Ethiopia: Lessons from an experiment

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Abstract

The recent “African Rising” narrative is detached from reality and lacks the perspective that growth should be underpinned by structural transformation. Ethiopia has sustained rapid economic growth since 2003, and has practiced industrial policies to achieve structural transformation. Embedded in structural transformation perspectives and based on a comparative review of three export-oriented and import-substitution industries, this brief discusses Ethiopia’s experiment with structural transformation and industrial policies. The Ethiopian experiment shows that structural transformation and industrial policies can work and thrive in low-income African countries such as Ethiopia. However, it also shows that structural transformation and catch-up are colossal challenges. The Ethiopian experiment reveals that industrial policies matter, and the state can and should play an activist developmental role to foster catch-up and structural transformation. Furthermore, performance and policy outcomes have been uneven, highlighting the importance for policymakers to have a comprehensive understanding of the dynamics and interaction among industrial structure, maximization of linkage effects, and politics/political economy. The experiment emphasizes policy learning, the vital role of learning-by-doing as the prime means of mastering policymaking, and policy independence as a key ingredient. The Ethiopian experiment suggests that structural transformation and industrial policy perspectives are principal points of departure for catch-up by African countries.

Keywords: Ethiopia, Africa, structural transformation, industrial policy, industrialization, policy learning, linkages, political economy.

This paper is a contribution to the How They Did It (HDI) series, a new line of publications from the Vice-Presidency for Economic Governance and Knowledge Management. It aims at presenting interesting economic transformation experiences, and discuss ways in which some countries have addressed various development issues. It is part of the African Development Bank’s strategy to help its regional member countries achieve the High-5 priorities. The findings, interpretations, and conclusions expressed in the HDI series are entirely those of the author(s) and do not necessarily represent the views of the African Development Bank Group, its Board of Directors, or the countries they represent. Comments and enquiries should be addressed to hdi@afdb.org.

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Produced by the Macroeconomics Policy, Forecasting, and Research Department in the Vice-Presidency for Economic Governance and Knowledge Management

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A version of this paper is forthcoming in the Oxford Handbook of Structural Transformation, edited by Célestin Monga and Justin Lin.
Beyond boom and bust in Africa

The “African Rising” or “African lions on the move” narrative that has gained currency in recent years emphasizes the growth on the continent in the early part of the new millennium. External factors, especially prices and growing demand for primary commodities, have been favorable. While such growth in Africa has been celebrated, however, efforts to understand the structural drivers of longer-term economic development in African countries have been inadequate. The swing between the tragedy of “Afro-pessimism” and the hyperbole of “Afro-euphoria” has been coupled with an erroneous “African dummy” analytical approach that overlooks the continent’s diversities (Cramer and Chang 2015). These tropes are not only remote from reality, but they also lack the perspective that growth should be underpinned by structural change. As global demand for commodities dropped after 2014, along with prices, various concerns were raised, and observers, scholars, and policymakers offered valid insights. For instance, an article entitled “Africa’s Boom Is Over” boldly proclaimed, “Africa was never going to get far without manufacturing” (Rowden 2015). Africa obviously performed better in the early 2000s, but views have diverged on the drivers of this growth and on its sustainability, and on whether this growth will translate into structural change. The “Afro-euphoria” of recent years was just as removed from reality as its predecessor, the dismissive “Afro-pessimism.”

From a long-term perspective, a promising approach to understanding these dynamics is a structural transformation perspective, based on the view that the essence of economic development is economic transformation and structural change embedded in sectoral shifts, sustained productivity rises, and constant technological advances, which are achieved through effective industrial policies and state activism (Johnson 1982; UNCTAD and UNIDO 2011; Mazzucato 2013; UNCTAD 2016). Although many skeptics have argued that industrial policies cannot work in Africa, it has become more fashionable to talk about such policy in recent years. Nevertheless, it is unclear what industrial policies entail in practical terms. Perhaps, it is time to examine and learn from the practice of industrial policies in African countries. Ethiopia is an ideal case study, since the country has achieved rapid economic growth over the past two decades, despite being located in a complex and challenging geopolitical region. This growth has not been fueled by mineral exports, and while manufacturing remains small, Ethiopia has been engaged in industrial policies in key priority areas.

Industrial policy and structural transformation in Ethiopia

2.1 Perspectives on policy and transformation

Structural transformation is the prime driver of economic and social development. It involves the movement of people and outputs across sectors and within specific industries, and a shift from lower to higher productivity economic activities. It is argued that growth and structural changes can be sustained when driven by manufacturing. Manufacturing is an engine of growth, because it is positively causally related to the growth of GDP and rises in productivity in the whole economy (Kaldor 1967; Thirlwall 2013). Sectoral shifts occur through diversification into new activities, and development of domestic linkages and technological capabilities. This is because of increasing returns to scale, learning-by-doing, linkages (including intersectoral), innovation, and technological advancement. Historical experience suggests, further, that manufactured exports are particularly important, given the constraint of balance of payments on growth. Nonetheless, structural transformation and catch-up is uneven, unpredictable, and compounded by political tensions (Cramer and Chang 2015; Whitfield et al. 2015).

Growth cannot be sustained without rapid expansion of exports and fundamental changes in the composition of those exports. Exports play a strategic role in structural transformation by expanding the limits on market demand, enabling productivity spillover, driving technological advancement, loosening the constraint of balance of payments, allowing the full utilization of domestic resources, and nurturing import-substitution industrialization (IsI) (Ocampo, Rada, and Taylor 2009; Thirlwall 2013). Ocampo, Rada, and Taylor (2009, 152) highlighted the “major task of structural transformation policies is to facilitate a dynamic restructuring of production and trade toward activities with higher technological content.” Industrial policies have been used by forerunners and latecomers in the 19th and 20th centuries for catching up and economic transformation (List 1856; Hamilton 1934; Chang 2003; Nayyar 2013). Such policies are “a strategy that involves a range of implicit or explicit policy instruments selectively focused on specific industrial sectors for shaping developmental results” (Ocampo, Rada, and Taylor 2009).
structural change in line with a broader national vision and strategy” (Oqubay 2015. 18). Hence, industrial policies should serve as vehicles for structural transformation and catch-up.

In this chapter, we will review industrial policy in Ethiopia with the aim of extracting lessons from the comparative review of labor–intensive export-oriented sectors, such as leather and leather products; capital-intensive, import–substitution industries, such as the cement industry; and high productivity modern agriculture, such as floriculture. These three sectors have different industrial structures and can collectively illustrate the practice of industrial policy and uneven outcomes in Ethiopia.

### 2.2 A strategic import–substitution industry

#### The industry’s context

Cement manufacture is considered a basic industry that plays a strategic role in late industrialization, and is characterized by high capital intensity and process production. The global cement industry has been dominated lately by Chinese consumption, supply, and equipment provision. It has strong linkages with the construction industry and transport sector. The industry features significant economies of scale and is dominated by large firms, and its expansion is driven by capital deepening rather than capital widening. The African cement industry is highly fragmented, with underdeveloped economies of scale and technology.

In Ethiopia, the cement industry emerged in the mid-1960s, and until 2000, it was dominated by a single state-owned enterprise (SOE). Demand was sluggish until the 1990s, but rapidly increased in the first decade of the new millennium. The 1.7 million tons produced became insufficient when government-sponsored infrastructure and integrated housing programs were expanded. Cement shortages became a binding constraint, almost paralyzing the booming construction industry and hindering the development of manufacturing plants. At that time, less than half the demand was being met.

#### Policy instruments

The government designed an ambitious and comprehensive policy to develop the cement industry, while also trying to contain the damage resulting from the cement shortage. First, the government stimulated demand directly and indirectly by adopting various measures. As a provisional solution, close to 4 million tons annually were imported between 2006 and 2011. Cement is highly dependent on transportation, and the government had to import about 1,500 heavy trucks to increase the uplift capacity from port, contributing to the modernization of the transport fleet in the process. The increasing volume of imports and the high profits served as strong signals for new investments in cement. Arguably, this is a typical example of Hirschman’s import-swallowing concept, in which imports play creative roles (through demand formation and demand reconnaissance) by stimulating new domestic manufacturing and spurring import–substitution (Hirschman 1958).

Investment incentives were introduced to encourage and induce new investment and productive capacity. For instance, 101 new investment projects were registered between 2003 and 2012, while there were only two projects in the preceding decade. To boost the industry, the government instituted a three-year, zero-income tax incentive, while factory land and raw material quarries (limestone, gypsum, etc.) were made available at nominal prices. The government furnished long-term investment financing at a subsidized interest rate to large-scale producers, specifically for optimum productivity and economy of scale gains. The Development Bank of Ethiopia (DBE) provided about a quarter of its total loans to the cement industry, and additional financing mechanisms were accommodated, including allowing foreign equity financing to many firms and assisting the SOE through the industrial developing fund (IDF). Moreover, the industry was afforded priority in the allocation of foreign exchange, not only for importing equipment and capital goods, but also for cement imports. The government then banned all imports once the new capacity was sufficient to meet domestic demand. As to electricity supplies, the government maintained low electricity costs for cement and other manufacturers and gave the cement industry priority because of its critical effect on public investment programs, such as housing and new energy supplies. Productivity and energy efficiency were far below the competitive cement industries in, for example, China or Pakistan. Gradually, government forced the cement factories to upgrade to coal-fired technology (instead of the more expensive furnace oil), by organizing loan facilities and bulk coal imports through a government agency. Partly from savings achieved through bulk purchases, this assistance reduced logistics complexity and pressure on working capital. With the adoption coal-burning technology, the industry has experienced substantial efficiency gains (40–50 percent of the cement industry’s total expenses stem from energy consumption).

#### Policy outcomes

Ethiopia’s installed cement-producing capacity has increased to 15 million tons, a fivefold growth between 2005

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6 This chapter is based on Made in Africa: Industrial Policy in Ethiopia (Oqubay 2015), which is, in turn, based on extensive original research conducted in the three sectors from 1991 to 2015. The research involved primary sources, qualitative and quantitative surveys of 150 firms, site observations of 50 firms, and more than 200 in-depth interviews.

9 See UNECA (2016a, 102–6) for a detailed review of Ethiopian industrial policies.

10 Global production in 2012 was 3.7 billion tons, and China accounted for more than half of it. Moreover, cement is a nontradable commodity with less than 10 percent traded internationally (Oqubay 2015).

11 Capital deepening features a “rise in the capital/labour ratio” and may serve as a basis for new industries (Amsden 1989, 269). On the scale and scope of such industries, see Amsden (1989); Penrose (1995); and Chandler (2004).

12 Mugher Cement Enterprise dominated the industry for almost four decades and continues as a major player.

13 The kiln capacity increased by 250 percent, and the new cement plants had a capacity of 2.3–2.5 million tons, in contrast to the prior 600–850,000 tons per annum.

14 IDF is a special fund organized by the government to finance expansion of SOEs.

15 The electricity tariff was 3 US cents per kilowatt–hour in 2010–16, which is the lowest in Africa.
and 2016, making Ethiopia one of the top three producers in sub-Saharan Africa. The rate of expansion was three times faster than the average global growth rate for cement production. The industry has had significant spillover effects for the economy. It is capital-intensive and employs fewer than 15,000 employees directly, though it generates jobs for skilled workers. In addition, the industry has strong employment linkages with the cement-products industry and the construction and transport sectors. For instance, the construction sector has become one of the largest employers, contributing 8.5 percent of GDP in 2015. The price of cement has fallen with the increase in installed capacity and has remained stable since 2012, thereby helping to fuel the construction industry. Domestic manufacturers continue to play a leading role in the Ethiopian cement industry, in contrast to other African countries where multinational corporations usually dominate. The narrow latitude for performance standards in cement production, the perishability of the product, the seasonal nature of the industry, and strong pressure from the construction industry have induced the industry to improve capacity utilization, skills development, and production management.

There were serious limitations and tensions in government policies, however, and these were not without high costs. The 20 percent devaluation of exchange rates in 2010 had a negative impact on the industry. Energy supplies could not keep pace with expanding demand in the industry, leading to major losses from downtime. Prioritization in financing and foreign exchange allocations starved other sectors. Many small cement factories vanished, as an effect of a policy that favored larger firms and the latest technology that offered productivity gains. A new industrial structure has evolved involving new actors that will henceforth shape the game. These include shifts in the state–industry relationship, which, as noted already, plays a key role in the industry and has significant relationships with its industrial partners. Whereas in South Korea and China the cement industry served as a basis for developing technological capabilities, Ethiopia has missed out on this opportunity, as there were no effective policy instruments to encourage domestic manufacturing of equipment, local content, and local capabilities.16

This strategic industry would have slowed without the foreign exchange provided by export earnings, which demonstrates the role and impetus from the export sector in supporting an import–substitution industry. Nevertheless, the development of domestic manufacturing may allow for significant savings on foreign exchange requirements. This highlights how export-led industrialization can complement import-substitution (Amsden 1989).

In conclusion, although the industrial policy in relation to cement production has had its drawbacks and costs, the net benefit to the overall economy and structural transformation has been irrefutable. The state played a critical role, particularly through public enterprise, which contributed expertise and production skills and had a demonstration effect. Government policies were the key drivers in the transformation of the cement industry, and its expansion was not based on factor endowments. The government has been able to learn from its mistakes and the new difficulties that arose. While the experience highlights the tensions, trade-offs, hard choices, diverging interests, and complexity of industrial policy, it also shows that an activist state can, through effective industrial policies, transform an industry that is strategic to industrial catch-up.

### 2.3 The tale of two export industries

The aims of industrial policy are the development of manufacturing industries and new activities, and the diversification and expansion of exports. In the Ethiopian context, the leather and leather-products sector has existed for almost a century and is among the government’s priority industries. It is labor-intensive, export-oriented, tradable, and strongly linked with agriculture. Despite the government’s focus on this industry, and despite countless international consultancy studies, the outcomes of industrial policy have not been satisfactory in terms of employment, output, export, and value addition. Meanwhile, the newer agro-industrial floriculture sector has demonstrated the gains that may be generated by industrial policy. The rise of this industry, since 2004, is a shining example of how industrial policy should not be confined to traditional manufacturing, but is also applicable to high-productivity agricultural activities (UNCTAD and UNIDO 2011).17

The floriculture sector (like the leather sector) has benefited from Ethiopia’s natural endowments and competitive labor costs. Floriculture has benefited from Ethiopia’s geographic location, climate and water, altitude and soil. Between 2004 and 2012, the floriculture sector generated more than $1 billion in export earnings (Figures 1 and 2). More than 60 firms operated in the sector, creating direct employment for 50,000 people and indirect employment in the wider horticulture sector for 130,000 people. In 2012, the annual direct export volume reached 50,000 tons, worth $200 million in export earnings, thereby further diversifying Ethiopian exports and becoming an important contributor to Ethiopia’s tight balance of payments.18 There has been significant productivity growth, with Ethiopia emerging as one of the top five cut-flower players globally, even if it has a long way to go to catch-up with the Kenyan horticulture industry, which has had 40 years of experience. Learning-by-doing has been significant in the industry, and the sector (both foreign and domestic firms) relies on local skills in production management.

16 Technological capabilities would include investment in project execution, initial plant erection, and manufacturing of less technologically complex fabrication works. Amsden (1989, 266–7) highlighted that “cement-making never became one of Hyundai’s major enterprises... The mill, however, was critical for Hyundai’s internal development,” and was the first manufacturing affiliate and first project execution. The process received support from the Fuller Company of the United States [own emphasis]. By 1974, Hyundai had developed capabilities, except “basic engineering” that is left to cement-process specialists. Likewise, in China, the government adopted policies to foster domestic manufacturing capacity, so that the country now accounts for up to 40 percent of cement manufacturing technology worldwide.

17 Transformation of agriculture is at the center of the structural transformation inherent in the late industrialization. See, also, Ocampo, Rada, and Taylor (2009), and Thirlwall (2013).

18 The export and employment performance of floriculture has been twice that of the longer established leather sectors.
By comparison, between 1992 and 2015, growth of manufactured outputs in the leather sector was sluggish and showed erratic fluctuations. For instance, tanning production between 1992 and 2012 increased from 101 million to 160 million square feet, a very low growth rate. Between 1992 and 2009, footwear production increased from 874,000 to 2.2 million pairs. By contrast, Morocco and Tunisia alone exported more than 54 million pairs in 2010. Ethiopian export earnings from the leather sector rose from $61 to $110 million between 2002 and 2011, reflecting the sluggish expansion (Figures 1 and 2). The sector's 60 factories employed about 20,000 people in 2011, averaging a 4.5 percent annual growth rate between 1992 and 2011. Labor productivity growth has been erratic, with low productivity increases until 2011. Products have been low-value, and progression has been very limited. Despite this, there have been new investments in recent years, and after decades of failure, there is some evidence that policy initiatives have finally begun to bear fruit.

And this was even though the livestock population in Ethiopia is the largest in Africa and among the top 10 in terms of size worldwide.
**Industrial policy instruments**

Although an active industrial policy was applied in both sectors, the outcomes diverged. Support given to floriculture was characterized by more effective coordination and commitment. The government engaged with a limited number of modern firms in the floriculture industry, while in the leather sector the engagement was relatively weak, due to the fragmentation of players and the large number of smallholders who are critical backward linkages. Foreign Direct Investment (FDI) played a critical role in floriculture, as the firms, although largely family owned, were equipped with technology and market capacity. Most domestic industrialists were keen to catch up, despite their limited share in the industry. The government provided suitable land to all firms at an affordable lease rate, primarily within a 200-km radius of Addis Ababa. Subsidized loans were provided to more than 40 firms, both foreign and local, by the DBE. Aligning loan procedures to the specific nature of the industry and a firm’s situation, as well as linking financing to performance, were constraints. The risk for DBE was contained, however, as the predominant players had experience in the industry. Investment incentives and export promotion were applied, and the industry benefited from the devaluation of the currency in 2010. There were limitations in promoting linkages to input (chemicals and fertilizers) production, upgrading technology (especially, new seeds demanded by customers), and expansion of greenhouses and irrigation systems.

Air transport is the largest cost component. The products are perishable and require reliable and regular air transport, which was difficult to achieve in the earlier stages. A cool chain logistics system and phytosanitary standards are also required. The government used the public enterprise Ethiopian Airlines (EAL) to develop its cargo capacity, expand its cool chain storage, and serve the industry. This sector would not have grown without this strategic intervention. The government, together with industry players, also saved the industry when airfreight costs shot up because of the twofold increase in fuel prices in 2008–9. A bold decision by the government was that the treasury to subsidize a third, and EAL, another third of the fuel increase. All employment and export earnings would have been lost if this strategic decision had not been taken. Skills upgrading, environmental standards, and production codes were implemented by the Ethiopian Horticulture Development Agency (EHDA) and the Ethiopian Horticulture Producers and Exporters Association (EHPEA), contributing to the improved performance of the industry. Moreover, this developmental partnership between industry and government was effective in ensuring collective learning.

Despite these positive interventions, major shortcomings and drawbacks are observable in the government’s industrial policy. For instance, the government failed to sustain the sector’s rapid growth through its failure to provide more land for expansion, a result of coordination failures and political factors. The share of Ethiopian domestic industrialists showed limited expansion because of a failure to introduce effective instruments, despite the existence of this opportunity to sustain growth. Technological upgrading was not sustained through the development of new and improved seeds, which are currently imported on a royalty basis. Moreover, government policies failed to support the development of nonfloriculture exports (herbs, vegetables, fruits), whose production was minimal despite their huge export potential. The expansion from the central corridor to new corridors and clusters was very limited, although the airport logistics infrastructure was built. Finally, lessons have not been sufficiently learned from this sector to stimulate manufacturing and other agricultural subsectors. In short, a golden opportunity was lost because of insufficient commitment by policymakers to provide the necessary support to sustain the sector’s growth, with the concomitant failure to design appropriate policies for the sector’s growth stage.

In the leather and leather-products sector, similar industrial policy instruments, especially investment and export-promotion incentives, development financing, and privatizing of public enterprises (the major players until 2000) were put forth. New investment flows were dominated by the domestic industry until 2006. Tanneries predominated, with the leather-products subsector too weak to stimulate the sector and unable to sufficiently integrate into the global value chain. The industry faced a binding constraint in the supply of high-quality skins and hides, despite the large livestock population. Inadequate governmental focus on livestock development, and the government’s inability to transform the raw material value chain, have been major strategic failures. This shows that an effective industrial policy must consider all the components in the value chain and focus on fostering linkage effects.

The quality of skins and hides continued to fall, while prices tripled, magnifying the structural constraint. Industrial players are locked into low-value products, and there is major resistance to industrial upgrading. Lobbied by existing tanneries, the Ministry of Industry imposed a temporary ban on licensing new tanneries on the grounds of a shortage of raw materials. Domestic tanneries preferred exporting semi-processed leather (crusts), while shoe factories preferred producing for the domestic market because of their lack of competitiveness in the international market and limited technological capacity. In contrast to floriculture, the political economy constraints were significant, with the leather association failing to play a critical role in developing the industry. Moreover, the technological and economic characteristics were less favorable, and the latitude for performance standards was wide, thus playing a minor role as a pressure device.

In 2008, the government banned exports of raw skins and hides, favoring exports of semi-processed leather. Three years later, the government decided to ban exports of crusts, to push for exports of finished goods. To this end, the National Export Coordinating Committee (NECC) focused on developing a leather-products industry by attracting new foreign firms that are players in the global value chain. Since 2011, many large foreign footwear manufacturers have invested in Ethiopia, enhancing its exports.20

Although this was an important policy with strategic significance, the ban was not tied to a comprehensive package of financing, training, and technical assistance for the upgrading of tanning capacity to process finished goods. This was a
major failure, as significant tanning capacity became idle, further shrinking exports. The policy decision was supported by footwear firms, but tanneries resisted. Another contradictory policy was the export of live animals, which negatively affected the development of the leather and meat-processing industries. The government faced the dilemma of choosing between foreign exchange earnings from live animals or supporting the manufacturing industry, a choice with structural and political implications.21

In conclusion, the industrial policy suffered from a combination of constraints, including the inability to develop backward linkages, political economy constraints, and wide latitude for performance. The leather sector also showed the pivotal role of agriculture and the level of complementarity between manufacturing and agriculture (Cramer and Sender 2015). Despite the apparent familiarization, insufficient understanding of the structure of the industry has contributed to weak policy design and execution. Policy instruments were not supported by reciprocal control mechanisms. Unlike floriculture, the state–industry relationship was weak.

**Linkage effects**

New industries emerged as an outcome of strong linkage dynamics from floriculture, namely packaging, air cargo, and new growth corridors (although these emerged rather slowly [see Appendix 1]). The industry relies on packaging materials and had to import all its requirements. This demand was a clear signal for new investments. Supports and policy inducements were used to develop a packaging industry, including incentives and standards, and facilitate coordination. Historically, air cargo was not a major business for EAL until 2005. As noted above, government policy led EAL to develop freight and cool chain capacity and to provide a reliable airfreight service, such that air cargo is now a strategic business for EAL.

Research shows that the backward linkage potential in the leather and leather-products sector is strong, while the forward linkage potential is weak.22 The transformation of the smallholder livestock sector was minimal, and there are no large-scale ranches in Ethiopia. Despite the huge backward linkage potential, this experience shows that linkage dynamics are not automatic and require effective policy responses.

2.4 **Policy instruments and policy organizations**

As already suggested, a range of policy instruments has been introduced to support selected sectors, such as subsidized development financing, export promotion incentives (devaluation, duty-drawback, voucher schemes, foreign currency retention), trade protection, investment incentives, foreign exchange allocations, privatization and use of SOEs in strategic areas, and the establishment of a sectoral institute and national exports coordination mechanism. The execution and monitoring of incentives were not uniform, however, partly because some incentives (for instance, duty-drawback or voucher schemes) needed tighter monitoring and more advanced administrative capabilities than others. Devaluation did not require any administrative capacity, while investment incentives were easier to administer than export-promotion incentives. Performance criteria and “reciprocal control mechanisms” were not used properly, highlighting the rudimentary nature of industrial policies.

Despite these shortcomings, floriculture performance did respond to incentives, to a significant degree because the narrow latitude for performance standards strengthened export discipline. This was not the case in the leather and leather-products industry. Monitoring the few large firms in the cement industry was not difficult. It was also evident that incentives had a varied impact on different sectors: for instance, devaluation benefited floriculture but weakened the financial position of capital investment projects, which had to import capital goods. The intensity, concentration, and coordination of support improved coherence and impact, as shown positively in floriculture, and negatively, in leather. The key lesson is that policy instruments should not be viewed as a menu to choose from; this is a common misconception. Policy instruments should be used creatively to stimulate the specific industry, based on an understanding of the industrial structure, context, and requirements for monitoring reciprocity. For instance, this means cultivating a cadre of highly trained (PhDs) staff in long-term development finance institutions, with specific knowledge and understanding of specific sectors. Readiness to adjust approaches during execution and to drop instruments when they fail to stimulate the industry is also essential. It also means that policy instruments will need to shift and be upgraded to meet the new demands of the industry (Appendix 1).

**Understanding industrial structure**

Structural transformation is the shift towards new activities with higher productivity, and the industrial policies to achieve this aim (Ocampo, Rada, and Taylor 2009). However, industrial policies cannot be designed without a sectoral approach and an understanding of the industrial structure. Pressure devices can be used, based on knowledge of technological and economic characteristics. The promotion of linkage effects and the role of political economy forces also demand an understanding of the industry, while insertion in the international setting requires familiarity with the industry’s global value chain. Policy instruments should be wisely designed, monitored, and flexibly changed, based on an in-depth grasp of the industry.

**Policy organizations**

The establishment of sectoral agencies and institutes is a critical component in the industrial policy observed in South
Korea and Taiwan, where sectoral development institutes have played pivotal roles in supporting specific industries, in terms of export promotion, skills development, research and development, and enhanced coordination. Ethiopia adopted this practice by establishing the Leather Industry Development Institute (LIDI) in 2010 and other institutes for textiles, food and beverages, pharmaceuticals, and chemicals, etc. EHDA was established based on Kenyan experience and with a push from the industry.

Although the outcomes have been positive, major constraints were observed. Because of weak coordination among government offices, most of the institutes’ efforts have been directed to addressing short-term obstacles. Moreover, the institutes were unable to support industry fully because of low-level staffing, in terms of expertise and experience. Twinning with foreign institutes, promoted to develop capacity, has had limited results. Linkages between institutes and universities and technical schools have been weak. Capacity building of the institutes, with a focus on export promotion, skills development, and development of technological capacity, is critical to increased participation by and nurturing of domestic industrialists. The strategic role of these sectoral organizations is crucial to effective industrial policy, and a single agency should serve as a focal point for each sector.

The NECC, chaired by the prime minister and made up of relevant government agencies, was established after 2005. Full-day, regular monthly meetings were held for almost a decade and have played a critical role in addressing constraints in export performance. However, coordination has become the most binding constraint in the execution of industrial policies, despite multiple efforts. Multiple organizations serve industrial policy, such as the Ethiopian Investment Commission (EIC) spearheading investment promotion; the DBE serving as the development financing arm; and also including the Industrial Parks Development Corporation (IPDC) and major regulatory bodies, such as the National Bank of Ethiopia (NBE), the Ministry of Finance and Economic Development, the Ethiopian Revenue and Customs Authority; and SOEs in strategic areas. Developing intergovernmental cooperation mechanisms in very late industrialization requires relentless efforts and a more comprehensive approach.

3 | Policy learning and industrial policies

3.1 Learning-by-doing and late industrialization

It is argued that learning-by-doing is the primary means of mastering production among late industrializers, and this is equally valid for policymaking. Catch-up can thus be understood as a “process of learning how to compete,” in which the student plays a more central role, despite the importance of the teacher (Amsden 1989, v, vi, 3). From this perspective, the aim and role of industrial policies is to advance the pace of learning and to shape its direction. This is achieved by fostering the learning environment through instruments such as the reciprocity principle and export discipline.

Policy learning in Ethiopia illustrates the importance of policy independence and emulation, in addition to learning-by-doing. As the three case studies demonstrate, policymaking is often complex and full of tensions and conflicts, and policy learning was evident throughout the policymaking process. The Ethiopian government designed policies for the different sectors, which were neither complete successes nor complete failure. The experimentation with policymaking thus provided opportunities for new learning from mistakes and successes alike.

3.2 Policy independence

Policy learning is closely associated with policy independence. Despite its profound importance, policy independence may appear to be a blurred concept. Above all, it means:

… the right, and political space, to make policy choices free of political pressure, or at any rate, without succumbing to particular [narrow] interests. From a slightly more unusual perspective, it means reserving the right to make mistakes and, in the process, to learn from them. Policy independence also means the freedom to make major policy decisions that entail risks and bold experiments. Without this dimension, policy decisions will sustain the status quo. (Oqubay 2015, 286)

Policymaking in Ethiopia has been characterized by relative policy independence, including from donors and IFIs. The struggle to achieve this independence was starkly outlined by Stiglitz (2002, 32) “[W]hen I arrived in 1997, Meles was engaged in a heated dispute with the IMF, and the Fund had suspended its lending program … Ethiopia resisted the IMF’s demand that it ‘open’ its banking system [to foreign banks].” Moreover, the government rejected uniform privatization of public enterprises, reforming public land ownership and “crowding out” the private sector. It also focused on university expansion, despite the advice to focus on primary schools, and expansion of the energy sector. Despite these tensions, the government was an effective partner in mutually beneficial programs, and its implementation record has been remarkable. The decisions noted previously were critical to structural transformation, despite the costs paid.

Moreover, Ethiopia has consistently advocated that African countries should sit in the driver’s seat, with respect to their national development agendas. Not all have followed this advice, even though lack of policy independence has been a major obstacle for many. Curtailment of such independence may arise from many factors, including the Washington Consensus and prescriptions by IFIs and their shareholders. Moreover, the colonial legacy appears to play a role in influencing policymaking in some African countries. Policy independence

23 SOEs can play strategic roles if the state is selective and disciplined about fostering their competitiveness and developing technological capabilities.
may also be undermined by interest groups when state powerholders lack legitimacy and the authority to ensure compliance with their decisions across the whole society.

Policy independence does not come free of cost, but the government of Ethiopia could develop its own policies because of domestic political support and the country’s regional geopolitical importance. Clearly, political economy and international factors are at play here.

### 3.3 Emulation and learning from others

While learning-by-doing is the prime means in policy learning, contacts with forerunners and emulation is also a source of successful strategies for catch-up for very late industrializers. Emulation is observed in different production and policy areas. Another aspect of emulation, and much emphasized by Amsden, is the importance of role models. East Asian economies (South Korea, Taiwan, and China) seeking to catch-up looked to Japan as a role model, while many African countries have no concrete model to emulate, only others’ abstract theories, usually associated with the gurus of Anglo-Saxon capitalism.

Basic policy documents of the Ethiopian government show that East Asian experiences (South Korea, Taiwan, China) have been important sources of policy learning. There have been links with Japanese and South Korean scholars on industrial policy—the Kaizen production philosophy and export promotion (Ohno 2013; Oqubay 2015). The transformation of universities and the technical and vocational education system were developed along German lines with the support of German specialists. South Korean experience informed the development of science and technology universities and the establishment of sectoral institutes. The government’s recent policies on industrial parks and clustering were primarily based on experiences from China, South Korea, and Singapore. In terms of industrial policies, most—specifically, the reciprocity principle, development financing, export discipline, targeted sectors, and the focus on manufacturing sector—are based on the experiences of East Asian countries (Amsden 1989; Amsden and Chu 2003). Emulation was not only a source of experience and knowledge, but also a source of optimism and motivation. There are risks, however, with emulation in terms of policymaking. Emulation without a strategic perspective and long-term vision is most likely misdirected. Understanding the context is important, including the peculiarities of national or local conditions. That, in turn, requires an analytical mechanism, including both independent scholarly research and the perspectives of policymakers. It should be noted that emulation is not synonymous with international benchmarks, which may have limited relevance for the purpose in view. Emulation should, therefore, be viewed as complementary, conditioned to local circumstances to support learning-by-doing, and ultimately tested in experiments.

### 3.4 Learning-by-doing: Should a country take on big and complex projects?

The ability to make bold policy decisions and undertake complex projects has significant implications for structural transformation. Although such projects may face multiple constraints, they may also offer greater opportunities for learning. This approach contradicts the frequent paternalistic advice by development experts and aid organizations to stay away from big and complex projects. Hirschman (1968a, 129) highlighted the conundrum: “... how will the country ever learn about technology if it does not tackle technologically complex and problem-rich tasks?” He added that “a certain ‘unfitness’ of the project for a country becomes an additional and strong argument for undertaking it; ... if it is successful, [the project] will be valuable not only because of its physical output, but even more so because of the social and human changes it will have wrought.”

That this perspective has been relevant in the Ethiopian context is evidenced by several large public investment projects, such as in the sugar and chemical industries, expansion of universities and technical schools, railway and energy projects (including large hydro dams), and an integrated housing development program. For instance, the Grand Ethiopian Renaissance Dam (GERD) is Africa’s largest hydro dam, generating 6,000 megawatts (MW) at a cost of $5 billion, financed entirely domestically. It symbolizes the national aspiration to catch up, and it will boost domestic savings capacity by relaxing the balance of external payments constraint. Thus, the Ethiopian government has been undertaking extraordinarily challenging projects, in which Hirschman’s principle of “the hiding hand” exerts strong pressures and inducements on the government and key players. This may boost the efforts made and learning to ensure that projects do not fail, as the consequences of failure may have significant economic and political costs.

Evidence also suggests that the government was ready to drop major projects when policy decisions were not effective, despite the political implications. One such example is the national condominium development program, which was adopted in the wake of the successful integrated housing development program launched in 2003 in Addis Ababa (UN-HABITAT 2011). Lack of demand and economical housing technology, and shortage of resources and its impact on inflation were among the major problems. The housing program in 65 towns was terminated when it was evident that it had failed in terms of employment creation, alleviating low- and middle-income housing shortages, development of the construction industry, and fostering savings and wealth creation.

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26 For instance, Ohno (2013) observed that Ethiopia’s “active and responsive industrial policy, trial-and-error attitude, and great attention to sectoral details” are East Asian in origin.

27 This point reminds us that latecomers may pursue new industries that may enhance their comparative advantage. See Lin and Chang (2009) and UNECA (2016a).

28 GERD has stimulated savings and domestic mobilization of resources, which was facilitated by expansion of bank infrastructure. For instance, in 2011–15, branches expanded more than fourfold to 2,868.
The scarcest resource for the latest of latecomers is the ability to make development decisions, and development is often more complex than we realize (Hirschman 1958). This is a compelling reason to search for possible pressure mechanisms and inducement devices, such as the latitude for performance standards in different industries or development projects, to accelerate the pace of learning-by-doing (Hirschman 1967). For instance, the floriculture sector has narrow latitude for standards of performance. The sector’s entire production is exported to the European market, which enforces high standards in terms of quality, timely delivery, etc. The perishability of flowers necessitates maximum care, and the industry requires intensive management. Similarly, the latitude for performance standards in the cement industry is narrow, although dislocation from exports allows wider latitude. Where possible, an understanding of the structure of the industry will help to focus on industries with strong linkage effects, thereby offering additional impetus to catch-up. Latitude for performance standards has been an essential instrument, especially given weak application of the reciprocal control mechanism (Amsden 1989).

There have also been serious constraints in and challenges to learning. An important approach used in China’s catch-up (particularly, after opening and reform) is effective piloting or experimentation, an approach well captured in the dictums “feeling the stones to cross the river” and “seeking truth from facts.” Open-minded pragmatism is critical for learning. In Ethiopia, experimentation has seldom been practiced, although it has been used effectively in a few instances. A one-year pilot program preceded the initiation of the integrated housing program, although the learning derived from it was inadequate. A more successful recent pilot project is the development of Hawassa Eco-Industrial Park. It had multiple aims, from gaining experience in designing and building a world class industrial park in record time, to applying and testing relevant principles and requirements (linking an investment pipeline with the industrial park, infrastructure development with clustering, environmental requirements, etc.). Much experience was gained and disseminated to new industrial parks, and the process was supported by cooperation between the state and the private sector, with mutual learning to meet the relevant industrial standards and requirements. Piloting and experimentation should be used as the basis for almost all development projects, as its impact on policy learning is lasting.

In addition, policy learning in Ethiopia has been constrained by ineffective institutional support for policy learning. Major constraints include the thin network of research organizations and inadequate experience of using research in policymaking. Research institutions in government offices or at universities have weak links to industries. Yet how can there be a sufficiently long-term perspective for policy learning without reliable data and deep analyses? Policymakers should be encouraged to rely on research to enhance policymaking, and collective and mutual learning between government and industry should be developed. Finally, learning from one’s own successes or failures requires a positive attitude and environment.

4 | The challenges of structural transformation

4.1 Politics and the political economy of industrial policy

Developmental states have played a leading role in catch-up by late industrializers and are characterized by a grand vision, national mobilization, growth-enhancing management of rents, developmental politics, and embedded autonomy, as evidenced in 20th and 21st century East Asian states (Johnson 1982; Amsden 1989; Chang 1994; Evans 1997; Amsden 2003; Chang 2003; Zenawi 2012). In Ethiopia, politics and political economy have shaped policy outcomes at both sectoral and national levels (Oqubay 2015). Whether a sector is dominated by larger firms or cohesive associations of industrialists or, by contrast, by dispersed smallholders has a substantial impact on the kinds and degree of political pressure that can be brought to bear on government and, hence, on policymaking. Political pressure by social groups depends on their visible presence, strength, and cohesiveness (Hirschman 1968b; Hall 1986). The existing political economy has favored speculative activities rather than productive investments in export-oriented manufacturing (Oqubay 2015). There have been variations in dynamism and the absorptive capacity of the private sector among the floriculture, leather and leather products, and cement sectors. In floriculture, government and industry were a good fit (choosing each other, as it were), building trust and collectively learning. In contrast, in leather and leather products, path dependency (low-value addition and a fixed mindset) and internal fragmentation underminded collective learning (Oqubay 2015). Domestic floriculture firms view FDI firms as sources of technology and market capability, while mutual distrust characterizes the leather sector. There have been tensions in the floriculture sector, partly because of the largest firm’s logistical privileges, but conflicts have been resolved and changes have been negotiated.20

Unlike in South Korea, for example—where the political economy allowed for a concentration of “intermediate assets” among national champions—federalism, ethnic diversity, and a commitment to equitable regional growth make such concentration of rents, industrial clustering, or agglomeration more difficult in Ethiopia. The ruling party’s cohesive political and economic thinking has its roots not only in a disposition to learn from the rapid industrialization of East Asian economies, but also in its emergence as a wartime coalition fighting against the Derg’s military totalitarian rule (1975–91) (de Waal 2012). The government’s pursuit of developmental goals, embedded in the “Ethiopian Renaissance” and focused

20 For instance, as observed in East Asian and Latin American contexts, and in early 18th-century reforms in the United States.

21 There is also clearly a local political economy whereby, for example, large floriculture firms should make deals with local officials to ensure smooth operations. There have also been conflicts of interest over, for instance, levels of compensation and the accuracy of compensation targeting, so that despite the many “winners” (investors, the balance of payments, indirect beneficiaries such as service suppliers, and employees), there are also losers, including people who may have lost access to land or water, or who may not obtain cheap credit for other purposes because it is directed to floriculture.
on longer-term public investment, has also been facilitated by continuity of political rule. Its claim to legitimacy has been based, above all, on its support in rural Ethiopia, a legacy of the liberation struggle. This legitimacy is also tied to the country’s rapid economic growth and focus on more inclusive rural transformation, which has reduced rural poverty and improved economic empowerment.31

Despite widely recognized economic successes, there has been political discontent in urban and certain rural areas, especially after the contentious 2005 national election.32 The increased importance of political and economic inclusiveness, young people’s rising expectations, and tensions within ethnic-based federalism remain significant challenges for the government.33 Considering the long history of political fragility, ethnic diversity, and widespread and profound poverty, a commitment to equitable growth and federalism are essential.34 The government could use this situation as an “internal threat” to further foster its developmentalism and deepen structural transformation to meet popular demands (Doner, Ritchie, and Slater 2005).35

4.2 Climate change and insertion into global value chains

In addition to internal structural constraints, there are significant global trends that impact the country’s policies and plans, to which Ethiopian industrial policy must also adapt. For instance, industrialization poses massive perils for the environment, as has been witnessed in advanced as well as emerging economies. In recent years, climate change has become a major global issue, and a consensus has emerged on how to tackle it—for instance, the COP 21 Summit (UNC-TAD 2016; UNECA 2016b).36 Consumer preferences are shifting, putting pressure on firms and governments for increased environmental protection. Ethiopia has adopted a green economy strategy that aims to reduce greenhouse gas emissions by 64 percent. To meet this objective, industrial policies will require the incorporation of measures to mitigate environmental damage and climate effects.

Another key trend is the rise of global value chains, characterized by the expansion of global production networks (Ruigrok and Tulder 1995). The increasing internationalization and concentration of economic activities, in which multinational companies play a pivotal role, is referred to as the “global business revolution” by Nolan (2014). This process has been accelerated by advances in information and communication technology (ICT) and space-shrinking transportation. Global value chains in different sectors are characterized by distinct characteristics (Schmitz 2007).37 What matters is not openness to international trade but rather the mode of insertion into the global economy, and interconnectedness to domestic linkages (Ocampo, Rada, and Taylor 2009).38

4.3 Structural transformation constraints and the way forward

Despite rapid economic growth in Ethiopia, it is evident that progress in terms of structural transformation has been inadequate. Rapid growth has not seen a corresponding shift in the share of manufacturing in employment, output, and exports, and agriculture continues to employ three-quarters of the population and account for 37 percent of GDP (NPC 2016). Moreover, the sluggish growth of exports has been dominated by low-value and primary commodities, a situation that has, in turn, become a binding structural constraint. The balance of payments constraint has increased as exports fall short of covering the surge in imports, pressing the country to rely on less preferable external resources. With 2.3 million youths entering the employment market annually, job creation is a strategic issue.

The government has recognized that structural transformation is the path to catch-up and for sustained growth. This is an enormous challenge and has profoundly shaped the development of a ten-year plan.39 The government’s Vision 2025, which aims to make Ethiopia “the leading manufacturing hub in Africa,” puts greater emphasis on expanding manufacturing output and large-scale growth in industrial employment. This involves an annual growth rate in the manufacturing sector of 25 percent, and a fourfold increase of manufacturing output (from 5 to 20 percent of the GDP) and exports (from 12.5 to 50 percent). Manufacturing is strongly associated not only with the creation of permanent jobs but also with strong employment linkages by stimulating indirect jobs. This requires the attraction of massive investment in key manufacturing industries, primarily in light and basic industries. To this end, a shift towards a proactive and targeted investment approach has become essential.40 In addition, a

31 With a Gini coefficient of 30, “Ethiopia remains among the most egalitarian countries in the world” (IMF 2015, 5). Despite reductions in poverty, food price inflation has impacted the poorest social groups.
32 And, also, as recently as 2016.
33 The expansion and transformation of university education and technical schools has given rise to the challenge of creating hundreds of thousands of professional and technical jobs for graduates.
34 See Hirschman (2013, 74–90) on the “changing tolerance for income inequality in the course of economic development,” for a discussion of how shifting expectations in segmented societies may lead to disappointment and alienation, and the role of the “hope factor” and “funnel effect.”
36 Climate change requires a global response and “international cooperation and coordination” (Rodrik 2012, 248).
37 For instance, some industries (such as apparel and footwear) are buyer-driven, while others (such as commercial aircraft production) are producer-driven (Schmitz 2007).
38 Despite restrictions imposed by WTO and other bilateral regional agreements, developing countries have room to pursue industrial policies (Rodrik 2012, 198–200; UNECA 2016a, 115–62; Ocampo, Rada, and Taylor 2009). Rodrik (2012: 248) argues that the destinies of such countries are “determined largely by what happens at home rather than abroad” (Rodrik 2012, 248).
39 Successive five-year plans, such as the Growth and Transformation Plan 2010/11-2014/5 (GTP I) (MOFED 2010) have underscored these challenges (for instance, developing manufacturing and the exports sector) and offered lessons for Vision 2025, which will determine the catch-up trajectory of Ethiopia.

better understanding of global value chains has resulted in a focus on attracting leading international buyers as anchors and related international manufacturers.41 New incentives and support schemes have been designed to support domestic industrialists.

Another key policy initiative has been the vigorous and comprehensive promotion of industrial parks and industrial clusters.42 This policy approach contributes to effective environmental protection, rapid industrialization, and development of domestic linkages. Moreover, industrial parks will be specialized to promote linkages, and vertical integration to learning and skills development (Oqubay [forthcoming]). As a learning model, the Hawassa Eco-Industrial Park has been built in record time and to the highest environmental standards.43 Based on this model, a dozen industrial parks are being built along the major railway corridor, thereby alleviating the logistical constraints that manufacturers and exporters currently face, and thereby increasing productivity and profitability by cutting transportation times and costs.

The envisaged “plug-and-play” model of industrial parks serves as an incubator for new domestic industrialists, while working with major international manufacturers creates a learning ecosystem and facilitates learning-by-doing. Industrial parks have been developed by emulating Asia to support structural transformation. They will also enhance prioritization of infrastructural projects and improve the business climate by providing a one-stop service. In the Ethiopian context, this new strategic approach to manufacturing investment and agglomeration is a distinctive feature of Vision 2025. Outcomes will depend on effective execution of the industrial policies and the pace and scope of learning. All these attempts further demonstrate policy learning and a pragmatic approach to industrial policy and industrialization, as well as a reenergized commitment to structural transformation and catch-up.

5 | Conclusion: Lessons from an experiment

This chapter has discussed the Ethiopian experience with industrial policy and performance in the early part of this century. It has done so chiefly by comparing interventions and trajectories in three sectors. Important lessons can be learned from the Ethiopian experiment, and it is hoped that these experiences will add to a broader learning process throughout Africa, where there is increasing interest in researching, designing, and refining industrial policies.

The Ethiopian experiment shows that structural transformation and industrial policy can work in Africa.44 However, it also shows that structural transformation and catch-up are colossal challenges. Next, it shows that industrial policies matter, and the state matters.46 Destiny can be shaped by development paths and policies. Despite the dominant prescription that the state should play a minimal or at most a facilitating role, Ethiopian experience shows that structural transformation and catch-up require that the state play a pivotal, strategic part. This includes formulating a vision and strategy, mobilizing the society and its resources around the vision and development projects, managing tensions, and nurturing developmental partnerships.46

The chapter also shows that, despite growth in all three selected sectors under a single industrialization strategy, performance and policy outcomes were uneven. This highlights the importance for policymakers of understanding and engaging with the interactions and dynamics of specific industries and global value chains, maximizing linkage effects, and having a deep understanding of politics/political economy. All policy decisions are determined through the political process, interest groups, and the state–society relationship (Hirschman 1958; Chang 2003; Whitfield et al. 2015). This has significant repercussions for policy design and execution.

The Ethiopian experience has important implications for policy learning. As Amsden (1989) stresses: “All late industrialisers have in common industrialisation on the basis of learning, which has conditioned how they behaved” (emphasis added). This insight applies not only to industrial production, but also to policymaking. The primary source of policy learning has been learning-by-doing, involving both successes and failures, and by “failing better.” Embracing bold experiments and grand projects has had positive learning implications. The Ethiopian experiment also shows that this was possible because of policy independence and the use of coping devices, such as linkage pressures and latitude for performance standards. Emulation in the form of learning from role models was also used in industrial policymaking. For instance, lessons can be learned from East Asia, such as export discipline and the focus on manufacturing, the reciprocal control mechanism, and choice of priority sectors based on productive rather than political criteria.

40 Opportunities that may positively contribute to the success of the vision include the extension of the African Growth and Opportunity Act (AGOA) until 2025 and the potential relocation of Chinese manufacturing in labor-intensive industries (Lin 2015).
41 Akutumi Kuchiki’s “flowchart approach to industrial clusters” model emphasizes the initial agglomeration stage in which industrial parks, anchor firm, related firms and capacity building are involved; later shifting to the innovation stage (Ohno 2013, 70).
42 Industrial parks and clusters are based on external economies, namely localization that focuses on specific industries and urban economies; and government policies can foster industrial clusters (Marshall 1920; Jacobs 1969; Krugman 1993; Porter 1998). See, also, Stein (2012); Ohno (2013); and Lin (2015) on industrial parks in Asia and Africa.
43 A zero liquid discharge (ZLD) facility has been built. Specializing in apparel and textiles, the park will employ up to 60,000 workers and generate $1 billion in export earnings. A leading global retailer serves as the anchor, and the industrial cluster enjoys 100 percent occupancy by both domestic and foreign manufacturers. See UNECA (2016b, 195–6) on Hawassa Eco-Industrial Park as an example of green industrialization.
44 Ohno (2013, 36–9) emphasized that proactive industrial policy is based on market forces (under globalization), a strong role for the state, vigorously developing skills, capacity and technology, effective state–private sector partnerships, and deep understanding of the industry.
45 See Mazzucato (2013); Schwartz (2010); UNCTAD and UNIDO (2011); and UNCTAD (2016).
46 See Cramer and Chang (2015) and UNECA (2016b) on meta-structural arguments that view climate, geography, history, or culture as key determinants. The economic history of late industrializers offers many examples of the development paths and policies that lead to catch-up.
Industrial policymaking in Ethiopia is a work in progress, but experience there does show that industrial policy can work and thrive in a low-income African country, and that the state can and should play an activist developmental role. For African countries, perhaps an important point of departure is adoption of a structural transformation perspective, to enable understanding of the strategic importance of manufacturing and exports, as well as their complementarities with agriculture. For, among other things, structural transformation is squarely about transformation of agriculture, rather than leaving it behind.
**Appendix 1: Summary of industrial policy review in three sectors**

<table>
<thead>
<tr>
<th></th>
<th>IMPORT–SUBSTITUTION INDUSTRY: CEMENT</th>
<th>EXPORT-ORIENTED INDUSTRY: LEATHER</th>
<th>EXPORT-ORIENTED INDUSTRY: FLORICULTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industrial structure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor/capital intensity</td>
<td>Capital intensive</td>
<td>Labor intensive</td>
<td>Labor intensive</td>
</tr>
<tr>
<td>Ownership structure</td>
<td>Big corporations</td>
<td>Family business</td>
<td>Family business</td>
</tr>
<tr>
<td>Latitude for performance</td>
<td>Narrow</td>
<td>Wide</td>
<td>Exceptionally narrow</td>
</tr>
<tr>
<td>Ownership-origin</td>
<td>FDI, SOE, Domestic</td>
<td>Domestic, FDI</td>
<td>FDI (2/3), Domestic</td>
</tr>
<tr>
<td>Technology</td>
<td>Process production</td>
<td>Batch production</td>
<td></td>
</tr>
<tr>
<td>Expansion approach</td>
<td>Capital deepening</td>
<td>Capital widening</td>
<td>Capital widening</td>
</tr>
<tr>
<td><strong>Linkage dynamics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward linkages</td>
<td>Strong</td>
<td>Weak</td>
<td>Moderate (air cargo)</td>
</tr>
<tr>
<td>Backward linkages</td>
<td>Strong (from construction industry)</td>
<td>Huge potential, weak outcome</td>
<td>Moderate (packaging)</td>
</tr>
<tr>
<td>Fiscal linkage</td>
<td>Strong</td>
<td>Weak</td>
<td>Moderate</td>
</tr>
<tr>
<td>Employment linkages</td>
<td>Strong</td>
<td>Weak</td>
<td>Strong</td>
</tr>
<tr>
<td>History</td>
<td>Founded in 1960s</td>
<td>Founded in 1920s</td>
<td>Founded in 2000s</td>
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<td><strong>Political economy</strong></td>
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</tr>
<tr>
<td>Industry players</td>
<td>Fragmented</td>
<td>Cohesive</td>
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</tr>
<tr>
<td>Industrial association</td>
<td>Nil</td>
<td>Weak</td>
<td>Dynamic</td>
</tr>
<tr>
<td>State–private partnership</td>
<td>Strong</td>
<td>Modest</td>
<td>Strong</td>
</tr>
<tr>
<td><strong>Policy instruments</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment incentives</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Export promotion incentives</td>
<td>NA</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Development financing</td>
<td>Yes (large firms)</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Foreign exchange allocation</td>
<td>Priority</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Protection–Export ban</td>
<td>Nil</td>
<td>On semi-finished goods</td>
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<td>Protection–Import ban</td>
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<td>Five-year plan</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Skills and market support</td>
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<td>Modest</td>
</tr>
<tr>
<td>Reciprocity principle</td>
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<td>Weak</td>
<td>Weak</td>
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<tr>
<td><strong>Policy outcomes</strong></td>
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<tr>
<td>Production output</td>
<td>High growth</td>
<td>Slow growth</td>
<td>Moderate growth</td>
</tr>
<tr>
<td>Export earnings</td>
<td>NA</td>
<td>High growth</td>
<td></td>
</tr>
<tr>
<td>Employment creation</td>
<td>Moderate</td>
<td>Weak</td>
<td>Significant</td>
</tr>
<tr>
<td>Competitiveness</td>
<td>Moderate</td>
<td>Weak</td>
<td>High</td>
</tr>
<tr>
<td>Total economic impact</td>
<td>Significant</td>
<td>Weak</td>
<td>Significant</td>
</tr>
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</table>

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