Ethiopia: Qualitative Study on Innovation in Manufacturing Small and Medium Sized Enterprises (SMEs)

Voeten, Jaap; Gizaw, Beyene

Publication date:
2018

Qualitative Study on Innovation in Manufacturing Small and Medium- Sized Enterprises (SMEs) in Ethiopia

Exploration of Policy and Research Issues

Jaap Voeten (Tilburg University / j.voeten@tilburguniversity.edu) and

Beyene Gizaw (gizawmeka@gmail.com)

February 2018

Conducted within the framework of Tilburg University's research project '*Enabling Innovation and Productivity Growth in Low Income Countries' (EIP-LIC/PO 5639)*, funded by the UK's Department for International Development (DFID)

Acknowledgments

This report entitled 'Qualitative Study on Innovation in Manufacturing Small and Medium- Sized Enterprises (SMEs) in Ethiopia' is written within the framework of the DFID-funded research project 'Enabling Innovation and Productivity Growth in Low Income Countries' (EIP-LIC) implemented by Tilburg University in collaboration with Dutch, African and Asian academic partners. The core content of the report is based on data collected during a working visit to Ethiopia from 17 to 28 June 2017, which comprised 15 in-depth interviews with owners and managers of small and medium-sized enterprises (SMEs) in Addis Ababa and around.

I would like to thank the enterprise owners and managers who gave up their time and were willing to talk and share their perceptions of daily realities, their stories and views with us. I also thank my research partner Beyene Gizaw for organising and participating in the data collection, and sharing his valuable observations and thoughts.

Jaap Voeten (Tilburg University/Radboud University Nijmegen)

Contents

Introduction

The promotion of innovation in Low Income Countries (LICs) has recently appeared on the agenda of policy-makers and international development agencies. Many agree that innovation is crucial in these countries, because it is fundamental for growth in order to catch up with middle and high income economies (Chaminade et al., 2010). Current research, theory development and policy formulation to promote innovation, however, have mainly focused on innovation in the more advanced economies, whilst investigation of these issues in low income countries to date has been limited.

The 5-year research project *'Enabling Productivity and Innovation in Low Income Countries, (EIP-LIC)*' funded by the British Department for International Development (DFID) and commissioned to Tilburg University, aims to fill research gaps on innovation in LICs from an economic perspective. EIP-LIC aims to deliver robust high quality evidence from Africa and Asia on how to increase innovation and raise productivity in manufacturing SMEs, through a coordinated set of thematic and country case studies providing internationally comparable data. The countries of study include Kenya, Tanzania, South Africa, Ghana, Ethiopia, Uganda, Indonesia, India, Vietnam and Bangladesh.

EIP-LIC focuses on manufacturing Small and Medium-sized Enterprises (SMEs) in LICs. Promoting innovation in these enterprises has a particularly positive impact on development (Szirmai et al., 2011); SMEs are usually operating on the edge of the formal and informal sector and have low levels of productivity and competitiveness. Compared to the agriculture and services sectors, manufacturing in LICs is typically characterised by a limited share of the total GDP. Innovation within SMEs in manufacturing enables these enterprises to raise productivity and grow, resulting in a better-balanced economic structure while generating employment opportunities for poorer groups and contributing to poverty reduction. Moreover, promoting innovation in domestic manufacturing is a way towards import substitution and increases the competitive (export) position of firms on the world market.

One part of the project concerns a quantitative analysis of the internal and external factors of the innovation process within firms in all countries of study. Another part concerns a complementary qualitative exploration of the policy and research issues in each country. This involves the development of a series of case studies of manufacturing SMEs. The research output of qualitative reports, working papers and policy briefs are available at the EIP-LIC's website: http://www.tilburguniversity.edu/dfid-innovation-and-growth/)

This report presents the findings of the qualitative exploration in Ethiopia. It is targeted at the DFID project researchers as well as the broader academic community with similar research interests in providing ideas or supporting them to identify and/or validate research questions and hypotheses. In addition, it may provide useful bottom-up insights to policy makers within governmental agencies, firms and NGOs on innovation involving the entrepreneurs' perspective. It is also targeted at SME owners and SME branch organisations, who will hopefully see their business and socio-economic and institutional context reality accurately reflected in the report.

The structure of the qualitative exploration reports is the same for all countries in EIP-LIC, enabling cross-country comparison of the research and policy issues. Thus chapter 1 is standard for every report, outlining the DFID project research challenges, approach and methodology. Chapter 2, by contrast, focuses on the country of study only and briefly summarises latest trends in the manufacturing sector from secondary sources. Chapter 3 constitutes the main part of the report and provides the original primary qualitative data (cases) and analysis with regard to innovation in manufacturing SMEs in Ethiopia. Chapter 4 of the report concludes with analysis of the data and the identification of policy and research issues with special reference to the 'Innovation Systems' and 'Finance for Productivity Growth' research themes of the project.

1. DFID research project challenges

1.1 Approach: complementing quantitative with qualitative research

EIP-LIC aims to deliver robust high quality evidence from Africa and Asia on how to increase innovation in manufacturing SMEs so as to raise productivity, through a coordinated set of thematic and country case studies providing internationally comparable data. The project takes an econometric approach within two thematic areas: 'Innovation Systems' and 'Finance for Productivity Growth'. The research teams address internal capabilities and external institutional factors, institutions and policies that support or hinder the diffusion and adoption of innovation and finance raising productivity at SME firm level. Specifically, the project takes an 'economics' perspective on innovation, and involves econometric analysis of a set of variables concerning barriers at firm, regional and national levels and their causalities with the *innovative behaviour/capability of entrepreneurs* and subsequently innovation and productivity. This constitutes a reductionist and deductive approach in defining variables for analysis in which the impact of individual factors on innovation is assessed by applying quantitative econometric methods. The research methods include firm-level surveys in all countries of study (in cooperation with The World Bank), experiments and Randomised Control Trials (RCTs). The quantitative analysis will serve as a basis for identifying relationships between internal capabilities, external institutional factors and finance on the one hand and innovativeness and productivity growth on the other.

Applying quantitative methods in development research brings some limitations and challenges. In EIP-LIC too, conceptual issues emerged, in terms of the definition and measurement of innovation and productivity in LICs. These may seem straightforward variables at first glance, but their measurement can be more complicated in the LIC context. Innovation may be manifested differently, not via high profile technological and radical breakthroughs, usually measured by R&D expenditures or patents (OECD, 2005), but by more incremental adoption and adaptation or new combinations of existing technologies (Szirmai et al., 2011). These forms of innovation are equally important for raising productivity and competitiveness of SMEs in LICs.

Moreover, innovation research and theory development in recent decades has typically involved empirical material from advanced economies, such as the innovation systems literature of Lundvall (1992) and Freeman (1987), where innovation takes place within a relatively stable institutional and Science, Technology and Innovation (STI) policy context and is 'controlled' and supported by established innovation system actors and innovation policies. In LICs, however, the contemporary institutional realities and formal/informal dual economic contexts are different and may involve other less visible or less commonly known factors and policies around SMEs affecting their innovativeness and how innovation manifests itself.

Therefore, the theory and associated policies of how innovation evolves within an innovation system in the institutional contexts in LICs may be different, which is increasingly acknowledged in recent innovation systems literature (Lundvall, 2009; World Bank, 2010). For instance, entrepreneurs are innovating by Doing, Using and Interacting (DUI) in fast-changing contexts, enabled by informal institutions and informal (social) learning. Applying the research variables on innovation and productivity in LICs from existing literature and theory (deduction) based on advanced economies, therefore, might not take all relevant variables into account. A more precise identification of variables might be obtained by complementing the selection with a broader understanding of contemporary realities and context on the ground in LICs.

Another research challenge in EIP-LIC concerns the interpretation of the quantitative survey research outcomes of the project, involving cross sectional analyses amongst others, where attribution and explanatory

issues among independent and dependent variables arise. Although control variables are typically verified, the correlations cannot be easily translated into causalities in complex and dynamic contexts. This is particularly important for the interpretation of research outcomes at the policy level in the realities of the country concerned. A broader insight into how innovation processes and actor interaction mechanisms evolve might help to open the black box and analyse and interpret the quantitative outcomes.

In an effort to manage these challenges, EIP-LIC includes complementary qualitative research, involving an exploration and description of contemporary realities of innovation in manufacturing SMEs in the LICs. This aims at inductively identifying actual and relevant *research and policy issues* as input for the EIP-LIC research themes as well as for additional explanatory evidence supporting research output.

In operational terms, Tilburg University and partners conducted a series of case studies of manufacturing SMEs in each of the 10 target countries of study in the project. The holistic case study approach and method involves interviews capturing original insights, views and perceptions of SME owners and managers. Similar report format and comparable data will be used for all countries of study in EIP-LIC, enabling cross-country comparison to identify overall trends and patterns in innovation and productivity policy and research issues in manufacturing SMEs in LICs.

1.2 Case study methodology

The objective of the qualitative study of EIP-LIC is to identify relevant policy and research issues concerning innovation in manufacturing SMEs within contemporary realities in Ethiopia. Applying a case study approach is particularly useful in this respect, since this method is an approach for inductively exploring and identifying concepts, noticeable similarities, trends and patterns of socio-economic phenomena (Yin, 2003).

The case study research involves a series of 15 interviews with managers and/or owners of manufacturing SMEs. This may seem a limited number to justify research validity. However, the approach usually involves in-depth rich and detailed descriptions and a multidimensional analysis of the complexities and linkages of a few cases to gain an understanding of the (socio-economic) mechanisms and processes of the case subject. In the case descriptions, innovation as an economic phenomenon is the case 'subject', whereas the unit of analysis is a manufacturing SME. The case description holistically explores the type and basic features of innovation within the SME, and reviews the impact on productivity and competitiveness over the past 2 to 5 years.

The data for the case descriptions are obtained via 'semi-structured' interviews with SME owners and managers. 'Structured' refers to the systematic review and discussion of innovation(s) in the firms, the *innovation process*, *internal capabilities*, and innovation system actors around the firm, including *formal institutions*, the *business system* and *informal institutions* (attached as annex 1). These actors and institutions encompass formal and informal, private, public, and quasi-public institutions or organisations around the SME. 'Semi' refers to the interviewing approach of encouraging owners or managers to tell their story, and express their concerns and perceptions freely, without being confined to the 'questionnaire framing'. Of particular interest is what innovation means in the manufacturing SMEs in their context, and the less known favourable and unfavourable institutional conditions and barriers enabling or preventing it.

All interviews are recorded and transcribed. The data generated are entered and stored using qualitative data analysis software. The writing of the case is a step-by-step process of unravelling, ordering and organising the transcriptions into compact SME case descriptions of 2/3 pages following a similar format. The series of case descriptions are compared and analysed for patterns, differences and similarities in internal capabilities and socio-economic and institutional contexts. The findings are summarised as policy and research issues

that could serve as input for the quantitative research of the 'Innovation Systems' and the 'Finance for Productivity Growth' themes under EIP-LIC.

1.3 Selection of SMEs and fieldwork

The selection criteria for the cases included:

- The company is a formally registered SME. In the DFID project context, an SME is understood as a company with 10-150 employees, whereas turnover, assets and capital formation are not considered.
- The company is involved in manufacturing. The project follows the International Standard Industrial Classification of all Economic Activities (ISIC). In this standard, manufacturing is defined as the physical or chemical transformation of materials of components into new products, whether the work is performed by power- driven machines or by hand, whether it is done in a factory or in the worker's home, and whether the products are sold at wholesale or retail. Included are assembly of component parts of manufactured products and recycling of waste materials. Moreover, given the pace and importance of the new technologies, the project considers software and mobile app development as a form of manufacturing to be Ethiopian owned/indigenous company. No foreign or joint ventures.
- The company introduced some form of innovation, preferably process or product, which resulted in increased productivity and competitiveness in terms of export promotion or import substitution. Other types of innovation may also be considered: management, business concept/practice, inputs, functional innovation.
- Value creation within the company, as a result of the innovation, is essential. This may concern a significant productivity increase by reduced costs (pushing the productivity frontier - saving on labour, capital, and input) or more sales and income due to the launch of premium products and competitiveness.
- Innovation process - idea, test, implementation and commercialisation - takes place in the firm and is initiated and owned by the entrepreneur. The SME owner appropriates the additional innovation value.

These selection criteria are defined in such a way that the selected cases represent the EIP-LIC target group: manufacturing SMEs. Moreover, the criteria assure a certain homogeneity within the selected cases, which will enable comparison of cases while supporting a certain validity of the identified trends or patterns. At the same time, allowing some heterogeneity, by including deviant cases, provides more contrast, and thus enables the research team to better construct and highlight divisions in the innovation process, linkages, system or mechanisms.

An essential element of the selection is the notion that types of SME innovation in LICs are not confined to technological (radical) inventions resulting from particular R&D investments and efforts. Innovation in manufacturing SMEs in LICs more often encompasses incremental adoption and adaptation or new combinations of existing technologies, products, marketing, management or business practices. Moreover, innovation often does not concern one type only. More often, an initial innovation enables and/or triggers other types of innovation within a firm; a new technology allows the introduction of new products, for instance.

1.4 Fieldwork

The qualitative data collection through interviews in Ethiopia took place from 17 to 28 June 2017. The Ethiopian research partner identified SMEs in Kampala and around. SMEs were identified by tapping into informal and personal networks and drawing information from formal business associations. In total, 15

owners/managers were interviewed (see list attached as annex 2). An average of 2-3 interviews per day were completed. The interviews typically took 1.5 hours.

The research team respected a set of ethical codes in conducting the fieldwork. This involved a transparent explanation of the project and the purpose of collecting the data to the interviewed owners and managers. The research team provided assurance that the firms' data were kept confidential, with SMEs and interviewees anonymised in the descriptions. Before publication, a draft version of the report was first sent to the SME owner/manager to check whether there were any issues mentioned that he or she did not agree with, or felt uncomfortable with.

During the interviews, the SME owners and managers expressed interest in learning more about the project and about innovation in other SMEs. The team sent a copy of the final report to all interviewees, expressing their intention to maintain contact, and to 'give something back' in terms of participation in future policy debates, policy dissemination, contacts or networks. The final reports are to be accessible to the public and downloadable via the project website.

The original recording of the interviews and transcriptions are available for the project researchers - eventually open access - for further analysis and development of scientific papers and journal articles.

2. Introducing manufacturing SMEs in Ethiopia

2.1 Ethiopian economy

Located in the Horn of Africa, with a population of 104,281,272[1], Ethiopia is the second most populous country in Africa after Nigeria. The highland areas are densely populated, while the lowlands are sparsely populated. About 80% of people reside in rural areas, with subsistence agriculture as their main livelihood. Although this sector has been the backbone of the economy for decades, employing about 80-85% of the population, its share in GDP has been steadily reducing in recent years. Structural changes have transformed the economy, bringing an increased contribution of the industry and service sectors to the country's growth. In 2017, the share of agriculture in GDP is 37%, while the industry and service sectors contribute 21 and 42% respectively. This represents a 7.3% reduction in agriculture's contribution to GDP, an increase of 10.5% in the industrial sector, and a decline of 3.5% in the service sector, compared with the percentage distribution of GDP in 2010/11[2].

Over the last decade, Ethiopia has been ranked as one of the fastest growing economies in the world, registering an annual average GDP growth rate ranging between 6% and 12%[3]. This is more than the average in Sub-Saharan Africa, about 5% during the same period. However, it remains one of the least developed countries, ranked 174 out of 188 countries by the United Nations Development Programme Human Development Index report[4]. This is largely on account of its continued dependence on agriculture, where productivity remains erratic, due to recurrent droughts. However, it is worth noting that with the increased growth rate over the last decade, poverty rates in both urban and rural areas of Ethiopia have significantly declined. Since 2000, Ethiopian households have experienced a decade of progress in wellbeing. In 2000, Ethiopia had one of the highest poverty rates in the world, with 56% of the population living below US$1.25 PPP a day and 44% below the national poverty line. In 2011, less than 30% of the population lived below the national poverty line and 31% lived on less than US$1.25 PPP[5] a day.

2.2 The manufacturing sector

Currently, the government is focusing on developing the manufacturing sector, motivated by its potential in large scale job creation, import substitution, and foreign currency savings (the biggest challenge of the economy). The government has been providing diversified incentives to the sector, including access to working space, bank loans, and exemption from certain direct and indirect taxes such as duty free tax and income tax.

The manufacturing sector maintained an average 4.0% of GDP in 2010/11-2015/16, while the total industry sector share rose from 10.3% to 21.3% in the period 2011/12-2015/16. On the other hand, the service sector share of GDP is high, more than 43%, and maintained a constant share of GDP over the period 2011/12-2015/16. In 2015/16, the manufacturing sector contributed 7% to the growth rate of GDP at current prices,

[1] http://www.worldometers.info/world-population/ethiopia-population/
[2] World Bank Group: 5th Ethiopia Economic Update: Why so idle? Wages and Employment in a Crowded Labor Market, Draft For Public Launch, December 2, 2016
[3] MoFED, 2014, Ethiopia 2014 Investment Climate Statement, Addis Ababa
[4]UNDP Human Development Report 2016
[5] World Bank, 2015, Ethiopia Poverty Assessment, Poverty Global Practice Africa Region, Report No. AUS6744

whereas the contributions of Large and Medium Scale and Small Scale and Cottage Industries to the growth of GDP were 6.3 and 10.4% respectively.

With regard to job creation, the FeMSEDA[6] 2015 statistical bulletin shows that SMEs created jobs for a total of 10,655,655 citizens in the period of GTP I[7], 2010/11-2014/15. In 2014/15, manufacturing SMEs created job opportunities for 461,221[8] citizens, 16.54%[9] of the total number created by SMEs in the country, which represents a 41.2% increase over the preceding year.

2.3 Policy environment: SMEs and innovation

The manufacturing sector of the economy is coordinated by the Ministry of Industry and Bureau of Trade and Industry at the federal and regional levels respectively. The Ministry of Industry established FeMSEDA, an agency responsible for coordinating and organising micro and small enterprises at the federal level. The government has set up ReMSEDAs[10] to coordinate and organise SMEs at regional, zonal, and grass root level. The agency has now been devolved into two: the Micro and Urban Employment Generation Agency, which is responsible for coordinating and organising micro and employment generation enterprises in urban areas; and the Small and Medium Enterprise Development Agency. Both are accountable to the Ministry of Industry.

The government prepared a strategy for the development of Small and Medium-sized enterprises (SMEs) in the country in 1997 and FeMSEDA was established in the following year. The strategy defines Micro and Small Enterprises (MSE) as shown in the table below:

Ethiopian Definitions of Small and Micro Enterprises

Level of the enterprise	Sector	Manpower	Total assets
Micro Enterprise	Industry	≤ 5	≤ ETB 100000($5000)
	Service	≤ 5	≤ ETB 50,000($2500)
Small Enterprise	Industry	6-30	≤ ETB 1.5 million
	Service	6-30	≤ ETB 500,000
Medium Enterprise	Industry	31-100	> ETB 1.5 million
	Service	31-100	> ETB 500,000

Source: MSED Strategy, 2011 (Note: when ambiguity is encountered between manpower and total assets as explained above, total assets is taken as the primary yardstick).

Manufacturing, construction, trade, services, and agriculture (urban agriculture) are the main focus sectors and sub-sectors. Interested enterprises engaged in these sectors are required to be registered following national trade registration procedures. Based on the constitution, the SME strategy provides affirmative support to women: encouraging women to participate in growth oriented sectors with the view to make up

[6] Federal Micro and Small Enterprise Development Agency
[7] The Growth and Transformation Plan, a national development plan, prepared every five years
[8] Both regular and temporary jobs
[9] Micro and Small Enterprises Development Sector, annual statistical bulletin (2010/11-2014/15 fiscal year)
[10] Regional Micro and Small Enterprise Development Agency

50% of firms' employees. Some industries, such as car parking services and solid waste collection, have predetermined quotas for women.

In order to achieve the objectives of the SME strategy and the GTP, the government is focusing on the manufacturing, construction, trade, services and agriculture sub-sectors, which have the potential to create more job opportunities. In the manufacturing sector, the government's focus is on textiles and garments, leather and leather products, food processing and beverages, metal working and engineering, wood working (including furniture and interior decor), and agro-processing. Since Ethiopia has limited capital, the government supports SMEs according to the importance of their sector to the economy. Accordingly, growth oriented sectors are prioritised for subsidised rental on working premises and product display centres, technical and management training, advisory services, loan provision, market linkages particularly with government development programmes (e.g. housing development), exhibitions, trade fair organisation, and access to technology. Despite these efforts and the achievement of some economic growth targets, the 2017 *Doing Business* report ranked Ethiopia 159 out of 190 economies (down from 146 in the previous year). The distance to frontiers showed a 0.46% rise, from 46.85 to 47.25. Moreover, Ethiopia is not in the list of the 10 economies improving the most across three or more areas measured by *Doing Business* in 2014/15. Thus, although the business environment in Ethiopia does need improvement, the government is working on solutions.

Technical and Vocational Training Institutes offer support for innovation and competitiveness, at both the federal and regional levels. In some regions, these institutes are also available at the sub-regional level. Of course, there are complaints about uneven distribution of these institutes across the country. They provide technical training and support to SMEs, including industry extension services, to improve innovation and competitiveness. In addition, the Ministry of Industry, in collaboration with the Ethiopian Competitiveness Facility Agency and AACCSA,[11] provides management training for ISO 9001 registration, especially for medium and large scale manufacturing industries, with World Bank financing. So far more than 30 industries have been certified under ISO 9001.

The Ministry of Science, Technology and Innovation (STI) is responsible for and mandated to plan, promote, coordinate, finance and oversee the STI activities of the country. The National Science and Technology Policy of the country was issued by the Transitional Government of Ethiopia in 1993, and has frequently been revised, the last revision being in 2012, and serves as a key driver for inclusive and sustainable economic development. The country mainly follows three strategies for innovation: Research and Development, Technology Import and Adaptation, and Technology Adoption. Currently, the government gives priority to technology transfer and adaptation policies, to keep up the pace of the fast growing economy of the country. As regards innovation activities in SMEs, survey results[12] indicate that there are many SMEs in Ethiopia that have invested in technological upgrading and innovative capability since the introduction of policy reforms in 1991. However, many SMEs are struggling to adjust to an environment characterised by heightened import competition and the withdrawal of many earlier forms of state support.

[11] Addis Ababa Chamber of Commerce and Sectoral Association
[12] http://unctad.org/en/Docs/poiteipcm4.en.pdf p.94

3. Empirical data: Cases of manufacturing SMEs in Ethiopia

This chapter presents eight cases of SMEs whose owners were interviewed in Ethiopia in the period 17 – 28 June 2017. The selection of eight out of the fourteen interviews was completed with a view to providing homogeneity in terms of the SMEs in manufacturing as well as to present a broad overview of the issues from the various SME owners' perspectives. The write-up format is similar for each case: a description of the business operation, innovation activities, the internal capability and external environment (formal institutions, business systems and informal institutions). Notable issues outside this framework, which were stressed by the owner and/or manager of the SMEs, are also included.

3.1 Metal processing – hospital equipment (12 + 50 employees)

The first case concerns a company located in the outskirts of Addis Ababa involved in engineering and manufacturing furniture and equipment for hospitals. Five friends started and registered the company three years ago. Each had previous experience with small-scale metal manufacturing, trading on an individual basis from their homes, but *"the work and trading was not profitable"* so they decided to develop a more solid business and joined forces. One of the friends was educated as a pharmacist and suggested they should focus on hospital equipment – *"He knew that these products were not available in Ethiopia."* The interview is held with the production manager.

The establishment of the company was supported by the Federal Micro and Small Enterprise Development Agency (FeMSEDA) in Ethiopia, which helped the founders to organise the business. All five contributed a small investment and a micro credit loan from a local bank provided additional money for tools and basic metal processing machinery. FeMSEDA provided a guarantee for the credit. The total initial investment was 5,000 USD.

Initially, the company produced small quantities of products to show to hospitals and get feedback. There were also invited by FeMSEDA to promote their products at trade fairs. Once each new contract was secured, the owners re-invested part of the profit into new equipment and tools. In this way, over the years, they have invested substantial amounts in the workshop. Having proof of a contract helped them to secure additional credit from the bank for working capital and investment in machines. The cumulative total of all bank loans secured to date is 53,000 USD. The interest rate is 10% per year.

Today, the company has 12 regular workers and often engages temporary staff. The orders come from tenders issued by governmental health offices, which are their principal clients. The products include special beds for patients, laboratory tables and chairs, and cots for new-borns. Recently, the company developed some new products, such as a special bed for cholera patients requiring specialist treatment. Both the idea and the

order came from the health offices. The company has a designer who discusses such special requirements with the health services representatives.

Internal capabilities and innovation

The manufacturing process involves product design, metal cutting and processing, welding, painting and finishing the products. The various input products (metals, foam and mattresses) are locally sourced. Some mattresses are imported from China by specialised importing agencies in Addis Ababa.

The company produces their equipment based on existing designs from the internet. When the health services come with their own design, the company builds a prototype and presents it to them – *"If there are any suggestions for improvement, then we modify and test again."*

Finding staff for the workshop is not difficult, according to the production manager. The company has 12 permanent staff: the five owners plus seven employees. *"When a contract is too big, we advertise and we employ more staff for the duration of the contract, sometimes up to 50 persons."* Half of the temporary staff are experienced workers who do not need supervision. The owners just give them the design and the tools, and the workers make it. The other half of the temporary staff are assistant workers handling painting, sanding and the easier jobs.

Most of the workers are illiterate but they have experience in other workshops –*"The experienced workers are better than the educated ones."*

External business and institutional context

Regarding competition, there are seven other workshops in Addis Ababa also specialised in medical furniture products but *"we have good connections with one another."* When one company gets a large order exceeding its production capacity, they share the work. However, they compete with the other workshops that produce hospital beds – *"7 or 8 bids are always submitted by the usual competitors."* The owners says that there is no bribery involved in the bidding process – *"We are Christians and our leaders are Christians."*

The key problems the company faces are the availability of electricity and water, and the road conditions – *"Water only comes every 15 days."* They have reported these problems to the government. There are no latrines nearby for the workers because there is no daily supply of water –*"The workers go to the river and the government accuses the people of polluting the river!"*

Another challenge is that every year in May and June, government agencies pressurise suppliers to complete the production and financial administration, because all government agencies and institutions must fully spend and administer their yearly budget before July 1st. All contracts have to be completed and invoices settled – *"The ministries sleep for eleven months and in the last month they put a lot of stress on orders and contracts."*

The company does not pay taxes for workers who only work for a day or so, only for those that work for longer periods. The company receives regular visits from representatives of the Ministry of Labour – *"We have a good relationship with the labour social institutions."* On their last visit, the officials advised the owners to expand the workshop because it was not meeting labour standards. The workshop has now been enlarged to accommodate this requirement.

They have not yet encountered difficult technical questions with regard to the design or construction of new products, but FeMESDA, which has technical and vocational training schools, visits on a regular basis to discuss technical solutions and innovations.

The business environment is difficult with regard to acquiring land for expansion. Currently, the company is using a piece of land outside the workshop it does not own –*"It is free land from the government but we are using it for outside painting."* The company has contacted the government to come to a formal arrangement to use the land, but the process is bureaucratic and slow – *"It is impossible to get the paperwork done."* The government bureaucrats are not in agreement on the ownership of the land so *"they are not confident to make a decision."*

The land issue is also subject to corruption. Government officials who decide about land leases give priority to their friends in return for money under the table, so they do not take decisions until a *"good"* buyer comes along.

In two years, the owners hope to move to an industrial zone in Addis Ababa. They see a large market for hospital equipment in Ethiopia and in the region. The company is struggling to meet the criteria to join the industrial zone, such as capital investment, volume of work and number of workers. They are still evaluated as too small for the zone, but the owners are confident that, based on the volume of work, they will eventually be admitted.

3.2 Plastics – PVC compounds, pipes and conduits (120 employees)

This ISO certified company is located in the outskirts of Addis Ababa and produces PVC compounds as intermediate products for the local plastic shoe and cable industries, as well as producing PVC pipes and conduits as final products. The compound production amounts to 60% of turnover, whereas final products amount to 40%. The company sells the pipes and conduits directly to construction companies. There are 120 permanent workers.

The company is owned by a family and managed and operated by the Management Board. It was established 16 years ago by the current owner's father and brother. The founder came from a shoe making business, and decided to produce the compounds for shoe soles because there was limited supply in Ethiopia at that time. The compound production was more profitable than expected and remained the firm's primary focus for a long time. However, in recent years, sales have dropped and the business has faced internal efficiency problems. Four months ago, the Board appointed a new manager to restructure the business. The interview is held with this new manager.

Internal capabilities and innovation

The manager has a commercial background and 30 years of experience in manufacturing. He holds a master's degree in management and economics from the UK's Open University. He does not see his lack of technical background as a problem –*"The technology in the factory is not very difficult to understand. If you have an open mind, it is easy to learn."*

Production is currently halted to implement a profound restructuring process initiated by the new manager. The Board asked him to address problems in sales and marketing – *"They gave me an assignment to solve the marketing practices."* However, the new manager identified that this was not the main issue, whereas inefficiency in the production process was much more of a problem.

"The machines were not well used, maintained and up to date. The production process was not well coordinated." He reported his analysis to the Board, who endorsed his ideas and gave the green light to go forward with the restructuring.

The manager works in a structured way and is developing written strategic plans. A budget has been agreed – *"We agreed the framework of the budget, production volume, sales etc."* An operations plan is in preparation, to be followed by the strategic plan for the organisation as a whole. The manager has developed a marketing strategy based on internal and external assessments, competitors and Porter's 'five forces' management theoretical model. He collected a range of qualitative and quantitative data to support the new strategy.

The restructuring includes improvements to machinery and equipment. The current two compounding machines and four PVC pipe production machines are too old, according to the new manager – *"These machines need extensive maintenance."* A new machine from China for the conduits has been installed. The company is to upgrade and improve the laboratory for analysing the compound input and output materials. To improve quality, it is critical to check the imported input materials – *"We simply believe the input data from the supplier. We cannot check it at present."* Utilities are greatly improved, such as the electrical power devices, compressed air installations and water cooling systems around the production process. Once these are ready, the company can operate at full production capacity –*"We are planning to start full production next week."*

Another restructuring strategy involves the number of employees – *"There is an excess of manpower in this company and the working culture is not good."* The new manager plans to optimise the number of workers based on the machines. He is not happy with the working culture at present – *"Workers are just sitting and listening to music and playing games on their mobiles."* The owner feels that the working culture in Ethiopia in general is problematic: staff are neither motivated nor dynamic. Under current Ethiopian law, it is difficult to fire workers without good reason.

The new manager has a plan to improve the working culture, including organising regular staff meetings – *"Before, there was hardly any communication between the management and the workers."* The manager feels it is important that the workers know the company's situation, plans for the future and expectations of staff – *"We will tell them exactly what our future plan looks like and explain that there are more workers than the company needs."* Other measures include performance evaluations of staff and teams, who must put

their daily production on a notice board. The new human resources management approach is about labour productivity and making production more constant – *"We need the best workers to produce consistently and to operate and maintain the machines."* He hopes that staff will take more responsibility for maintaining the machines.

The final element in the restructuring strategy involves marketing and distribution. The manager suggested having up-country agents to sell PVC pipes and conduits to building material shops and construction firms. Another marketing approach is to find new plastic and PVC related industries all over Ethiopia to expand the customer base.

External business and institutional context

The business environment in Ethiopia is challenging because of the large number of competitors. Pipes and conduits are locally produced and supplied, but the manager considers compound production as a much more pioneering industrial activity in Ethiopia. Some potential customers import the compound because they feel local quality is inferior, but a few competitors are emerging with better machines and better product quality. These competitors also compete on price *"because they have lower overheads than our company at present."*

The company imports most of the input, the PVC resin and other additives, from Korea, China, Thailand and Saudi Arabia – *"We import almost 90% of our raw materials."* PVC resin is not available locally because it is a petroleum product – *"We cannot get it in Ethiopia, not even elsewhere in Africa."*

The financial environment is difficult, especially as regards obtaining foreign currency quickly to pay for input materials – *"Foreign currency is a serious issue in general for the industry."* The commercial bank of Ethiopia prioritises other industries such as textiles and firms importing medical and educational materials.

The paperwork is not complicated but very time consuming – *"We submit pro-forma invoices and then we are put in a queue."* The manager knows several firms that stopped production altogether because of a lack of imported raw materials.

The company pays all required taxes, including a yearly profit tax based on the outcome of its audit report. Other taxes and expenses such as VAT, pension contributions and income tax are paid every month. A problem arose not long ago. The tax authority initiated their own audit, because they did not accept and trust the external qualified auditors. They re-audited statements that had been submitted 4 years earlier – *"They identified some expenses that they did not accept as expenses. They wanted to increase the profit on paper."*

The electricity supply is unreliable, which is a challenge for the production process. It takes 3 to 4 hours to warm the machines up. If there is a power cut, the melded compound material must be taken out quickly to avoid damage to the machine. The company has generators to save the machines, but this additional cost weakens their competitive position. The company often complains to the electricity provider but they offer no solution – *"Especially in this area, we seem to have more power problems. The power company says the system is under renovation, they have to change the lines."*

The manager mentioned a mentality problem in government in Ethiopia – *"Officials do not consider the private sector as the engine of the economy."* The manager feels that the private manufacturing sector deserves much more support from the government because they invest in productive activities and create stable jobs. The government neither takes an interest nor investigates problems in the manufacturing sector, so many people opt for trading instead of productive manufacturing – *"Trading is much easier and requires less risk. It is much more comfortable than manufacturing."*

The company gets most of their technological knowledge through the machinery and input suppliers. One supplier from South Africa offered the use of their laboratory facility in Kenya, and suggested new methods to check product quality. There is a newly established chemical industry association in Ethiopia, but *"they are not yet equipped to support industries like ours."* The manager regrets that there are no constructive contacts with advanced science and technology universities. Some university researchers visited for some samples, *"but they never came back. The linkages with the universities are not strong enough."* The manager is eager to find useful data or research outcomes and hear what could be improved in the production process and products.

3.3 Leather processing – shoes (28 employees)

The company is owned and managed by two friends, producing shoes and leather products. In 2012, they started the enterprise with an initial working capital of 30,000 Bir (1,110 USD). They benefitted from a government-run small business development programme that provided a shed as working space, *"through a kind of lottery."* The programme also provided a 3-day management training course and the opportunity to attend trade fairs to promote the company's products. Although the programme was offered to both individuals and business groups, priority is given to the latter –*"For an individual, the process is very long, for a group the process is much shorter."* For years, they produced shoes in the shed, but the business recently relocated to a rented house nearby, because the shed was hit and damaged by a car and is now being repaired. Each room in the house is used for a different production process: leather cutting, stitching, sole making and gluing.

Most of the firm's clients are middle-class customers requiring shoes for special events such as graduation ceremonies and weddings – *"We aim for a high quality standard."* The owners have a network of wholesalers who order larger quantities of shoes to sell to retailers in remote areas – *"Our market is at the national level."*

Internal capabilities and innovation

The owner has a primary school education. After 6th grade, he left and started working in his cousins' shoe manufacturing business. On the job, he learned the craft of shoe making from his family – *"I have good skills. It is a family pride and heritage."* He accumulated experience in producing high quality shoes and finally took the decision to quit and set up his own business.

He first studied the business environment, the market, buyers, available technology and material supply. He developed a business plan and established the firm together with his friend. Financial support from his family covered the material input and basic machines. From the initial capital investment, he estimates the total investment over the years to be over 1.2 million (45,000 USD). The workforce fluctuates according to the volume of orders. At present, the company employs 28 staff, but when handling large orders, this rises to 40.

The production process starts with a design, mostly taken from the internet, in particular from Chinese websites – *"Chinese designs sell well in Ethiopia."* The company does not have its own designer but hires an external consultant, who designs and develops a few samples with different colours and small variations,

distributed by the owners. Once wholesalers show an interest and place an order, the company starts to produce on a large scale.

The owners both manage the company. One takes responsibility for the internal production management and quality control – *"He is always in the workshop."* The other does the marketing, visits clients, collects orders and monitors sales.

The company focuses on servicing the higher-end quality market. Customer demand is assessed by asking retailers about clients' preferences – *"Retailers have direct interaction with the clients and have the best insight into their purchasing power."* From this information, the designer develops higher-end quality, yet affordable, shoes. The essential elements are the quality of the sole, the leather and the stitching. The owners do not introduce many innovations, as such. Neither their technology nor their materials are very advanced. The company introduces new designs every 6 months – *"Depending on the season, there are graduation ceremonies. There is the wedding season."* Consequently, the actual production of one design of shoes does not take more than 6 months.

The company hires mostly skilled workers, as well as young unskilled staff. The production manager trains new workers. It takes up to one year on-the-job training to learn to do good stitching, although cutting or finalising takes much less training.

Sometimes, workers leave the company after their training because they want a better salary or to start in business themselves. During the peak season, demand for shoes is particularly high – *"Then finding good labourers is really hard."* Other businesses offer higher salaries for the labourers. The owners do not recruit workers from other workshops. When an employee complains about their pay*, "I just try to keep him here by adding some. However, usually they do not express their complaint but just go."*

External business and institutional context

There are a lot of competitors – *"It is difficult to give the number, but there are many."* The competitors try to copy the firm's designs, according to the owners, but do not succeed because the required inputs are expensive and skilled workmanship cannot be copied easily. The owners are optimistic about the business environment in Ethiopia –*"Business can be very profitable, the domestic demand is so high here."*

The owners are quite satisfied with the level of support from the government. They plan to invest in more advanced technology, and have just started a credit application process at the Development Bank of Ethiopia. Via an industrial development agency, which facilitates the process of getting support for small businesses, the company can gain access to credit. The agency is related to the national development strategy and is responsible for supporting and promoting smaller enterprises.

The business environment in terms of inputs is challenging. Sometimes the soles are not available. Most of the high quality leather is imported by wholesale suppliers in Addis Ababa and availability here is also

variable. The large shoe factories using high quality leather input are encouraged by the government to increase exports, which leaves less raw material available for smaller manufacturing companies. The suppliers only want to sell large quantities of imported leather because this generates more profit. Recently, however, the owners have found wholesalers that are willing to sell input materials in smaller quantities.

The owners have only minor problems with the administration and taxes, which are handled by an electronic administration system. All sales go via a small teller device to be stored centrally in the financial records of the tax authority – *"If you are transparent, then it is okay."* The owners mention that sometimes there are difficulties, depending on the personality of the government staff concerned – *"Corruption happens for sure, it depends on the person who is serving you in an office. There are many very honest and efficient people. If they're not, you just pay some money under the table and move on."*

3.4 Metal engineering – Agricultural and construction engineering (25-5 employees)

The company, located in Addis Ababa, produces machinery and equipment for processing agricultural products such as corn, wheat, sorghum and barley. The company also produces machinery for construction materials, such as cement mixers, stone cutting machines, and brick making moulds.

The owner is 50 years old, a metal technologist who graduated from the Addis Ababa Institute of Technology in 1986. After graduation, he went to North Korea for one year on an engineering development exchange programme to study metal technology, amongst other foundry technology and precision engineering skills. On his return, he worked in eight different companies, all in metal construction, machinery and metal engineering – *"I gained a lot of experience and a good reputation in metal technology and machinery."*

Ten years ago he started his own company – *"I did not want to be an employee anymore."* He was successful in the beginning and his knowledge and experience set a solid basis for developing high quality products that were much in demand. He used to employ 25 workers and secured orders from government agencies, microenterprises and the municipality of Addis Ababa – *"Most of my clients were agencies and private companies in construction."* He supplied machines to produce construction materials, and agricultural processing machines to NGO-funded projects and cooperatives.

Two years ago, the situation started to change. The owner increasingly struggled to win contracts and noticed that the government and NGOs had stopped many of their development programmes. In the past, these organisations implemented special development programmes to support microenterprises. Without government or NGO support, many microenterprises do not invest in new technology. There are also fewer clients from microenterprises – *"I lost that market."*

"A more important problem was the growing government corruption." The process for getting orders became very corrupt – *"Today, getting orders is virtually impossible without paying money under the table."* As a moral principle, he refused to engage in these practices. As a consequence, as he explains, he lost many of his clients and his business has nearly come to a stop. He still has 5 irregular employees but is only doing small jobs. *"The public sector companies are crowding out the private sector companies."* For instance, he

was supplying rubbish collecting containers for the municipality. This work has now been awarded to a governmental metal engineering company. He used to provide agricultural processing machines in a region outside Addis Ababa. The same government engineering company took over this contract. He is quite disappointed in the business environment in Ethiopia and feels the private sector has no chance of surviving.

Nonetheless, the owner tries to survive. A year ago, he developed a plan to switch to cutting marble and developed marble cutting machines himself. The market in marble looked less corrupt to him, involving private housing construction companies that look for quality. He started to build a marble cutting plant.

However, very recently, once more he changed his mind because he observed that the demand for marble had dropped. Moreover, new capital constraints meant he could not complete the expensive marble cutting installation. The workshop required further investment of 1.5 million Bira (55,000 USD), which he did not have. He decided to sell the nearly finished marble workshop and is now developing a cement blocks (holoblocks) production facility. This requires less investment, so is less risky.

The owner is persistent and tries to generate income by doing consultancy and advisory work in between manufacturing jobs. He visited two universities, assessed the quality of the students and wrote a report. He advises NGOs about technology and machinery and is invited by many enterprises to share his knowledge.

The owner feels that the government announces action against corruption without implementing it – *"On Ethiopian TV and radio, the politicians all talk about measures against corruption but until now, there is no action."* The owner sees that one can win contracts corruptly, *"but morally it is wrong."* Not long ago, he had a meeting with an official of the small business committee. This committee represents 136 MSEs in Addis Ababa that constitute potential clients for the owner. The meeting was a disappointment for the owner, who realised that corruption remained dominant – *"I feel isolated on all levels."* He just wants to develop and sell good machines. He does not want to engage in corruption to win orders.

He stresses that he is a moral person and will never engage in corruption and cheating. He comes from a rural family, which set his standard for honesty. He wants to provide a good example to five children– *"All girls, and one is adopted."*

3.5 Textiles – uniforms and working clothes (45 employees)

This textile company produces uniforms and other garments. It is located in an area of Addis Ababa dominated by textile production, wholesale and retail firms. The company was set up by a group of 10 individuals 10 years ago. The interview is held with one of the owners, who acts as the managing director. He explains that it is easier to start with a group in Ethiopia, in particular to get the financial resources together. It is an increasingly frequent phenomenon and the government is promoting business groups.

All 10 owners previously worked in larger international textile companies. They individually invested 2,500 Bir (65 USD) and jointly borrowed another 50,000 Bir (1,800 USD) from a micro-finance bank. To do so, they prepared a business plan. After securing the initial investment capital of 75,000 Bir (2,700 USD), they bought six second hand sewing machines, rented a production hall and started production in 2007. The hall is rented with a subsidy from the government and costs only 1,000 Bir per month (40 USD) – *"This is support from the government."* The basic requirement to qualify for such a subsidy is that the individuals have to

organise themselves formally, develop a business plan and register the business. Today, the company has 35 workers and 30 sewing machines. There are production workers, designers, marketing and management staff – *"We have enjoyed steady growth."*

The company mostly supplies uniforms and working clothes on order to large companies, which constitutes 90% of their turnover. The remaining 10% of turnover is clothes for the regular local market.

The client usually suggests the design, including the company's logo. The company produces a small sample for approval before they go into full production.

Internal capabilities

The group of 10 owners decided upon a division of tasks. The Managing Director, who is 45 years old, was chosen for the position because of his earlier experience as an export and quality control manager in a large international textile factory. He holds two diplomas, one in general mechanics and another in management. He considers himself a multi-skilled person: he designs new products, works on the machines and manages the business. He is able to manage the enterprise and *"make sure that things work."* His appointment was approved in writing by the group.

The company also creates its own designs. Instead of using the internet, the dedicated employer goes to the market and buys clothes from competitors, which he tries to improve in terms of quality and pricing.

The company only employs skilled workers, to produce high quality products. It is difficult to find such workers, so the company trains them according their own standards. The owner provides several benefits to retain workers by providing a good salary and paying overtime. The salary is a combination of fixed, piece rate and overtime, *"which provides a good package."* The company is a popular place to work because of its good reputation for high quality work. There is a certain prestige to work there.

The company has fixed working hours of 8 hours per day. Employees are sometimes asked by the Managing Director to work overtime. Conditions in the workshop are in line with Ethiopian national labour standards in terms of light, clean air and noise. These standards *"are basically a copy of the international labour standards."*

In the framework of AGOA[13], a feasibility study was carried out into opportunities to market Ethiopian textiles in the US. Based on the detailed figures in the study, the group of owners decided to develop plans to expand and export to Europe and the US. They developed a proposal for new machines and agreed with the government to relocate their business to an industrial zone –*"We have the first approval. We need additional funding and have established contacts with private bankers."* If the new investment materialises,

[13] Africa Growth and Opportunity Act, an opportunity to import to the US on favourable terms offered by the US government.

they will grow into an export-based company – *"We plan to export 70% of our production and keep 30% local."* The expanded business is forecast to require 400 permanent workers. The owners felt confident to take this step to invest as a result of the government marketing study.

External business and institutional environment

The company has many competitors but survives well because of its focus on quality and the long-term client relationships it has built. Its technology is more advanced than that of other textile companies in the neighbourhood. There exists even better export quality technology, but the company cannot currently afford it. State-owned textile companies mainly produce the fabric only and do not do the tailoring.

"Getting access to finance is very difficult in our country." The government has held back from financing the textile industry. The Development Bank of Ethiopia was previously financing textile development activities, but this has stopped, so the company is turning to private banks –*"However, limited access to finance is still the key problem."* The private banks charge an interest rate of 14% per year. The Development Bank of Ethiopia offers an interest rate of 7% for export oriented projects, but they have strict and complicated application procedures. The Managing Director would like the government to simplify the credit application procedures. Although open to working with private financiers, they lack experience. They would prefer a bank loan, supported by the government, but *"if a private investor comes along, then we will use that opportunity."*

Textiles is a priority sector for the government. The Managing Director mentions that Ethiopia is gaining market share and importance in garments and textiles – *"It has not yet reach the level of Bangladesh in terms of export volume but export from Ethiopia is growing steadily. I am more than confident that I can produce better quality than other countries."*

The Managing Director tries to avoid corruption practices by keeping accurate and transparent records, so they know what to pay and the government can levy tax without difficulty– *"As a result, we do not encounter many corruption problems."* The administration is linked to the official tax revenue machine connected to the server of the tax authority.

The company is a member of the Ethiopian Employers' Confederation, but there is no direct benefit in this for the firm. When they encounter technical problems, they just try to find a solution themselves – *"We are basically on our own."* There are no technical, research or education institutions in Addis Ababa to help the company to solve technical or design issues. The only contact the company has is with technical vocational training centres – *"These TVTs do not have the skills required for international quality."* In fact, the support works the other way around: the owner receives requests from the TVTs for their teachers to do apprenticeships in the company.

3.6 Leather processing – leather bags and handicrafts (18-100 employees)

This leather products company is located in Addis Ababa and produces a range of bags, cases, tourist items, corporate gifts and other handicrafts. In 2009, the business was set up by four brothers and two sisters of one family. The interview is held with one of the brothers, who is the designer/production manager. The initial working capital was 20,000 Bir (750 USD) borrowed from their father, *"which was very little money to start a business."* They also borrowed two leather sewing machines from their father, who also worked in leather handicrafts, *"a family tradition."* Production started in a small shed with a work surface of 4m by 4m. *"Since then, we have worked very hard to produce high quality leather products."* By saving and living very frugally, they invested in high quality raw materials, equipment and machines. In fact, it was not so difficult,

according to designer/production manager. The family never took out a bank loan, *"which is too difficult*", because of the high interest rate and collateral requirements.

The products are mostly shipped to the US, Germany and China, with only a small proportion sold in Ethiopia. The company usually develops one sample for Ethiopian middlemen and exporters first before moving to production and fulfilment of the order. The company does not export directly. There is little awareness of handicrafts and leather products in Ethiopia, according to the designer/production manager. The company distributes samples to potential customers in Ethiopia such as large companies, hotels and souvenir shops – *"Sometimes, they come back with orders. This is how we try to create demand."*

After completing an order, the company keeps one sample for display and to show to new clients. The designer/production manager observes an increasing demand abroad for leather items.

Internal capabilities and innovation

The company has 18 permanent workers and often many more temporary staff, up to 100 depending on the volume of orders. The business is going well, according to the designer/production manager – *"The work is also good for creativity."*

The designer/production manager went to art school in Addis Ababa. He designs leather backpacks and laptop bags himself – *"You can do a lot of design with leather. I really like the design work."* The school also taught him how to select good quality leather input, which is very useful for the company.

All the brothers and sisters are still in the business today. They agreed to fill the different positions to run the business, dividing the tasks among themselves and *"my father is still giving ideas on how to run the business."* A younger brother manages the workers and salaries. The oldest brother is the marketing manager, sourcing new orders and clients –*"This setup works well. We work together and try to improve our business every day."* The father is very much in the background, as an advisor, but he has also travelled abroad to research high quality affordable technology.

The company has three machines, two from China and one from Germany, bought second hand when other factories closed. The designer/production manager complains about the Chinese machines because *"these require maintenance every day."* He undertakes the maintenance himself, having familiarised himself with the technology – *"I always check the internet and I read a lot of books."*

There is a rehabilitation centre for disadvantaged girls nearby – *"My father teaches leather handicraft skills in the centre."* In fact, many of the company's workers learned the trade in the centre and *"these girls became very skilled."* Other newly recruited workers are less skilled *"and we have to train them."* In the course of the 3-6 month training, the company pays the new recruits monthly a little extra, depending on their ability. There is no formal handicraft schooling available in Ethiopia. Sometimes, the workers leave after their training and look for better jobs, but only a very few do this.

The workers earn a regular salary and additionally earn on a piecework basis if there is a large order. Every month, there is a staff meeting with the 18 permanent workers – *"We discuss problems, solutions and new ideas for the work and many other things."* The workers are very open, according to the designer/production manager – *"I am not the boss, it is better to become like brothers and sisters."*

The company has a spacious workshop, which they acquired five years ago through a government programme, launched in in 2010, to support small businesses by providing land on long-term leases. As a result, the process of getting new land was not difficult. Recently, they leased an additional 1,500m^2 from the government to build another new workshop.

External business and institutional context

The business environment has not been easy but has provided many opportunities. The company faces increasing competition – *"The competitors buy design items here and copy them."* The designer/production manager does not like to copy from competitors; he prefers original designs, although he gets inspiration from existing designs he finds on the internet.

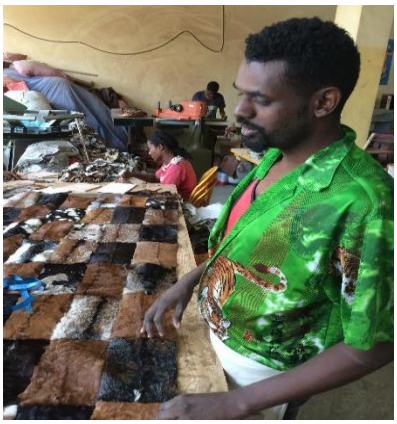
To address the copying problem, he is considering patenting his designs – *"Sometimes I regret I did not do this earlier."* At the same time, he tries not to bother too much – *"My business is mine, and the competitors have their businesses with their own problems."* He also thinks that it is probably better to keep away from the tiresome paperwork and possible corruption of patenting. He has a big market, so there is actually little problem with competitors.

The input material is bought in Ethiopia, mostly leather from young goats. The goat meat is exported abroad but the leather remains in Ethiopia for leather product manufacturing, and other uses. The designer invests a lot of time in searching for the best leather. The quality improves if chemicals are used, but at the moment, the dollar rate is high, so fewer imported chemicals are available –*"Then the companies stop using chemicals and the quality drops."*

The company imports the accessories directly, which is problematic due to limited access to foreign currency. Moreover, the government regulates imports and tells companies where to buy their input materials. For instance, the company has to buy zippers from China, which is based on a political agenda *"but the quality is not good."* The designer/production manager believes that companies should have total freedom to choose their input suppliers.

The business environment is not only hindered by governmental regulations. There is also a shortage of finance, which the designer/production manager regrets. However, there is increased awareness among entrepreneurs of business opportunities in the country and abroad.

The government runs good programmes for small business development and encourages young Ethiopian entrepreneurs. However, many of the initiatives are not sustainable once the support stops. The government provides land but fails to adequately maintain vital infrastructure, such as roads, water and electricity.



The production volume, turnover and profit are still growing every year –*"The past year was good, this year is even better. Every year it is about 5% more."* The designer/production manager thinks this is because of good product quality. *"We have good machines for cutting, which work faster and better.*

Our brother who is doing the marketing has gained good knowledge and established a good network of clients." The designer/production manager is confident about the future. He says he learned to be positive in the church – *"The church gives a positive energy to grow."*

3.7 Food processing – snacks, cookies and bread (70 employees)

The company produces several types of local snacks and foods, including cookies, biscuits, sweet bread and snacks for travellers –*"Most of my products are rolled from barley and wheat flour, cut in pieces and fried in oil."* The interview is held with the owner, who started the company in 2010.

Before starting his business, the owner did a number of other jobs. For a short time, he had a shop near a market place in central Addis Ababa. He was educated in marketing and shortly after his graduation, he started as a marketing agent, representing several factories in Addis Ababa. Many entrepreneurs in Ethiopia do produce good quality products but lack management skills, according to the owner – *"I noticed that companies do not know how to sell their products."* At that time, he offered his marketing services to companies and acted as their agent. Unfortunately, this did not work out because of conflicts with these business partners.

Having the ambition to become a large business owner at that time, he was thinking of developing a *"big thing and producing something for myself."* He developed a business plan with friends for exporting locally manufactured goods. However, they lacked investment money – *"We discussed ideas for collecting investment capital. We put money together to buy a garment business."* Again, there was conflict because of different expectations and the group split up – *"I lost all my money."* The owner believes he is like many Ethiopians – *"I never lose hope."* He learned a lot and decided to continue with something more modest – *"I learned one big lesson: in order to build a high building, you need to dig very low to develop a good foundation."*

He decided to produce something well-known, easily marketable and made from locally available raw materials. He chose fried bread snacks and traditional cookies. Although many of these foods are already widely produced in Ethiopia, he still saw several problems in terms of *"poor food quality and hygiene and unreliable supply."* Another advantage of doing food processing is that buying barley and wheat involves no government intervention or bureaucracy.

He managed to borrow 30,000 Bir (1,100 USD) through a government credit scheme to start his food processing business. In addition, he secured an attractive lease contract for the premises from the government. At that time, the government had many support programmes for small business development, including preferential leasing contracts of working space (sheds) and land. Nevertheless, it took a further year before all the electricity connections and infrastructure were ready – *"Government decision making is very slow in developing infrastructure."*

Once this was done in 2010, he borrowed another 30,000 Bir from relatives as working capital and engaged 30 women to start production. The initial equipment included a standard cutting machine, and some basic home cooking and kitchen materials. He started step by step with small amounts of local raw materials,

distributing and selling the product himself through retail shops. From the profit, he bought more raw materials – *"For a long time I worked for about 18 hours per day. I had little sleep, but the business developed steadily."*

Internal capabilities and innovation

Today, the company employs 70 people – *"I believe in God, he blessed my hands that developed my business."* There are 7 staff in administration and sales – *"I monitor them closely."*

In his marketing study, he learned how to promote the product – *"It is all about communication."* He explains to potential clients about the product and gives them a sample to taste. He supplies supermarkets, grocery shops and wholesalers in the central market place. According to the owner, running a business is about satisfying customers first, and the profit will follow – *"First think about serving people, then think about earning money. My first salary is customers' satisfaction."*

Recently, the company has been re-categorised to a higher size classification. According to the official government's system, the company is now a 'Medium-Sized Company'. The criteria include the number of employees, production volume, management systems and production processes.

Initially, the owner benefitted from government subsidised rent on the land and working shed –*"However, once you develop and graduate, the government does provide follow up policies and programmes enabling further expansion."* He wants to develop his enterprise but there are no other available premises or land nearby. As one way forward, he agreed a deal with another local company, which went bankrupt and cannot pay back its bank loan. This company now produces part of his food production volume – *"I give them raw materials and they produce and give it back to me. It is like a subcontract arrangement."* The owner gives management advice to the company.

The owner gained his technical knowledge about recipes and ingredients by reading, browsing the internet and talking to people. He started to experiment at home with his family, systematically writing down a detailed log of his experiments. He has developed some products that sell well and keeps the formulas secret – *"Like a Coca-Cola secret."* There are some companies that try to copy but they have not succeeded so far. He mixes the input at home by himself and then brings the mixed ingredients to the company for preparation. In the company, the employees mix it with flour and then fry it – *"They do not know what ingredients are in there, so the secret is kept."*

He also acknowledges the importance of keeping employees satisfied because staff turnover is high: many work for a short time and then go. Hiring good workers is difficult in Ethiopia, explains the owner – *"There are many people in the street but they are not interested in working. They want to go high right away, without digging a foundation first."* He tried a bonus to retain workers, but this was not effective. Often employees get training and then go elsewhere for a better salary or to open their own business.

He aims to expand further and has applied for new land in a planned industrial zone in Addis Ababa, which will probably take one year. He is now calculating the cost of purchasing of a new biscuit machine and a peanut butter machine – *"All our peanut butter is now coming from America, imported at very high cost*." The owner sees the advantage in terms of saving foreign currency if these products are produced locally.

External business and institutional context

The company has many competitors, but that is not a problem. The owner feels that his business is doing well because of his higher product quality and marketing skills.

In general, he is happy with the level of government support. However, many people in the ministries he deals with have no idea about the realities of business on the ground. For instance, he believes the government's food hygiene policies are good, but the civil servant who checks and monitors compliance does not understand the issue. He gets regular visits from the food and health department, which is necessary to renew his business licence.

He is a member of the Addis Ababa food processing and pharma manufacturers' board, created by the government to address problems in manufacturing and problems with stakeholders – *"We provide policy advice. I tell them all our problems. We tell them to change the policy."*

There are no contacts with universities, although he would like to work with them. He searches the internet and conducts experiments, but lacks expertise in chemistry, on topics such as shelf life and taste characteristics. His machine supplier also provided some recipes, which he has improved.

The owner is really concerned about the Ethiopian work force and the work mentality of its people. He thinks that this is a media problem –*"Ethiopians see on TV and the internet that everything is possible without any effort and they want it."* As one example, the media indirectly promotes visits to Arab countries –*"Many uneducated people want to travel and go there as a visitor or for unskilled jobs such as cleaners."*

The owner emphasises that there are many industries in Ethiopia but not sufficient workers willing to stay in the country and work. The owner wants to see many people in his company and help them with jobs. He can contribute to the prosperity of his country by creating simple jobs, *"but people should be happy with it."*

The owner is not happy with *"economic refugees"* abroad, and strongly believes that they should stay in Ethiopia. The owner thinks that the government should be strict and adopt penalty policies – *"if Ethiopians go abroad illegally they should lose their citizenship rights, for instance."*

The owner believes that Ethiopians themselves have to save and develop their country – *"I want to live in my country and I want to die in my country."*

3.8 Wood processing – bee hives (24 employees)

The company is located on a small plot next to a busy road in the city centre of Addis Ababa. The company produces bee hives from wood and metal components. The owner started the business in 2007 after having worked in the woodworking and furniture trade for a long time. At one point, his friends suggested he switch to producing wooden hives. He has been engaged in apiculture for many years, as a personal interest. Step by step, he changed to producing bee hives and quickly found that this was more profitable – *"When I started the bee hives, I immediately saw a good market, much better than other wood products."* The owner found a small piece of land where he built the workshop and office.

Most of his clients come individually to his workshop to buy one or two hives. He also produces larger quantities of hives for wholesalers.

The owner also has a small farm some 6 km from his workshop where he keeps bees and produces honey, but the main line of business is hives. If a client wishes, he can also provide the bee population. He tests and constructs new designs at his own farm to find out what works well for the hives.

The wood comes from local markets, using widely available material, *"but good material is expensive and the price is increasing."*

Internal capabilities and innovation

The owner received his education certificate in industrial design from the art school at Addis Ababa University. He feels that his design knowledge and skills are still very useful for designing and experimenting with the bee hives.

Today, around 24 people work for the owner, 6 at farm and another 18 in the manufacturing workshop. There is one person responsible for sales and marketing. When the owner is away, a floor manager takes over production management.

The workers have good woodworking skills, gained from the many vocational training centres in Ethiopia – *"The government provided them with training in carpentry, furniture and painting skills."* The owner is proud to say that many of his staff have stayed for a long time in his business and staff turnover is very low. The owner encourages the workers to come with ideas to improve the bee hives. Apart from his workers, he trains students during the school holidays and is happy to share his knowledge.

At the workshop site, he has several hives with bees for display and testing purposes, *"just like doing research. It is a testing area."*

The bee hives are yellow because the bees are attracted by the colour, according to the owner. Amongst other things, he is experimenting with different designs to improve the climate inside the hives, such as how to reduce noise levels or to produce hives that remain cool in full sun. The temperature cannot be too high inside. He discusses innovation ideas with other professionals and also finds a lot of information on the internet– *"I got the sound trap and heat resistance ideas from the internet."*

External business and institutional context

The owner perceives the external business environment as positive because there are few competitors in the area, whereas he has many apiculture clients. He has direct contacts with farmers because he often travels to

see his clients. He also goes to events and workshops organised by the Ministry of Agriculture. Many customers visit his workshop to chat and exchange ideas.

Sometimes competitors come and buy a hive and copy his design. The owner is not really concerned about this because he is continually looking for new models and improvements in designs – *"When they take one, I will not be annoyed because I will start to invent another."* In the past, he has not filed a patent, but now he is talking with the patent agency because he has an idea to develop a design for low-cost hives.

Initially, he had a bank loan of 35,000 Bir (1,300 USD) for investment. The process is very tough and takes a long time, *"and they need collateral. That is the difficult part of accessing the credit."* His previous loan was for 300,000 Bir. He has no financial support from his family or friends.

The institutional context is challenging but also provides opportunities. The Ministry of Agriculture has a special programme to promote apiculture, for which he supplies the hives. He had previously introduced himself at the Ministry, explaining the nature of his business, and got some ideas on how to improve the bee hives. The relationship is ongoing.

The owner complains about the government's tax and VAT administration process. He brings his financial statements to the tax authority on time, but they are very slow to process the forms. In addition, the tax regulations are unclear and constantly changing depending on the person in charge – *"It is not transparent and we do not know what to expect."* He has not engaged in or encountered corruption in the tax system.

The future availability of the land he is leasing for the workshop is also uncertain. The government is not clear on whether he can stay long-term, or whether he has to leave. It is a very populated residential area. Because of this uncertainty, he is not investing in the infrastructure of his workshop – *"I tried so hard to get clarity and I aspire to grow but I cannot."*

The owner would like to have better provision of water and electricity. The problem with the water is limited supply and poor quality. Electricity is another limitation because there are frequent power cuts – *"We are not informed about the power cuts so we do not know when they will happen."* Production activities are seriously affected. Because there is no prior information about the power cuts, production planning is always difficult.

He was advised to be a member of the beekeepers' association, but in fact has gained little benefit from this, aside from one new client whom he met via the association. There is little communication with the members.

4. Analysis and conclusions

The aim of the qualitative study on innovation in manufacturing SMES in Ethiopia is to support the quantitative research part of EIP-LIC, as well as to share insights with similar research projects led by other academic institutions. This could help researchers to validate, compare and complement existing theory in literature and research design and hypothesis development with contemporary bottom-up realities on the ground in Ethiopia, as perceived by manufacturing SME owners and managers. Earlier qualitative studies in the framework of EIP-LIC apply the same qualitative approach and report format, and enable comparison across the countries of study in the DFID project (Kenya, Tanzania, South Africa, Ghana, Ethiopia, Uganda, Indonesia, India, Vietnam and Bangladesh).

This growing collection of insights from the various countries shows how innovation processes and mechanisms are manifested within manufacturing SMEs, and reviews the internal capabilities and external environment, including formal institutions, the business system and the informal institutional context. The research framework is reflected in the list of semi-structured interviews (see Annex 1). In addition, the owners and managers shared their stories outside this framework and advanced issues that are relevant and interesting for current scientific work. The qualitative reports of all 10 African and Asian countries of study are available for researchers and a wider audience, downloadable from the project website[14].

It is important to note for the analysis and conclusions below that the validity of qualitative research should not be considered in terms of sample size and representativeness of the cases for the total manufacturing SME sector in Ethiopia. Qualitative research in general does not claim to collect and analyse data from a representative sample. Instead, on a case-by-case basis, qualitative analysis provides exploratory (deductive) insights into issues, processes and systems in a bottom-up way that helps to suggest theoretical concepts for the local context. It may suggest original or overlooked and policy-relevant factors (variables) and conditions to follow up in the quantitative analysis. Against this background, the selection of cases involved 'information-oriented' sampling, as opposed to ad-random sampling, aiming at developing a diverse yet comparable dataset with regard to subsector, enterprise size and innovative activities.

In the paragraphs below, several key trends and notable patterns across the Ethiopian SME cases are analysed. It is important to note that this concerns a first analysis of the qualitative empirical material from Ethiopia within the DFID project context, which is to be followed up in more depth with a view to developing or complementing academic articles. The chapter concludes with initial policy ideas and implications and several observations with regard to the set of forward research questions within or beyond EIP-LIC.

General observations

A first overall observation from the preparation and implementation of the fieldwork was the difficulty in identifying formally registered SMEs (10-100 employees) in the manufacturing sector in Addis Ababa. The identification of smaller enterprises was much less of a challenge. The research team came across many micro and informal household businesses with fewer than 10 employees. Some of the owners had plans to expand and grow, but the difficult realities in Ethiopia prevented them from doing so. The phenomenon of the relative absence of SMEs in the economic structure refers to the 'missing middle' issue noted in the literature as well as in the other EIP-LIC qualitative studies. This phrase has been used relatively loosely in economic development discussions, meaning a lack of SMEs particularly in the developing world[15]. This picture was

[14] www.tilburguniversity.edu/dfid-innovation-and-growth/
[15] http://www.africa.com/blog/investing_in_africa_defining_themissing_middle_/

confirmed during the fieldwork in Ethiopia and underlines the importance of the EIP-LIC project in terms of promoting manufacturing SMEs in LICs to balance the economic structure of a given country.

Innovation definition

Most interviewed owners and managers in the Ethiopian companies described in chapter 3, in different ways, introduced new products, processes and technology in order to improve and expand their business operations. Some would clearly qualify as innovation, while others would not, depending on how innovation is defined and assessed. In advanced economies, innovation is typically measured by R&D expenditures and number of patents of new products or processes, as proposed in the *Oslo Manual*[16] (OECD, 2005). From a radical technology perspective, much of the 'newness' introduced in the Ethiopian cases would not qualify as innovation. Such an assessment would in any case have been impossible because the owners do not systematically record R&D expenditures and have not registered patents.

Taking a broader and economic perspective on innovation, viewing it in terms of incremental adoption and adaptation or of new combinations of existing technologies creating value (Szirmai et al., 2011), it is evident that the new elements introduced in the interviewed companies resulted in improved and expanded business operations. As described in emerging innovation theories on LICs, much innovation depends on an aggregation of small insights and advances through 'learning by doing' rather than on major technological inventions (Carayannis et al., 2003).

Despite increasing interest in the literature, the exact definition of innovation in LICs remains an issue in theory (Çapoğlu, 2009) and for its application by the researchers in EIP-LIC. The broadest possible definition of innovation, from an economic perspective, referred to in the qualitative research section, is everything new that the company does to raise productivity and/or to stay ahead of its competitors. Or as Fagerberg et al. (2010) put it: 'Innovation is often seen as carried out by highly educated labour in R&D intensive companies with strong ties to leading centers of excellence in the scientific world. Seen from this angle innovation is a typical "first world" activity. There is, however, another way to look at innovation that goes significantly beyond this high-tech picture. In this, broader perspective, innovation – the attempt to try out new or improved products, processes or ways to do things – is an aspect of most if not all economic activities. In this sense, innovation may be as relevant in the developing part of the world as elsewhere.'

Assuming the broader perspective on innovation in EIP-LIC, in box 1 several definition elements are proposed to assess innovation in an LIC context for the analysis of the cases in this report.

Box 1: Innovation newness, process and value creation

A cross analysis of definitions in innovation theory from recent decades (Voeten et al., 2011) shows that innovation is repeatedly typified by three key elements: newness, process and value creation.

Addressing the first element, Kotabe and Swan (1995) argue that innovation can be investigated in terms of both **newness** to the company and newness to the market or world.

Regarding the second element, the innovation **process,** all owners and managers themselves initiated, managed and owned the innovation process within the unit of analysis, their company. They developed the idea, sometimes inspired by others, started to run small experiments and trials and eventually implemented the new product or production technique on a commercial scale. As is often the case in incremental innovation in developing countries, this was not a planned and formalised process involving a pre-defined innovation strategy and an R&D department.

The third element, **value creation** of innovation, is evidenced either through lower input costs or higher sales revenues (Porter, 1985). Higher profit through new premium products of better quality, or appealing to a certain fashion, increases competitiveness.

[16] https://www.oecd.org/sti/inno/2367580.pdf

Regarding the dimensions of innovation, Kaplinsky and Morris (2001) identify five types of innovation: (i) process innovation, aiming at improving the efficiency of transforming inputs into outputs; (ii) product innovation, leading to better quality, lower price and/or more differentiated products; (iii) business practice innovation, implying new ways to organise and manage the business and attract new clients; (iv) functional innovations, assuming responsibility for new activities in the value chain, such as design, marketing and logistics; and (v) inter-chain innovations, moving to new and profitable chains. These types of innovation are taken into account in the analysis in this report.

In many innovation definition and measurement documents, such as the *Oslo Manual* (OECD, 2005), an explicit distinction between product, process and other types of innovation is made. However, distinguishing the types of innovation in the manufacturing SME cases interviewed in the EIP-LIC countries of study was not such a clear and simple matter. It is more common to see an integrated combination of several types of innovation, where one type of innovation triggers or enables another, such as the introduction of a new process (technology) that results in the launch of new products requiring the reorganisation of the workshop and staffing. Analysing the Ethiopian cases for newness, process and value creation, as suggested in box 1, is one possible way to assess whether the observed new phenomena within the companies qualify as innovation or not.

1. The metal company undertakes the local manufacturing of medical equipment products in the context of the Ethiopian market, previously imported, which can be classified as product innovation. The products are based on existing designs developed from ideas found on the internet. The local versions of designs and models of these products were developed by the owner and his technical staff.

2. The PVC product manufacturing company is restructuring the production process and re-organising the human resource management. The introduction of new machines and upgrading old ones is an example of process innovation. The manager's plan to improve the working culture, through organising regular staff meetings and performance evaluations, among other initiatives, could be qualified as a management innovation, which would classify as business practice innovation.

3. The shoe producing company has technology and equipment that is not very innovative or advanced. The company introduces new designs every 6 months. Consequently, the actual production and marketing of one type of design of shoes does not take more than 6 months. This could be considered as product innovation. The on-going development of new designs makes the business more advanced in terms of competitiveness.

4. The company that produces agricultural processing machines uses existing designs and models. The company has been unfortunate in terms of losing out to competitors. The owner has tried to survive by changing to other manufacturing subsectors such as marble cutting and the production of holoblocks. Changing businesses could not be considered as innovation.

5. The textile company is producing existing products – uniforms and clothes – but it has a solid and advanced organisational structure. The way of organising the business in terms of production and human resources management, which enabled it to raise productivity, could be considered as business practice innovation. The high quality of products and organisation gives the company a certain prestige.

6. The designer and production manager of the leather handicraft company is a creative person who develops his own designs of leather bags and items (product innovation). Competitors buy his handicrafts and copy them. The company is using standard machinery and equipment. The company tried to change its marketing strategy, by directly exporting the product, but did not succeed, and therefore still deals with middlemen.

7. The food processing company is producing existing products with existing equipment. The owner experiments with new recipes and ingredients at home with the assistance of his family. He systematically writes down a detailed log of his experiments, recording what works and what does not. He has developed some products that sell well and keeps the recipes secret (product innovation).

8. The bee hives company produces existing products with existing technology. However, the owner is trying to improve the hive design and tests new ideas in terms of noise reduction, temperature levels and colours. He established a special designated 'R&D' area at the workshop premises. Occasionally, experiments work out well and are commercialised, which could be considered as product innovation.

4.1 Trends and patterns in the cases

Compared to the earlier qualitative explorations in other African countries and Asia, the companies in Ethiopia introduce small incremental changes to raise productivity and competitiveness. Although the new products and processes in the innovative companies are not radical and not 'new to the world', they are new for the companies or Ethiopian market, as units of analysis. The ideas for new products are mainly acquired from the internet and in response to market demand. Customers come with requests and suggestions, or the owners talk with clients, examples of demand-driven innovation.

In terms of these innovation manifestations, Ethiopia fits best in the classification of a factor-driven economy competing on factor endowments, unskilled labour and natural resources. One of the priority sectors of the government is textiles, a good example of a sector using abundant labour resources. As a country becomes more competitive, productivity will increase and wages will rise with the advancing development. Countries will then move into the *efficiency-driven* stage (Porter et al., 2002). In this stage, companies begin to develop more efficient production processes and further increase product quality because wages have risen and they cannot increase prices. This is not yet the case in Ethiopia. The cases do not show innovation aimed at increasing productivity by saving on input or labour costs.

There are many imported products on the Ethiopian market. Many owners consider this a missed opportunity for local manufacturing and try to produce these products by themselves. Interestingly, in such a context, innovation would be one way to make more efficient use of resources and processes and compete with imports on the local market. An innovation focus on quality would be a logical way forward.

Internal capabilities

In all cases, it is the owner who initiates, coordinates and manages the new ideas, including preparations for the innovation, technical details, and the product launch. The companies rarely have a design or R&D department or a specialist employee with this function.

The Ethiopian workforce comprises both unskilled and skilled labourers. Most owners pay their employees a fixed salary, sometimes on a piecework basis, according to output levels. Several owners face difficulties of recruiting and retaining a skilled workforce and the high turnover rate of skilled production workers. Sometimes the employees provide innovative ideas, to a greater or lesser extent. Several owners, however, stress the limited creativity of their workers and refer to a passive attitude. Most owners and managers do

train the employees on-the-job in acquiring the required skills. Getting higher educated staff is a problem, since the graduate employees have primarily theoretical knowledge and few practical skills.

The owners mention that the skills and knowledge gained through formal education do not match the company's requirements. Moreover, it is difficult to find skilled craftsmen to do the manual manufacturing work in Ethiopia today. Despite these shortcomings, few interviewed companies provide additional formal training for the workers, opting instead for on-the-job training. Some owners are reluctant to provide formal training because they are afraid that workers will move to other jobs. Some owners acknowledge the potential innovation capacity within the workforce, but this is not applied in practice.

Typically, the Ethiopian companies possess technology and machinery that they have had for a long time. The technology is still able to deliver a certain minimum product quality. Occasionally, new machinery is bought from profits and savings. The interviewed owners and managers are well-informed about technological possibilities though the internet or informal contacts. They have ideas and plans for upgrading and expanding their companies, but new (technological frontier) machines are too expensive and advanced compared to the expected short-term return on investment. With regard to the long term, the macro-economic and institutional context does not provide sufficient confidence to justify extensive investment.

External business environment and formal and informal institutions

The interviewed owners and managers perceive a positive business environment in terms of opportunities, in particular with regard to import substitution. They see that there are many imported goods on the local market that could be produced in a more cost-efficient way. The establishment of a business, recruiting skilled and motivated staff and the organisation of a constant supply of raw materials and inputs are key challenges.

The formal institutional context is ambiguous, according to the interviewed owners and managers. On the one hand, most of the companies, in one way or another, benefitted from governmental development and support programmes for small business, in particular, in the provision of cheap working space and land. However, many of these programmes stopped after a period, or did not further facilitate business growth. The SME owners have a positive perception of government regulations, tax regimes and systems: as long as one follows the rules, there is little difficulty in compliance.

On the other hand, institutional stability and transparency is not improving, according to many interviewed SME owners and managers. Corruption is getting worse. Regarding policies to promote innovation, there is no clear regulatory or policy framework for manufacturing SMEs. Many ministries and governmental agencies have different policies and programmes. All the entrepreneurs complain about the weak infrastructure: unreliable electricity and water provision and poorly maintained roads.

Several of them hold negative perceptions about government policies regarding imports of input raw materials. The government established strict regulations on where imports may be sourced. This results in an obligation to import low quality inputs, which affects the final product quality. This business and institutional environment prevents them from innovating and growing their enterprises.

The banking system is not an attractive source of finance for SMEs in Ethiopia. High interest rates, collateral requirements and complex paperwork are critical issues. Instead, most SME entrepreneurs find investment money from savings and via informal loans from family members. They usually invest incrementally just before or after receiving large orders.

Most business owners and managers are members of a business association and have regular interactions, which sometimes help in solving technical issues or client networking. Branch associations are an important source of information and of both contacts and contracts. Interaction with formal technology institutions, as suggested in the innovation systems literature (Lundvall, 1997), does not happen. Many SMEs owners and managers indicate that they would like to cooperate with universities to undertake research at their premises,

to share research insights, for instance. There is very little spill-over of technology as a result of cooperation between firms, subcontracting or other forms of collaboration within value chains, business clusters or networks.

4.2 Policy issues – insights for policy makers to consider

One question that remains is the extent to which government can reach SMEs. Various ministries within the Ethiopian government have defined and implemented policies that in one way or another promote innovation. However, these seem not to reach the SME owners that were interviewed in the qualitative research, although some are aware of R&D centres and technology development programmes for SMEs. One reason for this failure may be that the support is implemented in a technocratic top-down way. The companies are seldom consulted, in fact they prefer to stay at a distance from the formal institutions.

They are aware of the state of the art technology but cannot afford the high costs of such machines. Moreover, those that have available funds do not invest because of the uncertain future, in macroeconomic terms. In addition, the government does not provide assurance on the stability of the 'rules of the game', so most SMEs continue their activities but do not expand further because of challenging business conditions.

As argued in the introduction of this report, it is desirable to develop innovation within manufacturing SMEs. Some believe that technological innovation is critical for SME development and catch-up in LICs. Technological innovation has, however, been traditionally concentrated in developed countries, given the costs and risks involved in stimulating technological innovation. Foreign sources of technology account for a large part of productivity growth in most countries. Therefore, the development process in Ethiopia could be supported by tapping existing technical and product knowledge.

Moreover, the stories and experiences of the owners and managers raise the issue of whether an innovation-driven and new-to-the-world innovation approach is the way forward. Most of the required technology is already available, but elsewhere in the world. In fact, all owners in the cases are well informed about the technological possibilities of their business. Without too much difficulty, the owners and managers find the technology themselves by drawing on various sources of information (the internet, informal business contacts and trade fairs). Moreover, the companies themselves refine and adapt the existing technology once acquired. So, although setting up technology development projects and programmes may help SMEs, the availability of technology is not perceived as a barrier to innovation by the owners and managers.

It seems that the notion of growth as 'manna from heaven' as reflected in convergence theory, see the earlier rejected exogenous growth model of Solow and Swan (Fagerberg et al. 2010), might work after all because of the free and widespread access to knowledge and technologies via the internet. The knowledge itself is available for local companies in Ethiopia. The institutional context, providing trust, predictability, stability and access to finance is more of a problem in preventing investment in technology and innovation and thus 'convergence' from happening. At the same time, the 'manna from heaven' of technology developed elsewhere may not address local needs or issues.

Innovation climate

How then can the innovative capacity of SMEs in Ethiopia as a developing country be increased? According to the World Bank (2010), an efficient government innovation policy will address the overall innovation climate, which goes beyond traditional science and technology policy. At the same time, government action can usefully focus on a few generic functions to help SMEs to grow. It can facilitate the articulation and implementation of innovative initiatives, since innovators need basic technical, financial and other support.

The government can reduce obstacles to innovation in competition and in regulatory and legal frameworks. Government-sponsored research and development structures can respond to the needs and demands of

surrounding communities. Finally, the education system can help form a receptive and creative population. Regarding actual innovation policy development, there has been a considerable amount of work in developing countries, such as the World Bank (2010) report '*Innovation Policy: A Guide for Developing Countries'*.

The lack of relevant education is a problem for the companies interviewed, who feel there are insufficient skilled and motivated workers and operators to work with. SME owners and managers complain that university and college graduates do not have the required technical and craftsman's skills, exposure to modern technologies, or an entrepreneurial and creative attitude.

As mentioned earlier, several ministries and agencies are engaged in efforts to develop and promote innovation policy, usually labelled as Science, Technology and Innovation (STI) policy. Despite considerable effort in developing strategies and plans, actual implementation is challenging, due to the limited availability of public budgets and knowledgeable staff.

Nearly all SME owners and managers suggest that creating a stable and predictable institutional context would be an efficient and effective way to promote innovation in Ethiopia. All kinds of innovation policies and programmes could be developed, but the results of such policies will be undermined by the weak and unreliable wider formal institutional context.

Another policy idea emerging from the DFID project is that several owners and managers suggest not to focus on governmental policy makers only, but on direct advice to SMEs on how to improve their business. One idea is to develop non-governmental business information exchange networks and platforms, establishing contact between entrepreneurs in Africa and beyond, to facilitate discussion and deals within the various sectors. SME owners suggest that the DFID project could establish a network of all SME owners and managers contacted during the implementation of EIP-LIC and create a website for them to stay in touch with each other.

Research issues - insights to address the research questions

The qualitative analysis of Ethiopia, and also the earlier qualitative studies of EIP-LIC, show the many internal and external factors supporting or hindering innovative behaviour of owners and managers of manufacturing SMEs. The econometric analyses and the mathematical models approach within EIP-LIC implicitly seeks correlations and causal relationships between independent variables such as internal capabilities, a favourable policy context, the availability of finance and technology, and the occurrence of innovation and innovativeness as dependent variables. The associated economic theories explain and predict economic outcomes as a basis for further policy development.

However, a limitation is that the claims of econometric analyses are true only ceteris paribus — that is, they are true only if there are no interferences or inhibiting factors. Critics say that the most important methodological issue is the simplification, idealisation, and abstraction that characterises econometric research. However, the qualitative research element of this project shows the reality of possible inhibiting factors. This is problematic once research outcomes are translated into policy, from which true impact is expected, and constitutes an emerging methodological challenge in terms of developing meaningful and effective policy recommendations in the EIP-LIC research project.

Theme 1 'Innovation Systems'

In reviewing the innovations in the Ethiopian cases against innovation systems theory, one would expect that the businesses would be surrounded by a network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies (Freeman, 1987). However, the cases reveal that the small scale and incremental SME innovations in Ethiopia are mostly in-house activities. The same phenomenon has been observed in other African countries of study in the framework of

EIP-LIC. Although there are government S&T institutions, it seems that these develop technologies that are not required by SMEs, while for the technology they do require, no suitable technology institutions exist.

The cases suggest several firm-level factors playing a critical role in the engagement of incremental innovative activities, more than supporting institutions. The innovation process is initiated, managed and owned by the company without any external involvement or support from other businesses. Informal contacts, even within formal institutions, play a key role in some cases. It is the owners who develop ideas for innovation, with employees playing only a limited part by suggesting improvements at the operational level.

By contrast, the motivation, contacts and international exposure of the owner are key factors in engagement in innovative activities. Moreover, the availability of funds from firm profits is essential. Regarding the risk-taking of their innovation projects, most owners and managers are reasonably confident about the market opportunities in Ethiopia. There are no cases of collaborative innovative activities. Although the companies are open to sharing information about their needs, most of the owners/managers avoid cooperation with other companies.

Regarding external networks, none of the cases has been involved in collaborative innovative activities or joint technology acquisition with other businesses or with technology institutions. There are no spill-overs as a result of subcontracts or clustering of firms. Likewise, no company enjoys the spill-over of technology from larger, foreign or other technologically more advanced firms. There are no examples of large foreign enterprises subcontracting and making technology available to SMEs or exchanging information. The companies in Addis Ababa are very scattered and seem to have no relationship with each other.

There are virtually no links between the interviewed SMEs and public sector actors, such as universities, governments, or NGOs, as presented in the 'Innovation Systems' analytical model. The so-called innovation system, as a co-evolutionary network of actors, does not exist. Instead, the business system actors and informal institutions play a key role in providing information, technology, credit and overall stability and predictability. The role of these actors could be further explored in EIP-LIC research, with particular regard to the doing, using and interacting (DUI) approach in learning and innovation processes, as suggested by Lundvall et al. (2009).

The outcomes of the qualitative inquiry suggest that technology and underlying knowledge may not be the problem. Regarding the diffusion of technology, most of the entrepreneurs are well-informed via the internet about technological possibilities and are able to import the technology by themselves with little difficulty, provided funds are available. For most of the technical problems faced by the SMEs, there is already a technical solution developed somewhere in the world, so there is little need to develop local 'new to the world' technologies. There is therefore little need for intermediaries to bring producers and users of innovation/knowledge together. They can identify where to source the technology and have suppliers. In some cases, a local technician can make a copy of the machine.

Theme 2 'Finance for Productivity Growth'

Finance is considered a critical constraint by most interviewed companies in Ethiopia. In all companies, the owners aim to introduce new products and raise productivity because they see business opportunities in doing so. Learning and acquiring the technology is a lesser problem than finance, in particular for expensive state-of-the-art technology to be able to implement the new ideas. Today the SME owners develop their businesses with small, incremental investments based on savings and modest investment money. Although there are well developed ideas for innovation and confidence in the market, investments are cannot be made because of uncertainty about the long term economic and political outlook. They do not take the risk of large scale investment. Instead, SME owners invest by using the profit of larger orders they have, or by using the contract upfront to secure supplier credit.

The Ethiopian cases provide some insights into the formal and informal financial institutions. One key issue is that banks charge high interest rates for loans to manufacturing SMEs, which prevents several companies from investing in technology that could enable them to increase the speed of production and broaden the range of products. Although they are 'proven' entrepreneurs of registered businesses, able to assess risk and handle a difficult business environment, they are not considered creditworthy. Most of the interviewed companies were given informal loans and gifts by family and friends.

With regard to managerial practices and innovation decisions, many entrepreneurs do little in terms of in-depth calculations and forecasts based on management education or training. Most owners are self-made entrepreneurs, due to a combination of their limited knowledge of financial management and the uncertain and fast-changing economic and institutional context. It is very difficult to make a financial forecast in the Ethiopian context and with an eye on possible investments and expansion, as the regulations are unclear and change continually.

References

Çapoğlu, C. 2009. The Meaning of Innovation and Entrepreneurship in Developing Countries. *International Studies In Entrepreneurship* 21: 85-91

Carayannis, E. G., E. Gonzalez and J. Wetter. 2003. 'The Nature and Dynamics of Discontinuous and Disruptive Innovations from a Learning and Knowledge Management Perspective'. In Shavinia, L. (ed.) *The International Handbook on Innovation*, London: Elsevier Science Ltd

Chaminade, C., B.-Å. Lundvall, J. Vang and K. J. Joseph. 2010. 'Designing Innovation Policies for Development: Towards a Systemic Experimentation Based Approach'. In: Lundvall, B. Å., K. J. Joseph, C. Chaminade and J. Vang (eds.) *Handbook of Innovation Systems and Developing Countries*, Cheltenham: Edward Elgar, pp. 360-379

Fagerberg, J. , M. Srholec and B. Verspragen. (2010). The Role of Innovation in Development. *Review of Economics and Institutions* 1 (2); Article 2

Freeman, Ch. 1987. *Technology Policy and Economic Performance: Lessons from Japan*. London and New York, NY: Pinter Publishers

Kaplinsky, R., and M. Morris. 2001. *A Handbook for Value Chain Research*. Brighton: Institute of Development Studies (IDS), University of Sussex.

Kotabe, M. and K. S. Swan. 1995. The Role of Strategic Alliances in High Technology New Product Development. *Strategic Management Journal* 16(8): 621-36

Lundvall, B.-Å. 1992. *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London: Pinter Publishers

Lundvall, B.-Å., K. Joseph, C. Chaminade and J. Vang. 2009. *Handbook of Innovation Systems and Developing Countries - Building Domestic Capabilities in a Global Setting*. Cheltenham: Edward Elgar Publishing

OECD. 2005. *The Measurement of Scientific and Technological Activities: Proposed Guidelines for Collecting and Interpreting Technological Innovation Data – Oslo Manual*. Paris: Organization for Economic Co-operation and Development (OECD), Eurostat

OECD/The World Bank. 2014. *Science, Technology and Innovation in Viet Nam,* OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/9789264213500-en

Porter, M. 1985. *The Competitive Advantage: Creating and Sustaining Superior Performance*. New York, NY: Free Press

Porter, M., J. Sachs and J. McArthur. 2002. 'Executive Summary: Competitiveness and Stages of Economic Development' In Porter, M., J. Sachs, P. Cornelius, J. McArthur and K. Schwab (eds.) *The Global Competitiveness Report 2001*, New York: Oxford University Press, p.16-26

Szirmai A., W. Naudé and M. Goedhuys. 2011. 'Entrepreneurship, Innovation, and Economic Development: An Overview', In Szirmai, A., W. Naudé and M. Goedhuys (eds.) *Entrepreneurship, Innovation, and Economic Development*. Oxford: Oxford University Press, pp. 3-32

Voeten, J., J. de Haan and G. de Groot. 2011. 'Is that Innovation? Assessing Examples of Revitalized Economic Dynamics Among Clusters of Small Producers in Northern Vietnam. In A. Szirmai, W. Naudé and M. Goedhuys (eds.) *Entrepreneurship, Innovation, and Economic Development*. Oxford: Oxford University Press, pp. 96-121

World Bank. 2010. *Innovation Policy: A Guide for Developing Countries*. World Bank. https://openknowledge.worldbank.org/handle/10986/2460

World Economic Forum. 2015. *The Global Competitiveness Report 2015 - 2015*. Geneva: World Economic Forum

Yin, R. 2003. *Case Study Research: Design and Methods*. Thousand Oaks, CA: Sage Publications

Annexes

Annex 1: List of questions for semi-structured interviews

A. BASIC INFORMATION

1. Name of business and owner, location, legal status, years of operation, types of products, manufacturing subsector, productive activities, number of employees, management structure, some indication of turnover and profit and average investment size.

2. Short history and background of business model. How is the company generating value? Position in a value chain if applicable, suppliers, major clients/markets.

3. Did the company grow/expand in recent years? To what extent (why) does the owner consider his/her company as an innovative company as compared to other manufacturing SMEs in Ethiopia?

4. Did the company itself introduce a new product, process or technology to raise productivity or to face competition? Provide examples of product/process/technology innovations that enabled survival/growth/ expansion in the past 3 years.

B. INNOVATION

<u>New</u>

1. Description of the type of innovation (process, product, incremental, radical). What is new? Did some innovations enable/trigger other types of innovation within the company? Management innovation in terms of goal setting?
2. Is the innovation 'new to the world' involving inventions by internal R&D, or is it a copy, adaptation or adoption of an existing product or technology?
3. How does the owner, employees, clients and others actors perceive the newness? (just a small improvement or as a 'breakthrough')?

<u>Process</u>

4. Idea: Where did the idea and motivation for the innovation come from? What were the first steps in the idea formulation and who initiated these? What was difficult and what was easy?
5. Testing: What were the subsequent steps in testing? At what point in time did it become clear that the new product or process would become a success? On what basis did the owners decide to further implement/commercialise it? Did the owner try new things that failed?
6. Commercialisation: what were the steps towards the implementation? What confidence/trust provided back-up? What was difficult and what was helpful?

<u>Value</u>

7. How do product/process/technology innovations create value for the company?
8. Did the innovation increase productivity, if so how? (lowering production costs per unit, labour/capital input)?
9. Did the competitive position change as a result of the innovation, if so how? (via premium products, better, newer fashionable products and new export markets)?

C. INTERNAL CAPABILITIES (FIRM LEVEL CONDITIONS)

What are the internal strengths and weaknesses with regard to the innovativeness of the company?

Dynamic capabilities

Sensing and shaping opportunities for product/process/technology innovations

1. To what extent do you (and the employees) see the need/urgency to be innovative?
2. How do you or your employees identify new business/innovation opportunities?
3. Who is actively involved in identifying these opportunities?
4. How is raising productivity and competitiveness linked to identifying opportunities for innovation?
5. How do you target a new market segment? How do you consider the competitiveness of your company?
6. How is your company adjusting to customer needs?
7. How does the company select the ideas that it is willing to invest/innovate in?
8. Who is involved in this process?

Reconfiguration of the company

9. How do you adjust by being innovative to the surrounding business environment?
10. How do you share knowledge within your company?
11. How are employees informed about new developments?
12. How does your company train employees to adjust to new developments?

Goal setting

13. Do you have an implicit or explicit goal setting system to improve performance?
14. How do you pay employees for performance? (more salary, rewards)
15. How to you increase motivation? Is there intrinsic motivation (ambition, ownership) and external (money) motivation?

Slack time

16. Do you give employees time to develop or try out a new approach or develop new ideas about products or services, or business processes?
    If yes:
    - What exactly was expected from employees during this time? What kind of activities should employees undertake during this time?
    - Did all the employees get some time or was it restricted to a specific group; and if so, which group?
    - Why did this establishment give employees this time? What was the goal/idea behind it?

    If no:
    Have you ever considered giving employees some time to develop new ideas? If yes, what was the reason for implementing it? If not, why not?

D. FORMAL INSTITUTIONS

How does the owner perceive the opportunities and threats for product/process/technology innovations of the surrounding business, policy and regulatory context in Ethiopia?

1. Is the owner aware of governmental policies/programmes in Ethiopia that specifically aim to stimulate product/process/technology innovations in manufacturing SMEs? What is the owner's idea and perception of these governmental policies (programmes/projects)?

2. Does the company actively participate in, or benefit from, such governmental policies/programmes/regulations? (specify in what ways these stimulate the company's innovativeness)

3. What role do intellectual property rights and patent laws play in your innovation activities? Does the owner aim to patent innovations? If so, which patent office is used? Does the owner find intellectual property rights and patent laws helpful for innovation activities? Does the owner respect the intellectual property rights of others when innovating? If not, why not?

4. Are other generic governmental policies/programmes (not explicitly aimed at promoting innovation, stimulating education or providing access to finance) supporting the company's innovativeness in an effective way?

5. Do certain governmental policies or regulations prevent the owner from introducing and investing in innovation? What threats in terms of policy and government regulations emerged in the innovation process?

6. Does the company participate in, or benefit from, programmes or projects stimulating innovativeness run by NGOs and/or international development agencies? (kind of programmes/projects and impact)

7. How does the owner acquire knowledge and technology for product/process/technology innovations? When conducting innovative activities, does the company collaborate with formal bodies, such as universities, R&D centres, research institutes and so on? Why (not)? Which kind of organisation? Does the owner encounter any difficulties in collaborating with such organisations? If so, of what kind? Are these collaborations ultimately beneficial for innovativeness? If not, why not?

E. BUSINESS SYSTEM, SPILLOVERS, EXPORTS

To what extent (and how) are contacts and interactions with other businesses - local, national and international - important for stimulating product/process/technology innovations within the company? Examples?

Business systems interaction

1. Has the company ever introduced a new product/process/technology to suit the needs of a local client/buyer? If yes, did the client/buyer help in any way to make these changes?

2. Has the company ever followed the advice of a supplier in introducing a new product/process/technology?

3. Does the company have active business cooperation (subcontracts)? What is the nature of the cooperation and what is the benefit? Did that involve a new product/process/technology?

4. Does the company buy from or sell to any multinational firms located in Ethiopia? If yes, has the company ever benefitted in any way from cooperation with these firms to develop a product or improve production techniques?

5. Where does the company typically recruit employees? Has the company ever recruited employees from a client, supplier or competitor? Were these employees particularly helpful in improving products or production techniques? Has the company recruited employees with the explicit aim of improving products or production techniques? Where did they work before?

Location

6. How long has the company been located at the present address? Did the company move to this address or was it created at this address? What were the main reasons why the company was moved to/founded at the present address?

7. How does the presence in the location/region affect the company's performance, innovation, growth? What is the owners' perception of the dynamics of the present location/region with regard to the businesses around (micro, SMEs, large, multinational)? What is the size of the region to which the owner refers?

8. Are the other businesses in the region similar or different in terms of size, production, sector and type? To what extent do firms produce comparable goods in the region?

9. Alternatively, to what extent are these other business hindering and competing? Does the owner see them mostly as competitors? Does that imply a need for innovation?

10. Does the company buy inputs (what, quantity) from firms located in the region? What is the quality of local inputs? Did the owners ever ask a local supplier to change a product to suit certain needs? If yes, did the company help the supplier make these changes in any way?

Export

11. Has the company ever exported some of its products to foreign countries? If yes, when was the first export? Has the company exported some of its output abroad in the last year? To which countries?

12. What was the main driver of the company's decision to export? Did the company actively look for foreign clients? Did foreign clients or a wholesaler contact the company (if yes how: website, fair, etc.)? How did the company hear about export opportunities or has the company ever been recommended to foreign clients? If the company was contacted or recommended, why was this the case?

13. Has the company ever improved an existing product or created a new product with the explicit aim of exporting it? If yes, was it at the direct request of foreign clients or to find new foreign clients? Did the company make improvements to comply with standards and regulations?

F. INFORMAL INSTITUTIONS

1. Family and friends (overseas)
2. Cultural perception of innovation. Is innovation something good? Or should we strive for stability and harmony in society?
3. Informal think tanks, informal knowledge through contacts with university experts
4. Rent seeking individuals, corruption
5. Hindering culture, traditions or customs
6. Social learning, collective learning
7. Community solidarity, craft traditions

Annex 2: List of companies interviewed

Manufacturing SMEs interviewed in Addis Ababa in chronological order (17 to 28 June 2017)

Subsector	Products	# of employees
1. Metal	Medical furniture, hospital beds,	35
2. Textile and garment	Clothes	40
3. Textile and garment	Working clothes, uniforms	50
4. Leather products	Shoes	20
5. Engine repair	Car maintenance	110
6. Wood	Beehives	15
7. Metal	Medals and jewelry	10
8. Agro-processing	Starch and adhesive	200
9. Plastic and PVC	Pvc pipes, and composites	120
10. Leather	Handicrafts	28
11. Textiles	T-shirts	30
12. Metal engineering	Molds for road construction	5 + 30
13. Equipment	Agricultural processing machines	5
14. Metal	Metal spare parts	5
15. Food processing	Local food, snack and cookies	70

Annex 3: DFID research questions

The DFID research project takes an 'economics' perspective on innovation, and involves econometric analysis of a set of variables concerning barriers at firm, regional and national levels and their causalities with the *innovative behaviour/capability of entrepreneurs* and subsequently innovation and productivity. This constitutes a reductionist and deductive approach in defining variables for analysis in which the impact of individual factors on innovation is assessed by applying quantitative econometric methods (ceteris paribus). The DFID project key research questions are grouped under two themes:

Theme 1 'Innovation Systems':

- What firm-level and regional-level factors hinder or foster the engagement of firms in innovative activities?
- What is the impact of in-house innovation activities versus collaborative innovative activities or technology acquisition activities on the innovative performance of firms in developing countries?
- What is the role of economic spillovers within clusters of firms in fostering economic growth and innovation?
- What are the most critical barriers to the process of innovation and the diffusion of technology in low income country settings?
- What types of links between the public/private sectors, universities, governments, NGOs and the private sector are more conducive to innovation activity?
- What is the role of intermediaries to bring producers and users of innovation/knowledge together?

Theme 2 'Finance for Productivity Growth':

- How does the design of formal and informal financial institutions affect firm productivity dispersion across SMEs?
- What are the firm level margins that make finance matter for productivity?
- What role do observable managerial decisions (e.g. managerial practices, innovation, product market competition, product quality, technology adoption, location of the plant and the trade status) and managerial characteristics (e.g. gender, age, education, behavioural aspects) play in explaining the nexus between financial development and firm productivity?
- How does firms' productivity respond to exogenous developments in the financial environment?
- What are the macroeconomic implications of such development experiences?