycling business was still booming. A coordinator of the Ghana Plastic Manufacturers Association (GPMA) estimated that about 20 Chinese plastics manufacturers were operating in the country (The author identified 11 of them). The reason is that Ghana has a huge market for sachet water, which is the main form of drinking water for local people. Every day, millions of plastic water sachets, which are made of polyethylene (PE), are littered after use. In 2005, when the Ghanaian government wanted to ban sachet water, a sachet water maker proposed to collect and recycle sachet water bags. Since then, Chinese producers have dominated the market. The GPMA coordinator analyzed the reason:

Table 3. Major source countries of FDI flow in Ghana (million US\$)

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Belgium	–	2	–	–	–	–25	73	–89	428
France	19	10	3	–	–	–	–	–	–
Germany	6	–5	–1	–1	–	–	–	–	–
Finland	–	–	–	–	–	–	7	6	2
Italy	–	–	–	–	–	–	3	3	6
China	–	3	1	2	11	49	56	40	208
Japan	–	–	–	–	15	4	–	1	–
South Korea	–	–	1	1	15	23	4	–	–
Luxembourg	–1	21	–1	–10	22	–6	–167	–	416
USA	120	–4	729	–	–	–	558	250	–

Source: UNCTAD FDI/TNC Database.

The plastic industry in Ghana is divided into recycling and production. The production part of the industry is much larger and is dominated by Indian and Lebanese companies such as Polybule and Blueplus. These companies were established in the 1950s and 60s. The recycling part of the industry is a much newer addition. Ninety percent of the recycling market is taken by Chinese companies. They came too late and cannot beat Indians in the production market; therefore, they are only able to expand in the new recycling market.²⁴

PE recycling can be divided into three sub-sectors: waste collection, making pellets from recycled waste and processing pellets into plastic bags. There are no Chinese businesses in the first sub-sector. The GPMA coordinator estimated that there are 50 large local sachet collectors with crushing machines. The Chinese do not have a competitive advantage in this area against local collectors, as the most important part is not processing but knowing the area and securing access to dumping sites. In the second sub-sector, a handful of local waste collectors have climbed up the value chain to produce pellets. Two small Chinese businesses are dedicated to pellet making. Chinese factories are concentrated in the last sub-sector of bag making, as this is the most profitable sub-sector – once with margin of over 30%, and even with increased competition, the margin is still around 20%. Most of the Chinese factories also have machines to produce pellets, but the demand for pellets exceeds their capacity. Apart from PE, some firms also recycle polypropylene (PP) from beer crates to make chairs and containers.

Chinese producers acknowledge that the waste material (plastic sachet) is very good. The plastic has been processed only once and can still be recycled to make plastic bags easily. In comparison, there is no sachet water in China and the plastic waste for plastic bags has already been recycled several times. Since the raw material and the recycling business market are both within Ghana, the dramatic depreciation of Ghana's cedi has not affected the industry much. Nonetheless, several Chinese investors complain that their profits in terms of dollars and RMB have dropped a lot.

Plastic products

As noted earlier, the plastics industry in Ghana has been dominated by Lebanese and Indian investors since the 1950s. During recent years, only a handful of Chinese newcomers have attempted to enter this market. One Chinese company (Shifa) produces small plastic tableware while another (Lakerise) produces plastic bottles. Both investors wanted to do something different from other Chinese investors who had crowded into the recycling sector. Both firms are very small with investments of less than 2 million RMB (US\$300,000). Another firm (Verise) invested more than US\$1 million in Ghana in 2005 to produce plastic sandals after having imported sandals and achieved good sales. This company was able to remain profitable during the economic recession because it was importing the raw material, ethylene-vinyl acetate, from another of the owner's factories in China. Thus, the owner made an overall profit even while the Ghanaian factory was barely breaking even.

Steelmaking and steel products

Seven steel plants are reported to operate in Ghana. Two of them are from China. A Taiwanese businessman established one of the Chinese plants 40 years ago. It was acquired by an Indian company several years ago and was then resold to an investor from Fujian province in 2010. Ghana's SSNIT (Social Security and National Insurance Trust) acquired 26% of the shares in the Chinese plant. The other Chinese investor came to Ghana in 2008.

Steel production is relatively expensive. The investment in each Chinese plant was approximately US\$30 to US\$40 million. Currently, both solely produce iron rods by recycling scrap metal (mostly locally sourced). The iron rods are used for construction, supplying Ghana's booming real

²⁴Quaranchie Adama-Tetteh (coordinator for Ghana plastic manufacturers association, Accra, Ghana), interviewed by the author, 24 July 2014.

estate market. But the new plants have increased the total iron rod production capacity to about 600,000 and 700,000 tons per year, far exceeding Ghana's market demand. The plants were running at low capacity in July 2014. Finding sources for scrap metal is also a problem; rising demand means Ghana cannot supply enough. Both Chinese plants are planning to produce other kinds of steel with more added value, such as coils, beams and angle bars. They commented that raw materials (for example, scrap steel) could be sourced from China and Ukraine, but likely not from Africa.

In addition, one small firm produces colored steel tiles and rolling gates for houses. Another firm, S.F. International, is constructing a much larger steel tile factory with an investment of US\$12 million. It plans to target large industrial clients across West Africa.

Paper and cartons

The author identified three Chinese investors in the paper- and carton-making sector. One arrived from Hong Kong (Ghana Carton) in 1989 and manufactures cartons out of imported paper pulp. The other two firms are from the mainland; one, Shinefeel Company, came in 2010. One of Shinefeel's shareholders used to manage a paper mill in China and developed an expertise in paper production. Shinefeel began by recycling waste paper to make toilet paper. This helped the factory produce at a rate 15–20% cheaper than that of the Indian and Lebanese paper mills. The company made good money and recovered its investment of US\$3 million within three years. However, because the market has become saturated, the owner bought a plastic tableware factory to explore a new business area.

Attracted by Ghana's safe and stable environment, one of China's top-500 companies (based on annual revenues according to the China Enterprise Confederation), Huasheng Jiangquan Group, from Shandong province, invested in a paper mill (Gomoa) in 2011 and added a carton factory (JQ packaging) in 2014. Huasheng Jiangquan's total investments reached more than 30 million RMB (US\$5 million). Its raw material supply was partially sourced from waste paper recycling.

Miscellaneous manufacturing

A handful of Chinese firms were operating in a variety of other sectors: pharmaceuticals, wig-making and mattresses. Some of these factories were quite large. For example, the wig maker (Rebecca) employed more than 900 workers, the pharmaceuticals company (Sanbao) invested more than US\$20 million. With the exception of the wig maker and possibly the steel tile maker S.F. International, all of the other companies only sold products entirely within Ghana either because of regulations (pharmaceuticals) or because of transportation costs. As the market was limited and having problems, no one was eager to expand at the time of the interview.

In the GIPC lists, some 10 Chinese firms were registered as manufacturing travel bags or suitcases. However, an official in Ghana's Ministry of Industry complained that these firms only did very simple assembling, but registered as manufacturing companies to evade the capital requirement.²⁵ The author tried to call these firms, but most could not be reached. Two companies reported that they had stopped production due to the poor economic environment.

²⁵GIPC regulations stipulate that US\$1 million in capital is required for a foreigner to register a trading firm, but there is no threshold for manufacturing firms. (Kofi Nutta director of manufacturing at the Ministry of Trade and Industry, Ghana, interviewed by the author, 16 July 2014).

Motives of Chinese investors in manufacturing

Several common motives for Chinese investment in Ghana's manufacturing sector were identified as follows. The most common was one a desire among traders to lower their costs by producing locally.

From trade to investment

Almost all of the first investors in manufacturing started their businesses in Ghana by importing goods from China. Several traders sold very well in the market, and decided to produce locally because this could save them the cost of transportation. The machines they imported were not very expensive. They manufactured and processed the products they traded, such as plastic tableware and agricultural tools.

Other traders felt more and more pressure from competition in trade and wanted to explore new business possibilities outside of the products they had originally been trading. As one factory owner said:

I began with trade in Ghana in 1997... As more and more Chinese came to Ghana, the competition intensified and the margin dropped. I thought that I needed a more stable business and so I opened a restaurant in 2003. In 2007, I set up a plastic recycling factory.²⁶

A state-owned construction company, Gansu Construction, has been doing well in the contract engineering market in Ghana. Yet, as the competition intensified, it sought to diversify its business. It bought a small Chinese pharmaceuticals company, Sanbao, and turned it into a market leader.

Targeted investment

By contrast, most of the firms in the plastics recycling sector had not traded before they invested in Ghana. After recycling of sachet water bag was proposed in 2005, Chinese investors quickly entered and dominated the empty market. One investor recalled the beginning of his business in Ghana:

I came to Ghana in 2007 and joined with five other people to form a firm called Ohuade. I had my own business in plastic pellet making and printing for over a decade in China. Before I came to Ghana, I closed that business because the clients did not pay their debts on time and because the profit margin had become very low. One of the other five was doing other business in Ghana – he told us information about Ghana and helped us get here. We were able to open the factory very quickly as we were familiar with the business and machinery.²⁷

The young boss of another factory told a similar story of directly setting up a factory in Ghana to explore the underdeveloped market:

I came to Ghana together with my uncle and his wife in 2009 to set up a recycling factory. At that time, I had just graduated from college and did not want to start with low-level jobs like my classmates. My uncle used to own a bag factory in Dongguan before 2009, but he was forced to close down the factory because of debt default. We brought 300,000 RMB [US\$50,000] to Ghana. My brother and his wife opened a plastic recycling factory in Ghana in 2007. Therefore, we knew that this business was profitable and that the market was not saturated yet. We used the money to buy several machines from China and we opened the factory, even though none of us had ever run this kind of business before.

²⁶Chen Zhongwei, interviewed by the author, July 2014.

²⁷Jin (founder and owner of Yunfeng Recycling), interviewed by the author, July 2014.

Long-term prospects

Several large Chinese projects (over US\$10 million), including two steel mills (Sentuo and Rider), a paper mill (Gomoa) and a steel tile producer (S.F.), based their investment decisions on the long-term prospects of Ghana's economic development. Projects of such a large scale do not aim at short-term returns but hope to get sustainable income in the long run. The Chinese investors often analyze Ghana's future with China's own development experience. For example, the owner of Sentuo Steel, a Chinese businessman who lived in Spain for years, said:

The development of Africa is the big trend. Even if Africans themselves do not want to develop, other people will push them. The problem will just be speed. Infrastructure is currently weak in Third World countries like Ghana. But I have seen how developed countries grow step by step. In the development process of every country, infrastructure has always been among the first sectors to take off. People need houses and the construction of houses needs steel.²⁸

The managing director of S.F. International had a similar vision about Africa's future and planned accordingly for the long term. He owned a big cotton plantation firm in China, invested to build a steel tile factory and was planning to grow cotton in Ghana. He explained his motive:

After people accomplish primary capital accumulation in China, they should invest in Africa, because this is the only place where we can still see immense growth potential in the world. Thus, I came to visit Africa even though I had not done business with Africa before. Learning from other countries' development experience, I have a 20-year plan for business development in Ghana. I never did the construction business before, but I knew that the steel tile business has a high margin in China, about 15 percent, and the profit rate in Africa will definitely be higher. All developing countries need housing when they grow rich.²⁹

Government policy and incentives

None of the Chinese manufacturers received incentives or financial support from the Chinese government for their investments in Ghana, but they mentioned that the Ghanaian government's policies affected their investment decisions. Ghana provides several general incentives to develop manufacturing, including a reduction of the import duty on raw material imports and an exemption from the minimum investment requirement (US\$1 million for trading companies and US \$500,000 for other nonmanufacturing companies). Manufacturing firms can also be wholly owned by foreigners, and foreign machinery and equipment can be imported free of duty.

At least on paper, Ghana has several sector-specific incentives. Ghana's new industrial policy focuses on the provision of local raw materials to local industries. An official in the Ministry of Industry and Trade explained, 'Ghana already has enough agricultural products and is in need of non-agricultural raw materials, including metallic materials like steel, non-metallic materials like cement, clay, brick and mortar, etc.'³⁰ Although there is no explicit tax incentive, both Chinese steel mills report that they have received support from the Ghanaian government. Rider Steel negotiated with the government for some preferential treatment regarding import duties and repatriation of profits. Sentuo Steel formed a joint venture with SSNIT, which was said to help the mill get its power connection quickly.³¹ According to the latest tax regime, waste-processing factories are exempted from all taxes except for the value-added tax for seven years (GIPC 2014). This has helped reduce costs for recycling manufacturers. But Chinese investors are not satisfied with only these incentives. One plastic-recycling factory owner commented, the 'Ghanaian government speaks about support, but in fact does nothing'.³²

²⁸Xu Ningquan (managing director of Sentuo Steel), interviewed by the author, July 2014.

²⁹Chen Qishun (managing director of S.F. International), interviewed by the author, July 2014.

³⁰Kofi Nutta, interviewed by the author, July 2014.

³¹A previous owner of the steel mill, a Taiwanese businessman, sold it to the SSNIT 10 years ago. The SSNIT further sold the company to Sentuo.

³²Jin, interviewed by the author, July 2014.

Local linkage

This section discusses how Chinese investors influence the local manufacturing sector in Ghana. The author will first examine the technologies used, employment practices and the training programs in the Chinese factories, then investigate their linkage to local suppliers and competitors.

Technological level of production

Many Chinese firms claimed that the machines they brought to Ghana are much more advanced than those that Ghana had before, yet the same machinery is already 'mature' or even out of date in China. The general manager of Rider Steel said that the production technology of his company is at the level that China's technology was two decades earlier, around 1994. Sentuo's technology is at a level equivalent to that of China in 1997. The imported machines were all new. It is easy to purchase new steel furnaces in China and install them in Ghana with the suppliers' technical assistance. In fact, none of Rider Steel's and Sentuo Steel's owners ran steel mills before they came to Ghana.

Likewise, the PE bags are already banned in China, because the black PE plastic bags cannot be recycled again and will cause pollution. The Chinese government only allows firms to produce biodegradable plastic bags. The machines and technicians in the PE recycling sector thus found their way to Ghana, where PE recycling was still considered to be a progressive step.

The manager of a bottle-making company (Lakerise) said that he intentionally used an old-generation machine. In his words,

It is not suitable to bring fully automatic machines to Ghana, because the technological capacity here is still not enough to operate the automatic machines. Local technicians are not able to do appropriate setting and maintenance. Chinese technicians can do this, but they can't find spare parts. As the labor cost here is very low, it is better to use semi-automatic machines.³³

From these examples, it appears that Chinese investors bring tailored machinery and technology according to the market demand, operation conditions and development level in Ghana. The technologies used may not be the best ones, but they are supposed to be the most suitable and cost-efficient ones for the business.

Employment and training

Chinese factories employ a large number of Ghanaian workers. The 35 manufacturing companies surveyed employed in total 3226 Ghanaian workers and 322 foreigners (most foreign employees are Chinese. Several are from Jordan and India). However, a few Chinese investors have strong prejudices against local workers. They describe local workers as 'lazy' or 'stupid' and complain that they do 'not keep promises' and are 'not willing to work on weekends'. Consequently, despite the locals' technical knowledge, these employers do not trust local workers to be in supervisory positions and rely instead on Chinese technicians.

To be sure, not all Chinese companies have such prejudices. Plenty of companies, especially larger ones, do emphasize providing training to local workers. For example, Gomoa Papers has a one-month training program for its printing technicians, in which Chinese technicians work with the local technicians so that they learn from each other. The firm even invites some Ghanaian experts from outside to hold classes for the staff, because the Chinese technicians also need to understand the local market.³⁴ Sanbao Pharmaceutical also sent some local staff members to government-sponsored training workshops in China. To conform with local law, the company

³³Li (manager at Lakerise Bottle), interviewed by the author, July 2014.

³⁴The author was not able to determine who supplied this training expertise.

hired well-educated Ghanaian professionals to be the principal pharmacists and the heads of inspection lab too.

Recycling businesses usually have low requirements when it comes to technical skills. Thus, some companies do not care about training and keeping local workers. A Chinese pellet maker said, 'When the local workers wanted higher wages, we simply dismissed all of them. Students and young people come to our factory to ask for jobs almost every day, we are not worried about getting new workers at all'.³⁵ Others treat their employees better. In some recycling firms, a third to a half of their employees have worked for them since the beginning of the investments. In their opinions, experienced workers are more familiar with the machines. They may detect hidden problems in the machines and tell Chinese technicians to repair them in advance.

Suppliers

Plastics recycling firms, steel mills and paper mills source a large part of their raw materials from waste in Ghana. Investors who started earlier in Ghana recalled that waste was very easy to get and cost almost nothing in the beginning. But as investors increased, the competition for raw materials also intensified. For example, the price for plastic waste rose from 0.1 cedi per kilogram (US\$0.03/kilogram) to 0.8 cedi per kilogram (US\$0.25/kilogram). Since Ghana imposes a high duty on the importation of waste plastic and steel, factories have to rely on domestic supplies. The Sentuo steel mill runs at only half of its production capacity because of a shortage of raw materials.

Chinese factories are not very satisfied with their local supply. According to the general manager of Rider Steel:

We source all the scraps locally, but unlike in China, the scraps are not processed first in Ghana. Vehicle wrecks are simply brought to the factory. Chinese technicians were shocked at the beginning, because in China the scraps are processed by supplier companies and they never saw such kind of scraps. Only after two months, the production manager understood that this is the nature in Ghana.³⁶

As plastics recycling started several years ago in Ghana, local people did not know how to collect waste. Chinese producers did the waste collection at the beginning. The founder of Haojie Plastic recalled:

As this business grew, local people realized that collecting waste has lots of profits. They began to collect waste by using small carts to go to all the small trash collection stations. I knew that I cannot compete with Ghanaians in this part. Therefore, I gave up the waste collection business to focus on the processing of finished products. I paid some Ghanaians to collect plastics for me first. Later I gave them the crushing machines so that they set up their own collection business and supply crushed waste to me.³⁷

However, he complained that the local collectors do not know how to wash and process the crushed plastics properly, and so his factory has to correct their mistakes. Other Chinese recyclers shared similar concerns.

Manufacturers in other sectors such as pharmaceuticals, wigs, steel tiles and plastics production import almost all of their raw materials. Their main source is China, but they sometimes import high-quality materials like pulp from Europe and the United States.

Competitors

As mentioned, Chinese, Indian and Lebanese investments are spread across most of Ghana's manufacturing sectors. There is some direct competition between the Chinese and the Indian/Lebanese companies, especially in the steel business. But as the Chinese mills have just started

³⁵Zheng Ni (pellet factory owner), interviewed by the author, July 2014.

³⁶Walid Al-Alami (general manager at Rider Steel), interviewed by the author, July 2014.

³⁷Chen Zhongwei, interviewed by the author, July 2014.

operating, the competition is still limited. Chinese firms tend to invest in new segments or niche markets that are not occupied by Indian or Lebanese firms, such as the steel mills' plan to produce coils, beams and angle bars instead of simple iron rods. A plastics producer bought new molds from China to produce plastic bowls and cups that had not yet been produced in Ghana. Its manager explained, 'The market in Ghana is empty. Only a few products are produced here. We don't want to follow others to do similar things. We can easily find some products which nobody has yet produced here'.³⁸

Ghanaian firms are not regarded as serious competitors. Although some local businessmen have bought machines to make pellets and PE bags, Chinese firms believe that Ghanaian-made products are of lower quality. Sanbao pharmaceuticals company has a Ghanaian competitor, but the competitor was established in the 1970s and has very old equipment. The Chinese company controls more than 70% of the market and commented that its major competition is imports from India, not the local producer.

Clustering development and knowledge transfer

Industrial clusters and zones proved to be catalytic agents for developing countries to foster their manufacturing capacity. When a country has low-quality infrastructure, it can concentrate its resources to improve the infrastructure of small zones or specific sectors.³⁹ China was very successful in using industrial clusters and special economic zones to absorb technologies from abroad and gradually improve management practices in its own development process.⁴⁰ The following will explore the degree to which Chinese firms cluster in sector-specific ways, or geographically. In the latter case, this article examines Chinese investment in industrial or free zones in Ghana.

The plastics cluster

Chinese investments in the plastics recycling sector have formed a cluster. Since 2005, a dozen Chinese firms have flocked into the similar business of processing waste plastic to make black PE bags. Likewise, Chinese firms have dominated the PP recycling sector. Investors in such clusters are closely connected with each other through familial, communal or professional ties.

Figure 2 shows the connections among major Chinese recycling producers. The first factory, Ohuade, was a joint venture of six shareholders, mainly from the city of Wenzhou. It was made up of merchants who knew the Ghanaian market and businessmen who were experienced in recycling operations. Yet the joint venture did not last long. Almost all of the partners quit to open their own factories, and several Chinese technicians who worked at Ohuade also left to set up new factories. Ohuade was still operating in July 2014, but it was solely owned by one of the six original shareholders and was not the largest firm in the market. The newly established factories also brought their brothers, uncles and friends from the same region to Ghana to work in plastics recycling. As of July 2014, 10 recycling factories were from Wenzhou, which is the production center of waste-recycling machinery in China. Another three factories were from Fujian province.

The PP recycling sector has a similar story. Claiming to be the first person who started PP recycling, Chen Zhongwei said, 'When people saw me make good money from recycled plastic, five Chinese also set up the same factories. Two of them were actually my previous technicians. They

³⁸Oxen Zhang (manager at Shifa Plastic), interviewed by the author, July 2014.

³⁹Deborah Brautigam and Xiaoyang Tang, 'Going global in groups': structural transformation and China's special economic zones overseas', *World Development* 63, (2014), pp. 78–91.

⁴⁰Jianming Wang and Ming Hu, 'From county-level to state-level special economic zone: the case of the Kunshan economic and technological development zone', in Douglas Zihua Zeng, ed., *Building Engines for Growth and Competitiveness in China: Experience With Special Economic Zones and Industrial Clusters* (Washington, DC: The World Bank, 2010), p. 143.

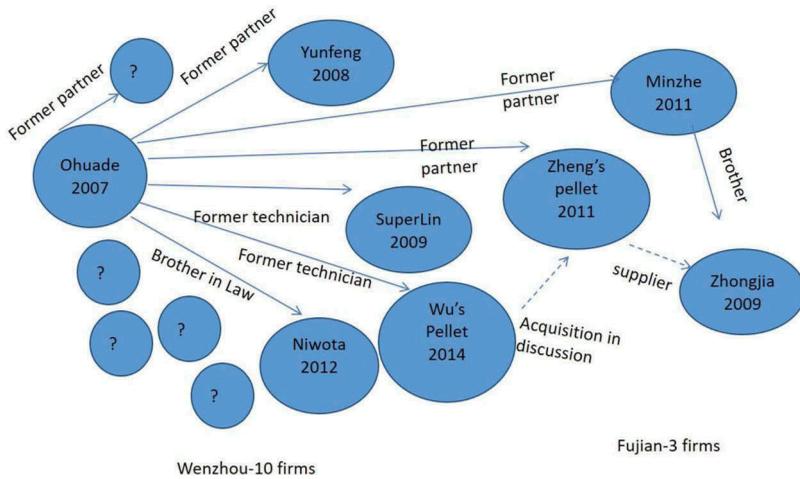


Figure 2. Relationships among Chinese plastics recycling firms in Ghana.

Source: Author's own illustration according to interviews.

took several skilled workers from my factory too'.⁴¹ One PP recycler further introduced his nephew to set up another PP recycling factory.

Some of the divided factories maintained good relationships with each other, and some of the business owners were relatives and some supplied pellets to others. Yet some companies, even though they were all from Wenzhou, had more hostile feelings toward each other. Competition was intense in Accra, with people fighting for clients. One company, Yunfeng, decided to go to Kumasi to find more space and higher profits. As Ghana's economy has declined, several producers (usually the smaller ones) want to close their business and return to China. A couple of larger producers are determined to stay and even expand. Zhang, a partner in Superlin Company, said, 'We have already bought land, we have to persist. There is no way to withdraw'.

A typical channel for transferring foreign knowledge to locals in the literature is through spin-offs of former employees. Local employees left foreign companies to establish their own firms and form the nucleus of indigenous industries.⁴² Chinese employers noted that Ghanaian workers who quit might go to other factories, but very few of them start their own businesses. The Chinese employers believe that this is because of the relatively high machinery investment cost. Nonetheless, a small number of Ghanaian businessmen have ventured into their own pellet making and some have even established full recycling factories. For instance, in the early 2000s, a Ghanaian, David, worked in a Chinese plastic products company, Fanpack, in Accra, where he learned to operate machines. Later, he moved to an Indian-owned company and worked as a recycling manager. When the Indian company was sold to a Lebanese businessman in 2011, he decided to start his own waste collection and pellet production business. David bought his pellet-making machines from Chinese recycling factory owners. After discovering a Chinese recycling factory's plans to close, he became interested in purchasing its bag-making machines, but he could not afford the price of 1.5 million RMB (US\$241,935). This confirms that capital constraint is an important factor preventing local workers in Chinese factories from starting their own factories. Indeed, although there are few examples of Ghanaian workers transitioning into investment, several rich Ghanaian businessmen opened their recycling factories or took over Chinese firms.

⁴¹Chen Zhongwei, interviewed by the author, July 2014.

⁴²Mustafizul Shakir and Thomas Farole, 'The thin edge of the wedge: unlocking comparative advantage through EPZs in Bangladesh', in Thomas Farole et al., ed., *Special Economic Zones: Progress, Emerging Challenges, and Future Directions* (Washington, DC: The World Bank, 2011), pp. 25–41.

Chinese recycling firms also sell machines to Ghanaians. As noted earlier, Chinese companies gradually withdrew from the waste collection segment. A recycling firm gave crushing machines to local Ghanaians so that they could become its suppliers. As the number of Ghanaian collectors increased, that firm sold more than 20 crushing machines to Ghanaians (each machine costs more than 10,000 RMB). In Kumasi, only one Chinese PE recycler was operating. The owner, Mr. Jin, was unwilling to run the pellet-making process himself, as waste collection and primary processing is dirty, requires hard work and frequently results in accidents. Therefore, he sold pellet-making machines to Ghanaians. Those local companies in turn became his suppliers of pellets. The quality of those suppliers was good, because Jin sent technicians to install the machines and taught them how to operate them. Jin provides all the sift nets and spare parts.

Jin also sold printing machines to sachet water makers. These water companies in turn gave him waste sachets. Jin has sold approximately 30 sets of machines to sachet water companies and 5 sets of pellet-making machines in total. A buyer of pellet-making machines is actually a relative of the owner of a sachet water producer. Thus, they can form a recycling chain and supply high-quality pellets to Jin. Jin does not sell PE bag-making machines to local firms because he does not want to nurture competitors.⁴³

Industrial zones and free zones

Chinese firms exhibit significant clustering in and near Ghana's industrial and free zones. For example, six large Chinese factories chose to locate in and around the Tema Industrial Free Zone and formed a geographic cluster. Rebecca Fashion, S.F. International, Rider Steel and Sanbao Pharmaceutical are located within the Tema Zone. Gomoa Papers and Sentuo Steel are situated right outside the zone. Any company can register as a free zone company and enjoy tax holidays from the GFZB as long as it exports 70% of its products, but only Rebecca Fashion has been able to do so. The other companies either sell mainly within Ghana or have not yet started production. The location of a company does not influence the application of tax policy. Thus, the reasons these six firms chose their locations were not related to tax holidays, but rather based on other considerations such as proximity to the port, secure provisions of water and electricity, safety and clear land ownership.

However, the connections between the Chinese firms in the zone seem weak. First, as these companies work in largely different sectors such as steel, paper, wigs and medicine, they have few opportunities to work together in business. Second, though there are two steel mills just 5 km away, they have little interaction. The Jordanian manager of Rider Steel noted that 'Chinese companies are not open to each other', especially with respect to the movement of employees:

The Indian community is very organized. If people want to find a certified professional, they can easily get candidates. The employees also move around between Indian companies. But Chinese communities are not organized. Among two companies in the same sector, like Rider and Sentuo, there is no movement of Chinese professionals. They consider stealing people immoral, but such stealing is good competition. Companies should steal people from each other.⁴⁴

Chinese investment in free zone construction

The Ghanaian government has encouraged investors to build and operate new free zones. Authorized by the Free Zone Act of 1995, the Ghana Free Zones Programme aims to promote processing and manufacturing of goods through the establishment of export processing zones (EPZs).⁴⁵ By July 2014, four areas had been designated as EPZs: Tema, Ashanti, Sekondi and Shama.

⁴³Jin, interviewed by the author, July 2014.

⁴⁴Walid Al-Alami, interviewed by the author, July 2014.

Although as of 2014 several Chinese firms were interested in developing zones, none had yet done so. In February 2011, the GFZB announced that a Chinese company, Hasan, was to develop a zone in Sekondi, but the representative of Hasan had already left Ghana at the time of this research.⁴⁶ According to an official in the Chinese embassy, after Hasan signed a memorandum of understanding with the GFZB, it found that land ownership there was not clear and that resettlement was difficult. Hasan was thus hesitant to move forward.⁴⁷

In January 2014, Huasheng Jiangquan group, the parent company of Gomoa and Tema Papers, agreed to invest US\$2 billion in Shama, Ghana, to construct an industrial park based on iron ore and steel.⁴⁸ It was said that an informal promise had been obtained with the Ghanaian minister of industry and trade when he visited China. Later, Huasheng discovered that the minister's promise was difficult to implement. For example, the iron ore had not yet been extracted and there were disputes over land ownership. A manager from Gomoa Papers mentioned that the zone project was still in the planning stages by the headquarters in Shandong.

As in other developing countries, Chinese investors are enthusiastic about constructing industrial zones in Ghana.⁴⁹ However, this strategy does not work in Ghana because of the complicated land ownership and the daunting resettlement process. Consequently no Chinese investors have implemented their plans of zone development yet. At the time of this writing, only the Tema Free Zone, which was developed by Ghanaian authorities, is in operation.

Conclusion

After careful examination on the ground, the development of Chinese manufacturing investments in Ghana and their links to the local economy is clearer. First, it was found that, in reality, the investment landscape is quite different from that reported by government statistics. Although more than a hundred Chinese firms are registered as manufacturing investors with the GIPC and GFZB, at most only 20% can be confirmed as currently in operation. The proportion is even lower in the MOFCOM database of registration. This suggests that many registered projects have never been implemented or many factories closed down within a relatively short period of time. Interviewees mainly attributed the reason for business difficulties to the deterioration of Ghana's economy. Yet, several large projects, such as the Sekondi EPZ or the Huasheng Jiangquan ecological park, had not materialized because of policy issues. Second, Chinese manufacturing investments have been constantly increasing during the past decade in spite of Ghana's economic difficulties. On the one hand, some Chinese traders who had become familiar with the local market decided to invest there instead of limiting their business to import–export. On the other hand, a few successful pilot investors attracted other Chinese investors to join them, to seize business opportunities. The clustering in the plastics recycling sector in Ghana vividly demonstrates how Chinese investments expanded through various linkages like these. Third, almost all of the manufacturing projects in Ghana target at local or West African regional markets. Chinese firms see competition in Ghana as less fierce than in China, and with lower transportation costs and the use of local materials, they believe their products have a competitive advantage against imported products (often made in China). The author did not find any Chinese manufacturers establishing themselves in Ghana to make labor-intensive products for the global market, as people have seen

⁴⁵Ghana Ministry of Trade and Industry, 'Ghana Free Zones Board', 11 March 2016, accessed 3 April 2018, <http://moti.gov.gh/agency/ghana-free-zones-board-0>.

⁴⁶Modern Ghana, 'Hasan Ghana to invest four billion dollars in Sekondi Freezone', *Modern Ghana*, 18 February 2011, accessed 3 April 2018, www.modernghana.com/news/316983/1/hasan-ghana-to-invest-four-billion-dollars-in-seko.html.

⁴⁷Anonymous official from the Chinese economic counselor's office in Accra, Ghana, interviewed by the author, July 2014.

⁴⁸Linyi Online, '华盛江泉集团在加纳建循环经济产业园' ['Huasheng Jiangquan Group to Build Ecological Industrial park in Ghana'], *Linyi Online*, 10 January 2014, accessed 1 December 2017, http://linyi.dzwww.com/finance/sdcj/201401/t20140110_9500313.htm.

⁴⁹Deborah Brautigam and Xiaoyang Tang, 'Economic statecraft in China's new overseas special economic zones: soft power, business or resource security?', *International Affairs* 88(4), (2012), pp. 803–804.

in the shoe and garment sector in Ethiopia.⁵⁰ Comparably high labor costs (about 350 cedi/month, which equals roughly US\$100 for unskilled new workers) in Ghana may be a hurdle for export-processing enterprises.

As for local linkages, the vast majority of the employees in Chinese factories consist of Ghanaians: on average, ten Ghanaians to one Chinese. However, few Ghanaians are in management positions. Training is usually provided to local employees in most firms, yet most simply train new employees 'on the job'. Larger and technologically more sophisticated firms, for example, the pharmaceuticals firm, offered classroom training too. Since most of the Chinese investments in Ghana are small and employ fairly simple technologies, they do not require sophisticated training. Local workers have learned how to operate machines and repair them. Other forms of learning occur. Several local businessmen and former Ghanaian employees of other foreign firms have started their own businesses in some sectors by learning from Chinese investors, primarily in the sector of plastics recycling. Chinese firms have local suppliers of raw materials, such as plastic waste, waste paper and scraps. Some Chinese firms have sold machines to their local suppliers to help them begin or improve production. In particular, the clustering of plastic recycling sector has generated notable spillover effects to local manufacturers and suppliers.

However, most industrial supplies like steel, polyvinyl chloride and pulp still have to be imported from abroad. Therefore, local backward linkages are very basic and the supply chain is short. A lack of capital appears to be the main obstacle keeping local players from moving up the value chain. In addition, a few Chinese investors are not willing to teach local workers and companies skills because of communication problems, prejudice against Ghanaians or competition concerns. Such behaviors are understandable and are commonly seen among other foreign investors too. The fundamental constraint for technology transfer and local linkages is the weak macro-economy and industrial basis of Ghana.

Finally, some preliminary conclusions can be drawn regarding the questions raised in the first section. Chinese investors in Ghana's challenging manufacturing sector are either driven by the pressure of fierce competition and industrial upgrading at home or attracted by the long-term potential in Africa. Chinese merchants' previous trading experiences in Africa and China's comprehensive manufacturing industries are two major advantages of Chinese investments. Their arrival drives more Ghanaians to work in the factories, supply the factories or set up their own factories. This mechanism has the key elements of 'flying geese' model as described by Deborah Brautigam, namely more industrialized countries facilitate the industrialization of less developed countries through trade and FDI. However, the Chinese geese in Ghana are still new and small in numbers. Apart from niche markets like plastic recycling, enough evidence cannot yet be seen for manufacturing take-off in Ghana as a result of Chinese engagements. This study of the emerging phenomena hopefully can help policymakers to identify obstacles and improve the environment to attract more Chinese and Asian 'geese' to invest in Africa's manufacturing sectors. As discussed in the article, clusters of small manufacturers are more likely to build backward and forward linkage with local businesses and are easier for local competitors to imitate. Thus, policymakers should also attach importance to getting a critical mass of small and medium-sized investments. Although they may look insignificant as individuals, their flexibility, interconnectivity and ability to multiply may invigorate the growth of manufacturing sectors as a whole.

⁵⁰Deborah Brautigam, Margaret McMillan, and Xiaoyang Tang, 'The role of foreign investment in Ethiopia's leather value chain', (Center for Economic Policy Research, 2013), accessed 3 April 2018, <https://pedl.cepr.org/content/role-foreign-investment-ethiopia%E2%80%99s-leather-value-chain>.

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