

**Local Firms in the Ethiopian Apparel Export Sector**  
Building Technological Capabilities to Enter Global Value Chains  
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*Publication date:*  
2018

*Document Version*  
Publisher's PDF, also known as Version of record

*Citation for published version (APA):*  
Staritz, C., & Whitfield, L. (2018). *Local Firms in the Ethiopian Apparel Export Sector: Building Technological Capabilities to Enter Global Value Chains*. Roskilde Universitet.  
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CAE Working Paper 2018: 2

Local Firms in the  
Ethiopian Apparel  
Export Sector:  
Building  
Technological  
Capabilities to Enter  
Global Value Chains

Cornelia Staritz  
and Lindsay Whitfield



## **CAE Working Paper 2018: 2**

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CAE working papers ISSN: 2446-337X

ISBN: 978-87-7349-955-9

CAE working papers can be downloaded free of charge from [www.ruc.dk/en/centre-african-economies](http://www.ruc.dk/en/centre-african-economies)

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## **ABSTRACT**

Economic development is composed of many multifaceted processes, but growth in the technological capabilities of locally-owned firms is essential. Hence, it is crucial to understand how and why local firms invest in building technological capabilities. As a starting point, we need to know which technological capabilities local firms have and how they can be conceptualized, operationalized, and measured in the context of globalized industries. The objective of this working paper is to do this for the apparel export industry in Ethiopia, which has experienced impressive growth since 2010 and will continue to grow, positioning Ethiopia as an important new apparel supplier country. The paper uses original data generated from a firm-level survey designed to measure technological capabilities in apparel exports, combined with in-depth interviews with a sub-set of local firms and institutional actors. Using this data, the local apparel-exporting firms were assessed on strategically selected indicators across different categories of capabilities and then given an aggregate technological capabilities score. The analysis shows that local exporting firms generally have low technological capabilities and struggle to meet export requirements along all capability categories. However, there is important variation among the local firms, particularly related to firm owners' pro-active efforts to learn from other firms and experts and between vertically integrated, FOB, and CMT firms. This working paper is a revised version of CAE Working Paper 2017:4. It draws on fieldwork carried out after the initial local firm survey and thus presents a more accurate assessment of local firms' capabilities.

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## **ACKNOWLEDGEMENTS**

The authors would like to thank representatives of apparel and textile firms, who took time to meet and conduct the survey, as well as representatives of industry associations, Ministries and other public institutions in Ethiopia. Without their time and valuable insights, this work would not have been possible.

## **African-owned firms building capabilities in global value chains (AFRICAP)**

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This research is funded by the Danish Council for Independent Research in the Social Sciences and runs from 2016 through 2018.

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Melese, Ayelech Tiruwha, “Ethiopian-owned Firms in the Floriculture Global Value Chain: With What Capabilities?” CAE Working Paper 2017: 2.

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Melese, Ayelech Tiruwha, “Sales Channels, Governance, and Upgrading in Floriculture Global Value Chains: Implications for Ethiopian-owned Floriculture Firms,” CAE Working Paper 2018: 1.

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# **Local Firms in the Ethiopian Apparel Export Sector: Building Technological Capabilities to Enter Global Value Chains**

## **Introduction**

Economic development is composed of many multifaceted processes, but at its core it involves a ‘process of moving from a set of assets based on primary products, exploited by unskilled labor, to a set of assets based on knowledge, exploited by skilled labor’ (Amsden 2001: 3). Building knowledge-based assets involves the process of developing the technical, organizational, and managerial skills necessary to achieve international levels of efficiency and quality, which have also been referred to as technological capabilities (Dahlman et al. 1987). Local firms are the key mechanism through which local capability building and economic development evolves (Amsden 2001, 2009).<sup>1</sup> Foreign firms can leave when conditions internal and external to the host country change, searching for the next low cost location. Conversely, local firm owners are compelled to upgrade or shift into new economic activities and sectors. Hence, it is crucial to understand how and why local firms invest in building technological capabilities and what are the factors internal and external to the firm that affect such investments and their outcomes. As a starting point, we need to know which technological capabilities local firms have, which this paper analyzes for the apparel export sector in Ethiopia.

The apparel sector is selected due to its crucial importance in the economic development process of many countries. Given its low fixed costs, relatively simple technology, and labor-intensive nature, it is regarded as a first step for low-income countries embarking on an export-oriented industrialization process. However, developing an apparel export sector in late-late industrializing countries is not easy given the increasing number of requirements from global buyers and the tough competition (as many low-income countries are trying to enter and upgrade within the sector) that drives down unit prices (see Abernathy et al. 1999; Gereffi 1999; Gibbon and Ponte 2005; Kaplinsky 2005; Palpacuer et al. 2005; Staritz 2011).

It is not just cheap labor that allows low-income countries to become new sites of production in global value chains. Competitiveness depends on production costs, most importantly wages in labor-intensive export sectors such as apparel, but also on the productivity of labor that is determined by capabilities. The focus on cost-based competition as the driving force of dispersion of global production has downplayed the flip side of the coin: the capabilities of firms (see also Khan 2009; Coe and Young 2015). Local firms, particularly in Sub-Saharan Africa, which typically have limited experience in new manufacturing export sectors, have to

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<sup>1</sup> We define ‘local firms’ broadly. They not only include firms where the owner(s) is an official citizen of the country, but also firms where the owner(s) has lived in the country for a significant period of time and considers it home, because these diaspora-owned firms are embedded within the country in ways similar to indigenous-owned local firms.

acquire significant new capabilities, master them, and adapt them to local conditions just to enter the low cost-low capabilities segment of global value chains.

The Ethiopian apparel export industry has experienced impressive growth rates since 2010 and will continue to grow, positioning Ethiopia as an important new apparel supplier country in Sub-Saharan Africa and globally. The sector emerged because of a combination of factors, including comparatively low labor, electricity and water costs, and duty free access to the European Union (EU) and the United States (US) market. Yet, the factors that set Ethiopia apart from most Sub-Saharan African countries are active industrial policies targeting the sector and the existence of diverse ownership structures, including locally-owned exporting firms that pioneered exporting despite the important role of foreign direct investment in driving export growth since the mid-2010s (Staritz et al. 2016). Entering and remaining in the apparel global value chain is however challenging for Ethiopian-owned firms. In addition to having low production costs, firms have to be able to consistently deliver products of a certain quality, to meet delivery deadlines and to comply with social and environmental standards, as well as to increasingly fulfill a number of non-manufacturing activities such as input sourcing, product development, stock holding, and logistics. Meeting these stringent requirements of global buyers requires that local firms develop new technological capabilities.

This paper analyzes the nature and level of technological capabilities among Ethiopian-owned firms and their positions within apparel global value chains. In a previous working paper, we identified what technological capabilities firms are required to have in the apparel global value chain at varying levels of functions and complexity (Staritz and Whitfield 2017). The conceptualization and operationalization of technological capabilities within apparel global value chains is further developed in this paper in order to measure and analyze local firms' capabilities, taking into account different firm trajectories.

The first section provides an overview of the emergence of the apparel export sector in Ethiopia in general and the local apparel exporting firms in particular. Historically the country had a basic national supply chain from cotton to textile to apparel, but foreign firms and then state-owned firms dominated the sector. The current government privatized the state-owned firms to local and foreign investors, and encouraged new local investment in the apparel export sector using an array of incentives. While there was some experience with textile production in the country, this was not the case for apparel production for export. Local firms started from scratch in building technological capabilities, and most had false expectations at the beginning about how difficult this process would be. The second section of the paper explains how we collected data on the technological capabilities of local firms and how this data was analyzed in order to calculate aggregate technological capability scores for each firm. The third section presents the results and discusses what these scores tell us about the challenges that local firms face in building technological capabilities. Firm names have been anonymized; thus, throughout the paper, and in Tables 1 and 2, we refer to A-Firm, B-Firm, and so on.

The analysis shows that local exporting firms generally have low technological capabilities along all capability categories. There are, however, important differences related to firm



owners' pro-active efforts to learn from other firms and experts and whether they have access to resources to finance these efforts. There is also significant variation related to functional capabilities and hence between vertically integrated, FOB, and CMT firms.<sup>2</sup> The later groups of firms face distinct challenges and opportunities related to firm internal and external conditions. FOB is challenging given limited sourcing capabilities and the state of transport and logistics infrastructure in Ethiopia. A few CMT firms have quite stable positions related to specific buyer relationships, but in the medium term, production on a CMT basis will not be sustainable given buyers' demands and increasing production costs in Ethiopia.

The learning process was mostly the result of trial and error, making it a slow and costly process. Using profits from other businesses and the protected domestic market played an important role in subsidizing the cost of learning but the latter has also hindered investments in learning. Industrial policy played an important role in developing local apparel export firms but faces limitations in supporting learning given that public policy institutions have to go through a learning process by themselves. Foreign apparel exporting firms only entered the country in critical numbers starting in the mid-2010s, after the government invested in sector-specific industrial parks, which has the potential to create more opportunities for learning through direct and indirect spillovers. However, using this potential requires strategic industrial policy support.

### **Ethiopia's apparel export sector and local firms**

Ethiopia had a foundation of industrial apparel, and particularly in textile production, dating back to the Imperial era after the Second World War when the government of Haile Selassie encouraged foreign direct investment in industries with the explicit goal of import substitution. However, the government's policy largely ignored local investment, and thus most of the manufacturing firms were owned and operated by foreigners. The socialist Derg military government nationalized almost all private industries when it came to power in 1974. It restricted private investments and established more state-owned enterprises in textile and apparel with the objective of creating employment and as part of a continued import substitution strategy. By the time the Tigray People's Liberation Front won the war against the Derg regime in 1991, the public textile and apparel sector consisted of 14 firms engaged in spinning, weaving and knitting, dyeing, cutting, and sewing operations. The Ethiopian People's Revolutionary Democratic Front (EPRDF) coalition that formed the new government switched to more market-led economic policies, but unlike other African governments at the time, it did not pursue rapid liberalization and privatization but rather a gradual reform process. During the 2000s, the state-owned textile and apparel firms were privatized to local and foreign investors, with a focus on investors that were interested in rehabilitating them and eventually exporting a

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<sup>2</sup> CMT refers to Cut-Make-Trim and FOB refers to free on board/full package. For a discussion of these terms in relation to the different functions within the apparel global value chain, see our previous working paper (Whitfield and Staritz 2017).

percentage of the production.<sup>3</sup> With the few state-owned textile firms that could not be sold, the government invested in their partial rehabilitation and encouraged them to export made-up textiles. As a result of the government's policies, Ethiopia's nascent industrial textile and apparel sector was modernized rather than eradicated by cheap imports and secondhand clothing.

The export push within the privatization efforts was part of the government's export promotion strategy adopted in the late 1990s, which was strengthened in its first Industrial Development Strategy in 2002-03. As part of this strategy, the government provided preferential credit and access to land schemes to incentivize local investment in textile and apparel exports as well as several other priority sectors. Under the preferential credit scheme, the state-owned Development Bank of Ethiopia (DBE) provided a loan covering 70 percent of the investment as stipulated in the investment proposal, and local investors were allowed to contribute the remaining 30 percent equity in cash or kind. The loan was provided at a 7.5 percent interest rate for eight years with a two-year grace period. Local investors used the investment loan to buy equipment and materials for production, but it came with only a small working capital fund. The firms also received exemption from company tax for several years. Under the access to land scheme, the government provided land at favorable lease rates or access to existing sheds in areas that were, at that time, the outer areas of Addis Ababa.

As a result of the government's focus on textile and apparel exports and these investment incentives, around 15 local investors invested in apparel export firms between 2004 and 2006. The investors came from various occupations, but none of them had previous experience in textile and apparel production, and many of them had no previous experience in manufacturing or managing firms in any kind of production. The first private greenfield investment (J-Firm) was undertaken in the late 1990s in Adwa (Tigray region) by the Endowment Fund for the Rehabilitation of Tigray (EFFORT), which is run by top political leaders of the ruling TPLF party.<sup>4</sup> J-Firm was initially a large textile firm, from spinning to weaving and knitting using local cotton, with only a small apparel section, but a very large apparel factory was constructed in 2008. Around the same time, in 2000, a diaspora investor, who returned to Ethiopia from the US, set up an apparel export firm (G-Firm) as a result of direct linkages with a particular US buyer and in response to the anticipation of the passage of the African Growth and Opportunity Act (AGOA).<sup>5</sup> The owner of the G-Firm convinced a relative, who also returned to Ethiopia from living in the US, to establish a firm (K-Firm), and - together with the political leadership of the Ministry of Industry and the Ministry of Finance - for several locals to take up the investment incentives and establish firms in apparel exports.

However, Ethiopia's apparel exports really only took off after several waves of foreign direct investment (Staritz et al. 2016), as shown in Figure 1. The first wave came from Turkish investors around 2008-09, as a result of close diplomatic relations between the two

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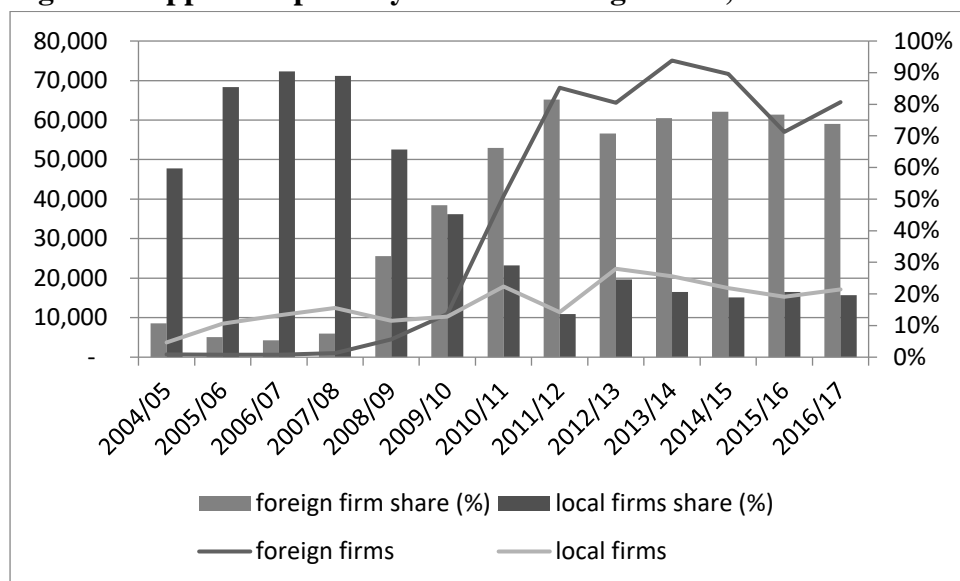
<sup>3</sup> The vertically integrated state-owned firms required massive financial investments in new machinery, as they had outdated machinery and thus very low productivity.

<sup>4</sup> For more discussion of EFFORT, see Vaughan and Gebremichael (2011).

<sup>5</sup> This US buyer had actually been instrumental in getting the AGOA trade preferences enacted.

governments and of Turkish firms’ search for new low-cost locations as an alternative to North Africa in the context of the Arab spring. This investment was largely in textile mills producing yarn and fabric with the exception of one integrated textile and apparel firm, which accounted for 43 percent of total apparel exports in mid-2016. With this important exception, most other foreign firms that came to Ethiopia before the mid-2010s produced also or only for the domestic market. This changed with the government’s new approach to attracting foreign direct investment set out in a government white paper in 2015, where it aimed to attract global buyers and particularly Asian transnational producers that had a strong presence in apparel global value chains. It piloted this approach with the apparel-specific Bole Lemi industrial park, located on the outskirts of Addis Ababa, which began operations in 2016, and solidified it with investments in several more apparel-specific industrial parks with Hawassa industrial park being the flagship opening in 2017. The government’s success was related to this strategy and the attractiveness of the parks but also to timing: transnational apparel supplier firms and their global buyers were seeking new low cost countries as an alternative to Asian supplier countries, where wages were rising or where social and safety compliance issues had become a concern for buyers.

**Figure 1: Apparel exports by local and foreign firms, 2004/05-2016/17 (USD ‘000)**



**Source:** TIDI, January 2018.

At the same time that foreign direct investment increased, exports of local firms largely stagnated. This is because many of the initial local investors struggled to remain in apparel global value chains, only a few of them grew and there were only a few new entrants. Of the original 15 local investors, only seven were still exporting in 2016 (C-Firm, F-Firm, G-Firm, I-Firm, K-Firm, K-Firm, N-Firm). Some of the initial local investors collapsed and sold their factory, while others shifted to producing entirely for the domestic market. The domestic

market in Ethiopia is lucrative, as it is protected and secondhand clothing is banned.<sup>6</sup> For instance, there were approximately 50 Ethiopian-owned textile and apparel firms in operation in 2017, most of which produced entirely for the domestic market. Local firms supplied the domestic market in three ways: producing workwear for the government or corporations through tenders using locally produced woven fabric; designing and producing simple fashion and children's clothing for retailers in Mercato, the large retail area in Addis Ababa, using local and imported fabric; or performing sewing services for domestic clients who brought their own fabric and designs.

As a result of these challenges, the government created the Ethiopian Textile Industry Development Institute (TIDI) in 2010, a specialized agency that would be in charge of supporting local apparel and textile firms, although it only became operational a few years later. TIDI offered free benchmarking studies; salary contribution when hiring foreign experts; free training for sewing machine operators, supervisors, and managers; and support in export marketing through sharing the cost of participating in trade shows abroad and sending prospective buyers to local firms. The government also put considerable effort into expanding universities to build local knowledge and to create vocational schools that specialize in apparel. These programs and particularly support in accessing foreign experts were useful but they also had limitations given that staff of TIDI and of other government institutions supporting the sector had very limited understanding of the global apparel sector.

Hence, only 14 local firms were exporting any portion of their apparel and textile production, and only two of them exported 100 percent of their production. Furthermore, only 12 firms exported apparel, as two firms exported made-up textiles (e.g. bed sheets, towels) in addition to yarn and grey fabric.<sup>7</sup> These two firms (A-Firm and B-Firm) are former state-owned textile firms that were partially rehabilitated with new machinery, and sold in 2017 to the Amhara National Regional Rehabilitation and Development Fund (*Tiret*), which is linked to the Amhara National Democratic Movement, which is part of the EPRDF ruling coalition. C-Firm is also unique in that it is affiliated with the MIDROC diversified business group owned by Sheikh Mohammed Al Amoudi, who was born in Ethiopia of mixed Saudi and Ethiopian parentage. During the privatization process beginning in the 1990s, Al Amoudi bought many state-owned companies, but he also set up numerous new companies, including an integrated textile and apparel firm. A few local investors entered apparel exports after the example of the pioneers from the mid-2000s. These include D-Firm, whose owner is part of a diversified family business group and did not take investment financing from the state-owned bank, and E-Firm, which is the only former state-owned textile firm bought by a local private investor that is exporting apparel products.<sup>8</sup> These two firms started out by sub-contracting for other local

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<sup>6</sup> The EPRDF government gradually reduced the tariff rate from 230 percent in 1993 to 35 percent by 2003 through six rounds of tariff reforms. In addition to the 35% tariff on imported textile and apparel, there is a 10 percent surcharge and a 10 percent excise tax.

<sup>7</sup> There is one further local spinning mill that exports some of its yarn production; there seem to be no other local firms exporting yarn or fabric.

<sup>8</sup> Many of the state-owned textile firms that were bought by local private investors went bankrupt because the owners did not want to take investment loans from the Development Bank of Ethiopia to invest in new machinery (due to the risk) and tried to operate the firms as they were—which was not profitable. Others took

firms or for the large Turkish exporting firm, the only foreign apparel exporting firm at that time. As all the local firms struggled to make any profits in exporting, and the profit margin on the domestic market can be up to 20-30 percent, local export investment stopped. The only new entrants to apparel exporting in the 2010s were firms already producing for the domestic market, such as H-Firm and M-Firm.

What is noticeable for the 12 local apparel export firms is that they are selling to the same small group of buyers, which circulated among local firms to find suppliers that could deliver and to reach required scales. US buyers are concentrated among three sportswear and workwear buyers that source products from 7 of the local firms, and are the sole buyers for 6 of them. These buyers source synthetic and polyester rich products from Ethiopia that are quite standard and have longer lead times, as they are not part of increasingly shrinking fashion cycles. They work with local firms that produce on a CMT basis, which means that they are only responsible for assembling the product (sewing). Only two other buyers selling to the US were sourcing from local firms, both of which were intermediaries. With the emergence of large-scale foreign direct investment in the industrial parks, other large US buyers have started sourcing from foreign firms in Ethiopia, but these buyers require large quantities and specifications they cannot (yet) get from Ethiopian-owned firms.

European buyers are more diverse and included at least eight different buyers sourcing largely basic and some intermediate knit products from Ethiopian-owned firms with a focus on T-shirts and polo shirts. Most of these buyers demand that their suppliers produce on a FOB basis, which means being responsibly for sourcing all the inputs and assembly. Given the non-availability of suitable local textile inputs and thus the need to import textiles and accessories, FOB production is very challenging for local firms. They face problems with accessing working capital in foreign currency<sup>9</sup>, as well as long, unpredictable lead times for importing and exporting. Only recently have these financing and infrastructural challenges been addressed, but shortages of foreign currency remained an issue. The integrated local firms worked to improve their textile production in order to use their own fabric, particularly for T-shirts, in order to deal with the import challenges and to improve value added and lead times. Some of the apparel-only firms would like to invest in textile production as well, but the capital investment is high.

Besides very tight price policies of all global buyers, the price issue seems to be a larger problem for European buyers that compare Ethiopia to other least developed countries from which they can source duty-free, such as Bangladesh. For US buyers, Ethiopian prices are more advantageous in this regard, as Asian supplier countries have to pay tariffs that are especially high for synthetic and polyester-rich apparel products (up to 32 percent).

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the loan, but did not invest in expertise in how to run the firms, and also went bankrupt. The former state-owned textile firms that are doing the best are the ones that brought in foreign expertise, often through joint ventures.

<sup>9</sup> Foreign exchange access is restricted in Ethiopia. Payments abroad and transactions in foreign exchange are strictly controlled by the National Bank of Ethiopia. Foreign exchange is allocated to importers based on priority projects. Exporters can retain 10 percent of their foreign exchange proceeds, but must sell the rest to commercial banks. Foreign investors can repatriate all of their profits abroad.

**Table 1 Overview of Local Apparel Firms Exporting**

Firm	Year started exporting	Apparel/integrated	% of production for export	Main products	End-markets	Function in GVC	Number of employees	Export value 2016/17 (USD)	Share of total local firm exports*
<b>A-FIRM</b>	2009-10	Integrated made up	70%	Yarn, grey fabric, made up textiles	EU	FOB-textile (madeup)	1300	4,759,000	26%
<b>B-FIRM</b>	2015	Integrated made up	5%	Yarn, grey fabric, made up textiles	EU	FOB-textile (madeup)	1300	1,957,000	11%
<b>C-FIRM</b>	2008	Integrated garment	80%	Knit cotton T-shirts, leggings, polo shirts; Woven: trousers	US & EU	FOB-textile, CMT on woven	1500	4,961,000	27%
<b>D-FIRM</b>	2008 subcontract, 2013 direct export	Garment	80-90%	T-shirts, uniform polo shirts	US & EU	CMT (US), FOB (EU)	1000	1,191,000	6%
<b>E-FIRM</b>	2011 subcontract, 2013 direct export	Integrated garment	20%	T-shirts	EU	FOB, FOB-textile, CMT	800	486,000	3%
<b>F-FIRM</b>	2006	Garment	80%	Sportswear	US	CMT	579	727,000	4%
<b>G-FIRM</b>	2000	Garment	100%	Sportswear	US	CMT	550	605,000	3%
<b>H-FIRM</b>	2014	Garment	20-30%	Sportswear, T-shirts, jackets, blouses	US	FOB	1400	1,539,000	8%
<b>I-FIRM**</b>	2008 subcontract, 2014 direct export	Garment	100%	T-shirts, leggings, dresses	US & EU	FOB	300	992,000	5%
<b>J-FIRM</b>	2000	Integrated garment	7-8%	Bed sheets; Polo shirts & T-shirts	EU	FOB-textile	6000	802,000	4%
<b>K-FIRM</b>	2003 subcontract, 2010 direct export	Garment	70%	Chefwear	US	CMT	160	68,000	<1%
<b>L-FIRM</b>	2007	Garment	60%	Uniform polo shirts	US	CMT	180	249,000	1%
<b>M-FIRM</b>	2016	Garment	10%	Healthcare uniforms	US	CMT	200	96,000	1%
<b>N-FIRM</b>	2007 subcontract, 2015 direct export	Garment	40-50%	Sportswear	US	CMT	240	71,000	<1%

**Source:** Compiled by authors from firm survey data; except export value data and share of exports comes from the Ethiopian Textile Industry Development Institute, January 2018. **Notes:**

\*This includes total textile and apparel exports from local firms. \*\*This firm stopped exporting in late 2017, and shifted to production for the domestic market.

## Measuring the technological capabilities of local firms in apparel exports

We developed a technological capabilities matrix specified for the apparel global value chain, which we then used as the basis for designing a survey questionnaire to capture information on the categories of capabilities of the apparel sector technological capabilities matrix.<sup>10</sup> We administered the questionnaire to all 14 local export firms through face-to-face interviews in June 2016. However, the data collected through the survey was not sufficient to make an accurate assessment of local firms' capabilities. Therefore, we supplemented the survey data with information collected through follow-up interviews with 8 of the firms as well as institutional interviews with government officials, industry consultants, and representatives of associations and buyers knowledgeable of the firms and their performance.

We scored the local firms on the function they perform within the apparel global value chain as well as on indicators of four categories of capabilities: product, production process, end-market, and linkages. The technological capabilities required in the apparel global value chain vary depending on the specific function that local firms are providing, and thus we gave firms a separate score on function in order to capture this in the aggregate score. Of the many indicators we included in the matrix and the questionnaire, we selected only a few indicators for the technological capability scoring exercise, in order to make it comparable among the firms. The selection of indicators was based on two factors: relevance of indicators to capture specific capabilities and availability of consistent data on indicators from the firm survey and supplemental data. The selected indicators for product, production process, end-market, and linkages categories include both quantitative and qualitative data. Furthermore, we tried to balance indicators that measure quantity with indicators that measure quality within each category of capabilities.

Table 2 presents the technological capabilities scores of the 14 local exporting firms. It shows the score on each indicator, the sum score for each category of capabilities, and an aggregate score for overall technological capabilities. Before we get to Table 2, we explain the scoring method on each indicator.

The first column in Table 2 indicates the score based on function within the apparel global value chain. In Ethiopia, firms produced on a CMT or FOB basis, with some firms producing FOB with their own textile (FOB-textile). The scoring scale includes CMT-subcontracting (where a local firm does assembly but does not export directly), because this can be a first step in entering apparel exporting. CMT-subcontracting scores 1, CMT scores 2, and FOB scores 3. For FOB-textile, we differentiated between firms that used their own textile for apparel products and firms that used it for made-up textiles, with the former receiving a score of 4 and the latter a score of 3. FOB-textile for made-up products scores a 3 because it requires only a very limited additional production step compared to even simple apparel products. Some local firms carry out more than one function, as indicated in Table 1. We scored a firm based on the

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<sup>10</sup> The matrix is presented and discussed in Staritz and Whitfield (2017). The survey questionnaire is available in the appendix of the first working paper analyzing the survey results (Whitfield and Staritz 2017).

dominant function. If a firm carries out two or more functions of equal importance, the scores were averaged. In the overall score on function, we assessed scores of 1 or 2 as low; a score of 3 is medium; and a score of 4 is high. For scores less than a whole integer, we round up, as even being partly involved in production on a FOB basis, for example, means that firms have invested in and fulfill the related capabilities to do so.<sup>11</sup>

The second category of capabilities is product, which captures the complexity of products that a firm produces and the variety of products. The main products of local firms were assessed as basic, intermediate, or complex. None of the local firms surveyed produced complex products. To capture complexity we used a combination of types of products and unit values. The type of product alone cannot be directly related to complexity as there can be, for example, polo shirts that are simple and polo shirts that are intermediate. We took what firms reported in the survey as the complexity of their main product or products, and then checked it against what they reported as their main product(s) and the average unit price of the main product(s). If firms exported more than one main product, we did the scoring for each of them and then calculated the average score.

The number of different products that a firm exports indicates a firm's ability in dealing with more types of products, which requires specific knowledge about each product and skills to manage different product requirements. This is also linked to buyers' preference for firms that can produce a variety of products and hence may ensure stability in buyer relationships. This is not that relevant in countries where many firms are readily available to supply different types of products, but in Ethiopia where there are few firms, it is important. If a buyer has established satisfactory relationships with a supplier firm, it often aims for sourcing more products from the same firm. Product variety also reduces risk, as the supplier firm does not put all its effort into one product and finding buyers for only this product. There is no global industry standard on variety of products, so we ranked the variety of products according to the survey replies of local firms in Ethiopia, where five export products were the highest number given by any firm. Very similar products were counted as one product. The step from one to two products is particularly important as this requires already managing different requirements, so we assessed firms with only one export product as low and gave them a score of 1, firms exporting two to three products scored 2, and firms with four or five export products scored 3.

In the third category, production capabilities include labor productivity (costs), not on time delivery (reliability), and internal reject rate (quality).<sup>12</sup> We do not directly cover working capital or inventories, lead or throughput time, labor turnover and absenteeism rates, and training expenditure. Most of the local firms in the survey did not know what their working capital and inventory levels were, which already says something about their capabilities related

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<sup>11</sup> This is in contrast to the other capability categories where we round down, because firms' actual product, production, end-market, and linkage capabilities are on a range of infinite possibilities from low to high, and a score of 2.5 means that a firm has capabilities higher than a 2 but not yet reaching a 3.

<sup>12</sup> We did not include an indicator on certificates, as simply having certificates seems to be more related to the financial strengths of the owner of the firm than to its actual capabilities. If certificates have an impact, it should show up in the other three indicators on production.



to cost control, and gave rather ad hoc estimates. Furthermore, these indicators are not comparable across CMT and FOB firms, as for the former only work in progress inventory is important. Lead time captures the speed at which a firm accepts a customer order and converts this to a delivered product. This includes lead times outside the production process (e.g. design and product development, inputs production and/or transport, final product transport) and the manufacturing throughput time. The responses on lead time outside of production were very consistent among the local firms surveyed, while throughput time was often not known. It is difficult to compare throughput time as this depends on many factors, most importantly type of product and productivity. Therefore, throughput time is partly captured in the labor productivity and not by time delivery indicators. Furthermore, the issue of lead time is quite different for FOB firms, which struggle with issues related to external conditions that increase lead times, compared to CMT firms that are not responsible for lead time outside of production.

Labor turnover and absenteeism rates as well as training expenditures are not directly included in the scoring because responses were very similar among most local firms. Reported rates of labor turnover were generally high, indicating that it is an industry-wide problem. There is also an important correlation between labor turnover and labor productivity, as managing labor turnover is an important prerequisite to increasing productivity. Regarding training, local firms could not report their expenditure on training in the same way, if at all, which made it difficult to get reliable and comparable data. Local firms did provide training, but it was often on-the-job training focused on initial learning of basic operator skills, or firms sent their workers to TIDI for generally free of charge training. Local firms also used foreign experts with experience in the apparel global value chain, who came from Bangladesh, Sri Lanka, or Pakistan, to train their workers as well as middle management staff. These expatriates were initially funded through a scheme at TIDI with support from donor agencies, and continue to be funded by such schemes but also increasingly by the local firms themselves.

Labor productivity is measured in terms of how long it takes a firm to make its main product(s) in relation to the international standard, which varies according to the work content, number of operations, length of seams, fabric types, stitching accuracy needed, sewing technology to be used, and so on. Firms were scored using the international standard of benchmarking with China, where we defined low as below 60% of the international standard, medium as 60 to 75%, and high as above 75%. A problem with scoring productivity is that it varies considerably within firms as the result of low volumes, changing products and styles frequently, and changing buyers. Hence, we asked firms to provide an average. We do not provide a labor productivity score for the two firms producing only made-up textiles, which involves a minimal amount of stitching, because it is not possible to compare with apparel production.

On-time delivery captures the percentage of products delivered on-time and in full to customers with no defects and with the right documentation. On-time delivery is a big issue for all local firms as the result of conditions in Ethiopia that are exogenous to the firms, such as access to inputs within the country, access to foreign exchange, distance to port, and options for transportation. Meeting the delivery deadlines set by buyers is a particularly large challenge for FOB firms that are in charge of and responsible for input sourcing, in contrast to CMT firms

where buyers are responsible. FOB firms rely on access to foreign exchange with which to purchase inputs, reliable delivery of inputs, and the quality of inputs supplied, in order to supply the finished products to buyers on time. If local firms were late on delivery, or later than a maximum amount of days past the delivery deadline that the buyer allows, then buyers generally reject the order and local firms lose the payment, and even lose the buyer. Not on time delivery was scored as a percentage of all deliveries. Taking into account the global industry standards as well as the overall experience of the Ethiopian apparel industry, ‘often’ was defined as 5 percent of deliveries or more and scored 1, ‘sometimes’ as between 2-4 percent and scored 2, and ‘hardly ever’ as 1 percent or less and scored as 3.

There is a difference between customer return rates and internal reject, rework, and scrap rates. Customer returns reveal quality satisfaction of buyers but offer an insufficient indication of internal quality performance. Firms may have poor internal production systems, but provide quality products by following stringent checks at the end of the process, which is costly. Hence, firms also need to reduce their internal reject rates in order to provide sustainable and efficient quality performance. The internal reject rate was measured as the share of internally rejected products. These products can then be reworked, if possible, or scrapped. For scoring, we considered the global industry standards as well as the overall experience of the Ethiopian apparel industry. A 5 percent and above reject rate was scored as 1, between 2-4 percent reject rate as 2, and 1 percent and below reject rate as 3.

The fourth category of end-market capabilities refers to firms’ ability to manage relationships with buyers, which involves, among other things, marketing, communication, account management, negotiations, and audits focusing on the number of buyers and the stability of the relationships. It is assumed that the higher the number of direct buyers that the firm has, the higher the capability of the firm. Having more buyers reduces risk, allows a better bargaining position, and shows that the firm is able to manage multiple buyer relationships. We scored a firm 1 if it depended on one to two buyers, scored 2 if it depended on three or four buyers, and scored 3 if it had five or more buyers. If a firm had several buyers but depended largely on one or two buyers for most of its exports, then we gave the firm a score of 1. Through number of buyers, we also took into account how many end-markets firms are supplying. Firms were asked to rate their relations with their main direct buyers as stable, somewhat stable or ad-hoc. If they rated their relations as ‘stable’ or ‘somewhat stable’, we crosschecked this rating with what firms reported as their history with buyers. We also took into account how many buyers firms had lost. Hence, a subjective assessment was applied in assessing firms’ buyer relations as unstable/ad hoc (scoring 1), somewhat stable (scoring 2), or stable (scoring 3).

The final category of technological capabilities is linkages. This category refers to a firm’s ability to leverage linkages with actors and organizations outside the firm in order to access knowledge and resources with which to improve the performance of the firm. Other firms, especially foreign firms, and foreign experts are an importance source of tacit knowledge for local firms, especially in export industries. This is especially the case in industries that are new to the country, and thus public institutions and other local firms may not be a significant source of knowledge as they are also learning. Nonetheless, strong linkages between local firms are

also important for sharing the knowledge that they have acquired from foreign sources and how they have adapted it to local conditions, which can be facilitated by a strong industry association. Public institutions are important, as they often provide access to finance at below market rate, subsidize the costs of learning, and are important in generating skilled labor. The scoring on each of these indicators was based on several qualitative and quantitative questions, on the basis of which a subjective assessment was made of low linkages (scored 1), medium (scored 2) or high (scored 3).

For the links with other firms and experts indicator, we assessed a firm's direct interaction and cooperation with other local and foreign apparel firms (including subcontracting relations) and participation in collaborative schemes. It also includes whether a firm was proactive in acquiring knowledge through visiting factories in other countries, attending trade fairs regularly, and sourcing and paying for foreign experts on their own. For the links with public institutions indicator, we assessed a firm's interactions with public sector institutions in terms of being able to react to policy changes or influence policies and being able to access and take advantage of various public support programs. We noted how pro-actively and strategically firms used public programs to improve their performance and ensure learning and capability building.

**Table 2 Ethiopian-owned Apparel Firms Technological Capabilities Scores**

Firm	Function		Product		Production			End-market		Linkages		Sum Score*	AGGREGATE SCORE				
			Complexity of main products	Variety of products	Sum score*	Labor productivity	Not on time delivery	Internal reject rate	Sum Score**	Nr. & dominance of buyers	Stability of buyer relations				Links with other firms & experts	Links with public sector institutions	
A-FIRM	3 M	1	1	1	2 L	N/A	1	2	L	2	3	5 M	1	2.5	3.5 L	M L L M L	MED-LOW
B-FIRM	3 M	1	1	1	2 L	N/A	X	X	L	2	2	3 L	1	2.5	3.5 L	M L L L L	LOW
C-FIRM	4 H	1.5	3	3	4.5 M	2	2	2	6 M	2	3	5 M	2	2	4 M	H M M M M	MED
D-FIRM	2.5 M	1.5	2	2	3.5 L	2	3	2	7 M	2	2	4 M	2	2	4 M	M L M M M	MED
E-FIRM	4 H	1	1	1	2 L	1	2	2	5 L	2	2	4 M	1.5	2	3.5 L	H L L M L	MIXED
F-FIRM	2 L	2	2	2	4 M	2	2	2	6 M	1	3	4 M	1	1.5	2.5 L	L M M M L	MED-LOW
G-FIRM	2 L	2	2	2	4 M	2	2	2	6 M	1	3	4 M	1	2	3 L	L M M M L	MED-LOW
H-FIRM	2.5 M	2	3	3	5 M	2	1	2	5 L	1	2	3 L	1	2	3 L	M M L L L	MED-LOW
I-FIRM***	3 M	1	2	2	3 L	1	2	2	5 L	1	2	3 L	1	2	3 L	M L L L L	LOW
J-FIRM	3.5 H	1	2	2	3 L	1	1	1	3 L	1	1	2 L	2	2	4 M	H L L L M	MIXED
K-FIRM	2 L	1	1	1	2 L	1	3	1	5 L	1	2	3 L	1	1.5	2.5 L	L L L L L	LOW
L-FIRM	2 L	1.5	1	1	2.5 L	1	3	1	5 L	1	1	2 L	1.5	2	3.5 L	L L L L L	LOW
M-FIRM	2 L	1	1	1	2 L	1	X	2	L	1	1	2 L	1	2	3 L	L L L L L	LOW
N-FIRM	2 L	2	1	1	3 L	1	X	1	L	1	1	2 L	1	2	3 L	L L L L L	LOW

\*Sum score key for Product, End-Market, and Linkage capabilities: Low=2-3, Medium=4-5, High=6. \*\*Sum score key for Production Capabilities: Low=3-5, Medium=6-7, High=8-9. \*\*\* This firm had stopped exporting by 2018 and produced only for the domestic market. **Note:** X means that no data was provided by the firm in the survey on the particular indicator. If there were too many incomplete indicators, then we estimated the sum score on the capability using all available information about the firm from the survey.

## **Analyzing the technological capabilities of local apparel exporting firms**

The technological capabilities scores of the 14 local exporting firms presented in Table 2 show that a majority of the firms have low capabilities overall. Six firms score low, four firms score medium-low and two firms score medium, while two firms have mixed scores. The label ‘mixed’ refers to the fact that a firm’s sum scores on the different categories of capabilities ranged from low to high, and thus did not indicate an overall trend. In this section, we discuss firms’ performance and trends within each category of technological capability, before analyzing overall trends within the aggregate capability scores.

Local firms vary significantly in terms of the functions they perform within the apparel global value chain. Three firms are vertically integrated and produce part or all of the textile inputs used in their apparel production, and thus scored high on function. Among the vertically integrated firms, J-Firm scored slightly lower because it predominantly produced made-up textiles for export using its own woven fabric but also produced some T-shirts and polo shirts using its own knit fabric. E-Firm produced most of its own textile inputs and has over time sought out buyers that can give it orders for solid color cotton T-shirts with basic printing, which matches the capabilities of its textile production machinery. C-Firm produced all of its textile inputs in-house. Among the apparel firms without textile production facilities, most of them produced on a CMT basis and hence score low. Only three firms attempted to supply on a FOB basis and score medium, and one of them was not successful and stopped exporting altogether by 2018. The other two firms that score medium are producing made-up textiles with own textile inputs.

In the category of product capabilities, four firms scored medium and the rest low. This is because most of the firms produced basic products or intermediary products that were more sophisticated versions of the basic products, such as polo shirts and sportswear. Only H-Firm produced intermediate products such as women’s blouses and outdoor jackets, which resulted from the type of products demanded by the firm’s initial buyers. In general, firms’ buyers determined what they produced, and thus variation in complexity is explained by variation in buyers. However, firms that have been producing basic products successfully for the same buyer for several years were often asked to begin producing more complex products. Some firms had challenges in fulfilling these requests, as producing more complex products led to low productivity, and therefore they preferred to focus on a few basic products. Half of the firms specialized in one type of product, while the other half of the firms had diversified into two or more types of products. Only C-Firm and H-Firm produced four types of products. The variety of products was not related to whether a firm was producing basic or intermediate products but rather determined by the buyers’ demands and by the number of buyers. In the case of E-Firm, however, it is determined by the firm’s strategy to specialize in T-shirts produced with its own fabric. Therefore, of the four firms ranked medium, one had specifically high product complexity and variety, one had specifically high product variety, and the other two had intermediate product complexity combined with medium product variety.

Looking at production capabilities, four firms scored medium with the rest low. The medium scored firms have a combination of largely intermediate scores along all the three indicators; the low scored firms have low or intermediate scores along the indicators and do generally not have enough management level staff. All firms struggled with labor productivity due to high labor turnover, but also due to the limited local supply of experienced managers and supervisors in apparel production, lack of sophisticated systems to incentivize increased worker productivity, and poor monitoring and supervision. Of the five firms that scored medium on labor productivity, two of them were the top performing firms overall, two of them were pioneer firms that had been engaged in CMT production for a longer period of time, and one of them had extensive experience producing for the local market before shifting into exports. These firms generally had better methods of incentivizing and monitoring operators and managers, and reducing labor turnover. The performance on internal reject rate was better than on labor productivity, with more firms scoring medium than low. In general, the quality of the products had improved, but the speed at which products were produced was slow relative to international standards.

Delivery time was not a major constraint for CMT firms, but it was for FOB firms, which had lost buyers or had orders rejected due to missing the delivery date. Not on time delivery for FOB firms was due to several factors: delays in accessing foreign exchange with which to buy inputs, inexperience and lack of trust relations with input suppliers abroad, and slow and unreliable transport and logistics systems. The DBE created new financial instruments for local exporting firms in an attempt to solve the problem of slow access to foreign exchange for importing inputs for export orders, but it was not clear that the problem was resolved as firms using the DBE (as opposed to private banks) continued to complain of long waiting times for foreign exchange. The other half of the problem remained the absence of input sourcing experience within the FOB firms and the need to build up relations with input suppliers abroad, and there was a shortage of locals with export merchandising experience. Therefore, local firms had to hire expatriates to transfer this knowledge to local staff, as well as use those expatriates' existing networks and contacts with input supplier firms. In addition, delivery time was a challenge for vertically integrated firms related to organizing the production process from textile to apparel, including delays in accessing spare parts for textile machines that could not be sourced locally.

Local firms' end-market capabilities varied considerably. Almost half of the firms scored low, while the other half scored medium. Seven out of the eight local firms that scored low did so because they were dependent on one or two buyers and had unstable or only somewhat stable relationships with those buyers. Of the six firms that scored medium, F-Firm and G-Firm had only one buyer but long stability with this buyer. The other firms that scored medium had three or more buyers and generally had very stable relations with at least two of them. Overall, only four firms had more than one buyer. The firms that had stable relationships with buyers generally had quite specific buyers – three US sportswear and workwear buyers who accept lower volumes, have comparatively low delivery time standards, and tend to help suppliers to meet their requirements and standards. The other firms with stable relationships had EU retail buyers that seem to be keen on having Ethiopia as a new sourcing location. However, the most

prominent of these retailers, which opened a sourcing office in Addis Ababa, has struggled to find and develop suitable local suppliers and largely switched to sourcing from foreign firms in industrial parks. Regarding end-markets, seven firms supplied only the US market, and two firms supplied only the EU market. Three firms supplied both the EU and the US market, but two of them only supplied the US through a buyer based in Europe that also sent products to its stores in the US. Only D-Firm had buyers from distinct end-markets. Thus, there is important end-market concentration and also segmentation.

In terms of linkages capabilities, most firms scored low with only three firms scoring medium. Firms' linkages with public institutions were generally medium because all local firms benefited from services provided by TIDI, and most firms had linkages with public education facilities, especially Bahir Dar University and the vocational training schools. Graduates from Bahir Dar University were present in most firms at the management level, even though there were complaints about their training not being practical enough. Furthermore, many local firms mentioned that they had accessed their initial buyer and/or current buyers through TIDI, which had given their contacts to prospective buyers. However, linkages with other apparel export firms and with experts were generally low. All initial local investors had problems with accessing managerial expertise and skilled labor in the apparel export sector, as none existed in Ethiopia at that time. But it was only in 2012, when the government agency TIDI became operational, that local firms began to hire expatriate staff to share knowledge and train local workers and management staff, because TIDI schemes paid the entire cost of bringing foreign experts from abroad. Later, donor programs also created cost-sharing schemes with local firms to pay for hiring foreign experts. All local firms benefited from these schemes, and also used the basic training for new sewing operators provided by TIDI.

However, most local firms had limited linkages to other firms, and they generally agreed that the industry association was not a forum for sharing knowledge, but rather only for lobbying government on specific policies. Only a few local firms demonstrated pro-active strategies to gain knowledge from other firms within the country, local or foreign, and from outside the country by visiting firms in existing supplier countries, regularly attending international trade fairs, and sourcing and paying for foreign experts on their own—and notably these were the two best performing local firms that had an aggregate capabilities score of medium (C- and D-Firm). The third firm that scored medium on linkages with other firms and experts was J-Firm, which is vertically integrated but struggling to develop product, production, and end-market capabilities. It has entered special relations with foreign firms that ultimately help it to build these capabilities. As J-Firm has a large factory and does not use all of its lines, it rented some lines to two foreign firms who are producing on a CMT basis. These schemes benefit the foreign firms, but also potentially benefit J-Firm, as the foreign firms have line managers present in J-Firm to train and manage its workers to sew a variety of products.

The aggregate capabilities scores indicate several trajectories and trends in the overall performance of Ethiopian-owned apparel export firms. Differentiating firms based on their function is important, as this explains different trajectories of firm development and performance. Vertically integrated firms generally performed better, but with some significant

variation. Even among the former state-owned integrated firms, there are differences, indicating that former state ownership is not as important in determining performance as the decisions and actions of the new management. Among the former state-owned firms largely producing made-up textiles, A-Firm scores med-low, while B-Firm scores low. A-Firm scores higher than B-Firm as a result of better scores on end-market linkages, and notably it has been exporting for a longer period of time, but their performance is also a result of the type of textile machines selected during the rehabilitation process and the management of labor. Furthermore, the management of A-Firm would like to move into knit textile and apparel production, but this expansion requires a significant capital investment and it is not yet clear whether the new private owner is willing to make that investment.

The other formerly state-owned vertically integrated firm took a different trajectory. It closed down its spinning section and focused on improving the knit fabric production, buying yarn from other firms in Ethiopia, and expanding the apparel section. Its strategy is to produce basic T-shirts with its own textile, which limits the type of products and thus buyers it can attract, but also means that it bypasses having to deal with the challenges of importing textile inputs. Its aggregate score is mixed as a result of these two factors: high function, but low on product capabilities as well as production capabilities, with the owner and top managers having no previous experience in apparel or textile production.

The final two vertically integrated firms were new local investments, but they have achieved different levels of success. J-Firm is owned by EFFORT with its board being comprised of leading members of the TPLF. J-Firm was the pioneer apparel export firm but the original objective with its creation was to provide a source of employment and income for people living in the northern part of the Tigray region, especially former fighters in the TPLF. It is an extremely large firm, with spinning, knit and woven textile production, and a large apparel section. Initially, EFFORT outsourced the management of J-Firm to foreign management teams. However, there was a high turnover in these foreign teams, as their international labor management style conflicted with the expectations of ex-TPLF fighters employed as workers in the factory, and eventually foreign management was replaced with a local team. The instability in management had negative effects on J-Firm, but positive spillovers for the industry as a whole, as many of these foreign experts stayed in the country, and many of the local managers that they trained have circulated to other local firms. J-Firm's aggregate score is mixed; it operated well below its potential, due to challenges of managing a large firm, and the political objectives of the owners and politicized origin of the firm.

The remaining vertically integrated firm, C-Firm, is one of the best performing firms. Notably, it is part of a large business group, which helped with investment capital and recently bailed out the firm from its debts. However, the high performance of the firm is due to the effort of the CEO and some of the top managers, who have sought out knowledge and implemented improvements in production processes, as well as its high product variety, and stability of buyer relationships. The firm benefited from being one of the only vertically integrated knit firms that could deliver within a reasonable time, and thus many European retail buyers have sought to source from it as part of their strategy to diversify their supplier base and move into Ethiopia.



The other firms engage only in apparel production and either focus on CMT or try to develop into FOB. The other best performing firm, D-Firm, is not vertically integrated, indicating that vertical integration is an advantage but not a necessity. The owner of D-Firm is part of a diversified family business and runs another firm, which is in food processing for the domestic market, and thus had experience in managing a manufacturing firm, albeit a capital-intensive one. The higher performance of D-Firm was due to the owner successfully using foreign experts to build the knowledge of local staff and of seeking out knowledge from other firms in Ethiopia and abroad, and investing in changes based on this knowledge. While still facing challenges with FOB due to constraints outside the firm and with high labor turnover, the firm delivered on time and had stable buyer relations, while seeking new buyers and expanding the size of the factory. This was also the only firm that supplied buyers from distinct end-markets, the EU and the US.

The other two FOB firms, H-Firm and I-Firm, have med-low and low overall capabilities scores. The low score for I-Firm is related to low scores across all other capabilities, which actually led this firm to exit export production altogether by the end of 2017. I-Firm only had one buyer, and was not producing any percentage for the domestic market and was not part of a diversified family business. Therefore, the firm had no additional sources of revenue with which to subsidize the time needed to get competitive in the export business. The firm owner also neglected to invest in building a strong managerial team, even though the owner lacked previous experience in manufacturing. H-firm started producing apparel for the domestic market in the mid-1990s, and thus had previous experience on the production side, which accounts for the higher capabilities. However, H-Firm still has a significant investment in the domestic market, and only entered exporting somewhat by accident. As a result, the firm owner only invests in building the minimum capabilities for apparel export, in order to supplement its domestic market business in terms of access to foreign exchange and designs from foreign buyers.

Notably, the two CMT firms that scored the highest have been in the export business for a rather long time, and each of them has a stable relationship with one US buyer. These buyer relationships led the firms to concentrate on a few basic and intermediate sportswear products. Being only in charge of assembly leads to fewer challenges related to not on time delivery compared to FOB firms. The export volumes of these two firms are stagnating, and their owners are not attempting to grow the firm or to develop FOB capabilities. In fact, one of the owners is focused on diversifying his business activities into the apparel domestic market as well as other sectors such as real estate. Among the other CMT firms, two are struggling, and one is increasingly diversifying into the apparel domestic market. M-Firm, the remaining CMT firm, entered exports more recently, and it is too early to tell how it will develop. It was producing branded men's formal shirts for the domestic market and predominantly began exporting in order to access foreign exchange with which to import fabric for its domestic market business, as that kind of fabric is not (yet) available in Ethiopia.

Apparel production on a CMT basis brings very low unit prices, and thus low profit margins, and probably can only be profitable with a minimum volume of production. Many of the CMT firms had small factories, and thus low volume and low productivity, leading them to operate at a loss. With some exceptions, buyers also increasingly demand FOB capabilities from their suppliers, making CMT production unsustainable in the longer run and particularly when production costs increase. Production on a FOB basis brings higher unit prices but also higher risks and requires higher capabilities in merchandising, financing, and logistics, which are shaped by factors inside and outside the firms. Some CMT firms, particularly the older ones with stable buyer relationships covering also intermediate products, are quite successful in terms of capabilities scores but their sustainability is questionable, which is also seen in the unwillingness of the owners to take the risk to develop FOB capabilities.

Some local firms saw vertical integration as the best solution to these challenges with FOB production. This was particularly the case for knit products where producing in-house knit fabric for T-shirts and polo shirts was seen as a more reliable strategy, rather than building up the capabilities required to source inputs from all over the world and being dependent on long and unreliable lead times related to local transportation and logistics infrastructure. This view was also held by many EU retail buyers, who only wanted to source from vertically integrated local firms. Because most Ethiopian-owned firms are producing basic products, the option of producing pure cotton products using their own textiles is feasible, particularly in the EU market where exports are concentrated in knit products. The US market prefers fabric made from cotton-polyester blends or pure polyester, which makes vertical integration more difficult given the unavailability of polyester fiber and textiles in Ethiopia.

## **Conclusion**

Most firms have low aggregate technological capabilities scores, with only a few having medium-low scores and only two firms having medium scores. These low scores result from the fact that firms have low or medium scores for all categories of capabilities except for global value chain function. Firms only produce basic products or intermediate versions of basic products, with only one firm producing actual intermediate products and not one firm producing complex products, and the variety of products is very limited with only two firms producing four products or more. Firms have substantial challenges with labor productivity, due to factors originating both within and outside the firm. Internal reject rates are more manageable, indicating that the quality of products is good but speed of production is low. Not on time delivery is a particular issue for FOB firms, due to limited sourcing capabilities and external finance, transport, and logistics issues. Thus, FOB is challenging for local firms given internal constraints as well as external constraints that cannot be resolved by individual firms. Firms have very few buyers, with only four firms having more than one buyer and there is important end-market concentration and segmentation with only one firm having EU and US buyers. The stability of relationships is mixed, with stability depending partly on the type of buyer and their requirements and strategies, and partly on firms' ability to deliver on time.

Despite the similarities in performance and challenges, there is still important variation, most importantly related to firm owners' pro-active efforts to learn from other firms and foreign experts as well as their access to resources with which to finance these efforts. This leads to important differences among production capabilities, but also variation in the type of buyers that firms accept or seek out. A further important difference among the local firms is the functions they pursue in the apparel global value chain, with vertically integrated firms generally performing better. There is a large degree of path dependency, as all integrated firms were vertically integrated from the beginning. They were able to make the large capital investments required for textile production because they were state-owned enterprises, or former state-owned enterprises, with access to special investment facilities, or they were party-owned firms, or affiliated with Al-Amoudi's MIDROC diversified business group, and had unique access to private and public funds. However, some of these firms made the move to exporting more than others.

Local firms struggled to learn, and the ones staying in the export sector engaged in a slow and costly learning-by-doing process. Given these low capabilities, it was difficult for Ethiopian-owned firms to enter and remain in the apparel export sector. Most firms were just breaking even or operating at a loss. Firms that are part of diversified family businesses or have other business lines, often subsidized their apparel export business through these other businesses. Firms that originally only exported started diversifying into the domestic market for apparel or into other sectors, while other firms have always straddled domestic and export markets or moved from the domestic market to exports to get access to foreign exchange and remained focused on their domestic market business. While production for the domestic market has been important in subsidizing costs of learning to become competitive in exporting apparel, it also undermines the incentives to invest in learning as firms have an easy alternative and are not forced to invest in learning. The two best performing firms were the only two firms serious about the export business, which means they were growing and making strategic decisions with the export business as their focus.

The low capabilities of local firms and the challenges they face in learning and building capabilities are related to different factors. Industrial policy played an important role in incentivizing local investment in apparel firms, but was limited in terms of supporting capability building by the new local firms. The schemes TIDI provided did not monitor the impacts on local firms' performance, and no mechanisms were put in place where local firms were expected to increase their performance in return for subsidized support. Furthermore, structural country-specific conditions are challenging, given the remaining problems with physical infrastructure, the local supply chain from cotton to textile to accessories, and labor turnover as a result of the broader process of creating an industrial working class that is taking place in Ethiopia.

Besides the importance of local firm characteristics and the national context, global value chain dynamics and the types of foreign direct investment are also important factors influencing local firms' capability building opportunities and efforts. Global value chain dynamics and changing strategies of some global buyers have brought Ethiopia onto the apparel sourcing landscape,

but most buyers do not support their suppliers in learning other than providing them with global industry standards, giving feedback during the quality control checks, and very selectively supporting the development of FOB capabilities. Prices are tight, and quality and lead time requirements are strict with suppliers losing orders when they are not fulfilled. Foreign firms that have the knowledge to compete successfully in apparel global value chains can be an important learning channel, particularly for countries where there is limited experience with export manufacturing. When local firms started exporting in Ethiopia there were no foreign export firms present, but this is changing now with the new industrial parks. Indirect spillovers are occurring through skilled labor and managers circulating from foreign to local firms, as well as few direct spillovers through some forms of sub-contracting and of joint ventures between foreign and local firms. The potential for direct spillovers depends, however, on the type of foreign firms and their strategies and degree of embeddedness in Ethiopia. Thus, using the potential for learning through the presence of foreign direct investment requires strategic industrial policy support that focuses on attracting more embedded foreign firms and on supporting local firms in developing linkages with foreign firms and learning through them.

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