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Structural transformation via services or manufacturing? Evidence from Ethiopia

Mulu Gebreeyesus
Getachew Ahmed Abegaz

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Mulu Gebreeyesus (Ph.D)
Barnard College, Columbia University

Getachew Ahmed Abegaz
Research Analyst

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Abstract

This paper analyzes Ethiopia's structural transformation from 2000 to 2022 across four dimensions: employment, productivity, skill intensity, and tradability. While the country achieved strong economic growth, averaging 8.9 percent annually, its structural transformation has been uneven and incomplete. Labor has shifted out of agriculture, but mainly into low-productivity informal services, while manufacturing's employment share declined despite policy support. Aggregate productivity growth, though substantial, was driven largely by within-sector gains, with minimal contribution from labor reallocation. High-productivity sectors, including manufacturing and modern services, remain small, capital-intensive, and poorly connected to employment and exports. Ethiopia's tradable sector is narrow, dominated by agricultural commodities and air transport, with limited value-added in manufacturing and ICT. Comparative analysis shows that while Ethiopia has outpaced many African peers in productivity, it lags in employment absorption and export diversification, contrasting sharply with East Asia's inclusive, manufacturing-led growth. The findings point to a disconnect between output growth and structural inclusion. Addressing this requires a hybrid strategy that expands labor-intensive manufacturing, upgrades informal services, aligns skills with market demand, and diversifies tradable activities. Ethiopia's experience offers a critical lesson for other developing countries: sustained transformation depends not only on growth, but on how this growth reallocates labor and resources toward more productive sectors.

Contents

1. Introduction

Structural transformation, the process by which economies shift labor and output from low-productivity to high-productivity sectors, has historically followed a stylized path: from agriculture to manufacturing, and subsequently to services. This industrialization-centric model underpinned the economic transformation of today's advanced economies and many East Asian success stories (Kaldor, 1967; Szirmai, 2012). Manufacturing has traditionally been viewed as the engine of structural change due to its dual capacity to drive productivity growth and absorb surplus labor from agriculture.

The literature provides strong theoretical and empirical support for this view. Manufacturing industries benefit from scale economies, learning effects, and technological innovation. They also tend to be tradable and linked to broader global value chains, enhancing opportunities for export-led growth and technological diffusion (Szirmai and Verspagen, 2015). In contrast, services have often been characterized as non-tradable, domestically oriented, less prone to productivity growth, and limited in their ability to absorb labor at scale (Nayyar, Hallward-Driemeier, and Davies, 2021).

While the traditional view positions manufacturing as the principal driver of structural transformation, this notion has come under increasing scrutiny in recent years, both empirically and theoretically. Three interrelated developments have contributed to this reassessment. First, rapid advances in automation and artificial intelligence have sharply reduced the labor-absorbing potential of manufacturing, even in labor-abundant developing economies. This challenges one of the core premises of classical industrialization that manufacturing can provide large-scale employment for low-skilled workers (Rodrik, 2015). Second, environmental sustainability concerns have intensified. The carbon- and resource-intensive nature of many industrial processes has cast doubt on the viability of traditional industrial expansion, prompting calls for green growth strategies and circular economy models better aligned with long-term ecological goals (OECD, 2020).

Third, the global manufacturing landscape has become increasingly inhospitable to late industrializers. As Lall (2005) observes, the pace of technological upgrading and the proliferation of stringent quality, safety, and environmental standards have significantly raised the entry barriers for developing countries. These shifts demand institutional capacities and skilled labor that many low-income economies currently lack. Furthermore, the dominance of China and other established Asian exporters in labor-intensive manufacturing has eroded the space for new entrants to compete effectively in global value chains (UNIDO, 2022).

Empirical evidence further complicates the case for manufacturing-led transformation. Over the past three decades, many low- and middle-income countries have experienced what Rodrik (2016) terms "*premature deindustrialization*". This refers to a pattern in which the manufacturing share of employment and value added peaks at lower income levels and earlier stages of development than was historically the case in now-advanced economies. This suggests that industrialization may no longer offer the same transformative potential it once had.

Concurrently, the service sector has emerged as an increasingly important driver of growth, particularly in economies that have struggled to industrialize. Nayyar et al. (2021) document that over the past 30 years, in most low- and middle-income countries, the decline in agriculture's contribution to GDP has been offset more by the expansion of services than by industrial growth. While East Asia exemplifies the classical model of manufacturing-led transformation, other regions including Sub-Saharan Africa and Latin America have seen stalled industrialization and rising dependence on services.

Evidence from South Asia, particularly India, demonstrates that services can drive structural transformation when enabling conditions are in place (World Bank, 2024). In contexts where digital infrastructure and human capital investments are strong, tradable services such as information and communication technology (ICT), finance, and business process outsourcing (BPO) have demonstrated the capacity to generate both productivity gains and global market integration. These developments have broadened the policy debate, prompting a re-evaluation of whether manufacturing should remain the default sectoral priority for structural transformation, or whether certain services can serve a similar or even superior role under contemporary global conditions.

Ethiopia presents a particularly compelling case in the contemporary debate on structural transformation. Unlike many of its Sub-Saharan African peers, Ethiopia articulated an explicit industrial development strategy as early as the 2000s, at a time when industrial policy was still widely discouraged by mainstream development orthodoxy. This strategy envisioned structural transformation anchored in light manufacturing, with a focus on labor-intensive and export-oriented industries as the primary vehicles for growth and employment generation (Gebreeyesus, 2014).

Over the following two decades, successive five-year development plans reiterated this commitment. The government invested heavily in industrial parks, transport infrastructure, and electricity generation, and offered targeted incentives to attract both domestic and foreign investors into the manufacturing sector. The ambition was clear: to position Ethiopia as a competitive manufacturing hub and to shift its economic structure toward industry-led development (Ministry of Industry, 2013).

Yet, despite the scale and consistency of this policy effort, manufacturing has consistently underperformed relative to expectations. Its contribution to GDP has remained modest, fluctuating between 4 and 7 percent, with even smaller shares in total employment (typically under 5 percent) and in merchandise exports (rarely exceeding 10 percent). In contrast, the service sector has expanded rapidly and now plays a far more prominent role in the economy. Services account for more than 40 percent of GDP and roughly 30 percent of employment, far surpassing manufacturing in both dimensions. Section 4 presents further details on the Ethiopian economic performance. Moreover, the value of service exports, especially in areas such as air transport, and tourism related services, exceeds that of manufacturing exports, further challenging the sectoral priorities embedded in national development plans.

This divergence between long-standing industrial policy commitments and actual sectoral performance presents a profound policy dilemma. Should Ethiopia persist with its manufacturing-

centered strategy despite persistent structural and global headwinds? Or should it recalibrate and give greater emphasis to service-led transformation pathways that appear, empirically, to be more aligned with the country's growth dynamics? Alternatively, is there a case for adopting a more integrated or hybrid approach—one that pragmatically leverages complementarities between selected manufacturing and service subsectors?

This study takes up this critical policy question by examining Ethiopia's experience in detail. In doing so, it seeks to contribute to two related debates. First, it aims to inform the ongoing global discussion on whether manufacturing remains the indispensable driver of transformation in low-income countries, or whether services can increasingly play a central role. Second, it provides an evidence-based foundation for Ethiopian policymakers to revisit the assumptions, instruments, and sectoral priorities of development strategy in light of evolving domestic realities and global trends.

The analysis is organized around four interrelated themes that reflect key dilemmas in Ethiopia's current development trajectory. The first concerns ***skill intensity*** specifically, whether Ethiopia's manufacturing sector has become increasingly skill-intensive, and how this shift affects its potential for inclusive job creation, particularly for low-skilled workers. It also explores the wide variation in skill composition across service subsectors, including those that may offer large-scale opportunities for low-skilled labor. The second theme addresses ***employment generation***, examining the relative contributions of manufacturing and services to job creation, and the extent to which service-led growth is occurring in low-productivity, informal segments. The third theme investigates ***productivity performance***, comparing labor productivity growth across sectors, decomposing the sources of productivity growth and evaluating whether high-skill service subsectors are emerging as productivity leaders. Finally, the fourth theme focuses on ***tradability and external orientation***, assessing whether tradable services such as tourism, ICT, transport, and professional services are becoming significant contributors to export earnings and global integration, alongside the performance of manufacturing exports and industrial parks. Together, these four thematic areas provide the analytical framework through which the study evaluates the potential of manufacturing, services, or a strategic combination of both to drive Ethiopia's structural transformation in a sustainable and inclusive manner.

This study employs a mixed-methods approach that combines descriptive trend analysis with quantitative decomposition techniques, drawing on both national and international data sources. The empirical analysis uses nationally representative datasets, including labor force surveys, national accounts, education statistics, manufacturing surveys, and other official sources. These are used alongside international databases such as the ILO's ILOSTAT, the World Bank's World Development Indicators, and the Africa Supply and Use Tables Database, which provide essential comparative and historical benchmarks to situate Ethiopia's experience within broader regional and global contexts.

The remainder of the paper is organized as follows. Section 2 reviews the relevant theoretical and empirical literature on structural transformation, with a focus on the roles of manufacturing and services in low-income economies. Section 3 provides a policy overview of Ethiopia's industrial and service sector strategies, tracing the evolution of its development plans and institutional priorities. Section 4 presents a macro-level assessment of Ethiopia's growth patterns since the early 2000s, placing them in comparative perspective with regional averages and peer countries using key indicators such as GDP, employment, productivity, and trade. Section 5 through section 8

respectively delivers a comparative analysis of the manufacturing and service sectors across four dimensions: skill intensity, employment dynamics, productivity growth, and tradability. Section 9 synthesizes the findings, drawing together the evidence to assess the relative potential of the two sectors in driving structural transformation. It also offers conclusions and policy implications, including strategic recommendations for fostering inclusive and sustainable economic transformation in Ethiopia.

2. Literature Review: Rethinking Sectoral Pathways to Structural Transformation

Structural transformation, the shift of labor and output from low- to high-productivity sectors, has long been central to development theory. Traditionally, this process was equated with a transition from agriculture to manufacturing, followed by the rise of services in later stages. This classical path was credited with driving productivity growth, job creation, and export diversification in now-industrialized countries. However, in today's global economy, shaped by technological disruption, consolidation of global value chains, and climate imperatives, the viability of this path for low-income countries is increasingly uncertain.

The theoretical foundations of structural transformation have long emphasized the primacy of manufacturing. Kaldor (1967) and subsequent structuralist approaches posited that manufacturing offers superior opportunities for productivity growth due to dynamic scale economies, technological spillovers, and strong linkages with other sectors. Manufacturing was also seen as uniquely capable of absorbing large numbers of low-skilled workers released from agriculture. However, recent scholars question whether this traditional view remains tenable. Rodrik (2016) and Hallward-Driemeier and Nayyar (2018) argue that low- and middle-income countries are experiencing premature deindustrialization, with manufacturing peaking at lower income levels and declining shares in employment and output. Automation, the rising skill intensity of manufacturing, and the dominance of established players, particularly China, in global manufacturing supply chains have diminished the comparative advantage of late-industrializers. These trends have prompted renewed interest in whether services can fill the gap once occupied by manufacturing.

Empirical evidence across regions reveals starkly contrasting experiences. Asian countries, particularly in East and Southeast Asia, have largely followed the classical path of productivity-enhancing structural change, driven by export-led industrialization and competitive manufacturing sectors. In contrast, Latin America and Africa have often experienced productivity-reducing structural change, with labor moving out of agriculture into informal services that offer limited productivity gains (McMillan and Rodrik 2011). In Africa, in particular, the rise of services has not always coincided with improvements in productivity or employment quality. Gollin et al. (2024) note that although some productive sectors such as business and financial services have emerged, they employ only a small share of the workforce. The bulk of labor continues to be absorbed by agriculture, personal services, and retail trade, sectors that are among the least productive. This pattern reflects persistent structural constraints that hinder labor mobility into more dynamic sectors, including skill mismatches, low levels of private investment, weak industrial linkages, and regulatory or infrastructural barriers. As a result, even when high-productivity sectors grow, their capacity to absorb large segments of the labor force remains limited, weakening the inclusive potential of structural transformation.

Skill intensity is central to this debate. While manufacturing was once considered a low-skill-intensive entry point for structural transformation, it is increasingly characterized by rising skill thresholds, particularly in export-oriented and technology-intensive subsectors (Rodrik 2015; Lall 2005). Within Africa, studies highlight that many manufacturing firms remain small and informal, contributing little to formal low-skill employment (Baccini et al. 2022). By contrast, the service sector spans a wide skill spectrum. On one end, digital services, finance, and ICT are high-productivity and high-skill intensive; on the other, retail, hospitality, and personal care services offer employment opportunities for low-skilled workers, albeit often in informal settings (Nayyar et al. 2021). This variation raises critical questions about whether service-led growth can deliver both scale and inclusivity in employment.

Closely related is the issue of **employment generation**. In most African countries, labor leaving agriculture has primarily entered low-productivity services rather than manufacturing. Gollin et al. (2024) report that tradable services absorbed 4.4 percentage points of agricultural labor, compared to just 0.6 percentage points for manufacturing. While this suggests a modest role for modern services, it also highlights the limited absorptive capacity of both manufacturing and high-productivity services. Baccini et al. (2022) characterize this shift as "structural transformation without industrialization." Within this context, some scholars (Newfarmer, Page, and Tarp 2018) argue for recognizing "industries without smokestacks" such as agro-processing, tourism, and IT-enabled services as alternative drivers of transformation, given their rising tradability and employment potential.

The question of ***productivity*** remains at the heart of the structural transformation agenda. McMillan and Rodrik's (2011) decomposition of productivity growth highlights two sources: within-sector improvements and structural change due to labor reallocation. While Asian economies benefited from both, Latin America and Africa have often seen labor reallocated from higher- to lower-productivity sectors – such as from manufacturing into informal services – thereby reducing overall productivity growth. Gollin et al. (2024) confirm that despite some productivity gains in tradable services and manufacturing, the bulk of Africa's labor remains in stagnant or marginally improving sectors. Nayyar et al. (2021) acknowledge that while some service subsectors are as productive, or even more productive than manufacturing, those with the fastest employment growth in low-income countries tend to be less productive. These disconnects between job creation and productivity remain a central challenge to service-led development strategies.

Finally, the ***tradability*** of services and their role in export performance is a growing area of inquiry. Historically, manufacturing was considered the most tradable sector, serving as a channel for foreign exchange earnings, technology transfer, and integration into global markets. However, as Loungani and Mishra (2014) and Dihel and Goswami (2016) show, advances in digital infrastructure and transport have increased the tradability of services, particularly in sectors such as tourism, logistics, education, ICT, and business processing. Nayyar et al. (2021) highlight that many modern services now account for a rising share of exports in low-income countries and often exhibit higher domestic value-added shares than manufacturing, indicating stronger backward linkages. Nevertheless, the tradability of services is uneven and often tied to the availability of skills and digital infrastructure. In the African context, services exports remain small relative to manufacturing and face capacity and regulatory constraints (Gollin et al. 2024; Baccini et al. 2022).

Taken together, these findings suggest that the pathways to structural transformation are becoming more diverse but also more complex. While the rise of tradable, high-productivity services offers new opportunities, challenges remain in terms of scale, inclusion, and sustainability. Manufacturing still holds potential, particularly in labor-intensive subsectors, but its ability to serve as the sole driver of transformation has diminished. As several authors suggest (Hallward-Driemeier and Nayyar 2018; Gollin et al. 2024), a more realistic strategy for low-income countries may lie in combining the strengths of both manufacturing and services; emphasizing complementarities, addressing capability constraints, and tailoring policies to sectoral heterogeneity.

Despite growing evidence, critical gaps remain. First, strategies for scaling tradable services in contexts of informality and low digital infrastructure are not well understood. Second, the long-term productivity trajectories of low-skill-intensive service subsectors remain unclear. Third, the potential synergies between services and manufacturing such as through logistics, finance, and digital integration are underexplored. Finally, African-focused research on service-led transformation is still thin and often detached from policymaking. Addressing these gaps is essential to crafting inclusive, realistic structural transformation pathways in the 21st century.

3. Policy Background: Development Vision and Evolving Implementation Strategies

3.1. The Foundational Vision: Agriculture Development-Led Industrialization (ADLI)

Ethiopia's long-term development agenda has been consistently framed by the objective of structural transformation. Since the early 1990s, this has been anchored in the vision of Agricultural Development–Led Industrialization (ADLI), a strategy that placed agriculture at the core of economic transformation. The rationale was that productivity improvements in agriculture would generate surplus, increase rural incomes, and stimulate demand for industrial goods, while also supplying raw materials for agro-processing and supporting the emergence of labor-intensive manufacturing. Industrial development, in this framework, was to follow as a second phase, grounded in backward and forward linkages with agriculture, supported by targeted investment in labor-intensive, export-oriented, and import-substituting industries. The promotion of micro and small enterprises (MSEs) and rural-urban linkages was also emphasized as a stepping stone toward broader industrialization and employment generation.

ADLI provided the overarching framework for Ethiopia's subsequent national development plans and industrial strategies. However, as the country sought to operationalize the goals of ADLI, it became necessary to define a more concrete approach to industrialization, particularly one that could translate structural transformation into targeted sectoral interventions. Gebreeyesus (2014) presents an excellent review of the industrial policy genesis in Ethiopia. This review focuses on developments over the past three decades, in line with the period shaped by these policy shifts and aligns with the broader objectives of this study to assess the evolving sectoral dynamics of Ethiopia's structural transformation.

3.2 The Industrial Development Strategy (IDS): Strategic Priorities for Manufacturing

A major policy milestone came in 2002–2003 with the adoption of a comprehensive Industrial Development Strategy (IDS), which laid the foundation for Ethiopia's contemporary industrial

policy (FDRE, 2002). The IDS declared export orientation, labor intensity, and linkages with agriculture as its core principles. It explicitly identified selected manufacturing subsectors as priority areas including textiles and garments, leather and leather products, meat processing, sugar, and food and beverage products. These industries were chosen for their labor absorption potential, their backward linkages with the agricultural sector, and their comparative advantage in international markets.

The strategy also recognized the need for strong state support to overcome initial capacity and competitiveness constraints in the manufacturing sector. The government committed to extensive public interventions to promote the targeted industries, including direct investment, infrastructure development, industrial clustering, human capital development, and targeted incentive packages. The IDS became the cornerstone for Ethiopia's industrial policy for the next two decades and set the stage for more ambitious plans, most notably under the Growth and Transformation Plans, aimed at transforming Ethiopia into a manufacturing hub. The strategy signaled a shift toward an activist industrial policy, with the state taking an active role in shaping and supporting manufacturing development especially export-oriented manufacturing (Gebreeyesus, 2014, Ohno 2009).

3.3 Development Plans as Instruments of Structural Transformation

Building on the foundation of ADLI and the IDS, Ethiopia launched a series of five-year development plans to translate its strategic vision into actionable policies. The *Sustainable Development and Poverty Reduction Program (SDPRP, 2002–2005)* marked the first attempt to integrate ADLI principles with broader macroeconomic management and poverty reduction goals. It emphasized agricultural modernization, rural infrastructure, and private sector participation as the basis for long-term transformation.

The *Plan for Accelerated and Sustained Development to End Poverty (PASDEP, 2005/06–2009/10)* maintained the agriculture-first approach but began to promote small-scale manufacturing and export diversification more actively. Industrial development remained modest but became increasingly visible, with the government investing in telecommunications infrastructure, basic logistics, and policy reforms aimed at facilitating investment and trade.

The *Growth and Transformation Plan I (GTP I, 2010/11–2014/15)* marked a decisive shift toward implementation of the industrial vision outlined in the IDS. The plan identified the narrow industrial base as a binding constraint on structural transformation and set ambitious goals for developing export-oriented and import-substituting manufacturing, particularly in the labor-intensive sectors already prioritized by the IDS. Mega-infrastructure projects, including railways and energy generation, were launched to support industrial development and export logistics. While the private sector was recognized in policy, the state retained a central role in financing, planning, and implementation (FDRE, 2011).

The *Growth and Transformation Plan II (GTP II, 2015/16–2019/20)* significantly expanded this agenda. Drawing directly from the IDS's core principles, GTP II (FDRE, 2016) set the ambitious target of making Ethiopia a leading light manufacturing hub in Africa by 2025. This vision was operationalized through a national *industrial parks strategy*, which offered plug-and-play infrastructure, fiscal incentives, and export facilitation to attract foreign and domestic investors. Key sectors such as textiles and garments, leather, and agro-processing received concentrated support, resulting in a surge in foreign direct investment (FDI) and increased global visibility for

Ethiopia's industrial ambitions. Productivity enhancement programs, such as the *Kaizen system*, and targeted vocational training were introduced to improve competitiveness and workforce quality.

Despite these efforts, structural transformation during the GTP era remained limited. Manufacturing's share of GDP and employment rose only marginally. The export base remained narrow, and forward and backward linkages with the rest of the economy were weak (Gebreeyesus, 2018). Nonetheless, the GTP II period marked the high point of Ethiopia's state-led industrialization strategy under the IDS framework.

With the change in political leadership in 2018/19, and growing macroeconomic pressures, the government launched the *Home-Grown Economic Reform Agenda (HGER)*. While maintaining industrial development as a national goal, HGER represented a shift in emphasis: from direct state-led investment to private sector–driven, macroeconomically balanced transformation. The reform agenda aimed to reduce public debt, liberalize key sectors (telecom, logistics, and finance), and improve the business environment. The manufacturing sector remained a policy priority, but increasingly, the service sector such as ICT, logistics, and tourism began to receive greater policy attention as alternative growth engines. This shift did not signify the abandonment of the IDS, but rather a pragmatic recalibration to reflect implementation challenges and changing comparative advantages.

The *Ten-Year Perspective Development Plan (2020–2030)* extends and integrates the Home-Grown Reform Agenda into a longer-term development vision. It retains structural transformation as a core objective but places greater emphasis on *multi-sectoral, inclusive, and market-oriented growth*. Manufacturing continues to be supported, but now as part of a broader diversification strategy that includes agriculture, mining, tourism, and tradable services. The plan prioritizes private investment, export diversification, digital economy development, and financial sector reforms to enable higher productivity and job creation (FDRE, 2020).

In sum, Ethiopia's transformation policy has evolved through three broad phases. The ADLI strategy provided the conceptual foundation for agricultural modernization and rural development. The Industrial Development Strategy introduced a focused, state-supported push toward export-oriented, labor-intensive manufacturing. The GTP I and II plans sought to scale up this vision through public investment, industrial parks, and infrastructure development. More recently, the Home-Grown Reform Agenda and the Ten-Year Plan have emphasized the private sector and services as critical drivers of a more diversified and sustainable transformation.

The IDS remains a cornerstone of Ethiopia's industrial policy, shaping both the sectoral priorities and the instruments employed across two decades of development planning. Yet its implementation has revealed both the potential and the limits of state-led industrialization, prompting a broader policy debate about the balance between manufacturing and services in Ethiopia's structural transformation journey.

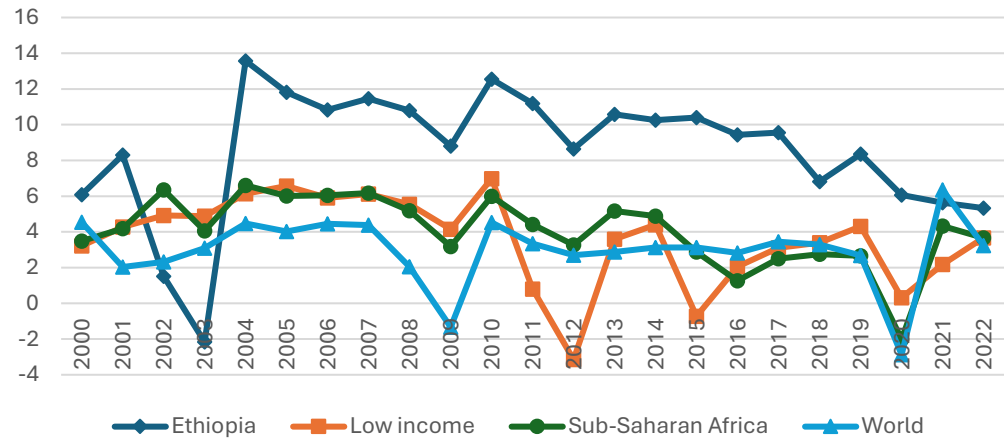
4. Ethiopia's Overall Economic Performance (2000 – 2022)

4.1 Economic Growth Trends

Ethiopia's economic performance over the last two decades has been remarkable in both pace and consistency. As shown in Figure 4.1, which illustrates the annual GDP growth rate from 2000 to

2022, Ethiopia's growth trajectory stands out in comparison to global and regional peers. During this period, Ethiopia achieved an average annual GDP growth rate of 8.9 percent, far surpassing the average growth recorded by low-income countries (3.6 percent), Sub-Saharan Africa (4.0 percent), and the world as a whole (3.0 percent). This strong performance places Ethiopia among the fastest-growing economies in the world over the period under review.

Figure 4.1: GDP Growth rate (%) annual average (2000 - 2022)



Source: WDI/World Bank database GDP annual growth rate (%) at constant price

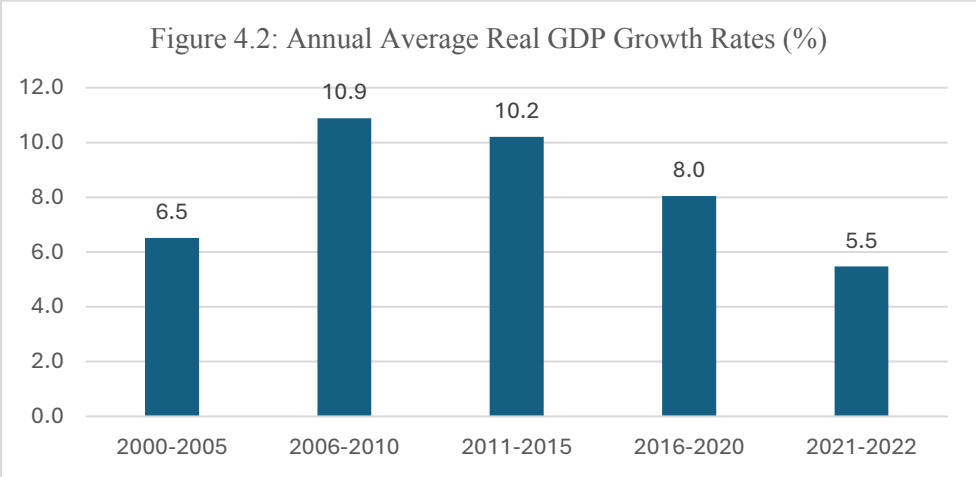
However, the country's growth path has not been uniform. The growth fluctuations can better be understood in light of five key development phases, each shaped by shifts in national policy priorities and external shocks. These phases include the ***pre-PASDEP period*** (***2000–2005***), the Plan for Accelerated and Sustained Development to End Poverty (***PASDEP, 2006–2010***), Growth and Transformation Plan I (***GTP I, 2011–2015***), Growth and Transformation Plan II (***GTP II, 2016–2020***), and the Home-Grown Economic Reform (***HGER***) period (***2021–2022***).[1]

Figure 4.2 presents average annual growth rates of GDP by these development phases. The pre-PASDEP period (2000–2005) was characterized by relatively modest growth, averaging 6.6 percent per year. This phase reflected the post-conflict challenges following the Ethio-Eritrean war (1998–2000), as well as the adverse effects of the 2002–2003 drought.

Despite these setbacks, the groundwork was laid for the subsequent acceleration in growth, particularly after 2004, when a combination of macroeconomic stabilization and development-oriented reforms began to take hold. The PASDEP phase marked Ethiopia's entry into a higher growth trajectory, with the economy growing at an average of 10.9 percent per year. Under GTP I, Ethiopia maintained strong momentum with 10.6 percent average GDP growth. Both the PASDEP and GTP I periods (2006 – 2015) represent what may be termed the "golden years" of Ethiopia's recent economic history. Growth during this time was underpinned by massive public investment

[1] The Home-Grown Economic Reform (HGER) agenda was officially launched in late 2019, with HGER 2.0 initiated in 2020 and continuing to the present. In this analysis, we designate the HGER period as beginning in 2021 to avoid overlap with the final years of the Growth and Transformation Plan II (GTP II), which formally extended through 2020.

in infrastructure, expansion in basic services, and improvements in macroeconomic management, all occurring in a context of relative political stability.



Source: WDI/World Bank database GDP annual growth rate (%) at constant price

The pace of growth began to decline during the GTP II period (2016–2020), with the average annual rate falling to 8.0 percent. While this rate was still high by global standards, it marked a deceleration compared to the previous decade. A combination of internal and external factors contributed to this slowdown. Structural weaknesses such as growing trade and savings-investment deficits, rising inflation, which are largely driven by expansive public investment and increasing macroeconomic imbalances began to surface more clearly. These challenges were compounded by political uncertainty and mounting tensions, including leadership transitions and peace concerns, which affected investor confidence and disrupted economic activity.

The most recent period, covering 2021 to 2022, was even more challenging. GDP growth dropped to 6.4 percent. While these rates are respectable in the context of major disruptions, they mark a clear departure from the double-digit growth years of PASDEP and GTP I. The global COVID-19 pandemic disrupted supply chains and slowed international trade and investment. At the same time, Ethiopia faced a costly internal conflict in the northern part of the country, which escalated between 2020 and 2022. These overlapping crises had a tangible impact on economic output, public finance, and investment.

Table 4.1 presents the performance of overall economic wellbeing measured by GDP per capita and comparing with low-income countries, regional and global averages. The comparative data reveal that Ethiopia has made significant progress in raising GDP per capita, both in constant 2015 US dollars and in purchasing power parity (PPP, constant 2021 international dollars), across all development phases from 2000 to 2022. Starting from a low base, Ethiopia's GDP per capita nearly tripled in constant 2015 US dollars (from $271 during 2000–2005 to $833 in 2021–2022), and more than tripled in PPP terms (from $854 to $2,622). This upward trend reflects the broader national growth narrative, particularly the acceleration during the PASDEP and GTP phases, which prioritized infrastructure, public investment, and service sector expansion. Notably, by 2021–2022, Ethiopia had surpassed the average GDP per capita of low-income countries in both measures, a reversal of the early 2000s when it lagged behind. However, the country still trails the Sub-Saharan

African and global averages, underscoring persistent structural constraints and the need for deeper transformation to sustain convergence with middle-income thresholds.

Table 4.1 Ethiopia's GDP per capita pattern comparing with regional and global averages

	2000-05	2006-10	2011-15	2016-20	2021-22
GDP per capita (constant 2015 US$)	(average over the periods)				
Ethiopia	271.4	379.4	542.9	735.3	833.0
Low income	626.8	726.0	721.7	706.1	699.4
Sub-Saharan Africa	1,260.6	1,463.0	1,591.4	1,590.4	1,567.7
World	8,150.6	9,110.4	9,790.5	10,618.4	11,230.7
GDP per capita, PPP (constant 2021 international $)					
Ethiopia	854.1	1,194.3	1,709.0	2,314.7	2,622.0
Low income	1,899.6	2,249.5	2,280.9	2,341.1	2,322.3
Sub-Saharan Africa	3,349.2	3,891.8	4,263.1	4,309.7	4,268.8
World	13,309.9	15,400.6	16,974.2	18,698.0	19,889.9

Source: WDI/WB database and own compilation

However, the nature and implications of this growth to structural transformation can only be fully understood by examining changes in sectoral composition and contributions to the overall GDP and employment growth over time. The following subsections present in order the output, employment and export contributions and patterns of structural transformation in Ethiopia focusing on the major sectors.

4.2 Sectoral Growth and Contributions to GDP

To offer deeper insights into Ethiopia's structural transformation, this section examines sectoral growth patterns across major development phases, followed by an analysis of sectoral contributions to overall GDP growth in relation to changing sectoral composition.

Ethiopia's growth performance over the past two decades has been driven by distinct patterns across agriculture, services, and industry. At the sectoral level, industry registered the highest average annual growth rate of 13.5 percent between 2000 and 2022, reflecting the country's emphasis on industrialization as a cornerstone of its development strategy (Table 4.2). Industrial growth accelerated notably during the Growth and Transformation Plan (GTP) periods, reaching 19.1 percent during GTP I (2011–2015) and 15.5 percent during GTP II (2016–2020). This expansion was largely fueled by heavy investments in infrastructure, industrial parks, and public enterprises. However, within industry, it was the "other industries" category (mainly construction and utilities) that grew more rapidly than manufacturing, suggesting a construction-driven rather than manufacturing-led industrial expansion.

The services sector also played a significant role, showing an average annual growth rate of 9.6 percent over the period. Services growth was particularly strong during the PASDEP and GTP I phases, with rates of 14.4 and 11.0 percent respectively. This reflects robust expansion in trade, transport, telecommunications, and financial services. However, services growth slowed somewhat during GTP II, indicating possible saturation in urban service markets and emerging constraints in key service sub-sectors.

Table 4.2: Annual Average Real GDP Growth Rates (%) by sector, 2000-2022

Growth rate by sectors	2000-05	2006-10	2011-15	2016-20	2021-22	2000-22
Agriculture	5.6	8.4	6.6	4.1	5.9	**6.1**
Service	6.1	14.4	11.0	8.2	7.0	**9.6**
Industry	12.3	10.1	19.1	15.5	6.1	**13.5**
Manufacturing	5.0	9.7	16.2	13.0	5.0	**10.5**
Other industries	18.1	10.3	20.2	16.4	6.5	**15.4**
Overall GDP growth rate	**6.6**	**10.9**	**10.6**	**8.6**	**6.4**	**8.9**

Source: WDI/WB database

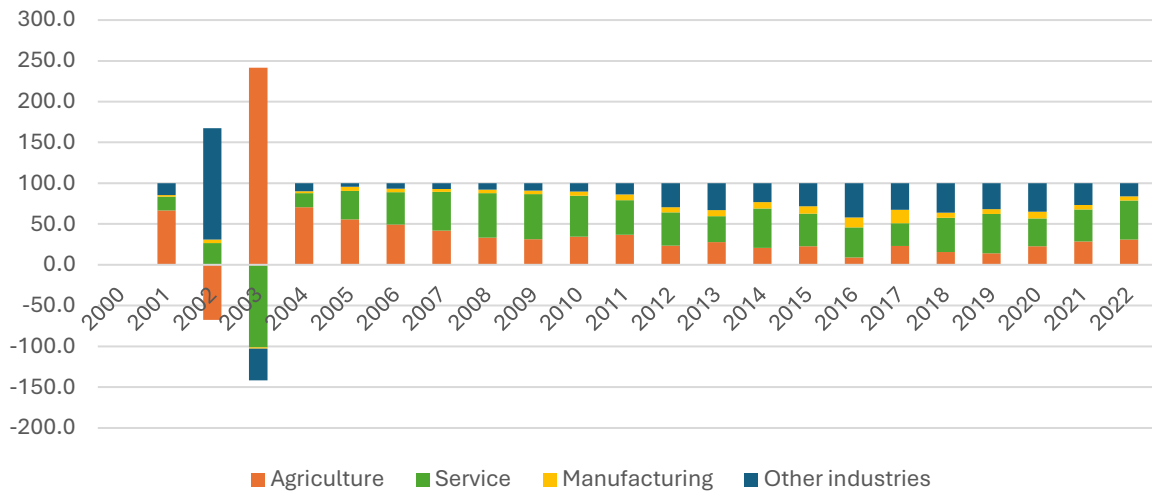
Agriculture, while growing more modestly than services and industry, remained vital for Ethiopia's economic base. It achieved its highest growth during PASDEP (8.4 percent), supported by productivity-enhancing interventions and favorable weather conditions. However, agriculture's growth rate declined notably during GTP II, averaging only 4.1 percent, reflecting persistent structural challenges including land fragmentation, low mechanization, and vulnerability to climate variability.

While sectoral growth rates reveal important shifts, understanding the dynamics of structural transformation requires examining not only how fast sectors grow but also their relative weight in the economy and their contributions to overall GDP growth. A rapidly growing sector with a small base may have a limited immediate impact on aggregate output, while a moderately growing sector with a large share can exert a much stronger influence. Therefore, a comprehensive assessment of both sectoral growth dynamics and the evolving structure of the economy is essential to capture the nature and depth of Ethiopia's transformation.

Sectoral contributions to GDP growth, as shown in Figure 4.3, reveal important changes over time. In the early 2000s, agriculture was the dominant contributor to growth, especially during the strong rebound in 2004 following the severe drought of 2002–03. During this period, agriculture's large share of GDP, combined with substantial output fluctuations, meant that it had an outsized influence on overall growth. However, from the mid-2000s onward, agriculture's relative contribution steadily declined as Ethiopia's economy diversified.

The service sector emerged as the principal driver of growth starting around 2005–2006 and maintained this position throughout the PASDEP, GTP I, and GTP II periods. The services sector consistently made sizable contributions to GDP growth, both because of its rapid expansion and its rising share in the economy. The industry sector's contribution also expanded substantially, particularly from 2010 onwards. However, a closer disaggregation reveals that most of this contribution came from "other industries" rather than manufacturing. Construction, mining, and utilities became key growth engines, while manufacturing's contribution, although positive, remained relatively modest. Manufacturing's share of GDP increased only slightly from 5.0 percent in 2000 to 6.7 percent in 2022, despite strategic policy attention.

Figure 4.3. Contribution of Major Sectors to Overall GDP Growth, 2000 - 2022



Source: NBE own compilation

The pattern of structural transformation that emerges from these trends is distinctive. Ethiopia has indeed shifted away from an agriculture-dominated economy, with agriculture's GDP share falling from 55.4 percent in 2000 to 32.3 percent in 2022 (Table 4.3). However, rather than being driven by a strong manufacturing sector, the classic pathway of structural transformation observed in East Asia, Ethiopia's transformation has been predominantly service-led and construction-driven. By 2022, services accounted for 40.0 percent of GDP, up from 35.2 percent in 2000. This shift indicates a broader transformation toward an urbanizing and consumption-driven economy. Industry also expanded its GDP share from 9.4 percent to 27.7 percent, but this was primarily due to the growth of construction and utilities rather than manufacturing.

Table 4.3: Sectoral Shares in GDP (%), (2000 – 2022)

Sectoral share to GDP (%)	2000	2005	2010	2015	2020	2022
Agriculture	55.4	52.7	46.6	39.5	32.6	32.3
Service	35.2	34.7	38.9	39.5	39.5	40.0
Industry	9.4	12.6	14.4	21.0	27.8	27.7
Manufacturing	5.0	4.7	4.5	5.6	6.9	6.7
Other industries	4.4	7.9	9.9	15.4	20.9	20.9

Source: WDI and NBE and own compilation

This growth pattern presents both opportunities and challenges. On the one hand, rapid infrastructure development and service sector expansion have supported broad-based growth and urbanization. On the other hand, the limited role of manufacturing raises concerns about the sustainability of growth, productivity gains, and employment creation.

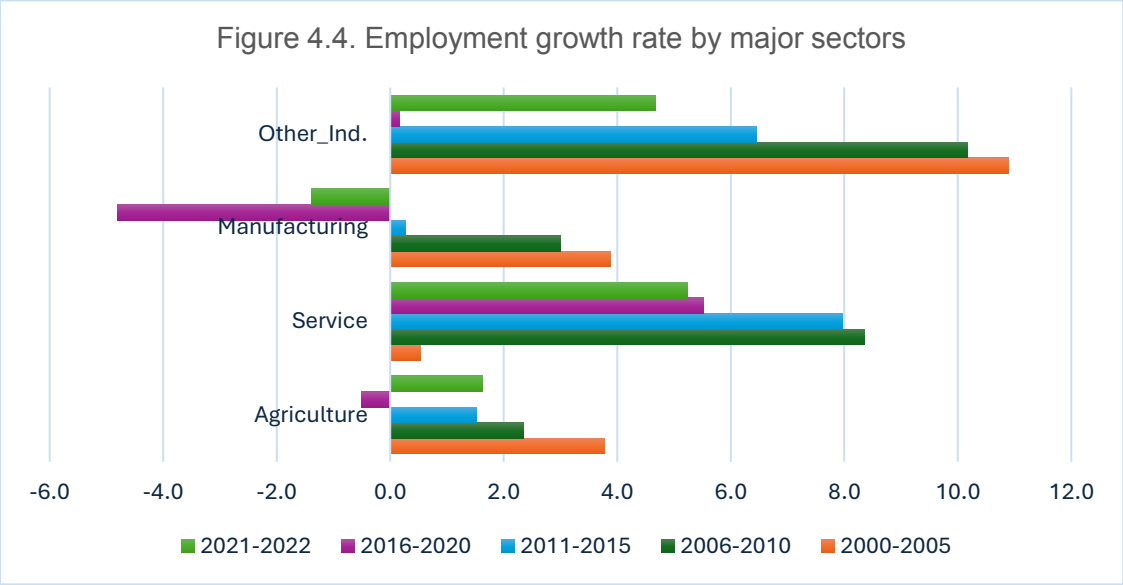
4.3 Employment Growth and Sectoral Composition

We now turn to employment dynamics using data from International Labor Organization (ILO) modelled estimates. Figure 4.4 presents the average annual employment growth rates across Ethiopia's major sectors over five distinct periods: 2000–2005, 2006–2010, 2011–2015, 2016–2020, and 2021–2022. The figure highlights two important trends.

First, employment growth was generally higher in the earlier years, particularly between 2000–2010, and declined in more recent periods. The "Other Industries" category (comprising mining, utilities, and construction) recorded the most rapid expansion during the early 2000s, with average growth exceeding 11 percent between 2000–2005 and remaining strong through 2006–2010. However, its growth slowed significantly in subsequent years, particularly after 2015. Services also showed strong growth, peaking during 2006–2010, followed by a gradual decline, although it remained one of the more dynamic sectors through 2021–2022.

In contrast, the manufacturing sector exhibited more modest and volatile performance. It experienced positive growth in the earlier periods, particularly 2000–2010, but suffered a marked contraction during 2016–2020. While it slightly recovered in 2021–2022, the sector's recent contribution to employment growth remained subdued. Agriculture maintained consistently low growth throughout the entire period, with employment growth rates rarely exceeding 2 percent. Notably, agriculture was the only sector to record slightly negative growth during 2016–2020, reflecting broader structural pressures.

Figure 4.4. Employment growth rate by major sectors



Source: ILO modelled estimates

Second, the sectoral differences in employment dynamics underscore the uneven pace of labor reallocation. Services and "Other Industries" consistently outpaced agriculture, indicating a partial transition toward higher-productivity sectors. However, the weak and at times negative performance of manufacturing suggests missed opportunities for deeper structural transformation, especially in a context where industrial employment is expected to play a central role. Overall,

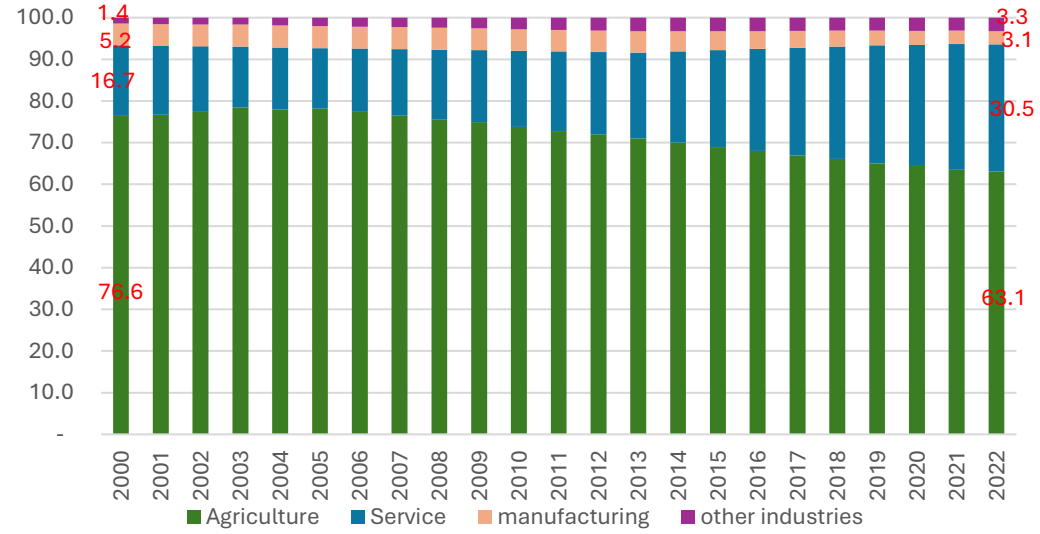
while non-agricultural sectors have been the primary drivers of employment growth, the variation across periods and sectors points to an unstable and incomplete transformation process.

Although the overall trend points to a slowdown in total employment growth after 2015, sectoral dynamics reveal important shifts in the composition of employment creation. These patterns set the stage for the next discussion, which examines how the relative contributions of agriculture, services, manufacturing, and other industries to total employment have changed over time, offering further insights into the pace and nature of structural transformation in Ethiopia.

Ethiopia's economic transformation is evident not only in the changing composition of GDP but also, though more gradually, in the evolving structure of employment. As shown in Figure 4.5, agriculture's share of total employment declined from 76.6% in 2000 to 63.1% in 2022. While this represents a 13.5 percentage-point reduction, the decline is modest compared to the sector's sharper drop in GDP share over the same period. This persistent mismatch highlights one of the key structural transformation challenges Ethiopia faces: *slow labor reallocation and enduring productivity differentials across sectors*.

In 2000, the country remained heavily agrarian, with nearly four out of five workers engaged in agriculture. The services sector accounted for 16.7% of total employment, while industry absorbed only 6.6%, including both manufacturing (around 2.4%) and other industries such as construction and utilities (about 4.2%). This pattern reflected an economy still in the early stages of structural change, where the bulk of the labor force remained tied to low-productivity agricultural activities.

Figure 4.5 Pattern in sectors' share of employment, 2020-2022



Source: ILO employment estimates

During the years 2011–2015, aligned with the first phase of Ethiopia's Growth and Transformation Plan (GTP I), a modest shift occurred. Agriculture's employment share declined to around 68%, while services rose to nearly 20%, and industry (including both manufacturing and other industries) increased slightly. By 2022, the employment structure had evolved further. Agriculture's share fell to 63.1%, while services rose steadily to 30.5%. Industry accounted for

6.4% of employment, with manufacturing contributed just 3.1%. In fact, the share of manufacturing employment contracted from 5.2% in 2000 to 3.1 in 2022. Notably, the majority of labor continues to be absorbed by agriculture, even as its contribution to output continues to decline, reinforcing the existence of substantial productivity gaps.

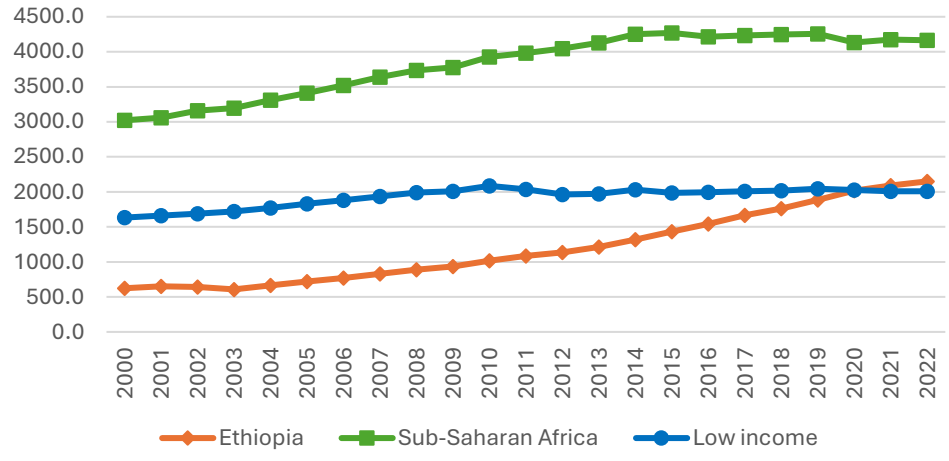
Overall, the ILO-based estimates suggest that Ethiopia is indeed moving away from an agriculture-dominated employment structure, but at a measured pace. The service sector has emerged as the primary absorber of labor outside agriculture, while manufacturing has shown only incremental gains despite its strategic importance. A more detailed examination using disaggregated sector data and cross-country comparisons will be presented in Section 6.

A note of caution is warranted here. The employment growth and patterns presented here are based on ILO modelled estimates, which differ from those in the Economic Transformation Database (ETD), most notably in the case of manufacturing, where ETD reports a substantially higher share of employment. This divergence reflects underlying differences in data sources and estimation methods, although the main findings remain intact.

4.3 Labor Productivity Patterns

In addition to employment patterns, analyzing labor productivity trends offers critical insight into the quality and depth of structural transformation. To assess Ethiopia's structural transformation from the perspective of labor productivity, we rely on ILO model estimates of output per worker (measured in constant 2015 US dollars). Figure 4.6 illustrates Ethiopia's labor productivity performance between 2000 and 2022, comparing it to the average for Sub-Saharan Africa and low-income countries. While Ethiopia's productivity has steadily improved over the last two decades, its level remained far below the Sub-Saharan African (SSA) average throughout the period. It only managed to catch up with the average productivity of low-income countries by around 2020, highlighting the slow pace of convergence despite strong aggregate growth.

Figure 4.6: Ethiopia's labor productivity in comparative perspective

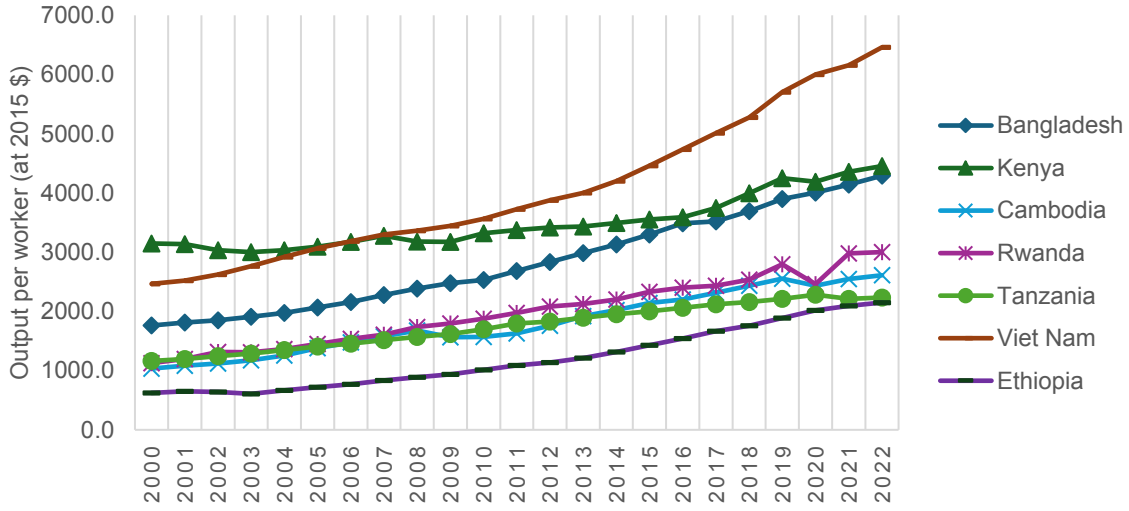


Source: ILO database.

This trend is consistent with earlier observations: although Ethiopia experienced substantial economic growth and a shift in sectoral output shares, notably from agriculture to services and construction, the accompanying labor reallocation was limited. A large share of the workforce remained in low-productivity agriculture, while sectors with higher value-added, such as manufacturing, absorbed only a small portion of total employment. This imbalance constrained overall labor productivity growth.

A broader comparison is presented in Figure 4.7, which benchmarks Ethiopia against selected African and Asian peer economies. Two distinct groups emerge. The first group (Vietnam, Kenya, and Bangladesh) demonstrates both higher levels of productivity and strong upward trajectories over the period. These countries have experienced deeper industrialization, export-oriented manufacturing growth, or better integration of services and technology. In contrast, Ethiopia falls into the second group of lower-productivity economies, alongside Rwanda, Cambodia, and Tanzania. Even within this lower-performing group, Ethiopia consistently ranked at the bottom until it began closing the gap with Tanzania only in the latter years of the period.

Figure 4.7: Ethiopia's labor productivity compared with selected peer countries in Asia and Africa



Source: ILO database.

These patterns reinforce the conclusion that Ethiopia's structural transformation has not yet translated into significant productivity gains. The limited scale of manufacturing, the dominance of informal services, and the persistent employment share in low-productivity agriculture all contribute to this stagnation. Unlike countries such as Vietnam or Bangladesh, which have leveraged industrial exports and urban-based job creation to boost productivity, Ethiopia's transformation has been largely driven by domestic construction and service activities, sectors which are often associated with more limited productivity spillovers. A more detailed analysis is presented in Section 7, where productivity is examined at the subsector level and the sources of productivity growth are decomposed using a shift-share framework.

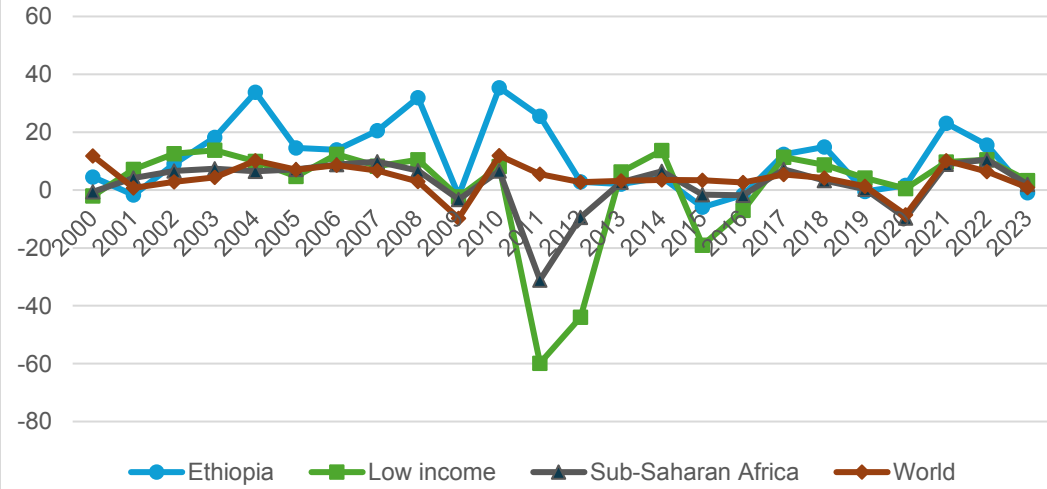
4.4. Ethiopia's Export Performance: A Comparative Overview

Exports are a critical ingredient in understanding the nature and depth of structural transformation. A dynamic export sector not only reflects an economy's competitiveness but also signals the shift toward higher-productivity activities, greater tradability, and integration into global value chains. This section provides an initial overview of Ethiopia's export performance, focusing on two key indicators: the growth rate of exports and the share of exports in GDP.

Figure 4.8 shows the annual percentage growth of exports of goods and services for Ethiopia, low-income countries, Sub-Saharan Africa, and the world from 2000 to 2022. Ethiopia's export growth has been characterized by pronounced volatility, with several years of strong double-digit growth interspersed with sharp contractions, particularly during the global financial crisis and the early 2010s. While episodes of rapid expansion suggest moments of dynamism, they have not translated into a consistent upward trajectory. In contrast, the growth paths of low-income countries, Sub-Saharan Africa, and the world are more stable, though typically less dramatic in their fluctuations.

This volatility in Ethiopia's exports highlights a vulnerability to external shocks and internal structural weaknesses. The country's narrow export base and limited sectoral diversification mean that short-term shocks, whether global (such as the financial crisis) or domestic (such as political instability or drought), can have disproportionate impacts. This pattern mirrors the broader features of Ethiopia's growth story discussed earlier, where despite rapid output expansion, the structure of the economy remained concentrated in low-value services and construction activities rather than diversified, tradable sectors.

Figure 4.8: Exports of goods and services (annual % growth)

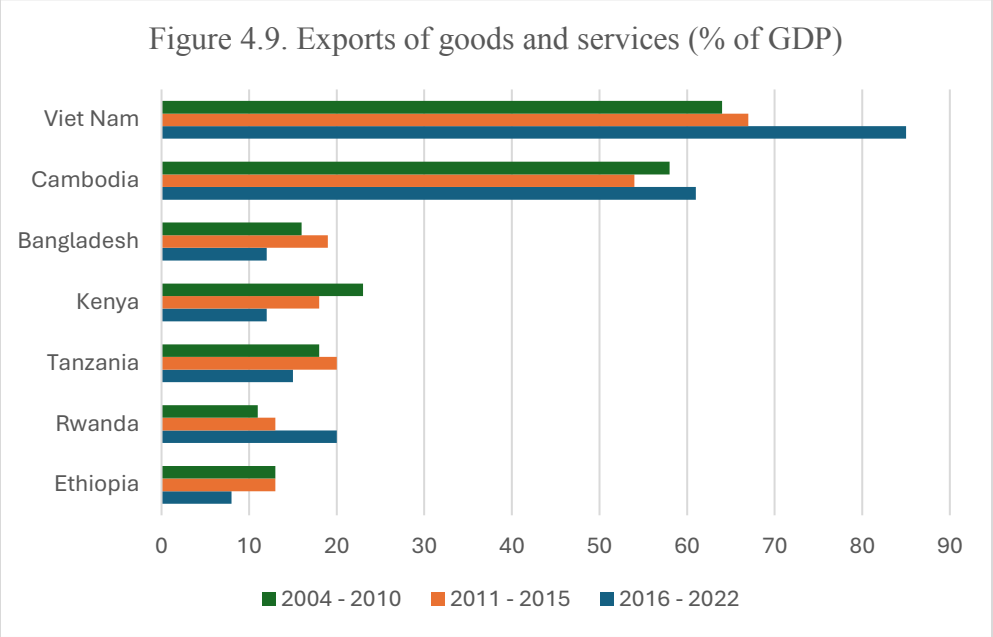


Source: WDI/WB

The degree to which an economy relies on exports as a driver of growth is another important indicator of structural transformation. Figure 4.9 presents exports of goods and services as a share of GDP for Ethiopia and selected comparator countries over three periods: 2004–2010, 2011–2015, and 2016–2022. The data show that Ethiopia's export-to-GDP ratio remained consistently low, fluctuating between roughly 10 and 15 percent over the past two decades, and declining slightly in more recent years.

Compared to peers such as Vietnam, Cambodia, and Bangladesh, which maintained much higher export shares, often exceeding 40 or even 70 percent of GDP, Ethiopia's reliance on exports as an engine of growth has been minimal. Even among African peers like Kenya, Rwanda, and Tanzania, Ethiopia's export share is noticeably lower. This weak export orientation underscores Ethiopia's limited integration into global markets and suggests that much of the country's impressive GDP growth was driven by domestic factors especially public investment and non-tradable services rather than by external competitiveness. The low and stagnant share of exports in GDP aligns with the earlier sectoral patterns discussed: an economy driven by infrastructure spending, urban services, and construction, but with insufficient development of globally competitive industries.

Figure 4.9. Exports of goods and services (% of GDP)



Source: WDI/WB database

Taken together, the figures reveal a consistent narrative: Ethiopia's export sector is small and volatile. Export growth episodes have been irregular, the overall export share of GDP remains low. These trends highlight the incomplete and fragile nature of Ethiopia's structural transformation. A more detailed analysis, disaggregated at sub-sector level, particularly focusing on export composition and the role of tradability in structural transformation, will be presented in Section 8.

4.5. Summary

Ethiopia's economic growth between 2000 and 2022 was both rapid and sustained, with an average annual rate of 8.9 percent. This strong performance positioned Ethiopia among the fastest-growing economies globally during this period. However, a closer examination of the sectoral composition of output and employment reveals a pattern of structural transformation that remains both incomplete and atypical. While the country has made significant progress in reducing its dependence on agriculture, the sectors that have absorbed labor and contributed to output growth diverge from the classical manufacturing-led trajectory historically associated with successful transformations in East Asia.

Over the two decades, agriculture's share of GDP declined markedly, from 55.4 percent in 2000 to 32.3 percent in 2022, while the shares of industry and services rose to 27.7 percent and 40.0 percent, respectively. Yet, much of the industrial expansion was driven not by manufacturing but by construction, utilities, and other non-tradable activities. Despite sustained policy emphasis on industrialization, manufacturing's share of GDP increased only modestly, from 5.0 to 6.7 percent. Employment trends reveal a similar story. Agriculture's employment share declined from 76.6 percent to 63.1 percent, with services expanding to absorb much of the reallocated labor, reaching 30.5 percent by 2022. In contrast, while industry's overall share of employment rose marginally to 6.4 percent by 2022, manufacturing's share contracted significantly from 5.2 percent in 2000 to just 3.1 percent highlighting its declining role within the sector.

This pattern reflects a broader phenomenon increasingly observed in many low-income countries, what Dasgupta and Singh (2007) term *structural transformation without industrialization*. In this model, the decline in agricultural employment is accompanied by an increase in service sector employment, while the manufacturing sector remains stagnant or even shrinks in relative terms. Several studies, including McMillan and Rodrik (2011), McMillan and Harttgen (2014), and de Vries et al. (2015), document this trend across Sub-Saharan Africa, where growth has often been driven by services and construction rather than manufacturing. Ethiopia exemplifies this trajectory. The service sector has become the principal source of new employment outside agriculture, whereas manufacturing has yet to emerge as a substantial contributor to either job creation or technological upgrading.

Trends in labor productivity reinforce this diagnosis. While aggregate productivity has improved, Ethiopia's levels remain low relative to both regional and global standards. The country only reached the average labor productivity of low-income countries around 2020 and continues to lag behind the Sub-Saharan African average. This sluggish productivity growth is linked to the slow pace of labor reallocation from low-productivity agriculture and the limited expansion of high-productivity sectors such as manufacturing. Much of the observed transformation has thus been quantitative, reflected in changing sectoral shares, without corresponding improvements in employment quality or technological sophistication.

Ethiopia's export performance further illustrates the fragility of its transformation. Export growth has been volatile, with a low value relative to GDP and limited diversification. This stands in stark contrast to countries such as Vietnam and Bangladesh, where sustained export dynamism has been a key driver of productivity growth and economic transformation.

Together, these findings point to a structural transformation that has successfully reduced the dominance of agriculture but has not yet fostered a robust or competitive industrial base. Growth has been supported primarily by services and construction, but these sectors, especially in their current domestic and informal orientation, may lack the productivity spillovers and tradability needed to sustain long-term development.

To better understand the quality and future direction of Ethiopia's transformation, the following sections examine sectoral dynamics across the economy, with a particular focus on comparing the service and manufacturing sectors. The analysis covers four critical dimensions: ***skill-intensity***, ***labor mobility***, ***productivity growth***, *and* ***tradability***. While insights are drawn from multiple sectors, the comparative assessment of services and manufacturing is central to evaluating which sector holds greater potential for driving inclusive, productivity-enhancing, and sustainable economic transformation in Ethiopia.

5. Skill Intensity and Sectoral Dynamics

5.1 Introduction

Job creation remains a cornerstone of improving livelihoods and driving economic structural transformation. However, the increasing skill intensity within global value chains is challenging the manufacturing sector's traditional role as a large-scale absorber of low-skilled labor. Advances in automation, digitalization, and the growing complexity of production processes have reduced the availability of low-skill manufacturing jobs, particularly in late-industrializing countries such as Ethiopia. As a result, the pathway from agriculture to low-skill industrial employment, once a hallmark of structural transformation, is narrowing.

At the same time, the services sector, though highly heterogeneous, is also undergoing a shift. Sub-sectors such as retail, hospitality, and logistics remain relatively labor-intensive and continue to employ significant numbers of low-skilled workers. However, much of the sector's recent expansion globally has been concentrated in high-skill, high-productivity areas such as information and communication technology (ICT), finance, and professional services, including business process outsourcing (BPO). These industries typically demand higher levels of education and specialized skills, thereby limiting their potential to serve as large-scale employment sources for the low-skilled workforce.

In light of these trends, a key research question arises: What evidence exists on the skill intensity of Ethiopia's manufacturing sector, and how is this distributed across its subsectors? Likewise, what is known about the skill composition of employment in the services sector? Understanding these patterns is essential for assessing how each sector might contribute to inclusive job creation and sustainable structural transformation.

This section investigates the level and distribution of skill intensity across sectors and subsectors in Ethiopia. This analysis provides a foundation for evaluating differences in sectoral performance, particularly with respect to employment generation, productivity, and tradability. Classifying sectors by skill intensity allows for a more nuanced assessment of how skill composition correlates with their economic contributions. Specifically, it enables us to examine whether low-skill sectors continue to play a meaningful role in job creation; whether there is a low-skill–low-productivity trap; and how skill levels influence the capacity of sectors to compete in global markets.

The resulting classification of sectors by skill intensity will serve as a reference framework for subsequent sections, which explore differences in employment patterns, productivity performance, and export orientation across Ethiopia's manufacturing and service sectors.

5.2. Defining Skill Intensity

Skill intensity refers to the extent to which a sector relies on workers with higher levels of education, specialized training, or professional expertise. It captures the human capital requirements embedded in the production process and is an important dimension for analyzing how sectors contribute to employment, productivity, and economic upgrading.

Sectors are commonly classified into three broad categories based on their skill intensity, a concept widely used in labor market and development literature. According to the International Labour Organization (2012) and the OECD (2017), low-skill sectors are characterized by a workforce with minimal formal education or training, often engaged in routine or manual tasks. Medium-skill

sectors typically require a combination of basic technical competencies, vocational qualifications, or moderate levels of formal education. High-skill sectors, by contrast, are defined by a high concentration of workers with advanced education, specialized professional training, or substantial occupational expertise.

The ILO's International Standard Classification of Occupations (ISCO-08) links low-skilled occupations primarily to roles requiring only primary education, providing a global framework for assessing occupational skill levels. In the United States, low-skilled sectors are often identified based on the share of workers in manual-task-intensive occupations, which include roles in healthcare support, food preparation, building maintenance, sales, farming, construction, manufacturing, and transportation. A commonly applied threshold in the economic literature defines a sector as low-skilled if at least 50% of its workforce is employed in such occupations (OECD, 2014).

Building on this framework, Nayyar et al. (2021) extend the classification using data from the EU and U.S., arguing that if a sector is predominantly low-skilled in high-income countries, it is almost certainly low-skilled in lower-income contexts. Using this threshold, they identify several service subsectors as low-skilled, including transportation and storage, wholesale and retail trade, accommodation and food services, administrative support, arts and entertainment, and other social services.

The literature identifies three principal approaches for measuring skill intensity across sectors: (i) based on educational attainment, (ii) wage levels, and (iii) occupational classifications. These methods are often used independently or complementarily, depending on data availability and analytical objectives (ILO, 2012; OECD, 2014; Nayyar et al., 2021). In this study, the primary classification method relies on education-based measures.

Under the **education-based approach**, skill intensity is assessed by calculating the share of workers in each sector who have attained various levels of formal education, as defined by the International Standard Classification of Education (ISCED). In line with standard procedures used in labor market studies in developing countries, sectors are classified into three groups.

- ***Low-skill*** sectors are defined as those in which fewer than 20 percent of workers have completed secondary education or higher.
- ***Medium-skill*** sectors are those in which between 20 and 50 percent of the workforce has attained at least secondary education, post-secondary vocational or tertiary education.
- ***High-skill*** sectors are those in which more than 50 percent of workers hold a post-secondary degree, whether at the college or university level, or have completed specialized technical training.

Based on this classification, and in line with practices commonly used in developing country contexts such as Ethiopia, skill intensity is defined as the share of sectoral employment held by individuals with post-secondary (vocational or non-vocational) or tertiary education. Accordingly, sectors are classified as ***low-skill*** if less than 20 percent of workers have post-secondary or tertiary education, ***medium-skill*** if the share ranges from 20 to 50 percent, and ***high-skill*** if more than 50 percent of workers are similarly educated.

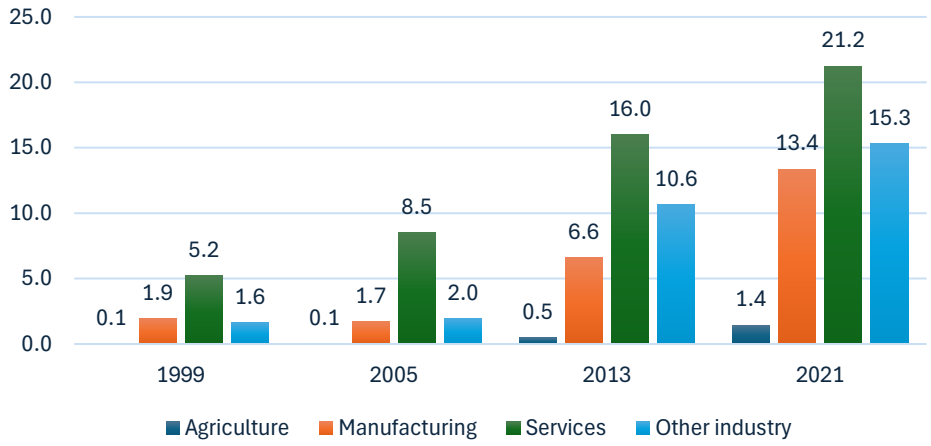
The primary data source for this analysis is Ethiopia's ***National Labor Force Survey (NLFS)***, which provides comprehensive and nationally representative data on employment characteristics

across all sectors. The NLFS was conducted in four rounds; 1999, 2005, 2013, and 2021and includes detailed information on workers' educational attainment, wages or earnings, and occupational classifications. These features make it a suitable and robust dataset for constructing skill intensity measures using education-based approach. In particular, the NLFS allows for disaggregated analysis at the sub-sector level, facilitating comparisons across services, manufacturing, and other segments of the economy over time. This classification of skill intensity forms a critical input to the subsequent analysis of sectoral employment patterns, productivity performance, and tradability. By differentiating sectors according to their skill composition, the study is able to assess not only which sectors are growing, but also who is being employed and under what conditions structural transformation unfolds.

5.3. Skill Intensity Patterns by Major Sectors

This subsection examines the skill intensity across Ethiopia's major economic sectors; agriculture, manufacturing, services, and other industries (comprising mining, utilities, and construction) over the period from 1999 to 2021. Using four rounds of the NLFS (i.e., 1999, 2005, 2013, and 2021), the trends in skill intensity reveal important dynamics. Figure 5.1 presents the percentage of high-skill workers (those with post-secondary or tertiary education) by major sectors based on the data from the above four surveys. In 1999, high skill intensity across all sectors was extremely low, with services sector leading at 5.2%, followed by manufacturing at 1.9%, other industries at 1.6%, and agriculture at only 0.1%. By 2005, the services sector had modestly improved to 8.5%, while manufacturing and other industries remained low at 1.7% and 2.0%, respectively. Agriculture continued to lag significantly, with negligible change.

Figure 5.1.: Skill Intensity by Major Sectors: 1999 - 2021

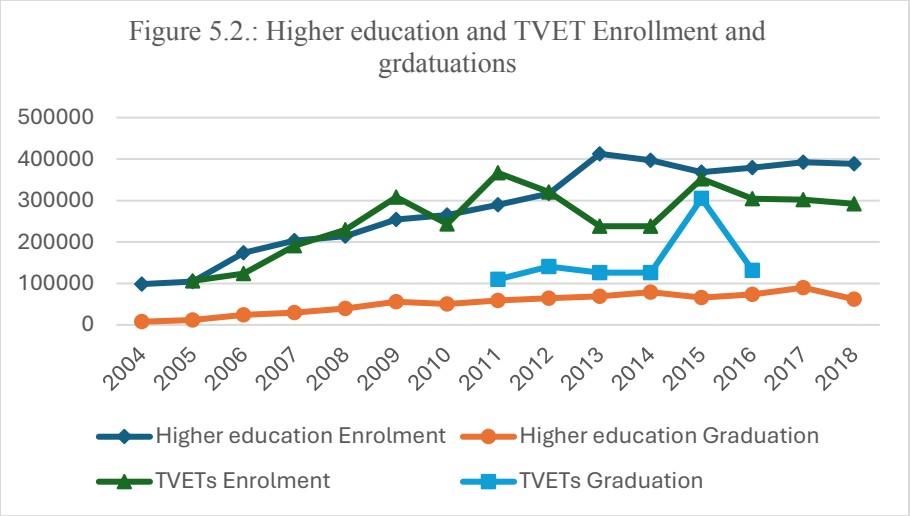


Source: NLFS (CSA)

A more pronounced shift emerged after 2010. The services sector's high skill intensity rose to 16.0% in 2013 and reached 21.2% by 2021, reflecting a strong concentration of skilled labor. Manufacturing also experienced a notable rise, from 6.6% in 2013 to 13.4% by 2021, suggesting a gradual but persistent trend of skill upgrading. Similarly, other industries saw a rise from 10.6% to 15.3% over the same period. In contrast, agriculture remained the least skill-intensive sector,

with only 1.4% of workers having post-secondary or tertiary education by 2021. These figures indicate that by 2021, just over one in five service sector workers had completed post-secondary education, compared to roughly one in eight in manufacturing, and one in seven in other industries. In agriculture, the share of skilled workers remained negligible. This pattern underscores the growing divide in skill intensity across sectors, with services emerging as the most skill-intensive and agriculture continuing to lag far behind.

This general trend of increasing skill intensity across sectors coincides with the expansion of Ethiopia's education system, particularly in higher education and Technical and Vocational Education and Training (TVET). Enrollment in TVET institutions grew significantly from 191,151 in 2007 to 320,255 in 2012, stabilizing around 292,378 by 2018. Higher education enrollment similarly expanded, with public university students rising from 98,404 in 2004 to 388,186 in 2018. Graduation rates followed a similar upward trajectory: TVET graduates increased from 109,853 in 2011 to 131,097 in 2016, while higher education graduates rose sharply from 7,600 in 2004 to 89,754 in 2017, before declining slightly to 62,199 in 2018 (see Figure 5.2).



Source: Ministry of Education

The expansion in educational attainment aligns closely with the observed rise in sectoral skill intensity, particularly within services and manufacturing. A larger pool of skilled graduates entering the labor market, especially in high-skill service subsectors like education, finance, and health, has contributed to this shift. However, it is important to note that at the aggregate level, none of the sectors has crossed the 50% threshold to be classified as high-skill overall. This suggests that despite improvements, Ethiopia's economy remains predominantly low-skill, and that significant heterogeneity exists within sectors, a theme explored further below.

What explains this general trend of increasing skill intensity? While part of the shift can be attributed to the rising supply of educated labor within Ethiopia, it may also reflect deeper structural changes in the global economy. The growing integration into global value chains, the diffusion of digital and skill-intensive technologies, and shifts in production models across both manufacturing and services have contributed to a rising demand for skilled labor. In this sense, Ethiopia's changing skill profile mirrors not only domestic educational progress but also global

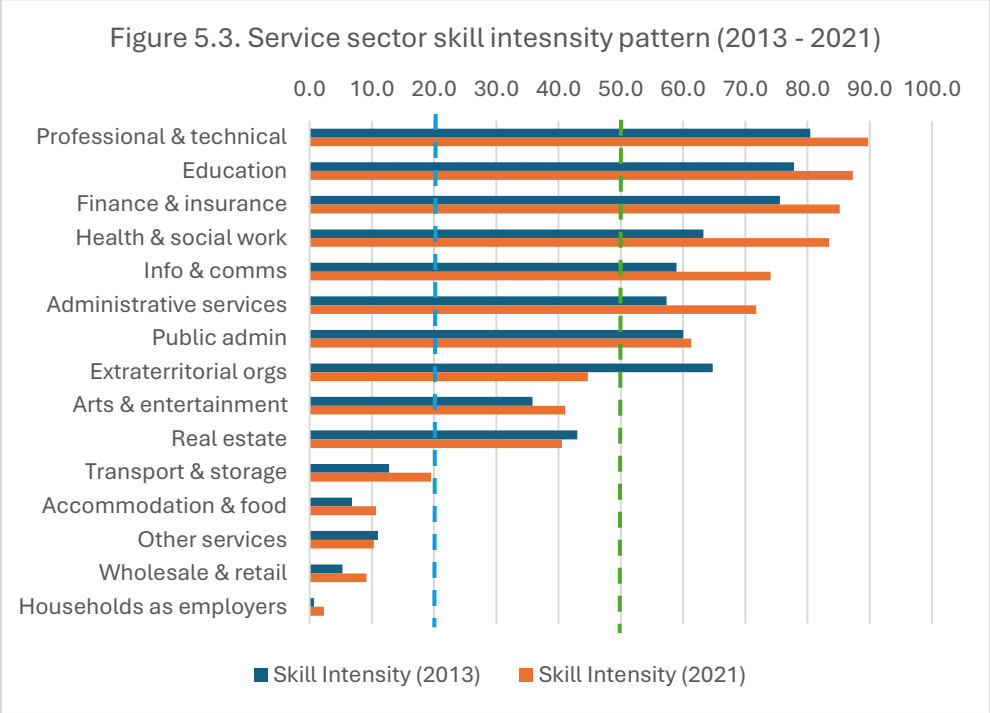
transformations in the nature of work and sectoral competitiveness. That said, it is difficult to disentangle the relative influence of supply-side (education) versus demand-side (structural change) forces, as they tend to interact and reinforce one another in shaping labor market outcomes.

5.4. Skill Intensity in the Services and Manufacturing Subsectors

To capture the heterogeneity masked at the major sectoral level, this subsection disaggregates the services and manufacturing sectors into their constituent subsectors using the NLFS data for both 2013 and 2021 survey years. Subsector skill intensity is proxied by the share of workers with post-secondary or tertiary education, and as above subsectors are classified into low-skill (below 20%), medium-skill (20–50%), and high-skill (above 50%) categories.

Services sector

Figure 5.3 presents the skill intensity of 15 sub-sectors within the service sector for two points: 2013 and 2021. The data reveal a general upward trend in skill intensity across nearly all service subsectors over the period. Between 2013 and 2021, the most substantial increases occurred in administrative services, health and social work, information and communications, and public administration, each recording gains of more than 10 percentage points in the share of highly educated workers. Notably, administrative services moved decisively from a medium- to high-skill classification, with skill intensity rising from just under 50% in 2013 to over 70% in 2021. Modest increases were also observed in low-skill subsectors such as accommodation and food and wholesale and retail trade, though their overall classification remained unchanged. The general increase in educational attainment across service subsectors reflects broader structural changes in Ethiopia's urban labor market, alongside a likely expansion in the supply of tertiary graduates.



Source: National Labor Force Surveys different years (CSA)

Despite this progress, the degree of change was uneven. High-skill subsectors in 2013 mostly retained their status in 2021, while low-skill segments saw only marginal upgrading. This bifurcation suggests a growing divide between knowledge-intensive and labor-intensive services, with important implications for inclusive employment generation.

Based on the most recent data for 2021, service subsectors can be grouped into three broad categories. ***Seven out of fifteen*** subsectors are classified as ***high-skill***, with more than 50% of workers holding post-secondary or tertiary education. These include *professional and technical services* (90%), *education* (87%), *finance and insurance* (85%), *health and social work* (83%), *information and communications* (74%), *administrative services* (72%), and *public administration* (61%). A second group of subsectors, including extraterritorial organizations, arts and entertainment, real estate, and transport and storage, falls into the ***medium-skill*** category, with between 20% and 50% of workers having higher education. Finally, traditionally labor-intensive subsectors such as accommodation and food, wholesale and retail trade, and household services remain low-skill, with less than 20% of workers formally educated beyond secondary school.

The patterns shown in Figure 5.3 align closely with global evidence on skill intensity within the service sector. Subsections such as education, finance, health, ICT, and professional services are consistently classified as high-skill across both high-income and low- and middle-income countries, and Ethiopia mirrors this pattern with over 50% of workers in these sectors holding post-secondary or tertiary education. Likewise, labor-intensive subsectors like accommodation and food, wholesale and retail trade, and household services are widely recognized as low-skill across international contexts (ILO, 2012; OECD, 2014; Nayyar et al., 2021). While Ethiopia's overall education levels may be lower, the relative classification of service subsectors by skill intensity is structurally consistent with global trends, suggesting that the country's service sector is evolving in ways broadly aligned with international transformations in work and sectoral organization.

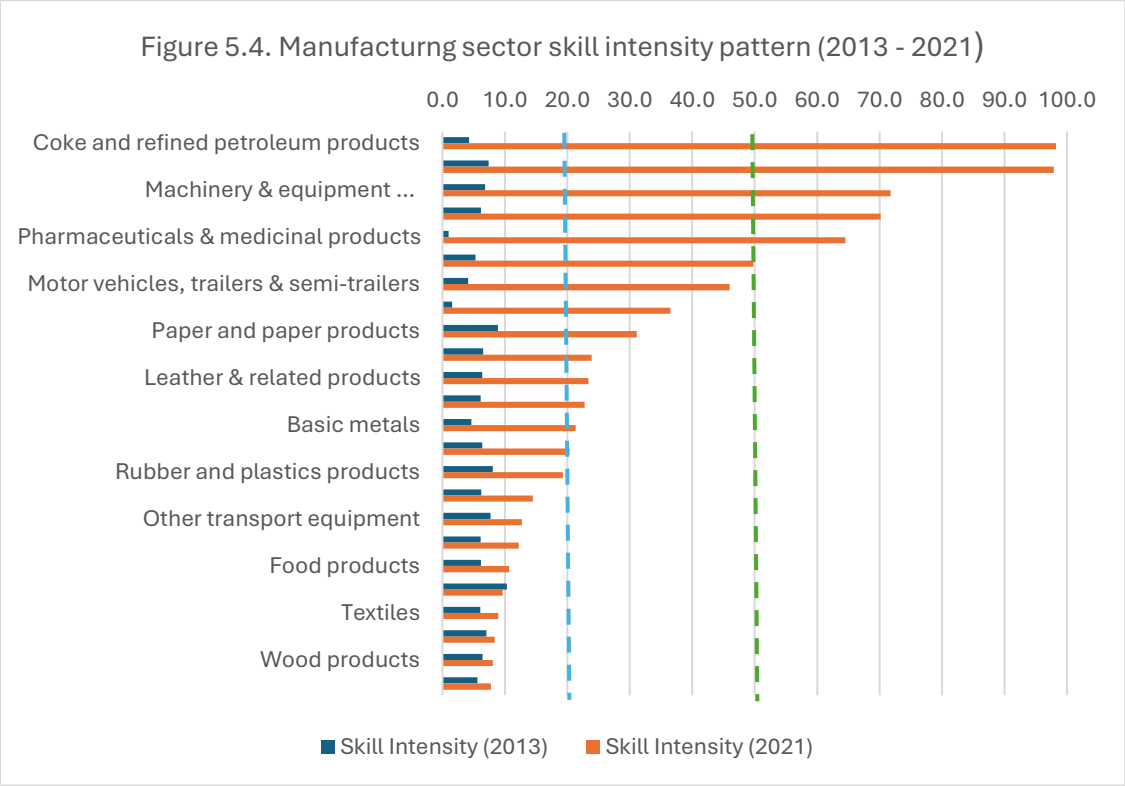
Manufacturing Sector

Figure 5.4 presents the skill intensity, measured by the share of workers with post-secondary or tertiary education, of 13 manufacturing subsectors for both 2013 and 2021. The data reveal a substantial and broad-based increase in skill intensity across the sector over the eight-year period. In contrast to 2013, when none of the subsectors crossed the 50% threshold, by 2021 five subsectors had clearly transitioned into the high-skill category.

The most pronounced increases occurred in coke and refined petroleum products, machinery and equipment, and pharmaceuticals, where skill intensity surged from single-digit or low-double-digit levels in 2013 to well over 70% in 2021. Motor vehicles and trailers, as well as paper and paper products, also saw notable gains, moving from low-skill to medium- or borderline high-skill status. These shifts likely reflect both domestic factors such as the expansion of tertiary education and the increasing availability of technically trained workers and global patterns of technological upgrading, which are raising the skill requirements of even middle-income industrial sectors.

This overall deepening of skill intensity reflects an internal transformation within the Ethiopian manufacturing sector. While many of these high-skill subsectors remain relatively small in employment terms, the trend signals a potential reorientation toward more technology-intensive production. However, as in services, the change has not been uniform. Based on the 2021 data, five manufacturing subsectors qualify as ***high-skill***: coke and petroleum products,

pharmaceuticals, machinery and equipment, motor vehicles, and paper and paper products. A second group of subsectors including basic metals, rubber and plastics, leather, and other transport equipment are classified as medium-skill. In contrast, the majority of labor-intensive subsectors such as food products, textiles, and wood products remain in the low-skill category. These low-skill subsectors are also the largest employers in the industry, accounting for more than 50 percent of employment in the large and medium-scale manufacturing sector.



Source: National Labor Force Surveys different years (CSA)

The findings for Ethiopia's manufacturing sector, as presented in Figure 5.4, closely mirror global patterns of skill intensity across industrial subsectors. High-skill manufacturing such as pharmaceuticals, electronics, machinery, and petroleum products tends to require a workforce with advanced technical training and specialized education, consistent with international evidence from both high-income and emerging economies (OECD, 2017; Hallward-Driemeier & Nayyar, 2018). These subsectors are typically associated with higher capital intensity, R&D, and integration into global value chains. In contrast, labor-intensive subsectors such as textiles, apparel, food and beverages, and wood products are classified as low-skill, a trend widely observed in developing countries where these industries serve as entry points for industrialization due to their lower skill and capital requirements (Rodrik, 2016; Nayyar et al., 2021). Thus, Ethiopia's manufacturing sector exhibits a skill intensity structure that is not atypical but rather reflects broader global patterns in the segmentation of manufacturing by technological complexity and human capital requirements.

As detailed in the **appendix**, the relationship between skill intensity and employment share in both Ethiopia's service and manufacturing sectors reveals a consistent inverse pattern: subsectors that employ the largest share of workers tend to have the lowest skill intensity. In services, high-skill segments such as professional, finance, and ICT services account for a small share of total employment, while low-skill activities like household services and retail absorb the majority of the labor force. A similar structure emerges in manufacturing: the most labor-intensive industries such as food processing, textiles, and non-metallic minerals exhibit some of the lowest levels of educational attainment among workers. In contrast, high-skill manufacturing subsectors including petroleum refining, electronics, and pharmaceuticals employ only a marginal share of the workforce. This distribution underscores the challenge of achieving inclusive structural transformation: while skill-intensive sectors offer higher productivity and wages, they currently lack the scale to absorb Ethiopia's large low-skilled labor force.

5.5. Summary

The analysis of skill intensity across Ethiopia's economic sectors reveals important patterns that bear directly on the country's structural transformation prospects. First, there is clear evidence of progress in human capital development, with a rising share of post-secondary educated workers, particularly in select service and manufacturing subsectors. This signals the early stages of a shift toward a more skilled workforce, potentially enabling economic upgrading.

Second, however, the shift remains concentrated and uneven. Only a small number of subsectors primarily in ICT, finance, education, health, and select manufacturing industries such as pharmaceuticals and electronics qualify as high-skill intensive. Most subsectors, especially those in retail, food processing, and garments, continue to fall in the low- or medium-skill categories. This points to a dualistic structure where modern, skill-intensive sectors coexist with a large base of traditional, low-skill activities.

Third, while education-based skill intensity is rising, there is a growing concern about absorptive capacity: high-skill sectors remain relatively small and capital-intensive, offering limited potential for broad-based job creation. This raises the risk of skill mismatches if the growth of modern sectors does not keep pace with the rising supply of educated labor.

In comparative context, Ethiopia's experience reflects broader trends observed across low- and middle-income countries, where manufacturing is becoming more skill-intensive and modern services are emerging as new productivity frontiers (ILO, 2012; OECD, 2014; Nayyar et al., 2021). The central challenge lies in aligning the country's evolving skill base with sectoral transformation strategies that are both inclusive and productivity-enhancing. The following sections examine how these skill dynamics interact with employment patterns, productivity growth, and tradability: three interlocking dimensions that shape the broader trajectory of structural transformation.

6. Employment Growth and Labor Mobility

As shown in the preceding section, Ethiopia's employment structure has undergone a broad transition from agriculture toward services; a pattern broadly consistent with trends in other low-income countries. However, the nature and implications of this shift remain uneven and warrant deeper investigation. In this section, we explore the relative contribution of the service and manufacturing sectors to employment growth, with particular attention to their major subsectors.

While the comparative focus is on services and manufacturing, the analysis also considers developments in other sectors, including agriculture and other industries, to provide a more comprehensive picture. We examine the extent and quality of labor reallocation, the ability of specific subsectors to absorb low-skilled workers, and the responsiveness of employment to economic growth.

To do so, we begin by mapping the evolution of employment across sectors and subsectors. Employment data by sector, measured in thousands of individuals, was obtained from the ILO, ensuring a reliable and internationally standardized source for labor statistics. We then apply a ***shift-share decomposition*** to disentangle the drivers of employment change, distinguishing between growth due to labor reallocation across sectors (structural change) and growth within sectors themselves (within-sector expansion). To assess labor market responsiveness, we calculate ***employment elasticities***, indicating how strongly employment responds to output growth across sectors. Finally, we assess ***low-skill labor absorption patterns***, comparing the role of services and manufacturing in providing employment opportunities for workers with limited formal education. Together, these analyses help clarify the employment dimension of Ethiopia's structural transformation and the emerging dualism between modern and traditional sectors.

6.1. Overview of Sectoral Employment Shifts

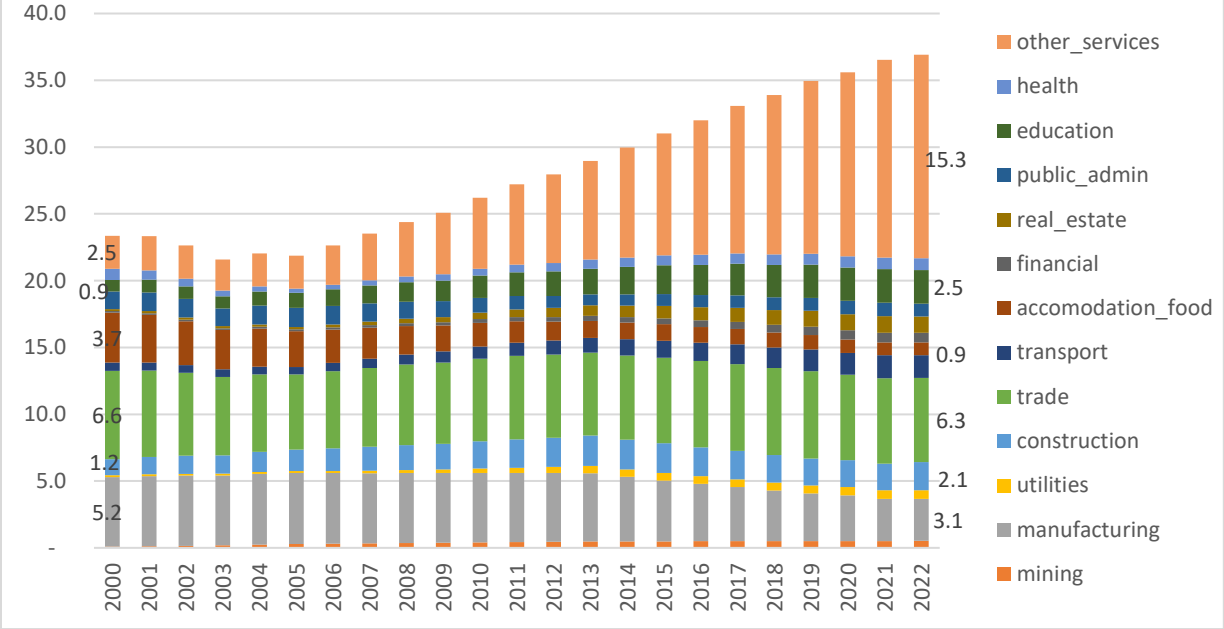
As discussed in Section 4, a defining trend in Ethiopia's labor market has been the steady decline in the share of employment in agriculture. In 2000, agriculture accounted for approximately 77 percent of total employment, falling to 63 percent by 2022. While this shift indicates a gradual reallocation of labor away from agriculture, the sector remains by far the largest employer, underscoring the slow pace of structural transformation when compared to changes in output composition.

To better understand where labor is moving and the evolving dynamics within the ***non-agricultural economy***, this section focuses exclusively on industry and services, disaggregating these broad sectors into their major components. The industry sector is broken down into four subsectors: mining, manufacturing, utilities, and construction. The service sector is further divided into nine subsectors: trade, transport and communication, finance, real estate, public administration, education, health, and other services. The last category, ***'other services***,' encompasses a range of smaller activities, including informal trade, domestic work, and personal services. This level of detail allows for a closer examination of the subsectors driving employment shifts and their implications for structural transformation.

Figure 6.1 presents the employment shares of these non-agricultural subsectors over the period 2000–2022, highlighting patterns of labor reallocation across industry and services. Note that these shares reflect only the non-agricultural sectors; when agriculture is included, the total adds up to 100 percent. For the complete sectoral distribution, including agriculture, see the aggregated employment share figure in Section 4.

Overall, the industrial sector's employment share has remained stagnant, fluctuating between 6.4 and 8.4 percent. Notably, manufacturing, despite being a long-standing policy priority, declined steadily from 5.2 percent in 2000 to just 3.1 percent in 2022. This is a troubling outcome given substantial public investment in industrial parks and industrial policy. Construction showed modest gains, rising from 1.2 to 2.1 percent, likely driven by urbanization and infrastructure expansion. Mining and utilities remained marginal throughout.

Figure 6.1: Employment share trend - industry and service subsectors



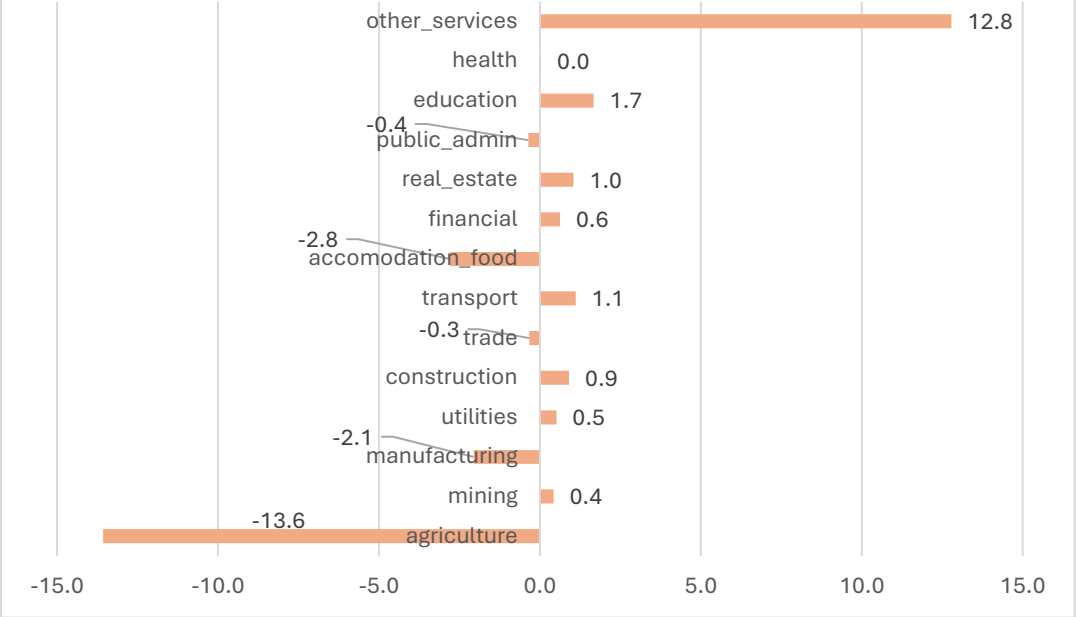
Data source: ILO and own construction

In contrast, the service sector has emerged as the main destination for labor reallocation. Its employment share rose from 16.7 percent in 2000 to 30.6 percent in 2022. However, this expansion was highly uneven. Public services such as education and health registered notable increases, reflecting rising demand and public investment. Financial services and real estate also grew, albeit from low bases. Traditional service subsectors such as trade and accommodation and food services declined or stagnated in relative terms, suggesting limited dynamism in conventional retail and hospitality segments.

The most striking shift occurred in the "***other services***" category, which grew more than sixfold, from 2.5 percent in 2000 to 15.3 percent in 2022 making it the largest non-agricultural employment subsector by the end of the period. This residual category typically includes informal and low-productivity activities such as personal services, informal retail, domestic work, informal transport, and cultural or community-based services. Its rapid expansion points to a surge in informal sector employment, particularly in urban and peri-urban areas.

As shown in Figure 6.2, *the entire 13.6 percentage point decline in agricultural employment between 2000 and 2022 appears to have been absorbed by the service sector in net terms*. The industry sector saw no net gain in employment share over the same period. Within services, the "other services" alone accounted for 12.8 percentage points of this increase, underscoring the dominant role of informal activities in the country's labor reallocation process.

Figure 6.2: Change in sectoral employment share (2000 - 2022)



Data source: ILO and own construction

With limited formal job creation in either manufacturing or modern services, many workers, especially youth, are being absorbed into these informal niches that offer low barriers to entry but limited earnings or security. This shift away from agriculture often reflects push factors, such as the scarcity of productive employment alternatives, rather than a productivity-driven reallocation of labor. Moreover, the skills demanded by manufacturing and modern service sectors are frequently misaligned with the capabilities of the available labor force, further limiting upward mobility. As a result, structural transformation has proceeded without substantial gains in productivity, employment quality, or income, raising concerns about the inclusiveness and sustainability of current growth patterns.

To place Ethiopia's employment dynamics in a broader context, Table 6.1 compares sectoral employment shares in 2000 and 2022 with the averages for low-income countries (LICs) and Sub-Saharan Africa (SSA), using harmonized employment data from ILO. As with other developing regions, both Ethiopia and its comparators have experienced a marked decline in agricultural employment. However, the pace of transition has been notably slower in Ethiopia, where agriculture still accounted for 63.1 percent of total employment in 2022. This compares with 57.5 percent for the LIC average and just 49.5 percent for SSA, indicating that structural change away from agriculture remains relatively delayed in Ethiopia.

The industrial sector shows only marginal change in Ethiopia, with its share declining slightly from 6.6 percent in 2000 to 6.4 percent in 2022. This contrasts with LICs and SSA, where the industry share increased modestly to 10.2 percent and 12.4 percent, respectively. In Ethiopia, the decline in manufacturing from 5.2 percent to 3.1 percent offset gains in construction and utilities. Meanwhile, SSA saw a rise in manufacturing from 7.1 to 8.0 percent, and LICs maintained manufacturing's share at 5.6 percent. These trends underscore Ethiopia's underperformance in industrial employment growth, especially in manufacturing, relative to regional peers.

Table 6.1. Comparing employment dynamics Ethiopia with Africa average

	Ethiopia		LIC		SSA	
	2000	2022	2000	2022	2000	2022
Agriculture; forestry and fishing	**76.6**	**63.1**	**69.6**	**57.5**	**61.3**	**49.5**
Industry (total)	**6.6**	**6.4**	**9.2**	**10.2**	**10.2**	**12.4**
Mining and quarrying	0.1	0.5	1.2	1.4	1.1	1.1
Manufacturing	5.2	3.1	5.6	5.6	7.1	8.0
Utilities	0.1	0.7	0.3	0.5	0.3	0.3
Construction	1.2	2.1	2.2	2.8	1.7	3.0
Services (total)	**16.7**	**30.5**	**21.1**	**32.3**	**28.5**	**38.1**
Wholesale and retail trade	6.6	6.3	9.5	13.6	12.6	17.2
Transport; storage and communication	0.6	1.7	1.8	3.2	2.4	3.9
Accommodation and food service	3.7	0.9	1.3	1.4	1.8	2.7
Financial and insurance activities	0.1	0.7	0.2	0.5	0.4	0.6
Real estate; business and administrative activities	0.2	1.2	0.5	1.3	0.9	2.1
Public administration and defense etc.	1.3	1.0	2.3	2.1	1.8	1.4
Education	0.9	2.5	2.3	2.8	2.6	2.9
Human health and social work activities	0.8	0.9	0.9	1.1	1.4	1.4
Other services	2.5	15.3	2.4	6.2	4.6	5.8
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: ILO and own construction

In the service sector, Ethiopia recorded a substantial increase in its employment share from 16.7 percent in 2000 to 30.5 percent in 2022, similar to the rise observed in LICs (from 21.1 to 32.3 percent) and SSA (from 28.5 to 38.1 percent). However, the composition of this expansion differs considerably. In both LICs and SSA, service employment is more broadly distributed across wholesale and retail trade, transport, business services, and public services such as education and health. In contrast, Ethiopia's service sector growth is heavily concentrated in just a few sub-sectors. While trade remained largely unchanged, "other services" rose sharply from 2.5 percent to 15.3 percent, accounting for the bulk of service employment gains. This sharp increase likely reflects a large expansion of informal and low-productivity urban service activities, in contrast to the relatively more balanced and potentially higher-productivity service structures observed across the region.

These trends raise critical questions about the quality and sustainability of Ethiopia's employment transition, particularly in light of structural transformation goals. The following section applies a shift-share decomposition to further analyze the sources of employment growth distinguishing between within-sector expansion and labor reallocation across sectors and to assess whether the observed employment shifts are productivity-enhancing or not.

6.2. Shift share analysis of employment

To understand whether labor reallocation contributed to employment growth, we apply a shift-share decomposition of total employment growth into two components: the within-sector effect and the structural change effect, using the following formula:

$$g = \sum_s (S_{s,t-1} \times g_s) + \sum_s (\Delta S_s \times g_s)$$

where;

- g= total employment growth rate over the period
- g_s = employment growth rate of sector s
- $S_{s,t-1}$ = Employment share of sector s in the initial period (t-1),
- $\Delta S_s = (S_s^t - S_s^{t-1})$ change in employment share of sector *s over period*.

The first term $\sum_s (S_{s,t-1} \times g_s)$ represents the **within-sector effect:** the proportion of employment growth due to sector expansion, assuming employment shares remain constant. This isolates the contribution of sector-specific growth without labor reallocation. The second term $\sum_s (\Delta S_s \times g_s)$ captures **structural change,** quantifying the extent to which labor shifting across sectors contributed to overall employment growth.

The ILO employment data was used to analyze sectoral employment dynamics in Ethiopia over five time intervals: 2000–2005, 2005–2010, 2010–2015, 2015–2022, and the overall period 2000–2022. For each period, we calculated the initial and final employment shares by sector – namely agriculture, manufacturing, services, and other industries and derived the change in share ($\Delta S_s = S_s^t - S_s^{t-1}$) as a percentage. Sectoral employment growth rates (g_s) were then computed using the compound annual growth rate (CAGR), which provides a smoothed measure of annual growth by accounting for fluctuations over time.

The decomposition results in Table 6.2 reveal that Ethiopia's employment growth between 2000 and 2022 was driven overwhelmingly by within-sector expansion. Across all sub-periods, the structural component representing the contribution of labor reallocation across sectors to overall employment growth, was minimal, accounting for less than 1 percentage point over the full period. This indicates that the bulk of job creation occurred within sectors rather than being fueled by shifts in employment from lower- to higher-growth sectors.

Table 6.2: Results of the Shift-Share of employment

	Within Effect	Structural Effect	Total Emp. Growth
2000-2005	3.249	0.003	3.252
2005-2010	3.195	0.009	3.204
2010-2015	2.601	0.008	2.608
2015-2022	1.103	0.007	1.110
2000-2022	1.947	0.019	1.966

While agriculture's employment share declined by about 14 percentage points over the period, and gains were observed in services and construction, these compositional changes did not yield a structural employment effect in the narrow sense measured here. This highlights the complexity of Ethiopia's transformation trajectory: structural shifts are occurring in terms of sectoral composition, but they have not translated into broad-based employment acceleration.

However, it is important to interpret these findings with caution. A small or near-zero structural effect in the shift-share analysis does not imply that labor has not moved between sectors or that no structural transformation has occurred. Rather, it indicates that the reallocation of labor did not significantly boost the growth rate of total employment. This could result from labor moving into sectors with similar or lower employment intensity, even if those sectors are more productive. For example, if labor shifts from agriculture into formal services or manufacturing that are more capital-intensive, the employment impact may be limited despite potential productivity gains.

These findings also caution against assuming that sectoral shifts automatically generate higher-quality or more productive jobs. Many of the sectors absorbing labor particularly personal services, retail, and construction, remain informal and known for exhibiting relatively low productivity. Thus, structural transformation appears partial and fragmented, with labor reallocation occurring but not necessarily into sectors with the strongest potential for modernization or sustained growth.

In the next sections, we examine these patterns more closely through the lenses of sectoral productivity, skill intensity, and tradability. These dimensions provide a fuller picture of whether Ethiopia's employment shifts are contributing to long-term economic upgrading or merely redistributing labor across low-productivity activities.

6.3. Employment Elasticity Trends

The previous section showed that Ethiopia's employment growth between 2000 and 2022 has been driven almost entirely by within-sector expansion, with no measurable contribution from structural shifts across sectors. This finding raises an important question: ***how effectively do individual sectors translate output growth into job creation?*** To explore this, we examine the ***employment elasticity*** of output, an important indicator of labor market responsiveness.

Employment elasticity measures the percentage change in employment associated with a one percent change in sectoral GDP, capturing how responsive job creation is to economic growth. It is formally defined as:

$$E = \frac{\%\,\Delta\,(Employment)}{\%\,\Delta\,(GDP)}$$

An elasticity greater than one indicates ***job-intensive growth***, where employment increases faster than output. An elasticity below one suggests that growth is driven more by ***productivity improvements*** than by employment expansion. A ***negative elasticity*** indicates that employment declined despite output growth, which typically reflects labor-displacing technologies, rising capital intensity, or sectoral restructuring.

Table 6.3 presents employment elasticities by sector across five periods.[2] Over the full period from 2000 to 2022, Ethiopia's aggregate employment elasticity was just 0.3, meaning that for every 1 percent increase in GDP, employment grew by only 0.3 percent. This low elasticity signals that economic growth has not translated into proportional employment gains, a classic feature of what is often termed "jobless" or "job-weak" growth.

Elasticity trends across the sub-periods reinforce this conclusion. Between 2000 and 2005, employment elasticity stood at 0.6, suggesting a moderate degree of job responsiveness during the early 2000s. However, this figure dropped sharply in the subsequent periods, to 0.3 in both 2005–2010 and 2010–2015 and fell even further to 0.2 in the most recent period (2015–2022). These declining values suggest that while Ethiopia sustained strong GDP growth over the past two decades, its capacity to generate employment has weakened over time.

Table 6.3: Employment elasticity for various sectors across five periods

	Elasticities				
	2000-2005	**2005-2010**	**2010-2015**	**2015-2022**	**2000-2022**
Agriculture	0.8	0.3	0.2	0	0.3
Manufacturing	0.8	0.3	0	-0.4	0
Mining	5.4	0.9	1	0.3	1.3
Utilities	0.1	3.7	1.4	0.4	1.2
Construction	0.8	0.7	0.2	0	0.3
Total services	0.1	0.6	0.8	0.7	0.6
Trade	0	0.4	0.3	0.1	0.2
Transport & comm	0.2	1.4	0.8	0.5	0.7
Accommodation & food	-0.5	-0.2	-0.2	-0.4	-0.3
Financial	1.4	1.1	1.3	0.7	1
Real estate	0.5	1.6	2.4	0.7	1.2
Public admin	-1.8	-0.2	-0.2	0.4	0.2
Education	0.8	0.8	1.4	1.4	1
Health	-2.1	1	0.8	0.4	0.3
Other services	0.7	3	1.8	2.7	2.1
Total Economy	**0.6**	**0.3**	**0.3**	**0.2**	**0.3**

These findings are broadly consistent with patterns observed in other low- and middle-income countries. According to the African Development Bank (2018), the average employment elasticity in Africa between 2000 and 2014 was 0.41, indicating that employment grew by less than half the rate of GDP. Among 47 countries studied, four out of five African countries experienced GDP growth that outpaced employment growth, with some—such as Equatorial Guinea—showing

[2] See Table A3 in the appendix for the data on employment growth and value added growth used to calculate the elasticities by sector.

particularly low elasticity due to capital-intensive growth in sectors like oil. Similarly, Crivelli, Furceri, and Toujas-Bernaté (2012) report an average employment elasticity of 0.36 for Sub-Saharan Africa, compared to much higher elasticities in South Asia (0.97), where labor-intensive manufacturing and services have driven growth. These regional comparisons highlight Ethiopia's alignment with a broader African trend in which economic growth has not consistently translated into strong labor absorption.

Table 6.3 also reports sectoral level elasticities. The agriculture sector initially exhibited moderate responsiveness, with an elasticity of 0.7 during 2000–2005, but this fell steadily to zero by 2015–2022. The declining elasticity implies that agricultural growth has become increasingly delinked from employment, consistent with the sector's declining employment share over time. Manufacturing similarly recorded an elasticity of 0.8 in the early 2000s but experienced a continuous decline, turning negative in the final period. Over the entire timeframe, the sector's average elasticity was effectively zero. This indicates that manufacturing, despite being central to the country's industrialization agenda, has not contributed meaningfully to net employment generation. The disconnect may stem from the capital intensity of production processes, rising labor productivity, limited backward linkages, or employment concentration in export enclaves such as industrial parks.

The other industry sectors such as construction and mining displayed mixed trends. Construction had relatively high elasticity in the early 2000s (0.8) but dropped to zero by the latest period. Over the full period, its elasticity averaged just 0.3. Mining recorded a very high elasticity of 5.4 during 2000–2005, but this quickly diminished, settling at 0.3 in the last period, with an overall average of 1.3. These figures indicate some episodic job creation associated with investment cycles rather than sustained employment growth.

By contrast, the service sector has become increasingly important for employment creation. The aggregate elasticity of services improved from 0.1 in 2000–2005 to 0.7 in the most recent period, with a full-period average of 0.6. However, these aggregate masks important heterogeneity across sub-sectors. "Other services", encompassing informal and household-based activities, consistently registered the highest elasticities, reaching 3.0 during 2005–2010 and 2.7 during 2015–2022, with a long-run average of 2.1. This sub-sector has served as a critical employment buffer during structural shifts. Similarly, real estate, utilities, and education showed relatively high responsiveness. Real estate and utilities each had long-run elasticities of 1.2, likely driven by urban expansion and infrastructure investment, while education posted elasticities of 1.4 in both 2010–2015 and 2015–2022 reflecting demographic pressures and public sector hiring.

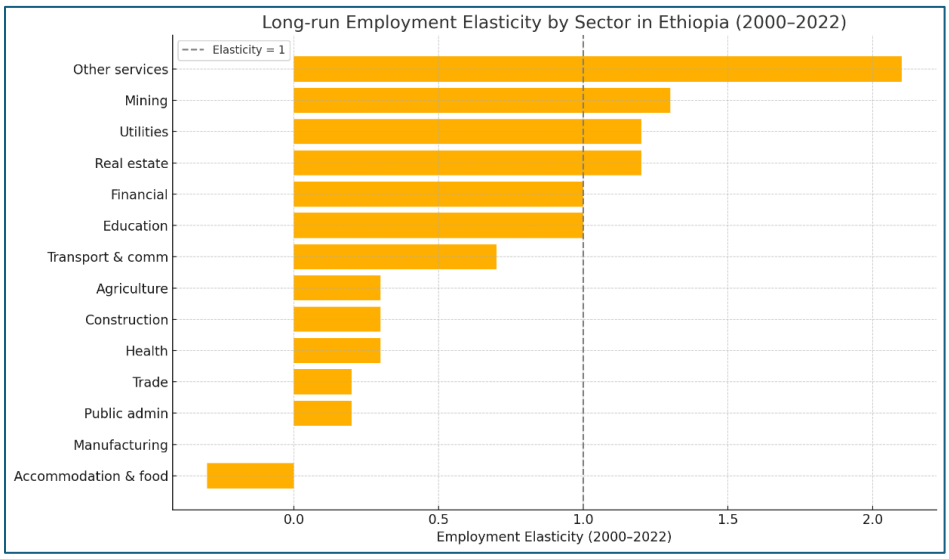
In contrast, other sub-sectors demonstrated more moderate or negative elasticities. Accommodation and food services consistently posted negative elasticities throughout the period, suggesting declining employment despite sectoral output growth. Trade and transport registered elasticities below one, and both declined over time, indicating slower employment absorption relative to GDP gains.

The comparative insight between manufacturing and services is particularly striking. While manufacturing was widely anticipated to serve as the engine of structural transformation and employment in Ethiopia, it recorded no net job growth over two decades despite economic expansion. Meanwhile, services, particularly low-productivity and informal segments, have become the dominant source of new employment. This suggests that Ethiopia's transformation has

diverged from classical industrialization paths, resembling instead a service-led or urban-informal trajectory.

Figure 6.3 visually highlights the variation in employment responsiveness across sectors. It confirms that while a few service sub-sectors and infrastructure-related activities have been employment-intensive, the tradable sectors, specially manufacturing, have not played a significant role in labor absorption. This evidence reinforces the conclusion from earlier discussions: Ethiopia's employment growth has been concentrated in service sectors, particularly informal or non-tradable ones rather than in high-productivity, export-oriented manufacturing. As such, structural transformation has proceeded without sufficient employment reallocation toward sectors capable of sustaining long-term productivity and income growth.

Fig 6.3. Long-run employment elasticities by sector



6.4. Low-Skill Labor Absorption by Sector

Understanding sectoral patterns of low-skilled labor absorption is critical in evaluating the inclusiveness of structural transformation in Ethiopia. For a country where a large share of the workforce has limited formal education, the degree to which different sectors employ low-skilled workers reveals whether structural change is creating broad-based opportunities or reinforcing existing inequalities.

Table 6.4 shows the proportion of low-skilled workers (defined as those with no schooling or at most primary education) in each sector, the sector's share in total employment, and its corresponding contribution to national low-skill labor absorption. A few sectors stand out for their high share of low-skilled workers. Agriculture has the highest concentration, with 94 percent of its workforce classified as low-skilled. "Other services" (that include informal personal and domestic services) and mining also have very high low-skill shares at 91.5 percent. Wholesale and retail trade (74.8 percent), accommodation and food services (69.5 percent), and manufacturing (69.5 percent) similarly employ large proportions of low-skilled workers. In contrast, sectors such as

education (7.1 percent), finance and insurance (7.4 percent), and health and social work (9.6 percent) are highly skill-intensive, with low-skill workers making up less than 10 percent of their workforce.

However, the overall contribution to national low-skill employment is shaped not only by the skill composition of a sector but also by its size. Agriculture alone absorbs nearly 60 percent of all low-skilled workers due to both its high low-skill share and its dominant employment share (63.5 percent). Other services absorb 13.5 percent, driven by their large size (14.8 percent of total employment) and similarly high low-skill composition. Wholesale and retail trade follows with nearly 5 percent of total low-skill labor. Manufacturing and construction, despite being traditionally considered promising for absorbing unskilled labor, contribute just 2.2 percent and 1.3 percent, respectively, largely because of their relatively small employment bases (Table 6.4).

Table 6.4: Low skill labor absorption by sector

Industry	Low-skill labor (%)	Total employment share (%)	Low skill employment share (%)
Agriculture	93.9	63.5	59.6
Mining	91.5	0.5	0.5
Manufacturing	69.5	3.2	2.2
Utility	25.1	0.6	0.2
Construction	64.6	2	1.3
Wholesale & retail	74.8	6.4	4.8
Transport & storage	45.5	1.7	0.8
Accommodation & food	69.5	1	0.7
Finance & insurance	7.4	0.7	0.1
Real estate	32.9	1.2	0.4
Public admin	20.1	1	0.2
Education	7.1	2.5	0.2
Health & social work	9.6	0.9	0.1
Other services	91.5	14.8	13.5

In contrast, skill-intensive sectors such as education, finance, and health contribute negligibly to low-skill labor absorption. This reinforces their limited accessibility to workers without formal education and highlights the constraints faced by low-skilled individuals in transitioning into modern sectors.

These patterns indicate that Ethiopia's ongoing structural transformation has primarily involved a horizontal shift in employment, with low-skilled labor moving out of agriculture and into informal service sectors. Rather than transitioning into more dynamic areas such as manufacturing or modern services, most workers have been absorbed into activities with low entry barriers, often in urban informal economies. This trend mirrors broader patterns observed across sub-Saharan Africa, where structural change has frequently resulted in increased employment in informal services rather than in industry (McMillan, Rodrik, & Verduzco-Gallo, 2014; Fox & Thomas, 2016).

In contrast, countries in East and Southeast Asia such as Vietnam and Bangladesh have managed to channel a large share of their low-skilled workforce into export-oriented manufacturing sectors

(Felipe, Kumar, & Abdon, 2013), supporting more robust labor market integration. Ethiopia's trajectory thus reflects a divergence from the Asian experience: although labor is shifting out of agriculture, it has yet to be absorbed into sectors typically associated with more transformative employment outcomes. Without greater integration of labor into tradable and labor-intensive sectors, the structural transformation may remain shallow and uneven.

7. Productivity Growth and Sources

7.1. Methodology and data source

Understanding sectoral differences in labor productivity is central to evaluating the nature and pace of structural transformation in developing economies. While services have gained prominence in many low- and middle-income countries, their productivity levels have historically lagged behind those of industry. Recent evidence by Nayyar et al. (2021) suggests that although the gap between services and industry has narrowed since the 1990s, services remain less productive on average. These global trends raise important questions in the Ethiopian context: What has been the trajectory of productivity growth across sectors? How do services compare with manufacturing in their contribution to overall productivity gains? And does a growing shift toward services imply a drag on productivity growth or can specific service subsectors emerge as new productivity drivers?

This study addresses these questions by analyzing sectoral productivity differentials, identifying the sources of labor productivity growth, and examining how productivity levels relate to both skill intensity and employment shares across sectors. The analysis applies a growth decomposition framework, using labor productivity, measured as value added per worker, as the central indicator of structural change.

The core analytical tool is a shift-share decomposition method, first introduced into African development discourse by McMillan and Rodrik (2011) and subsequently widely adopted in studies of structural change and productivity (e.g., Badiane et al., 2012; Garcia-Verdu et al., 2012; McMillan and Harttgen, 2014; de Vries et al., 2015). Some studies (e.g., de Vries et al., 2014) extend the basic shift-share framework by decomposing the structural change term into static and dynamic components. However, McMillan and Harttgen (2014) question the usefulness of this distinction, noting that the so-called dynamic term is often negative and hard to interpret. For instance, it can be negative even when labor moves from agriculture to more productive sectors, a shift that clearly supports productivity growth. Given that structural change is inherently dynamic, labeling part of it as "static" is arguably misleading. We therefore adopt the basic formula proposed by McMillan and Rodrik (2011), which avoids this complication.

This framework decomposes aggregate productivity growth into two main components: productivity growth within sectors and gains from the reallocation of labor across sectors.

$$\Delta P_t = \sum_i s_{i,t-k} \Delta p_i + \sum_i p_{i,t} \Delta s_{it}$$

where P_t is and $p_{i,t}$ refer to economy-wide and sectoral labor productivity respectively, and $s_{i,t}$ is the employment share in sector i. The Δ operator denotes the change in productivity or employment shares between t-k and t.

The **first term** represents the **within-sector -** the weighted sum of productivity growth within individual sectors, where the weights are the employment share of each sector at the beginning of the time period. The **second term** is the **structural change effect** capturing the productivity effect of labor re-allocations across different. It is essentially the contribution from shifts in employment shares across sectors, weighted by their relative productivity levels.

To enable meaningful comparison across periods and isolate the relative contributions of each component, we normalize all terms by the aggregate productivity level, $\boldsymbol{P}$. This yields the following normalized decomposition equation:

$$\left(\frac{\Delta P}{\boldsymbol{P}}\right) = \sum_i s_{i,t-k}\left(\frac{\Delta p_i}{\boldsymbol{P}}\right) + \sum_i \left(\frac{p_{i,t}}{\boldsymbol{P}}\right) \Delta s_i$$

This decomposition framework helps determine whether aggregate productivity gains are primarily driven by sectoral upgrades (e.g., through capital deepening, technology adoption, or skill upgrading), or by shifts in employment from low-productivity sectors (such as agriculture) to higher-productivity sectors (such as manufacturing or certain services).

Labor productivity is defined as **value added per worker**, which serves as the primary measure of productivity at the sectoral level. While the labor productivity measure does not account for capital intensity or technological progress, it provides a straightforward and widely used approach for cross-sectoral productivity comparisons.

The analysis draws on two harmonized datasets:

- **Real GDP by sector**, sourced from the Ministry of Planning and Development (MoPD), provides value-added estimates at constant 2016 prices in millions of Ethiopian Birr (ETB).
- **Sectoral employment data**, measured in thousands of individuals, comes from the International Labour Organization (ILO), ensuring standardized and internationally comparable labor statistics.

The two datasets are meticulously aligned to ensure consistency in sectoral classification. Labor productivity is computed as the ratio of real GDP (in millions of ETB) to employment (in thousands), producing values in thousands of ETB per worker per year.

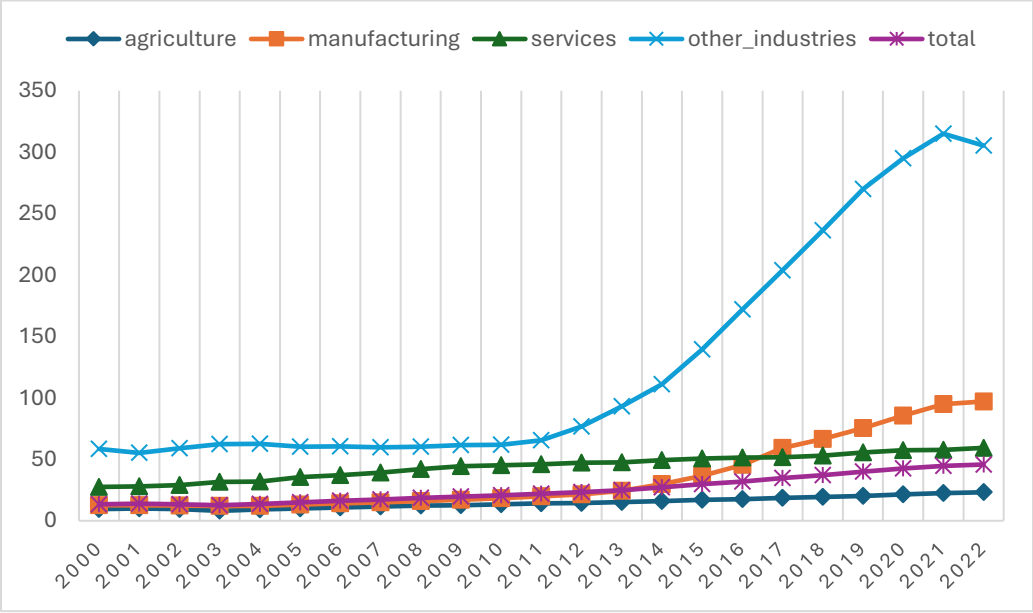
We begin by examining labor productivity trends across broad sectors to provide a high-level view of structural shifts. We then apply a decomposition framework at the level of disaggregated subsectors to identify the key drivers of productivity growth. This approach allows us to distinguish between gains arising from within-sector improvements and those resulting from labor reallocation across subsectors. In the subsequent subsections, we analyze productivity differentials across subsectors, focusing on their relative productivity levels, employment shares, and skill intensity. Together, these methods offer a nuanced understanding of the nature and quality of Ethiopia's productivity transformation over the past two decades.

7.2. Labor Productivity Trends and Growth in Ethiopia

Figure 7.1 illustrates the trajectory of labor ***productivity levels*** at the economy-wide level and across four major sectors: agriculture, manufacturing, services, and other industries (comprising construction, mining, and utilities). Over the past two decades, aggregate productivity more than tripled, rising from around 13,000 ETB per worker in 2000 to approximately 46,000 ETB by 2022. This broad-based increase reflects overall economic growth, human capital accumulation, and expansion in several modern sectors.

However, there are sharp disparities across sectors, both in level and growth rate. The other industries sector (consisting of mining, utility and construction) stands out with a dramatic surge in productivity, particularly after 2012. By 2021, productivity in this sector peaked at over 330,000 ETB per worker, a level that was nearly seven times the national average and fourteen times higher than in agriculture. This surge is largely attributable to the construction boom and related capital-intensive investments in infrastructure.

Figure 7.1: Labor Productivity – Value added per labor ('000s ETB) by major sectors



The manufacturing sector also exhibited sustained gains. From a relatively low base, it recorded tenfold growth in productivity between 2000 and 2022. However, by 2021 its productivity remained only about 30 percent of that in other industries, suggesting room for further modernization and scale economies. In contrast, the agriculture sector showed the lowest productivity level throughout the period. While it rose gradually from about 10,000 ETB in 2000 to roughly 25,000 ETB in 2022, the gap with other sectors widened significantly. The services sector experienced steady growth, reaching about 55,000 ETB per worker by 2022. Productivity in the service sector outpaced the economy average and agriculture sector but lagging far behind the industrial components. These sectoral disparities underscore the challenges of structural

transformation, particularly the limited productivity gains in agriculture despite its large employment share.

Next, we examine sectoral ***labor productivity growth*** across different time periods. Over the past two decades, productivity growth in Ethiopia has been dynamic but uneven, reflecting both sector-specific patterns and broader shifts in the macroeconomic and policy environment. Table 7.1 presents the average annual labor productivity growth rates by sector for four key periods aligned with national development plans, as well as for the full period from 2000 to 2022.

At the aggregate level, Ethiopia achieved an average labor productivity growth rate of 7.8 percent over the full period. However, this headline figure conceals considerable variation across sectors and sub-periods. The early 2000s (2000–2005) were characterized by weak and uneven performance, particularly in agriculture and manufacturing, which grew at average annual rates of just 1.2 and 1.0 percent, respectively. These years followed the Ethiopia-Eritrea war and were marked by climatic shocks and macroeconomic instability. In contrast, other industries including construction, utilities, and mining performed strongly during this period, averaging 5.3 percent annual growth. This suggests that early public infrastructure investments were already generating returns, albeit from a relatively low base. Services also posted modest gains of 2.3 percent.

Table 7.1: Productivity Growth Rate (%) (annual average) by sector and period

	Agriculture	Manufacturing	Services	Other Industries	Total Productivity Growth
2000-2005	1.2	1.0	2.3	5.3	0.6
2005-2010	5.9	6.8	6.8	4.8	0.5
2010-2015	5.0	14.9	7.4	2.3	17.6
2015-2022	4.5	14.9	6.4	2.3	11.9
2000-2022	**4.2**	**9.7**	**5.8**	**3.6**	**7.8**

The period from 2005 to 2010 marked the beginning of a more broad-based productivity recovery. Agriculture, manufacturing, and services all experienced improvements, with growth rates between 5.9 and 6.8 percent. This performance coincided with a period of relative macroeconomic stability, the roll-out of the first medium-term development plans, and the scaling up of infrastructure spending. Interestingly, productivity growth in other industries slightly declined to 4.8 percent, suggesting a tapering of early gains in the construction sector.

The subsequent period, 2010 to 2015, saw a dramatic acceleration in overall productivity growth, with the aggregate rate peaking at 17.6 percent, the highest of any period. This surge was driven by extraordinary growth in manufacturing, where productivity rose at an average annual rate of 14.9 percent. The timing corresponds to the launch of the first Growth and Transformation Plan (GTP I), which prioritized industrialization, investment in industrial parks, and export-oriented manufacturing. Services and agriculture also grew at steady rates, averaging 7.4 and 5.0 percent, respectively. However, other industries experienced a significant slowdown, with productivity growth falling to 2.3 percent, likely reflecting the maturity of large-scale construction projects and capacity constraints in energy and mining.

From 2015 to 2022, overall productivity growth moderated to 11.9 percent. Manufacturing sustained its strong performance with a continued average annual growth rate of 14.9 percent, indicating enduring dynamism in this sector. However, other industries again grew at just 2.3 percent, suggesting stagnation in construction and infrastructure-related activities. Agriculture slowed slightly to 4.5 percent, and services also decelerated to 6.4 percent. Toward the end of this period, productivity growth across all sectors was likely affected by rising macroeconomic pressures, including inflation, foreign exchange shortages, political instability, and the disruptive effects of the COVID-19 pandemic.

Looking at the full period from 2000 to 2022, manufacturing stands out as the most dynamic sector, averaging 9.7 percent annual growth. This reflects its growing importance in driving structural transformation and productivity gains. Services, with an average growth rate of 5.8 percent, have also contributed significantly, benefitting from urbanization and the expansion of modern subsectors such as telecommunications, finance, and logistics, even though much of the sector remains informal. Agriculture, while showing some gains with an average growth of 4.2 percent, remains the lowest-performing sector, constrained by low capital intensity, climatic vulnerabilities, and limited technological change. Other industries averaged just 3.6 percent growth, despite their relatively high levels of productivity per worker. This implies that their contribution to aggregate productivity gains has come more from level effects than sustained improvements over time.

These trends point to an increasingly differentiated productivity landscape in Ethiopia. Manufacturing has emerged as a key driver of growth, while agriculture continues to lag despite its dominant share in employment. The services sector occupies an intermediate position, with steady overall growth but considerable variation across subsectors. Other industries, once significant contributors to productivity, appear to have plateaued. Understanding whether recent gains stem from within-sector improvements or from shifts in labor toward more productive sectors is the focus of the next section.

Although the productivity gains in sectors such as construction and manufacturing are promising, their overall contribution remains constrained by their relatively small share in total employment and output. It is therefore critical to disentangle the sources of these gains: have sectors become more efficient internally, or has productivity growth been driven by structural reallocation of labor from low- to high-productivity sectors? The following section addresses this question using a shift-share decomposition framework.

7.3. Sources of Productivity Growth: Shift-Share Decomposition

This section analyzes labor productivity growth in Ethiopia using a shift-share decomposition applied to 14 disaggregated subsectors, including agriculture, manufacturing, nine service subsectors, and three additional components of “other industries” (mining, construction, and utilities). This finer classification allows us to more accurately capture the diverse dynamics of sectoral transformation and labor reallocation that aggregate sector categories often obscure.

As shown in Table 7.2, total labor productivity increased by 70.9 percentage points between 2000 and 2022. The overwhelming share of this growth, 68.2 points (or 96.2%), was driven by ***within-sector productivity*** gains, while ***structural change*** contributed just 2.7 points (or 3.8%). This indicates that Ethiopia’s productivity transformation has largely occurred within sectors, rather than through labor shifts into more productive areas.

Over the four sub-periods, ***within-sector effects*** consistently accounted for the bulk of productivity gains, rising from 9.8 points in 2000–2005 to 37.7 points in 2015–2022. The structural change effect was modestly positive in the earlier years, peaking at 7.4 points (26.5%) in 2005–2010, but turned negative (−2.6 points) in the most recent period. This suggests that recent labor reallocation trends may have pulled workers into less productive or stagnant subsectors, thereby dampening aggregate productivity growth.

Table 7.2. Disaggregated Shift-share analysis result

Absolute contribution to productivity growth (percentage points)			
Period	Within Effect	Structural Change Effect	Total Productivity Growth
2000-2005	9.8	1.0	10.8
2005-2010	20.6	7.4	28.0
2010-2015	27.2	2.9	30.1
2015-2022	37.7	-2.6	35.1
2000-2022	**68.2**	**2.7**	**70.9**
Relative contributions of each effect (%)			
2000-2005	90.5	9.5	100.0
2005-2010	73.5	26.5	100.0
2010-2015	90.4	9.6	100.0
2015-2022	107.4	-7.4	100.0
2000-2022	**96.2**	**3.8**	**100.0**

A key finding from Ethiopia's growth decomposition between 2000 and 2022 is that labor productivity growth has been driven almost entirely by within-sector improvements, with minimal gains from structural change. While productivity rose notably in sectors such as manufacturing, construction, and utilities, the reallocation of labor did not reinforce this growth. Much of the labor exiting agriculture moved into low-productivity informal services, weakening the overall transformation process. This pattern, where productivity gains occur within sectors, but not through labor movement across sectors, highlights a disconnection between output growth and employment dynamics.

Compared to international experiences, Ethiopia's transformation appears narrow and fragmented. In East Asia, countries like Vietnam and Bangladesh channeled large shares of their labor force into export-oriented manufacturing, generating strong productivity gains from structural change. In contrast, Ethiopia's trajectory more closely resembles that of Sub-Saharan Africa, where labor often shifts into low-productivity informal services. Yet Ethiopia differs in one key respect: its within-sector productivity growth has been relatively strong, setting it apart from many of its regional peers.

Despite this strength, the lack of alignment between labor reallocation and sectoral productivity growth has limited the inclusiveness of the transformation. Without a more effective integration of labor into high-performing, employment-generating subsectors, the country risks a growth path

where output expands but broad-based gains in employment quality and income remain elusive. This disconnect underscores the need for policies that promote not just sectoral upgrading, but also productive labor absorption. A comparative assessment of Ethiopia's structural transformation in relation to other developing economies is provided in the final chapter.

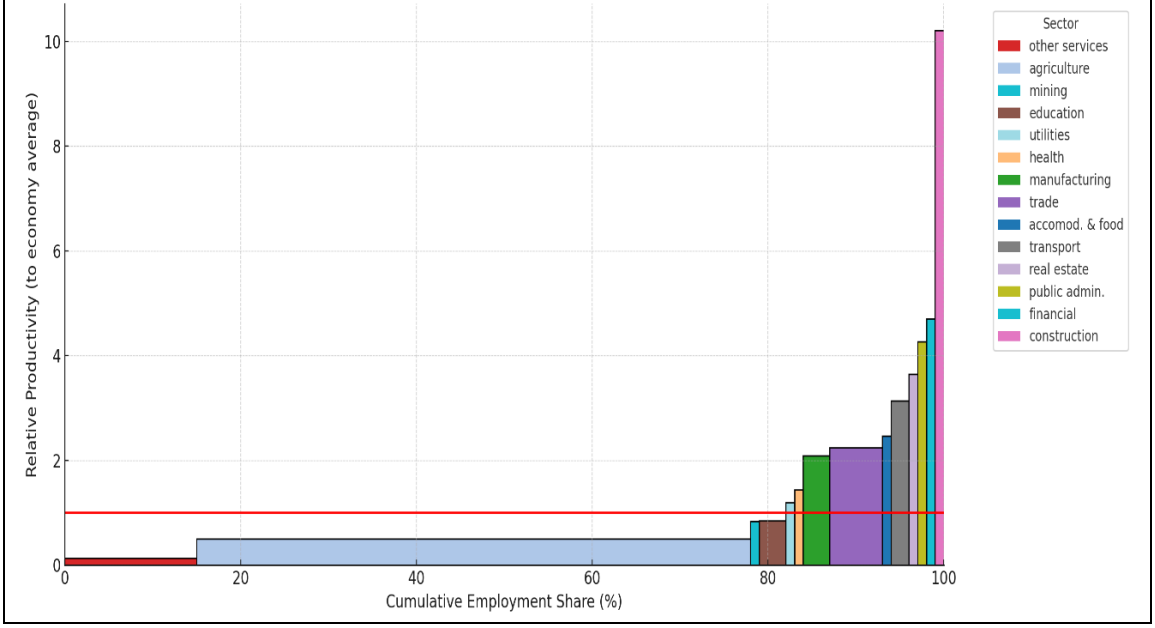
7.4. Productivity Differentials: Manufacturing–Services Comparison

To gain a clearer understanding of current productivity differentials across Ethiopian subsectors, we examine labor productivity at a more disaggregated sectoral level, using a three-year average (2020–2022) as the basis for measurement. The analysis covers 14 sectors, including agriculture, four from the industrial sector (manufacturing, mining, construction, and utilities), and nine from the services sector, encompassing both traditional and modern activities.

Figure 7.2 presents the relative labor productivity of each sector, expressed as the ratio of sectoral productivity to the economy-wide average (normalized to 1.0). In addition to productivity levels on the vertical axis, employment shares are depicted through the width of each bar, laid out sequentially along a horizontal axis scaled from 0 to 100 percent of total employment. This design allows for a simultaneous view of each sector's productivity and its weight in the labor market. The red horizontal line at 1 serves as a benchmark against which to gauge sectoral performance.

The figure reveals a sharp productivity dualism across the economy. At the lower end of the distribution are agriculture, accommodation and food services, and other services, all of which exhibit productivity levels well below the national average. Agriculture stands out as the widest bar in the chart, reflecting its dominant share of employment, over 60 percent in 2022, yet its contribution to value added remains disproportionately low. Manufacturing, often considered central to structural transformation strategies, exhibits productivity above the economy-wide average, but still lags behind most modern service sectors. While it outperforms a few sectors such as accommodation and food, it accounts for only a modest share of total employment.

Figure 7.2: Relative productivity by subsector (average 2020-22)



This disaggregated view refines the conventional narrative that manufacturing necessarily leads productivity growth. While aggregate statistics often show manufacturing outperforming the service sector as a whole, the sector-level picture tells a more nuanced story. Manufacturing does surpass the economy-wide average in relative productivity, but it still trails a range of modern service subsectors, including trade, transport, public administration, finance, real estate, and construction. These service subsectors particularly those tied to urbanization, public institutions, and infrastructure demonstrate significantly higher productivity levels. For Ethiopia, where development strategies aim to enhance both output and labor efficiency, these findings suggest that the contribution of modern services to productivity transformation should not be overlooked.

Sectors in the middle range of the productivity spectrum such as trade, education, and manufacturing combine moderate productivity with some capacity to absorb labor. These sectors have contributed to employment growth, particularly during phases of service sector expansion and public infrastructure investment. Construction, though highly productive, also exhibits a comparatively wider bar, indicating its stronger role in employment absorption than other high-productivity sectors. These mid-level sectors, balancing scale and productivity, may offer feasible near-term opportunities for boosting aggregate productivity through labor reallocation.

At the upper end of the productivity distribution are financial services, real estate, public administration, transport, mining, and construction. Among these, construction is the most productive, with a relative productivity exceeding ten times the national average. Financial services and real estate also rank high. However, these sectors have very narrow bars in the chart, reflecting their limited employment shares. Their capital intensity and reliance on specialized skills restrict their capacity to absorb labor at scale, despite their substantial contribution to value added.

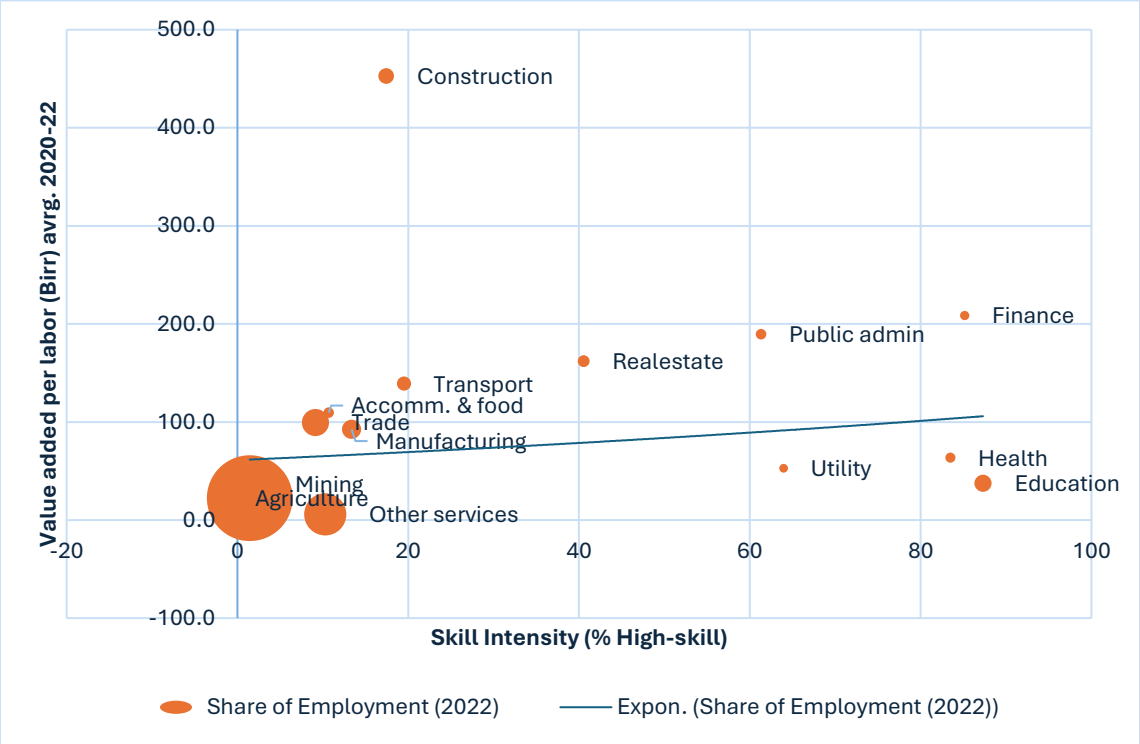
These patterns align with cross-country findings. Gollin et al. (2021), in their study of 13 African economies, note that agriculture, despite employing over 40 percent of the workforce, remains approximately 60 percent less productive than the average. High-productivity sectors such as mining, utilities, and finance, though exceptionally efficient, employ only a small fraction of workers. Sectors like trade, construction, and public services tend to hover around the national average. Ethiopia broadly reflects this profile: high productivity in capital-intensive, low-employment sectors and low productivity in labor-intensive ones. However, a notable distinction is that Ethiopia's manufacturing sector, while above average, is not as strong relative to modern services as it is in many other African countries.

7.5. Skill intensity, productivity and employment share

Understanding the relationship between skill intensity, labor productivity, and employment absorption is central to evaluating the dynamics of structural transformation in Ethiopia. As economies develop, it is often expected that labor will gradually shift from low-skill, low-productivity sectors such as agriculture and informal services into more skill-intensive and productive sectors, thereby fostering both economic growth and improvements in job quality. This analysis seeks to examine whether such a pattern is evident in the Ethiopian context by investigating how sectors differ in their skill requirements, productivity levels, and their relative contributions to total employment. The aim is to shed light on whether labor is reallocating toward sectors that are not only more productive but also capable of absorbing a growing workforce.

The bubble chart (Figure 7.3) visualizes this multidimensional relationship using the most recent data available: skill intensity is derived from the 2021 labor force survey, labor productivity is measured as a three-year average (2020–2022), and employment share reflects the distribution in 2022. Each bubble represents a sector, with its horizontal position indicating the percentage of high-skilled workers, its vertical position representing labor productivity (value added per worker), and its size corresponding to the sector's share of total employment. This composite representation allows for a simultaneous assessment of sectoral differences in skills, productivity, and labor absorption. Contrary to expectations, the figure reveals a weak and inconsistent relationship between skill intensity and productivity. While sectors such as finance and public administration combine high skill intensity with relatively high productivity, they remain marginal in terms of employment. Conversely, despite being highly skill-intensive the education and health are associated with comparatively lower levels of labor productivity, thereby challenging the assumption that greater educational requirements uniformly translate into higher sectoral efficiency.

Figure 7.3: Skill intensity, labor productivity, and employment share



Notably, construction emerges as a key outlier. It registers the highest labor productivity across all sectors, while maintaining a low level of skill intensity and a moderate employment share. This suggests that construction's productivity may be driven less by the formal education levels of its workforce and more by capital investment, technology adoption, or temporary surges in public infrastructure spending. The cases of transport and real estate similarly indicate moderate productivity with only mid-range skill intensity, yet their contribution to employment remains limited.

Perhaps the most important insight from the chart lies in the location and size of the bubbles representing agriculture, other services, and wholesale and retail trade. These sectors, all characterized by very low skill intensity and low productivity, dominate Ethiopia's employment structure. Agriculture alone accounts for over 60 percent of total employment, and other services (including informal trade and personal services) further absorb a significant portion (15%) of the labor force. *This concentration of workers in low-productivity, low-skill sectors confirms a central theme in Ethiopia's employment narrative: while the economy has witnessed labor reallocation across sectors, the shift has largely occurred between similarly low-performing activities.* In effect, the structure of employment has changed in form but not in function, indicating limited progress in the quality or productivity of jobs.

The chart also highlights the marginal role played by sectors that could serve as engines of transformative employment growth. Manufacturing, accommodation and food, and transport fall into the middle of the distribution showing modest productivity and skill intensity but employ only small shares of the workforce. These sectors could, in theory, serve as a bridge between the low-skill, low-productivity segments and the high-skill, high-productivity sectors. However, their current scale of employment is too limited to absorb the surplus labor emerging from agriculture or informal services.

This visualization is significant because it reveals the structural misalignment in the Ethiopian economy: sectors with high employment absorb low-skilled labor but generate little value added, while sectors with high productivity and skill requirements remain small and inaccessible to the majority of workers. The nearly flat trend line included in the chart confirms the absence of a strong positive relationship between skill intensity and productivity, further underscoring that skill upgrading alone may not be sufficient for productivity gains unless accompanied by broader sectoral development strategies.

In summary, this figure vividly captures the disconnect between employment patterns, skill requirements, and productivity outcomes. It supports the broader argument that Ethiopia's structural transformation is occurring without sufficient vertical upgrading. To address this challenge, policy efforts must aim to enhance the scale and productivity of labor-absorbing sectors, particularly through the formalization of services, expansion of labor-intensive manufacturing, and better alignment of skills development with sectoral demand. The figure thus serves as a critical diagnostic tool for understanding where the Ethiopian economy stands and what directions future employment and productivity strategies should take.

8. Tradability: Domestic versus Foreign Demand

A key consideration in evaluating the growth potential of services versus manufacturing is their degree of tradability, that is, their ability to generate demand from international markets rather than relying solely on domestic consumption. While services have historically been viewed as non-tradable and domestically oriented, this characterization no longer holds across all subsectors. Ethiopia's experience with expanding exports in transport, travel, and to a limited extent ICT services, and electricity demonstrates the growing international reach of segments once considered domestically bound.

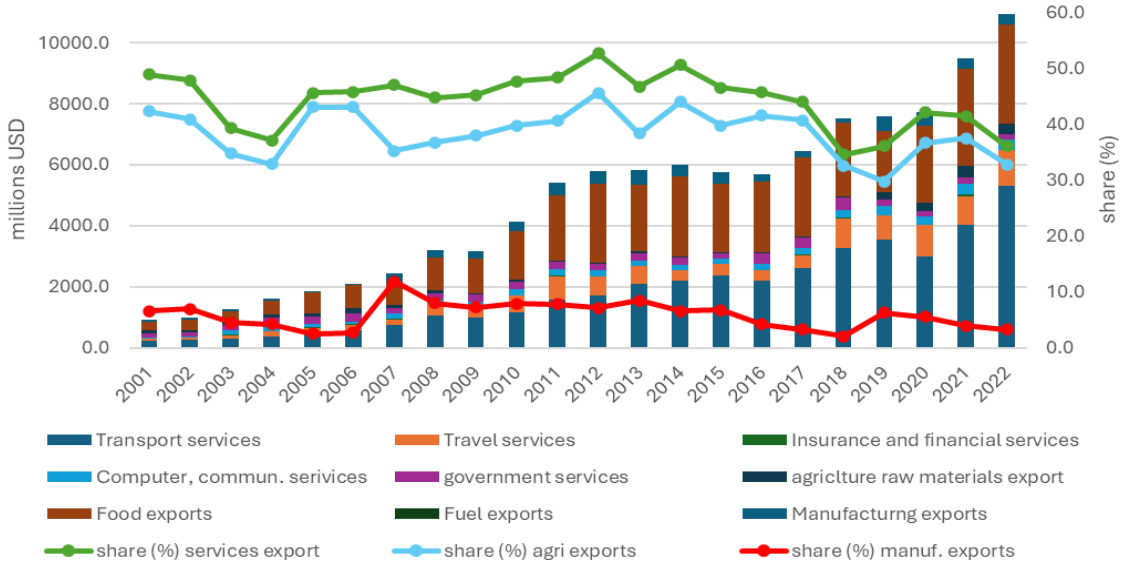
To assess tradability across sectors, this section examines two complementary indicators. (i) The export-to-output ratio, which captures the share of a sector's production that is exported; and (ii) export composition and structure, which reveals the relative contribution of services, manufacturing, and agriculture to total exports, along with the internal concentration of export earnings. These indicators are further complemented by comparative international data on value-added exports across sectors and countries. This helps us evaluate not only the extent to which sectors are export-oriented, but also how much of that export is embedded in domestic production.

8.1 Export Composition and Sectoral Orientation

Figure 8.1 provides a comprehensive view of Ethiopia's export composition from 2001 to 2022, combining both goods and service categories. The figure presents export values in stacked bars (in millions USD) and overlays three key export shares (services, agriculture, and manufacturing) as percentage lines plotted on the right axis. This dual-format allows us to examine not only the magnitude of exports but also their structural composition and dynamics over time.

Over the last two decades, Ethiopia's total exports have expanded significantly, from under 1 billion USD in 2001 to over 10 billion USD in 2022. This growth, however, has been uneven, with marked increases in some periods (notably post-2010) and plateaus or declines in others (e.g., 2016–2018). While total volumes grew, the relative contributions of services, agriculture, and manufacturing to total exports followed distinct trajectories, revealing important insights into the country's structural transformation or lack thereof.

Figure 8.1: Ethiopia's export composition (2001 - 2022



Source: WDI/WB

Service exports emerged as a significant component of the export economy, with their share rising from roughly 35 percent in the early 2000s to a peak above 55 percent in 2012, before gradually declining to just under 40 percent in 2022. In contrast, the share of agricultural exports including food and raw materials remained high and relatively stable throughout most of the period,

fluctuating between 35 and 45 percent, though with a mild decline in recent years. Manufacturing exports, meanwhile, have persistently lagged behind. Despite policy aspirations for export-led industrialization, the manufacturing share remained below 10 percent, often falling below 5 percent in recent years.

This contrast challenges the standard assumption that services are inherently non-tradable or peripheral to export growth. In Ethiopia's case, tradable services have, in many years, outperformed manufactured goods in terms of both value and share. However, the composition within each sector also reveals important concentration patterns.

Within service exports, the transport subsector dominates throughout the period. Beginning in the mid-2000s, transport services rose sharply and consistently, becoming the backbone of Ethiopia's service export performance. This reflects the strategic role of Ethiopian Airlines and the country's emergence as a regional logistics hub. Travel services also gained ground particularly between 2008 and 2016 driven by tourism, diaspora visits, and conference hosting, though they remain smaller in value than transport. Other services such as ICT-related services, insurance and financial services, and government services appear in the export portfolio but contribute marginally and show little sign of structural increase. This narrow concentration makes service exports vulnerable to shocks affecting aviation and travel, as seen in the dips around 2020.

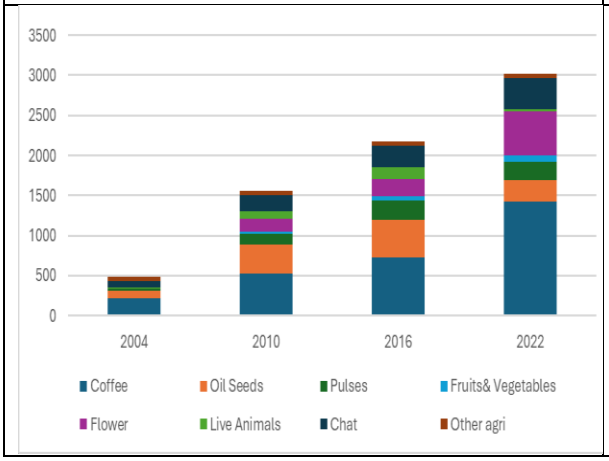
Turning to goods exports, food exports have consistently been the dominant category. Their value expanded significantly after 2010, reflecting rising demand for agricultural commodities such as coffee, oilseeds, and pulses. Agricultural raw materials such as hides and skins or live animals also appear regularly but at much lower volumes. The growth of manufacturing exports such as textiles, leather goods, and light manufactures has been disappointingly slow. While some increase is observable after 2015, the levels remain modest, especially when compared to food exports. Fuel exports, though present, are episodic and never take on a dominant role, suggesting they are driven more by fluctuations in global prices or one-off shipments than by a consistent production base.

An examination of the disaggregated goods exports in Figures 8.2 further illustrates the structural imbalance between agricultural and manufacturing products. On the agriculture side, export earnings have expanded across all observed years, rising from under 500 million USD in 2004 to nearly 3 billion USD by 2022. Coffee consistently dominates this category, accounting for the largest share, followed by oilseeds, flowers, and pulses. Despite some diversification, evidenced by the emergence of fruits, vegetables, and chat, the export portfolio remains heavily dependent on a few primary commodities, with coffee alone maintaining a commanding presence.

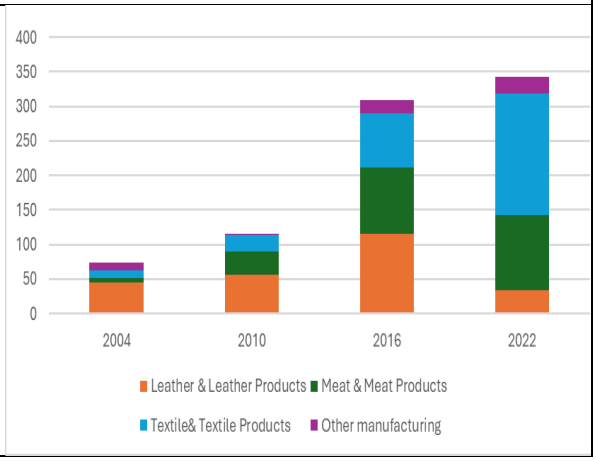
In contrast, manufacturing exports remain modest, increasing only marginally over the same period. After some gains by 2016, the value of leather and leather products once a priority subsector declined by 2022. Growth in manufacturing is mainly driven by textile and textile products, and to a lesser extent meat and meat products, though their combined value still falls far short of agricultural exports. This sharp disparity reinforces the earlier observation: while Ethiopia has deepened its agricultural export base, its manufacturing sector continues to struggle to achieve meaningful export scale or diversification.

Figure 8.2: Main agricutural and manufacturing export products

(a) Agriculture products export



(b) Manufacturing products export



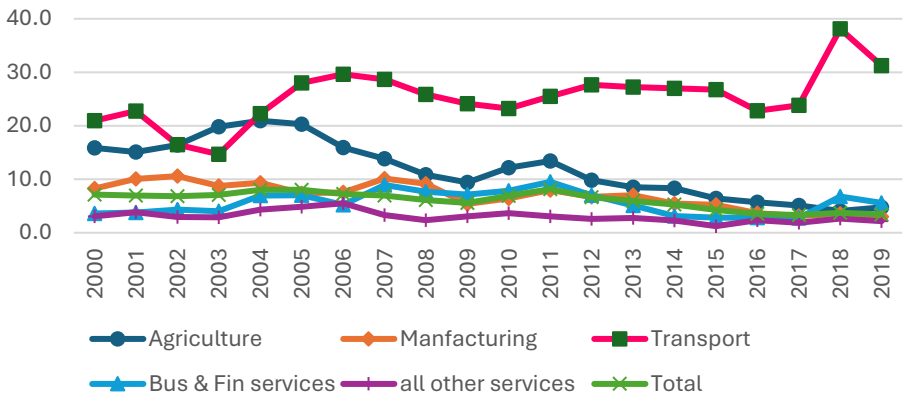
Source: National Bank of Ethiopia (NBE)

8.2 Export-to-Output Ratios and Sectoral Integration

To assess sectoral reliance on foreign markets, Figure 8.3 displays the export-to-output ratio from 2000 to 2019 across major sectors. The export-to-output ratio serves as a proxy for tradability: a higher ratio implies that a greater portion of the sector's output is sold abroad, indicating deeper integration into global value chains.

Over the observed period, ***transport services*** exhibit the highest and most volatile export-to-output ratio, peaking above 35 percent in 2018 before declining slightly in 2019. This underscores the sector's pivotal role in Ethiopia's tradable services economy, largely driven by the rapid expansion of air transport and logistics. ***Agriculture***, while initially prominent with a ratio above 15 percent, has seen a steady decline, dropping below 5 percent after 2015. This trend suggests a weakening link between agricultural output and export performance, possibly due to rising domestic consumption, declining competitiveness, or supply constraints.

Fig. 8.3: Exports of Goods and Services to GDP (%)



Source: ASUT and own construction

Manufacturing, often envisioned as the engine of export-led growth, maintains a modest export-to-output ratio throughout the period fluctuating mostly below 10 percent. This low level, with no sustained upward trend, reflects persistent structural challenges in expanding manufactured exports despite industrial policy efforts. Business and financial services and all other services show consistently low tradability, with export-to-output ratios generally under 5 percent. These figures confirm that, outside transport, most service sectors remain domestically oriented and underrepresented in export earnings.

The **total export-to-output ratio**, shown in green, has been gradually declining since its peak in the early 2000s, reflecting Ethiopia's growing domestic production that is not matched by proportional growth in exports. This declining trend in overall tradability raises concerns about the sustainability of export-driven growth and highlights the need for sector-specific strategies to raise competitiveness and international engagement, especially in manufacturing and modern services.

In comparative context, Ethiopia's sectoral export-to-output ratios fall below those of several African peers, especially in manufacturing and agriculture. For instance, Lesotho and Madagascar regularly report manufacturing export-to-output ratios above 30 percent due to their strong textile and apparel export bases, while Ghana and Côte d'Ivoire maintain higher agricultural export orientations, particularly through cocoa and horticulture value chains (UNCTAD, 2021; World Bank, 2020). Even in services, while Ethiopia's performance in transport is exceptional, other tradable services such as ICT and professional services remain underdeveloped compared to Kenya and South Africa, where digital service exports are growing rapidly (OECD & WTO, 2019). These cross-country differences suggest that Ethiopia's export strategy has so far relied heavily on a few strong niches rather than broad-based tradability, limiting the depth of structural transformation.

8.3 Comparative Value-Added Export Performance

While export ratios provide useful information about foreign orientation, they do not capture how much of the exports are domestically produced. A more accurate measure of structural export capacity is the share of value-added exports in GDP, which captures the extent to which domestic production capabilities contribute to tradable output. Figure 8.4 presents value-added export shares for selected African countries, disaggregated by sector, using data from Mensah and de Vries (2024).

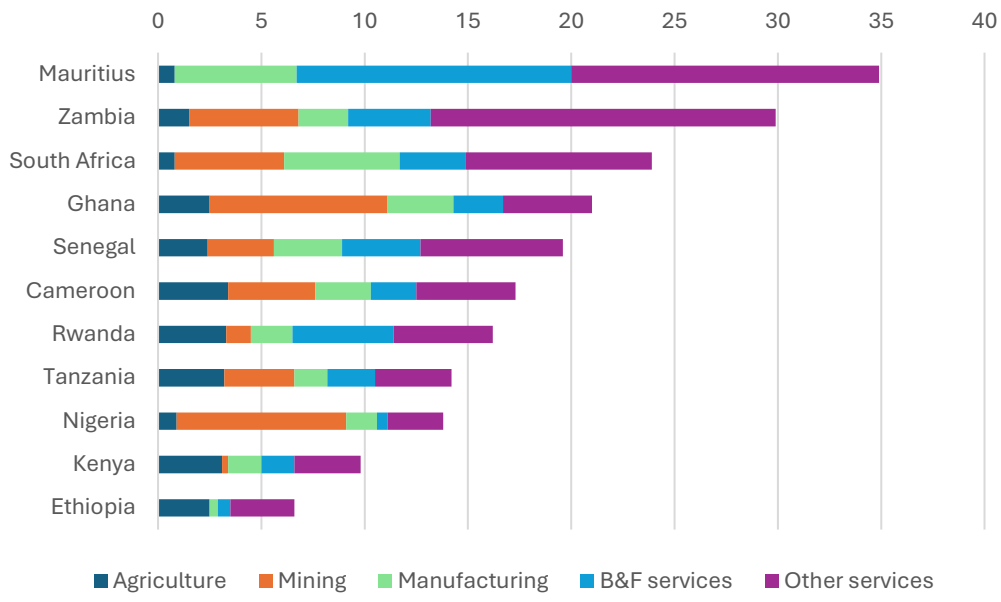
In 2019, Ethiopia's total value-added exports amounted to just 6.7 percent of GDP, placing it at the bottom among the countries shown. This is far below Zambia (29.9%), Kenya (17.6%), and Ghana (15.8%), and especially Mauritius, which leads the group with nearly 40 percent of GDP derived from value-added exports.

Ethiopia's export structure is both narrow and uneven. The largest contributor is "other services," which includes air transport and travel. This category exceeds agriculture (2.5%) and far surpasses manufacturing (0.4%) and business and financial services (0.6%) in value-added export terms. While air transport has been a notable success, especially via Ethiopian Airlines, its contribution is not matched by a broader surge in modern tradable services or diversified export sectors.

In manufacturing, Ethiopia's performance is particularly weak, contributing just 0.4 percent of GDP, well below levels in South Africa (6.3%), Ghana (3.4%), and Senegal (2.6%). Likewise,

business and financial services remain small contributors, especially compared to Kenya (1.6%) and Mauritius (9.4%).

Figure 8.4: value-added exports as a share of GDP: selected African countries



The data in Figure 8.4 reinforces a key conclusion: Ethiopia's exports remain highly concentrated, with a narrow set of low- and mid-value activities (namely coffee in agriculture and air transport in services) accounting for most tradable output. The country's tradable sectors lack both diversity and depth, limiting their role in fostering broad-based productivity growth and employment creation. This structural imbalance constrains Ethiopia's transformation potential. The most productive sectors such as finance, construction, and utilities are not export-oriented or labor-intensive, reducing their contribution to inclusive growth. Meanwhile, the economy remains vulnerable to external shocks, given its dependence on a few dominant export niches.

In sum, Ethiopia's tradable base remains underdeveloped, despite strong performance in specific sectors like air transport. To realize the full potential of trade-driven growth, greater emphasis is needed on building labor-intensive manufacturing and modern service exports with broader domestic linkages and higher value-added potential.

9. Synthesis and Policy Implications: Rethinking Structural Transformation in Ethiopia

9.1 Synthesis of main findings in comparative perspective

This study set out to evaluate the quality and trajectory of Ethiopia's structural transformation from 2000 to 2022, asking four interrelated questions: (1) How has labor reallocated across sectors, and what does this mean for low-skill labor absorption? (2) How have productivity trends evolved, and are gains driven by sectoral upgrades or labor reallocation? (3) How has sectoral skill intensity

shifted, and are these changes aligned with employment structures? (4) What is the export potential of manufacturing and service sectors, and how integrated are they into global markets?

This synthesis draws together the evidence presented across the study to evaluate Ethiopia's structural transformation trajectory between 2000 and 2022. It highlights the four interrelated themes: skill intensity, employment, productivity, and tradability. It also benchmarks Ethiopia's experience against international trends.

High Growth, Limited Structural Realignment

Between 2000 and 2022, Ethiopia experienced rapid and sustained economic growth, averaging 8.9 percent annually, placing it among the world's fastest-growing economies. Yet, this robust performance did not translate into a classical, manufacturing-led transformation akin to East Asia. Instead, the Ethiopian experience aligns more closely with the pattern described by Dasgupta and Singh (2007) as "*structural transformation without industrialization.*" The economy diversified modestly away from agriculture, but this shift has not delivered inclusive, productivity-enhancing, or employment-rich outcomes. Ethiopia's transformation has been partial, segmented, and heavily reliant on services and construction rather than industrial expansion. Several studies, including McMillan and Rodrik (2011), McMillan and Harttgen (2014), and de Vries et al. (2015), document this trend across Sub-Saharan Africa, where growth has often been driven by services and construction rather than manufacturing.

Skill Intensity: Progress with Misalignment

Educational attainment in Ethiopia has improved significantly over the past two decades, with a growing share of the workforce attaining post-secondary and tertiary education. This has been accompanied by rising skill intensity in several modern service subsectors, including finance, ICT, and education, as well as in selected areas of manufacturing, such as pharmaceuticals, electronics, and machinery. These trends suggest the early stages of structural upgrading. However, these high-skill sectors remain relatively small in terms of employment and are often capital-intensive, limiting their role in absorbing the growing pool of educated labor.

The majority of Ethiopia's workforce continues to be concentrated in low- and medium-skill activities, particularly in agriculture, informal services, and light manufacturing industries such as food processing, textiles, and wood products. This dualism echoes patterns seen across many African countries, where modern, high-productivity enclaves coexist with a vast traditional base (Fox & Thomas, 2016; Gollin et al., 2021). Unlike East Asian economies, which aligned education policy with sectoral upgrading, Ethiopia's gains in human capital have not been matched by absorptive capacity in dynamic sectors.

Employment Reallocation: Horizontal, Not Transformative

While the share of agricultural employment declined from 76.6% in 2000 to 63.1% in 2022, this labor was overwhelmingly absorbed by informal services. Manufacturing's employment share actually declined, from 5.2% to 3.1%, despite large public investments. ***Shift-share*** analysis shows that employment growth during this period was driven almost entirely by within-sector expansion, with little contribution from structural reallocation. While this does not imply that labor has not moved between sectors or that productivity-enhancing shifts are absent, it suggests that such reallocation has not significantly contributed to overall employment expansion. This pattern may reflect that labor is moving into sectors with limited capacity to generate large-scale employment,

or that more dynamic sectors are less labor-intensive, resulting in a neutral net effect on employment growth. The findings echo those of Fox and Thomas (2016), who argue that in many African countries, economic growth has led to increased informal employment, particularly in services, rather than an expansion of formal sector jobs.

Employment elasticity estimates reinforce this interpretation. Ethiopia's aggregate elasticity between 2000 and 2022 was approximately 0.3, meaning that a 1 percent increase in GDP translated into only 0.3 percent growth in employment—a pattern characteristic of "job-weak" growth. This figure is broadly consistent with findings for Sub-Saharan Africa, where the African Development Bank (2018) reported an average elasticity of 0.41 for the period 2000–2014, and Crivelli et al. (2012) estimated a similar elasticity of 0.36 using cross-country panel data. These levels reflect weak labor absorption relative to economic growth.

In Ethiopia, the manufacturing sector exhibited zero or negative employment elasticity over the past decade, indicating that output growth did not translate into a commensurate expansion of jobs. This pattern may reflect a combination of factors, including rising labor productivity, increased automation, limited backward linkages, or employment concentration in capital-intensive export enclaves. In such a context, manufacturing can expand in output terms without generating broad-based employment.

Low-skill labor absorption patterns further underscore the challenges. While agriculture still accounts for nearly 60 percent of low-skilled employment, "other services", (a category encompassing informal trade, domestic work, and personal services) has emerged as the second-largest absorber, with 13.5 percent. Traditional sectors such as retail, accommodation, and food also absorb a significant share of low-skilled labor. In contrast, modern sectors such as finance, education, and health contribute negligibly to low-skill labor absorption, highlighting barriers to entry and reinforcing structural inequality. These patterns mirror regional trends: Gollin et al. (2021) show that across 13 African economies, labor shifts predominantly into low-productivity services, while high-productivity sectors remain small and inaccessible.

Productivity: Impressive but Unequal Gains

Ethiopia achieved a more than threefold increase in aggregate labor productivity between 2000 and 2022. Decomposition analysis based on disaggregated sector data reveals that over 96 percent of this growth was driven by ***within-sector*** improvements, underscoring the strong role of internal sectoral upgrading in driving productivity gains. In contrast, ***structural change***, the reallocation of labor across sectors, contributed only modestly overall, and turned negative in the most recent period. This indicates that employment shifts have not consistently supported productivity growth and, at times, may have slowed it down by channeling labor into less dynamic subsectors.

This pattern reflects a transformation more in form than in function; one where labor exits traditional sectors like agriculture but is not absorbed into sectors with strong productivity potential. Instead, much of it moves into informal and low-productivity service subsectors, weakening the potential gains from labor mobility.

These findings are consistent with broader trends observed across Sub-Saharan Africa. McMillan, Rodrik, and Verduzco-Gallo (2014) document that labor reallocation in many African economies has primarily occurred into low-productivity informal services, rather than into higher-productivity manufacturing or modern services. Similarly, Fox and Thomas (2016) argue that Africa's structural

transformation has been driven more by informalization than industrialization, with limited productivity dividends.

In contrast, East and Southeast Asian economies such as Vietnam, Bangladesh, and China achieved substantial productivity growth through positive structural change, where labor moved into export-oriented manufacturing and other dynamic sectors (Felipe, Kumar, & Abdon, 2013; Nayyar et al., 2021). These countries succeeded not only in raising productivity within sectors but also in aligning employment patterns with the most productive parts of their economies.

Tradability: Agriculture's Dominance and Narrow Service-Manufacturing Base

A key dimension in evaluating the transformative potential of Ethiopia's service and manufacturing sectors lies in their tradability – their capacity to generate demand from international markets. Contrary to traditional assumptions that services are inherently non-tradable, Ethiopia's experience reveals that specific service subsectors, notably air transport and travel, have become significant export earners. Between 2001 and 2022, service exports consistently outperformed manufacturing in terms of both value and share of total exports, challenging classical development models that prioritize manufacturing as the engine of export-led growth (Nayyar et al., 2021). However, this performance is driven almost exclusively by the transport sector, with Ethiopian Airlines at the core, while other service subsectors such as ICT and finance remain marginal.

The composition of Ethiopia's exports further underscores this narrow base. While total exports rose from under $1 billion in 2001 to over $10 billion in 2022, agricultural commodities, especially coffee, oilseeds, and pulses have maintained a dominant position. Coffee continues to be Ethiopia's single most important export, with agricultural raw materials like hides, skins, and chat also contributing significantly. This reliance on a few primary commodities makes the economy vulnerable to global price fluctuations and climatic shocks, despite the strategic role of agriculture in securing foreign exchange and rural livelihoods.

Manufacturing exports remain subdued, with their share of total exports frequently falling below 5 percent. Ethiopia's export-to-output ratio is low relative to regional peers such as Lesotho, Madagascar, and Kenya (UNCTAD, 2021; OECD & WTO, 2019). Value-added export data further confirm weak domestic embedding, with manufacturing contributing just 0.4% of GDP in 2019 (Mensah & de Vries, 2024). Ethiopia's export structure thus mirrors the African trend of primary commodity dependence, missing the inclusive tradability seen in Asia's transformation stories.

Comparing Sectoral Merits: Employment, Productivity, and Tradability

A key comparative insight emerges when contrasting the roles of manufacturing and services in Ethiopia's transformation. In terms of employment, services, particularly informal and consumer-facing segments have absorbed the largest share of labor exiting agriculture. However, these sectors tend to be low-productivity and offer limited prospects for upward mobility. Manufacturing, in contrast, employs fewer workers but demonstrates much higher productivity growth. Yet its labor-absorbing potential remains constrained by capital intensity, competitiveness issues, and limited domestic market size.

In terms of productivity, manufacturing outperforms most service subsectors and has been the strongest contributor to overall productivity gains. However, high-productivity modern services such as finance and ICT also show strong performance but with negligible employment shares and

limited export orientation. This differs markedly from India's ICT-BPO sectors, which contributed to both productivity and employment growth.

Tradability further differentiates sectoral roles. Ethiopia's manufacturing exports remain weak, and tradable services are narrowly concentrated in transport. The high-productivity sectors are largely domestically oriented, while the tradable sectors remain low in value-added and vulnerable to shocks. Unlike Vietnam, where export-oriented manufacturing served as the backbone of transformation, Ethiopia lacks a diversified, employment-intensive tradable base.

Global Comparisons and Strategic Lessons

Ethiopia's case underscores three important insights for the global development debate:

a) **Manufacturing's Promise Is Not Automatic**: Without institutional support, infrastructure, and market linkages, manufacturing cannot absorb labor or drive transformation, even when productivity gains are achieved.

b) **Services Can Transform, But Preconditions Matter**: Services need to be tradable, skill-intensive, and linked to competitive sectors to support transformation. Ethiopia's informal service expansion contrasts sharply with the ICT-driven growth of India or the business services expansion in Kenya and South Africa.

c) **Transformation Must Be Inclusive**: Productivity growth without employment reallocation leads to exclusion. Ethiopia's negative interaction effects show the costs of disconnected growth: rising averages that mask widespread stagnation.

Ethiopia's transformation experience shows a dynamic economy with rising output and productivity, but weak integration between employment, skills, and global markets. Unlike East Asia's manufacturing-led model or India's service-led growth, Ethiopia represents a fragmented path: strong sectoral growth without inclusion. To address this, Ethiopia and similar countries may need hybrid strategies that combine selective manufacturing promotion, modernization of tradable services, and institutional reforms to improve skill-employment alignment. Without such coordination, transformation may remain partial, deepening the divide between productive sectors and the bulk of the labor force.

Ethiopia's case thus offers a cautionary yet constructive contribution to the global conversation: structural transformation is possible; but only if productivity, employment, and tradability move together.

9.2 Policy Implications: Aligning Growth with Inclusive Transformation

Ethiopia's experience reveals a disjuncture between sectoral growth and inclusive structural transformation. While services and construction have driven output growth, employment creation, skill utilization, and export diversification have lagged. The challenge now is to bridge these gaps with a coordinated strategy that enhances linkages across sectors, expands opportunities for low-skilled workers, and raises the transformative potential of both services and manufacturing.

To that end, the following policy directions are proposed, not as prescriptive blueprints but as critical entry points for sequenced, context-sensitive action:

a) Build Digital Infrastructure as a Cross-Sectoral Enabler

Digital connectivity is no longer a sector-specific issue. It underpins productivity, tradability, and innovation across all sectors, from manufacturing and logistics to retail and tourism. Ethiopia's weak digital infrastructure limits participation in global service markets, hinders e-commerce development, and raises transaction costs for firms. National investment in broadband access, data infrastructure, and digital literacy must be elevated as a strategic priority, enabling both high-skill and low-skill sectors to scale and integrate.

b) **Promote Labor-Intensive Manufacturing and Agro-Industrial Linkages**

Ethiopia has made significant investments in labor-intensive manufacturing through the establishment of industrial parks, support for SMEs, and agro-industry promotion. However, the anticipated employment gains have not fully materialized, and performance in recent years has declined. To reinvigorate this agenda, policy must begin with a critical assessment of the current bottlenecks ranging from weak backward linkages with agriculture, limited local supplier development, skills mismatches, infrastructure gaps, to foreign exchange shortages and regulatory uncertainty. Labor-intensive subsectors such as garments, leather, and agro-processing still hold promise, but their success depends on strengthening domestic value chains, improving logistics and trade facilitation, and ensuring that SME and cooperative actors are effectively integrated into industrial ecosystems. Rather than abandoning these sectors, targeted reforms and institutional learning should focus on unlocking their employment potential while embedding them more deeply in both local and global markets.

c) Strengthen Backward Linkages through Tourism, Air Transport, Logistics, and Agribusiness

Ethiopia holds considerable untapped potential in services that are strongly linked to agriculture and manufacturing. Sectors such as tourism and logistics not only generate employment and foreign exchange but also act as critical enablers for broader structural transformation. Ethiopia's established leadership in air transport through Ethiopian Airlines provides a strategic platform for expanding tourism and freight logistics. Similarly, the emergence of high-value agro-businesses especially in horticulture, floriculture, and fresh produce exports demonstrates the country's comparative advantage in integrating agriculture with tradable services and global markets. Realizing this potential requires sustained investment in transport infrastructure, cold chains, skills development, and regulatory modernization. Enhancing connectivity between rural producers and export markets, particularly through logistics and tourism corridors, can generate multiplier effects across sectors and create productive employment for both low-skilled and semi-skilled workers. With appropriate coordination, these service-oriented linkages can anchor more inclusive and resilient growth.

d) Support Upgrading, Formalization, and Entrepreneurship in Informal Services

Informal services have become the main absorber of labor in Ethiopia but remain low in productivity, scale, and income security. Raising their potential, especially in sub-sectors like retail, tourism, logistics, and domestic services requires a shift from residual to proactive policy, linked to digital infrastructure and urban development.

Entrepreneurs in the informal sector are diverse. While many operate survivalist businesses, others have growth potential if given the right support. Policies should differentiate between these groups, offering tailored interventions such as demand-driven business development services, access to microfinance, simplified licensing, and targeted incubation.

Embedding digital skills among informal workers can further enhance productivity. However, evidence from urban safety net programs suggests that **generic entrepreneurship support** has had limited impact. Efforts should focus on those with greater potential to scale and create jobs, especially for youth and women. Promoting inclusive, locally informed entrepreneurship can help transform informal services into engines of employment and innovation.

e) **Align Skills Development with Emerging Sectoral Demands**

Despite improvements in education, Ethiopia continues to face high levels of skills mismatch, with many graduates unable to find productive employment. A national skills strategy should be designed to respond to both high-skill sectors (e.g., ICT, logistics, health) and middle-skill segments with strong employment potential (e.g., agribusiness, tourism, food services). This requires expanding beyond an industrial focus to include growing service and rural-linked sectors.

To avoid oversupply of mismatched skills, the strategy should be informed by clear labor market demand and employer input. Evidence shows that gaps in work experience and soft skills are just as critical as technical mismatches. Strengthening dual vocational training systems, promoting regional specialization, and forging stronger employer-education partnerships are essential to improving job readiness and aligning the education system with real-world labor market needs.

f) **Diversify Tradable Services and Strengthen Export Capabilities**

To unlock new sources of growth, Ethiopia must expand its base of tradable services beyond traditional strengths such as air transport. Promising areas include digital platforms, business process outsourcing, logistics, and potentially the energy sector, where external demand and regional integration offer new market opportunities. Realizing this potential will require regulatory modernization, investment in digital infrastructure, and targeted global market access initiatives.

On the manufacturing side, efforts to raise export competitiveness should focus on reducing trade logistics costs, improving quality and certification standards, and supporting firm-level innovation. However, policy support should be performance-based, avoiding blanket protection of uncompetitive firms solely based on their sectoral classification. A more selective, incentive-based approach can better promote globally viable industrial capabilities.

In sum, these policy recommendations reflect the core insight of Ethiopia's transformation experience: ***productivity growth alone is not enough***. For structural transformation to be inclusive and sustainable, the most productive sectors must also absorb labor, deepen domestic linkages, and integrate into global value chains. Ethiopia's path forward thus lies not in replicating others, but in crafting a hybrid model leveraging complementarities between services, agriculture, and manufacturing to drive broad-based and resilient development.

References

- African Development Bank (2018). *African Economic Outlook 2018*. Abidjan: AfDB. Available at: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/African_Economic_Outlook_2018_-_EN.pdf
- Baccini, L., Fiorini, M., Hoekman, B., & Sanfilippo, M. (2022). Services, jobs, and economic development in Africa (CEPR Discussion Paper No. DP17092). Centre for Economic Policy Research.
- Baumol, W. J. (1967). Macroeconomics of unbalanced growth: The anatomy of urban crisis. American Economic Review, 57(3), 415–426.
- Crivelli, E., Furceri, D., & Toujas-Bernaté, J. (2012). *Can Policies Affect Employment Intensity of Growth? A Cross-Country Analysis*. IMF Working Paper WP/12/218. Available at: https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Can-Policies-Affect-Employment-Intensity-of-Growth-A-Cross-Country-Analysis-26230
- Dasgupta, S., & Singh, A. (2007). Manufacturing, services and premature deindustrialization in developing countries: A Kaldorian empirical analysis (Working Paper No. 327). Centre for Business Research, University of Cambridge.
- de Vries, G., Timmer, M., & de Vries, K. (2015). Structural transformation in Africa: Static gains, dynamic losses. Journal of Development Studies, 51(6), 674–688.
- Diao, X., McMillan, M., & Rodrik, D. (2019). The recent growth boom in developing economies: A structural-change perspective. In K. Basu & D. Rosenblatt (Eds.), The Oxford Companion to the Economics of Africa. Oxford University Press.
- Dihel, N., & Goswami, A. G. (2016). The unexplored potential of trade in services in Africa: From hair stylists and teachers to accountants and doctors. World Bank.
- Federal Democratic Republic of Ethiopia (FDRE) (2011). National Planning Commission. Growth and Transformation Plan I (GTP I). 2010/11-2014/15.
- Federal Democratic Republic of Ethiopia (FDRE). 2002. Ethiopian Industrial Development Strategy, Addis Ababa, Ethiopia (Amharic version).
- Federal Democratic Republic of Ethiopia, Ministry of Planning and Development (2020). Ethiopia 2030: The Pathway to Prosperity - Ten Years Perspective Development Plan (2021 - 2030).
- Federal Democratic Republic of Ethiopia, National Planning Commission. (2016). Growth and Transformation Plan II (2015/2016–2019/20). Addis Ababa: FDRE.
- Federal Democratic Republic of Ethiopia. (2002). Ethiopian industrial development strategy [in Amharic]. Addis Ababa: FDRE.
- Felipe, J., Kumar, U., & Abdon, A. (2013). Development and modern industrial policy in practice: Issues and country experiences. Edward Elgar.
- Fox, L., & Thomas, A. (2016). Africa's got work to do: Employment prospects in the new century (IMF Working Paper No. 16/191). International Monetary Fund.
- Gebreeyesus, M. (2014). Industrial policy and development in Ethiopia: Evolution and present experimentation. In J. Page & F. Tarp (Eds.), African development: Past experiences and future prospects (pp. 301–327). Oxford University Press.

- Gebreeyesus, Mulu, (2018). "Industries without smokestacks: Implications for Ethiopia's industrialization". (in eds.) John Page, Finn Trap and Richard Newfarmer. Industries without Smokestacks and Structural Transformation in Africa, Oxford University Press.
- Gervais, A., & Jensen, J. B. (2019). The tradability of services: Geographic concentration and trade costs. American Economic Review: Insights, 1(1), 43–60.
- Ghani, E., & Kharas, H. (Eds.). (2010). The service revolution in South Asia. Oxford University Press.
- Gollin, D., Jedwab, R., & Vollrath, D. (2021). Urbanization with and without industrialization. Journal of Economic Growth, 26(1), 1–37.
- Gollin, D., Jedwab, R., & Vollrath, D. (2024). Taking stock of Africa's economic transformation: A new growth strategy? Forthcoming. World Bank and UNU-WIDER.
- Hallward-Driemeier, M., & Nayyar, G. (2018). Trouble in the making? The future of manufacturing-led development. World Bank.
- International Labour Organization (ILO). (2016). World Employment and Social Outlook: Trends 2016. Geneva: International Labour Office. Available at: https://www.ilo.org/global/research/global-reports/weso/2016/WCMS_443480/lang--en/index.htm
- International Labour Organization. (2012). Global employment trends 2012: Preventing a deeper jobs crisis. ILO.
- Kaldor, N. (1967). Strategic factors in economic development. Cornell University Press.
- Lall, S. (2005). Is African industry competing? In P. Collier & C. Pattillo (Eds.), Opportunity and growth in Africa (pp. 105–131). World Bank.
- Loungani, P., & Mishra, S. (2014). Not your father's service sector. Finance & Development, 51(3), 46–49.
- McMillan, M., & Harttgen, K. (2014). What is driving the 'African growth miracle'? (NBER Working Paper No. 20077). National Bureau of Economic Research.
- McMillan, M., & Rodrik, D. (2011). Globalization, structural change, and productivity growth (NBER Working Paper No. 17143). National Bureau of Economic Research.
- McMillan, M., Rodrik, D., & Verduzco-Gallo, Í. (2014). Globalization, structural change, and productivity growth, with an update on Africa. World Development, 63, 11–32.
- Mensah, E. B., & de Vries, G. J. (2024). The role of exports for income and job creation in Sub-Saharan African countries: New evidence using the Africa Supply and Use Tables database. GGDC Research Memorandum 197.
- Ministry of Finance and Economic Development (MoFED). (2006). Ethiopia: Building on progress. A plan for accelerated and sustained development to end poverty (PASDEP) (2005/06–2009/10). Addis Ababa: MoFED.
- Ministry of Industry (MOI). (2013). Ethiopian Industrial Development Strategic Plan (2013 – 2025).
- National Bank of Ethiopia. (Various years). Annual publications. http://www.nbe.gov.et/
- Nayyar, G., Hallward-Driemeier, M., & Davies, E. (2021). At your service? The promise of services-led development. World Bank.
- Newfarmer, R., Page, J., & Tarp, F. (2018). Industries without smokestacks: Industrialization in Africa reconsidered. Oxford University Press.

- OECD & WTO. (2019). Aid for trade at a glance 2019: Economic diversification and empowerment. OECD Publishing / World Trade Organization. https://doi.org/10.1787/8cfa4f20-en
- OECD. (2020). *Green growth and sustainable development.* Organisation for Economic Co-operation and Development. https://www.oecd.org/greengrowth/
- Ohno, K. (2009). Ethiopia: Learning to industrialize. In M. Cimoli, G. Dosi, & J. E. Stiglitz (Eds.), Industrial policy and development: The political economy of capabilities accumulation. Oxford University Press.Rodrik, D. (2015). Premature deindustrialization. Journal of Economic Growth, 21(1), 1–33.
- Rodrik, D. (2016). Premature deindustrialization. In A. Szirmai, W. Naudé, & L. Alcorta (Eds.), Pathways to industrialization in the twenty-first century: New challenges and emerging paradigms (pp. 85–104). Oxford University Press.
- Szirmai, A. (2012). Industrialization as an engine of growth in developing countries, 1950–2005. Structural Change and Economic Dynamics, 23(4), 406–420.
- Szirmai, A., & Verspagen, B. (2015). Manufacturing and economic growth in developing countries, 1950–2005. Structural Change and Economic Dynamics, 34, 46–59.
- UNIDO. (2022). *Industrial Development Report 2022: The Future of Industrialization in a Post-Pandemic World.* United Nations Industrial Development Organization. https://www.unido.org/resources-publications-flagship-publications-industrial-development-report-series
- United Nations Conference on Trade and Development. (2021). Economic development in Africa report 2021: Reaping the potential benefits of the African Continental Free Trade Area for inclusive growth. Geneva: United Nations. https://unctad.org/webflyer/economic-development-africa-report-2021
- World Bank. (2014). Youth Employment in Sub-Saharan Africa. Washington, DC: World Bank. Available at: https://documents1.worldbank.org/curated/en/424011468192529027/pdf/Full-report.pdf
- World Bank. (2019). World development report 2019: The changing nature of work. World Bank.
- World Bank. (2020). World development indicators 2020. https://databank.worldbank.org/source/world-development-indicators
- World Bank. (2020). World development report 2020: Trading for development in the age of global value chains. World Bank.
- World Bank. (2024). India country economic memorandum: Productivity growth and structural change. https://thedocs.worldbank.org/en/doc/400139d320ead96a0ec624d3608d9b56-0310012025/original/India-Country-Economic-Memorandum-2024-0227c.pdf

Appendix

Table A1. Skill Intensity and employment share service sector (2021)		
Industry	**Skill Intensity (2021)**	**Employment share (2021)**
Professional & technical	89.7	1.5
Education	87.3	7.8
Finance & insurance	85.2	2.2
Health & social work	83.5	2.6
Info & comms	74.1	0.8
Administrative services	71.8	2.2
Public admin	61.3	3.0
Extraterritorial orgs	44.7	0.6
Arts & entertainment	41.1	0.4
Real estate	40.5	0.1
Transport & storage	19.5	4.6
Accommodation & food	10.7	3.0
Other services	10.3	13.1
Wholesale & retail	9.1	20.2
Households as employers	2.3	38.0

Table A2. Skill Intensity and employment share manufacturing sector (2021)		
Industry	**Skill Intensity (2021)**	**Employment share (2021)**
Coke and refined petroleum products	98.2	0.1
Computer, electronic & optical products	97.9	0.3
Machinery & equipment not included elsewhere	71.7	1.3
Electrical equipment	70.2	0.5
Pharmaceuticals & medicinal products	64.6	0.3
Printing & reproduction of recorded media	49.8	1.8
Motor vehicles, trailers & semi-trailers	46.0	1.8
Tobacco products	36.5	0.3
Paper and paper products	31.1	1.2
Other manufacturing	23.9	0.2
Leather & related products	23.4	4.2
Furniture	22.8	5.4
Basic metals	21.3	2.1
Repair & installation of machine & equip.	20.4	
Rubber and plastics products	19.3	7.1
Other non-metallic mineral products	14.5	17.2
Other transport equipment	12.7	
Wearing apparel	12.2	5.7
Food products	10.7	25.2

Fabricated metal products	9.7	4.0
Textiles	8.9	9.7
Chemicals and chemical products	8.4	4.2
Wood products	8.0	1.7
Beverages	7.8	5.4

Table A3: Employment growth and value-added growth data used to calculate elasticity

	Growth rate in Employment					**Growth rate in Value added**				
	2000-2005	**2005-2010**	**2010-2015**	**2015-2022**	**2000-2022**	**2000-2005**	**2005-2010**	**2010-2015**	**2015-2022**	**2000-2022**
agriculture	3.8	2.3	1.5	0.1	1.8	5.0	8.4	6.5	4.6	6.0
mining	28.0	11.4	6.5	2.4	10.8	5.2	12.3	6.4	9.1	8.3
manufacturing	3.9	3.0	0.2	-3.9	0.3	4.9	10.0	15.1	10.5	10.1
utilities	0.4	25.6	15.1	3.5	10.1	6.4	6.9	10.7	9.1	8.3
construction	9.9	8.3	4.7	0.6	5.3	12.9	11.1	27.4	13.8	15.9
trade	0.0	5.6	3.5	1.2	2.4	5.9	14.2	11.6	8.3	9.8
Transport & comm	1.8	13.7	10.6	5.6	7.6	11.6	9.9	12.9	10.4	11.2
Accommodation & food	-3.4	-4.4	-4.5	-2.3	-3.5	7.4	23.7	21.8	6.1	13.7
financial	9.1	18.2	13.5	8.7	12.0	6.7	17.1	10.5	11.7	11.5
Real estate	5.7	26.0	17.3	5.2	12.5	10.6	16.6	7.3	7.0	10.0
Public admin.	5.2	-2.0	-1.5	2.7	1.2	-2.8	11.5	7.4	7.1	5.8
education	9.0	12.3	8.3	3.7	7.9	10.9	14.8	6.1	2.5	7.9
health	-15.5	15.3	10.0	3.9	2.8	7.4	15.1	12.0	11.0	11.3
Other services	3.5	20.5	14.7	9.1	11.5	4.8	6.8	8.0	3.3	5.5
total	3.4	3.5	2.9	1.4	2.7	5.8	10.5	10.5	7.8	8.6

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