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Ethiopia Productivity Report: Data analysis

Development Policy Forum

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Addis Ababa
August 08, 2019

Outline

- Introduction
- Productivity in Ethiopia: Economy-wide labor productivity
- Productivity in Ethiopia: Zooming in the manufacturing sector

Introduction

- Ethiopia has designed and implemented several strategies and development plans which include PASDEP, GTP I and GTP II.
- As a result, Ethiopia has exhibited double digit growth over the last decade and a half.
  - PASDEP period average growth = 10.1%
  - GTP I period average growth = 10.2%
  - GTP II (3-year average growth) = 8.8
- Growth was concentrated in services and agriculture on the supply side, and, private consumption and investment on the demand side.

Introduction

- According to NBE report, the Ethiopian economy recorded 7.7% growth in 2017/18 fiscal year
  - Share in GDP: Agriculture =34.9%, Industry =27%, Services =39.2
- Despite the high economic growth achieved, Ethiopia's productivity remains well below the productivity in developing countries
  - The high level of economic growth was largely driven by substantial public investment on physical infrastructure and a strong performance of the service sector
    - Ethiopia stands out for having registered very rapid infrastructure development.

Introduction

- Productivity improvement is an important source of sustainable economic growth and hence crucial for policymaking (Conway, 2016).
- Understanding this, the pursuit of productivity has become Ethiopia's key policy direction in GTP II.
  - Enhancing the productivity of agriculture and manufacturing sectors is one of the major focus areas of GTP II.
  - However, concrete policy measures to enhance productivity remain unclear.
  - In order to concretize productivity policies, a comprehensive and detail study on productivity is needed

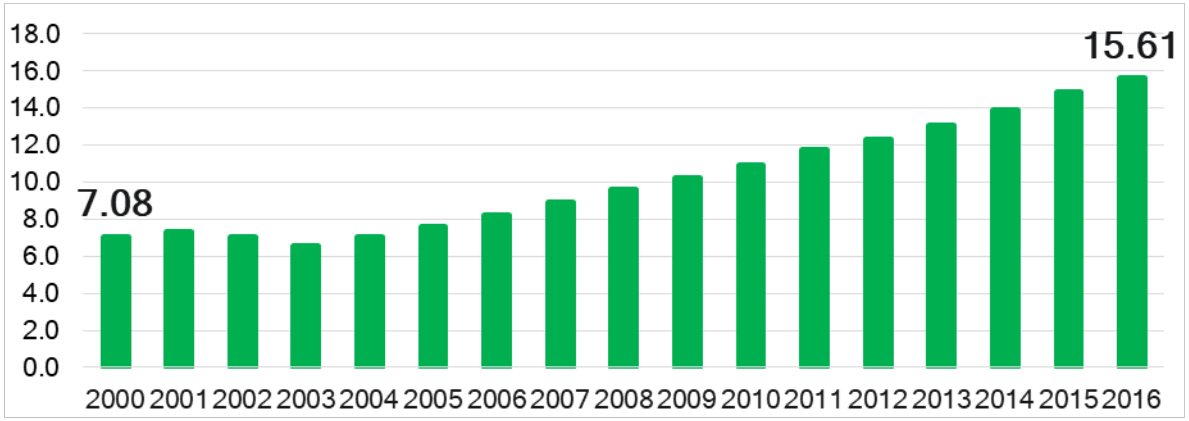
Introduction

- Thus, the objective of this report is to examine the trend of productivity in Ethiopia, with particular emphasis on the manufacturing sector and produce *Ethiopia Productivity Report*. It also looks into the workers' mindset challenge in the emerging Ethiopian garment sector.
  - Useful for policymakers to have shared information and deeper understanding on the concept and practice of productivity.
  - Formulation of a clear policy on productivity.
- The analysis is divided into two main parts:
  - Economy-wide productivity
  - Manufacturing sector productivity

Productivity in Ethiopia: Economy-wide labor productivity

Moderate economy-wide labor productivity but still low level

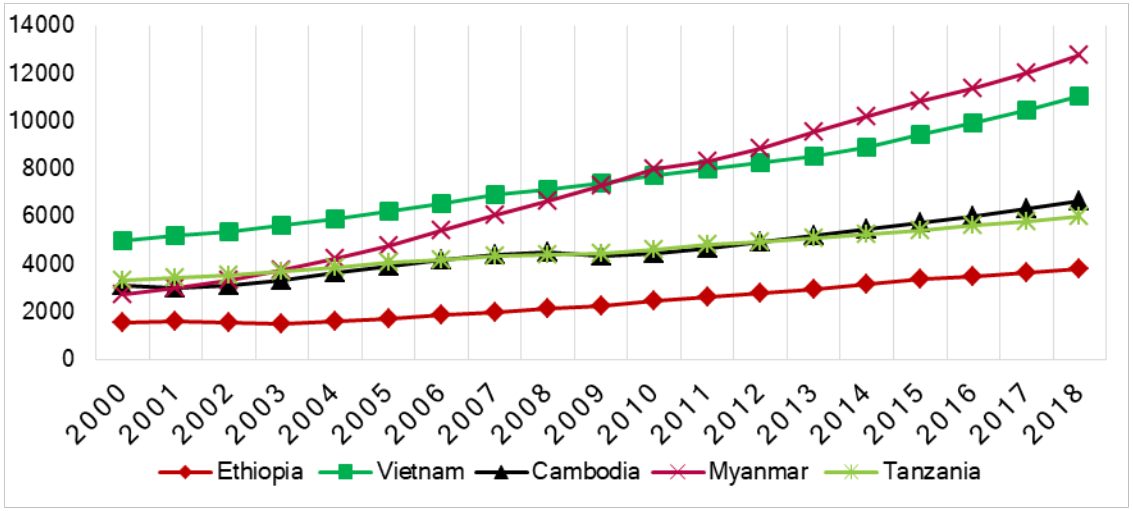
Economy-wide labor productivity ('000 Birr), 2000-2016



Ethiopia's labor productivity grew 4.94% per annum during 2000-2016.

Source: Authors' calculation based on data from NPC and WDI.

Ethiopia's labor productivity in international comparison

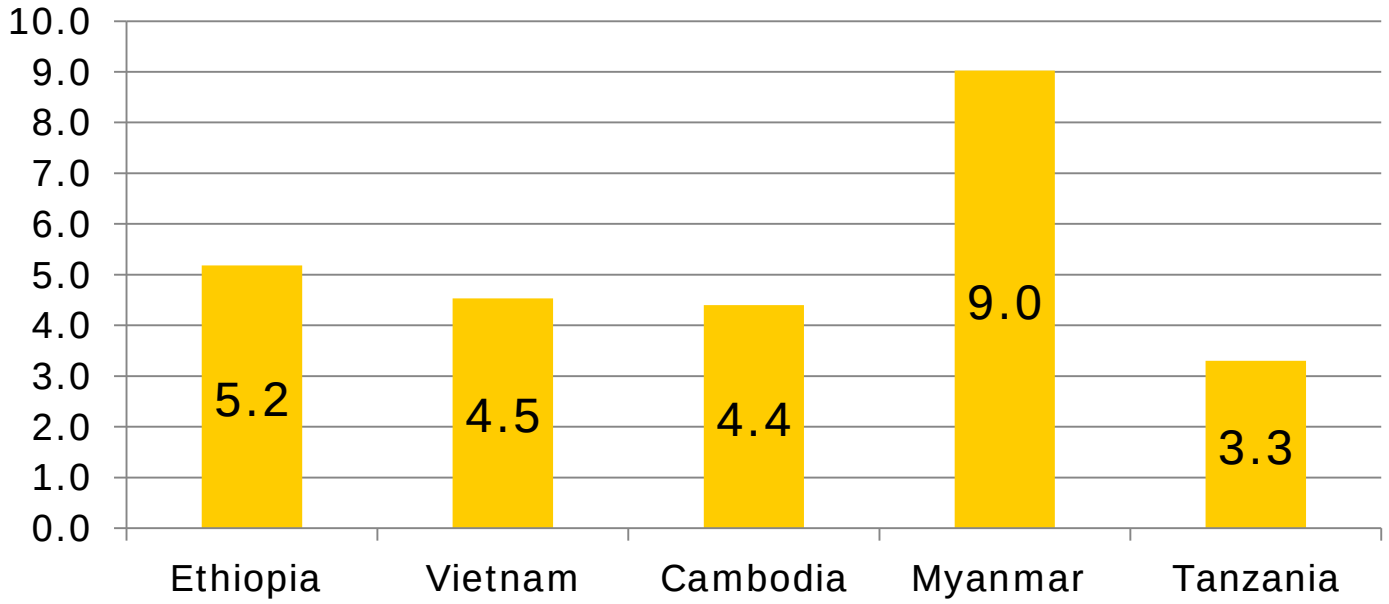


However, Ethiopia's labor productivity level is still low even among latecomers.

Source: Author's computation from ILO's economy-wide labor productivity.

However, Ethiopia's labor productivity growth is catching up

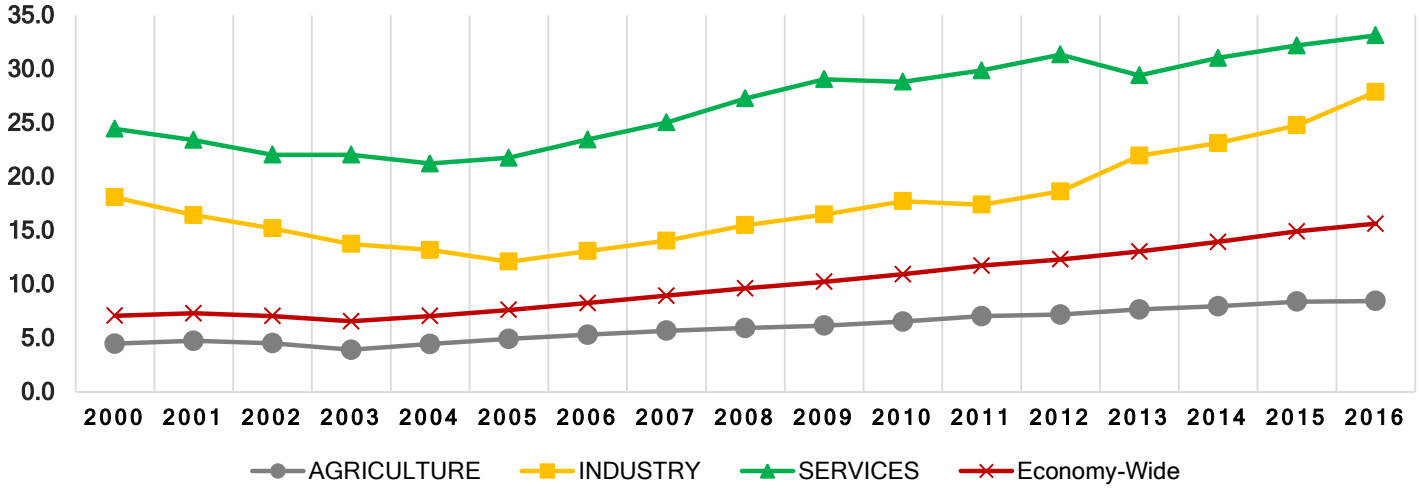
Ethiopia's average labor productivity growth in international comparison (2001 – 2018) (%)



Source: Authors' calculation from ILO's economy-wide labor productivity

There is large Sectoral variation in labor productivity

Ethiopia's labor productivity by major sectors ('000 Birr, 2011 prices)

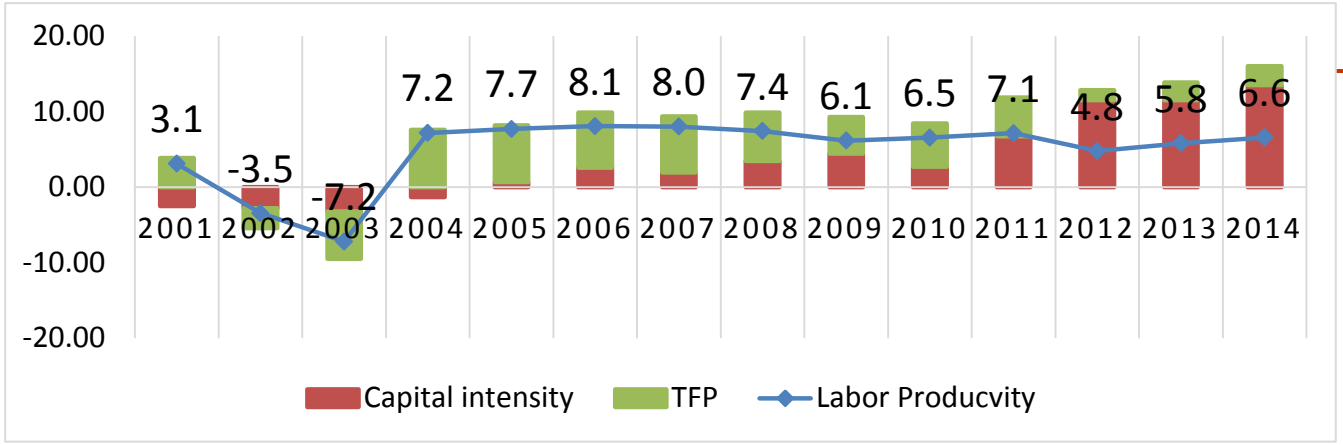


Source: Authors' calculation based on data from NPC and World Bank's WDI

- The service sector stands out in terms of labor productivity
- In 2016, labor productivity in the services sector and industrial sector were 3.9 and 3.3 times more than that of agriculture
- Large variation in productivity among the sectors signifies a large potential gain in productivity from structural transformation for Ethiopia and hence economic growth.

TFP slows down while capital is deepening

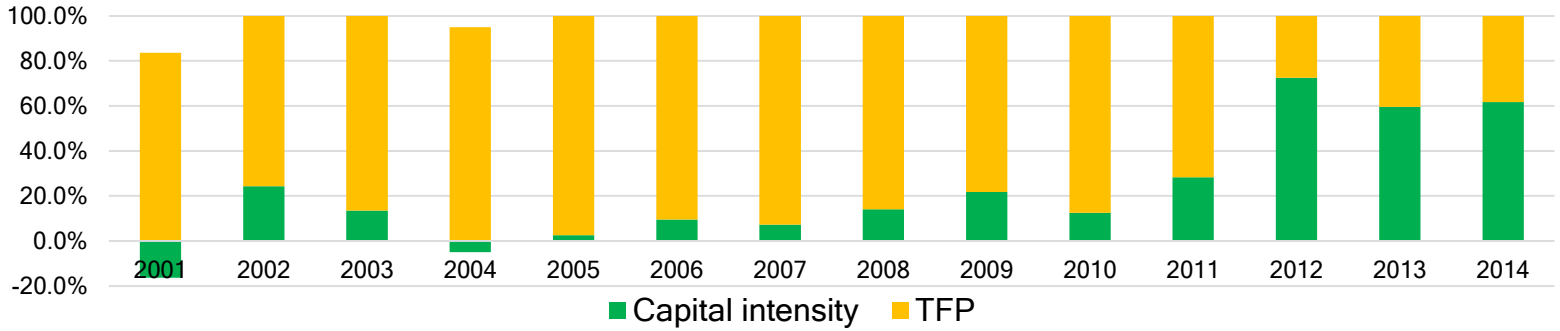
Growth rate of labor productivity, capital intensity, and TFP in Ethiopia (%)



Note (growth term):

Labor productivity = capital intensity + TFP

Contribution shares of capital intensity and TFP to Ethiopia's labor productivity, 2000-2014(%)



Source: Authors' calculation based on data from NPC, WDI, and Penn Tables

Driver of labor productivity growth has shifted from TFP growth to greater capital contribution in recent years. This means efficiency improvement slowed down while large investments in infrastructure and other capital sustain labor productivity (more machines and buildings per worker). This is alarming.

Less sectoral productivity improvement, more labor movement

Decomposition of labor productivity growth using shift-share analysis method

Period	Productivity Growth	Sources of Labor Productivity Growth			Contribution Shares to Labor Productivity Growth (%)		
		Within effect	Shift Effect	Interaction Effect	Within effect	Shift Effect	Interaction Effect
2004-2007	7.9	21.7	4.6	0.5	81.0	17.0	2.0
2008-2011	6.6	14.2	7.2	0.5	64.7	32.9	2.4
2012-2016	6.0	15.7	9.9	1.3	58.3	36.9	4.8
2004-2016	**6.6**	**79.5**	**26.7**	**15.5**	**65.3**	**21.9**	**12.7**

Source: Authors' computation from NPC and World Bank's WDI.

- **Initially, labor productivity was largely driven by *within-effect* (efficiency increase in each sector) but its contribution gradually declined. Instead, *shift-effect* (labor mobility from low to high productivity sector) became larger.**
- **Declining *within-effect* contribution is worrisome at this early stage of industrialization. Given that there is low overall labor mobility across sectors and rural-urban, it is important to keep high levels of *within-effect* and a rising levels of *shift-effect* for a prolonged period. The overall growth of the economy can be sustained while ensuring transformation.**

More labor moved away from agriculture to service sector

Decomposition of labor productivity growth using shift-share analysis method (2004 – 2016)

	Sources of Labor Productivity Growth (%)			Contribution Shares of Labor Productivity (%)		
	Agriculture	Industry	Service	Agriculture	Industry	Service
Within effect	46.31	12.14	21.05	58.25	15.28	26.48
Shift Effect	-8.03	5.89	28.82	-30.08	22.08	108.00
Interaction Effect	-7.21	6.56	16.16	-46.47	42.28	104.18

Source: Authors' computation from NPC and World Bank's WDI

- **Agriculture had the largest contribution to *within-effect* followed by service sector**
- **In terms of *shift-effect*, labor shifted from the agricultural sector mostly to the services sector with a modest shift to the industrial sector.**
- **A negative structural change implies that new jobs have been created in activities with decreasing productivity.**

Overall: There is evidence of structural transformation in Ethiopia. However, it does seem not follow the traditional trend (Agriculture ⟹ Industry ⟹ Service).

Summary of main findings (Economy-wide productivity)

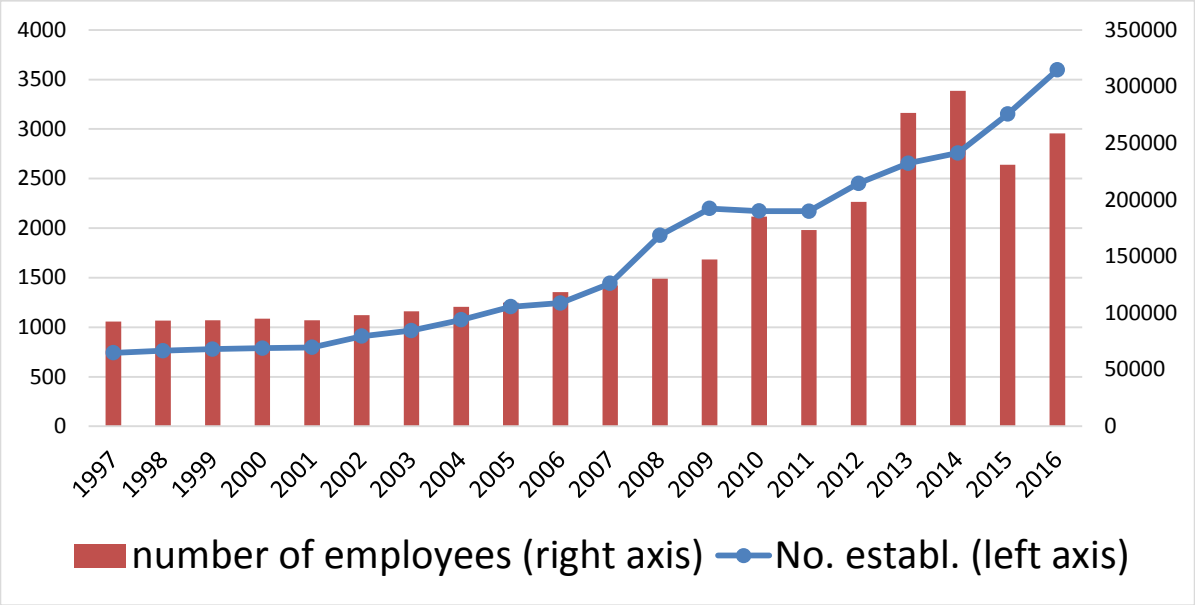
- Economy-wide labor productivity has seen an increasing trend in Ethiopia (~5% annual growth)
  - However, this growth is low even by developing countries standard.
- Labor productivity growth has been mainly driven by TFP
  - However, this has changed to capital deepening in recent years.
- Labor productivity growth has been mainly driven by within-sector productivity improvements followed by shift-effect.
  - This signifies that Ethiopia is at an initial stage of structural transformation.

The key policy implication is that while a nascent process of structural transformation can be observed in Ethiopia, the shift has been from agriculture to services rather than the manufacturing sector in contrast to the government's objective of targeting the manufacturing sector. This is a sign of pre-mature deindustrialization.

Productivity in Ethiopia: Zooming in the manufacturing sector

General characteristics of the manufacturing sector

Trends in number of establishments and employment

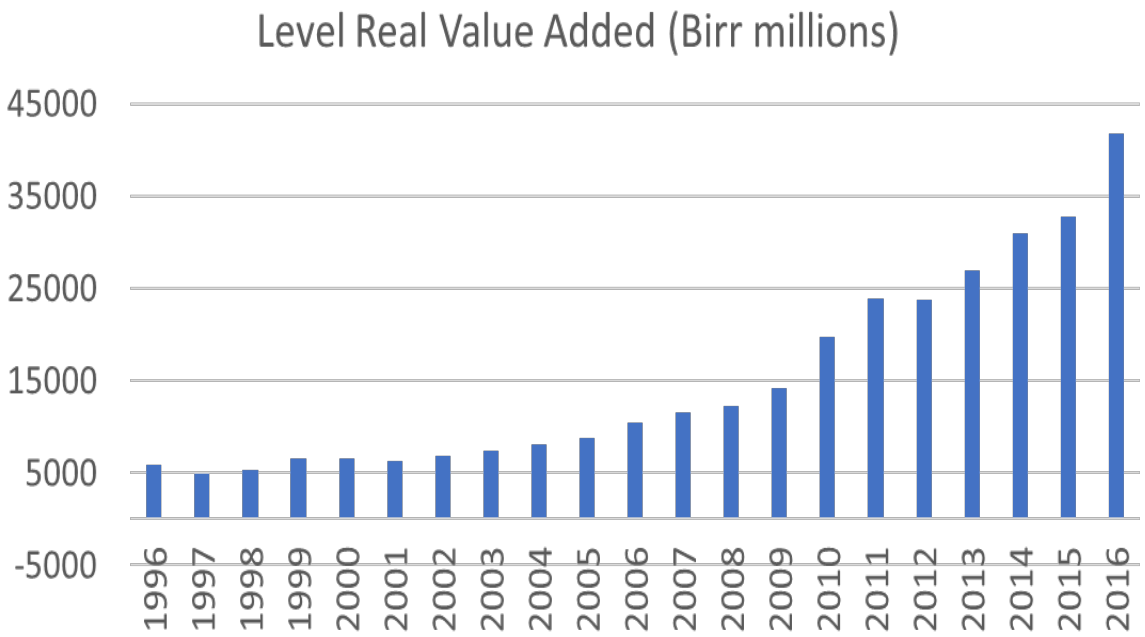


Source: Computed from the CSA LMMIS (1996-2016)

- The number establishments increased from 741 in 1997 to 3,596 in 2016 (nearly 5 fold increase).
- Employment also increased from 92,365 to 258,599 over the same period (nearly 3 fold increase)

General characteristics of the manufacturing sector

Trends Real Value Added

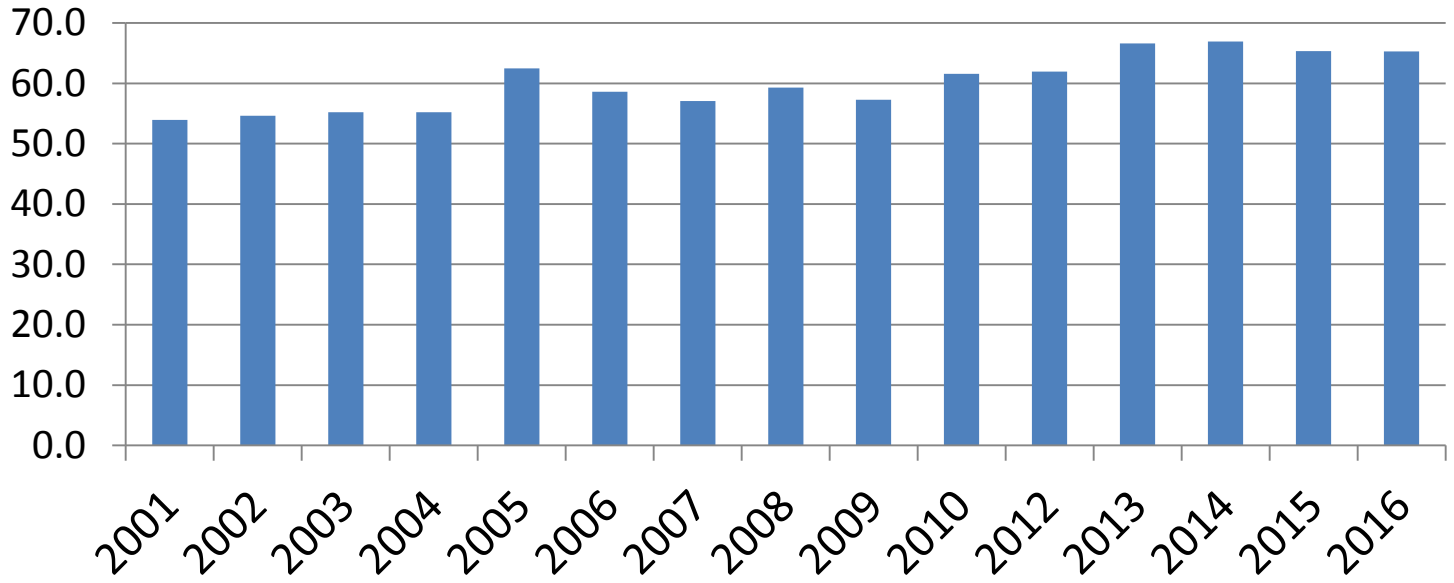


Source: Computed from the CSA LMMIS (1996-2016

- Real value added increased from 5.89 billion birr in 1996 to 41.8 billion birr in 2016 (about 7-fold increase).
- Sharp rise since 2010 – GTP I period

General characteristics of the manufacturing sector

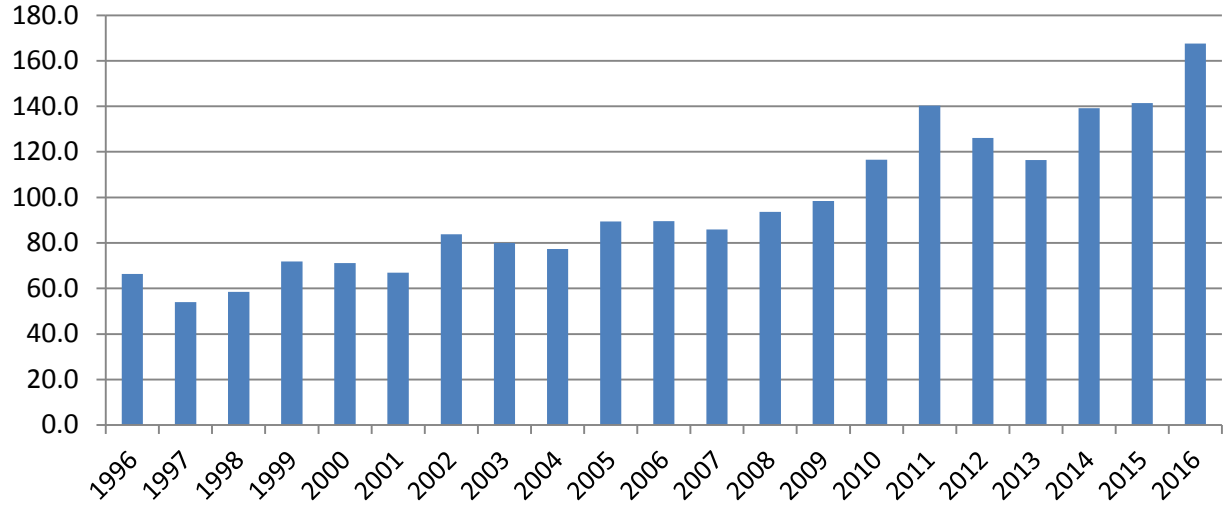
Average capacity utilization rate (%) in the manufacturing sector by year



Source: Computed from the CSA LMMIS (1996-2016)

Manufacturing labor productivity has seen an increasing trend but with fluctuation in recent years

Labor productivity in the manufacturing sector (in 000's birr per employee)

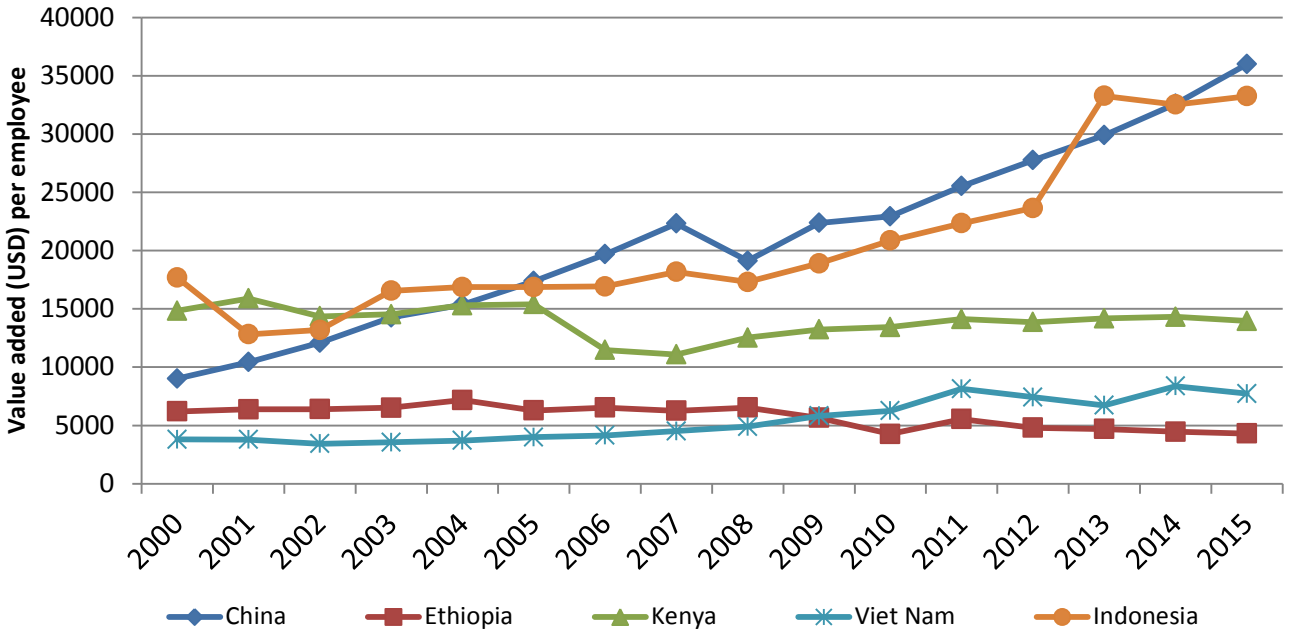


Source: Computed from the CSA LMMIS (1996-2016)

- Labor productivity has generally shown improvement over time. It increased from about 66.4 thousand birr per employee in 1996 to 167.6 thousand birr per employee in 2016
- Average annual growth 4.6%
- But the growth was volatile

In USD comparison, Ethiopia's manufacturing labor productivity stands at the bottom and its level is falling

Manufacturing sector labor productivity: selected countries

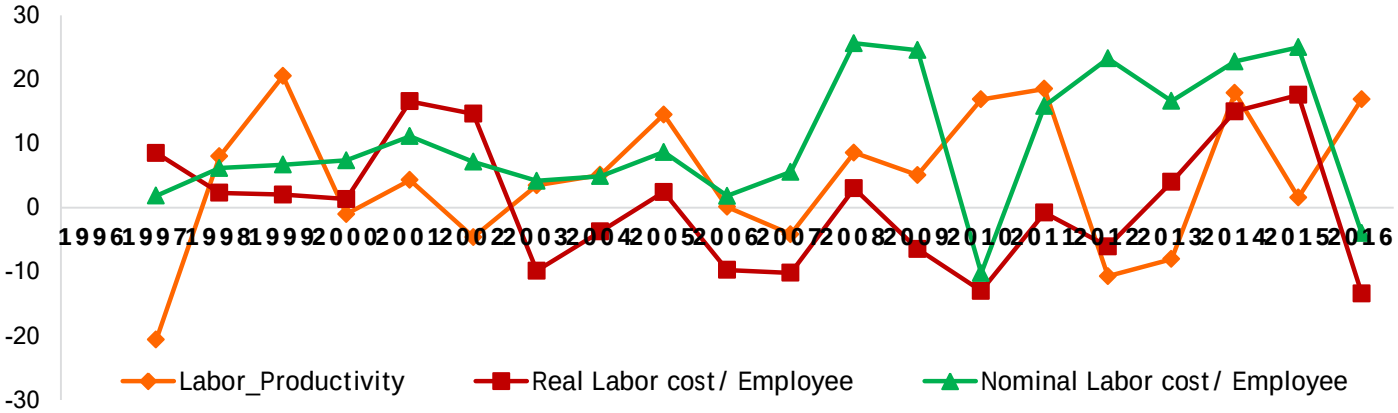


Source: UNIDO INDSTAT 2 2018, ISIC Revision 3 and own calculation.

- Ethiopia ranked at the bottom of all the countries in the group by the end of the sample period.
- In 2000, Ethiopia's labor productivity was about 94% that of China. This became only 13% of China's productivity in 2015.
- Even Kenya's labor productivity is 3 to 4 times higher than that of Ethiopia
- Viet Nam overtook Ethiopia since 2010

The wage-productivity nexus

Labor productivity and labor cost growth rate (%)



Source: Computed from the CSA LMMIS (1996-2016)

Comparing growth rate (1996 – 2016)

- Labor productivity = 4.6%
- Nominal labor cost per employee = 10.3%
- Real labor cost per employee = 0.7%

The wage-productivity nexus in international comparison

Labor productivity and real & nominal wages and salaries per employee (in USD) in 2015: Selected countries

Source: UNIDO INDSTAT 2 2018, ISIC Revision 3 and own calculation.

Ethiopia's manufacturing wage is the lowest among the comparator countries implying a comparative advantage. However, a low-wage advantage alone does not guarantee Ethiopia a comparative advantage. In the face of global competition, productivity also matters. In light of this, Ethiopia's manufacturing labor productivity still remains far below that of the comparator countries.

Summary of main findings of the manufacturing sector productivity

- Based on the CSA database (1996-2016) we find that Ethiopia's manufacturing sector;
  - labor productivity has shown a moderate growth rate (nearly 5% annual average growth)
- The labor productivity comparison with peer and benchmark countries (China, Indonesia, Kenya, and Viet Nam) shows us that
  - Ethiopia's labor productivity in the manufacturing sector (even at the subsector level of the selected industries) has remained stagnant and in some cases declining trend → **the gap with the other countries in the sample increasingly widened**
- The wage-productivity nexus
  - Both average labor cost (nominal) and labor productivity have seen an increasing trend. However, the former has increased more rapidly than the latter suggesting that the manufacturing sector may be losing its competitive advantage in terms of labor cost.
  - Ethiopia's manufacturing wage is the lowest among peer countries. However, labor productivity is also the lowest.

Thank you!