Sectoral economic growth and structural transformation in Ethiopia

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Outline

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1. Introduction

- Ethiopia has registered strong economic and social progress in the last decade.

- The country achieved an average annual growth rate of 9.5% in real terms between 2000/01 and 2013/14.

  - The recent growth record is also more impressive: averaged about 10.3% between 2005/06 and 2013/14.

- Policies have the potential to alter not just the rate of economic growth, but also the structural character of that growth.
Figure 1: Real GDP growth rate (%)
- Sectoral contributions to overall growth varied
- The services sector a driver of overall growth
- Agriculture’s growth contribution declined
- Limited growth contribution of the manufacturing sector
Key questions

- Does Ethiopia need more of the same type of growth or a change in the sources of growth?
- What are the sectoral growth drivers of the Ethiopian economy?
- How have the sectoral composition of output evolved over time?
- To what extent labour mobility and productivity have been affected by the growth performance?
- What have been the relative contributions of within-sector productivity and structural change?
2. Structural transformation and stylized facts

- Structural transformation is a critical prerequisite for economic and social development.
- But what is structural transformation?
- Structural transformation refers to (Syrquin 1988: 206):
  - reallocation of economic activity across the broad sectors agriculture, manufacturing and services.
- The most common relates to the relative importance of sectors in the economy, in terms of production and factor utilization.
Structural transformation involves four interrelated processes (Timmer and Akkus, 2008).

(i) a declining share of agriculture in total output and employment;

(ii) the rise of a modern industrial and service economy;

(iii) rapid urbanization as people migrate from rural to urban areas; and

(iv) a demographic transition from high birth rate-high death rate to low birth-low death rates.

Thus structural transformation entails economic and social transformation.
The following stylized facts emerge

First, the output share of agriculture declines over time, while that of manufacturing and services sectors increase

Second, the employment share of agriculture diminish over time, while the employment share of non-agricultural sectors increases.

Third, labour productivity tends to be higher in non-agricultural sectors compared with the agricultural sector.
Finally, a change in the structure of final demand towards services.

- Consumers wish to spend a greater fraction of their budget on services and a smaller fraction on food (agricultural goods) as their incomes grow.

So, demand and supply side factors as key drivers

Focus of this presentation: economic aspects of structural transformation

- employment aspects of structural change (e.g. labour productivity and employment shares)
3. Measures of structural transformation

- Indicators of economic performance at aggregate level:
  - GDP per capita and
  - Some measure of productivity (e.g. labour productivity)

- Three most common measures of structural transformation at the *sectoral* level include:
  - employment shares,
  - value added shares, and
  - Final consumption expenditure shares.
Accounting for structural change

- There are two main sources of aggregate labour productivity growth:
  (i) Innovations within sectors; and
  (ii) Movement of workers across sectors.

- The growth rate of aggregate labour productivity between time 0 and t can be decomposed into three elements:

\[
\frac{\dot{p}}{p_0} = \frac{1}{p_0} \left[ \sum_{i=1}^{l} (s_{it} - s_{i0}) p_{i0} + \sum_{i=1}^{l} (p_{it} - p_{i0}) s_{i0} + \sum_{i=1}^{l} (s_{it} - s_{i0}) \sum_{i=1}^{l} (p_{it} - p_{i0}) \right]
\]
(i) Reallocation effect due to transfer of labour between sectors

\[ \sum_{i=1}^{n} (s_{it} - s_{i0})p_{i0} \]

This is the contribution to productivity levels of the transfer of resources among sectors.
(ii) Within-sector productivity effect

\[ \sum_{i=1} \left( p_{it} - p_{i0} \right) s_{i0} \]

- It is the contribution of productivity growth within each sector to overall labour productivity growth.

(iii) the dynamic structural reallocation effect

\[ \sum_{i=1} 
\left( s_{it} - s_{i0} \right) \sum_{i=1} 
\left( p_{it} - p_{i0} \right) \]

- It represents the contribution of the resource transfer to labour productivity growth.
- The share of agriculture in GDP has declined.
- The share of services has increased, and bypassed agriculture in recent years.
- The share of the industry sector has remained very low.
• Ethiopian manufacturing is lagging in comparison to peer economies and relative to its aspirations

• MVA share in GDP in Ethiopia are well below the East Africa regional average and selected Asian countries
- The share of agricultural employment in total employment remained very high.
- Total employment increased by 11.6 million between 2005 and 2013.
- With agriculture absorbing 72 percent, followed by services (20 percent), manufacturing (4.5 percent) and Other industry (3 percent).
- On aggregate, employment grew on average by about 3.8% per year between 2005 and 2013.
Among the services sectors, wholesale and retail accounted for about 27% of total employment in the services sector.

It seems that labour is moving from agriculture to services.

Figure 6: Sectoral employment shares (% of total employment)
Aggregate labour productivity increased from 8.9 thousand birr per worker in 2005 to 13.2 thousand birr in 2013 at 2010/11 constant prices.

- Increased by 5.1% per year.
- But labour productivity levels have remained low in agriculture and manufacturing.
While employment grew in the majority of sectors, real income declined.

In 2012, the top four low paying sectors were hotels & restaurants, agriculture, wholesale and retail trade, and manufacturing.

Labour mobility occurred from a low paying sector to another low paying sector.

<table>
<thead>
<tr>
<th>Table 1: Average monthly real income (ETB)</th>
</tr>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Agriculture, Hunting, Forestry &amp; Fishing</td>
</tr>
<tr>
<td>Mining &amp; Quarrying</td>
</tr>
<tr>
<td>Manufacturing</td>
</tr>
<tr>
<td>Electricity, Gas and Water Supply</td>
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<tr>
<td>Construction</td>
</tr>
<tr>
<td>Wholesale and Retail trade</td>
</tr>
<tr>
<td>Hotels and Restaurants</td>
</tr>
<tr>
<td>Transport, Storage and Communications</td>
</tr>
<tr>
<td>Financial Intermediation</td>
</tr>
<tr>
<td>Real Estate, Renting and Business Activities</td>
</tr>
<tr>
<td>Average monthly payment</td>
</tr>
</tbody>
</table>
4. Structural change and labour productivity

- The reallocation effect is small, indicating limited role of inter-sectoral labour mobility.
- Agriculture and services sectors made strong contributions to the aggregate labour productivity growth.
- The contribution of manufacturing activity to economy-wide labour productivity growth remained very low.

Fig. 8: Structural change and sectoral contribution to labour productivity growth
The within-sector productivity represents the largest contribution to aggregate labour productivity growth.

Structural change effect contributed to close to a third of the total labour productivity growth.

The contribution of manufacturing activity to economy-wide productivity growth has remained very low.

### Table 2: Components of aggregate labour productivity growth

<table>
<thead>
<tr>
<th>Economic Sector</th>
<th>Within-sector productivity growth</th>
<th>Employment effect</th>
<th>Interaction effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Hunting, Forestry &amp; Fishing</td>
<td>0.180</td>
<td>-0.048</td>
<td>-0.017</td>
</tr>
<tr>
<td>Mining &amp; Quarrying</td>
<td>0.004</td>
<td>0.006</td>
<td>0.003</td>
</tr>
<tr>
<td>Electricity, Gas and Water Supply</td>
<td>0.014</td>
<td>-0.005</td>
<td>-0.005</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.028</td>
<td>-0.003</td>
<td>-0.002</td>
</tr>
<tr>
<td>Construction</td>
<td>0.020</td>
<td>0.015</td>
<td>0.008</td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
<td>0.077</td>
<td>0.006</td>
<td>0.003</td>
</tr>
<tr>
<td>Transport and Communications</td>
<td>-0.009</td>
<td>0.046</td>
<td>-0.010</td>
</tr>
<tr>
<td>Other services</td>
<td>-0.006</td>
<td>0.174</td>
<td>-0.005</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.308</strong></td>
<td><strong>0.191</strong></td>
<td><strong>0.026</strong></td>
</tr>
</tbody>
</table>
The employment effect is negative for agriculture and manufacturing, while it is positive for services and construction sectors.

- Labour shifts from agriculture and manufacturing sectors to services.

Hence, Ethiopia’s overall labour productivity growth in recent years has been driven by productivity growth in individual sectors.

- The expansion of services reflects the transfer of resources (e.g. labour) from agriculture to services.
Labour moves to sectors with lower productivity levels, supporting the “structural burden” hypothesis.

- This indicates that sectors with fast growing labour productivity cannot maintain their shares in total employment.

- Successful transformation entails labour shifts from low productivity to high productivity- “growth bonus”
5. Conclusion

- Structural transformation is a key driver for sustained growth, productive employment creation and poverty reduction.

- Ethiopia’s overall labour productivity growth in recent years has clearly been driven by productivity growth in individual sectors, with little contribution coming from structural change.
Low labour productivity levels in agriculture and manufacturing

No country has been able to sustain a rapid transition out of poverty without raising productivity in agricultural and industrial sectors (if it had one to start—Singapore and Hong Kong are exceptions) (Timmer, 2008).

Structural change requires not only one of “getting agriculture moving,” but also of “getting manufacturing moving.”

— “The only way out for agriculture is industry.”
Research agenda

- Structural transformation involves both economic and social transformation
  - Economic transformation: sectoral shares, productivity, etc.
  - Social transformation: urbanization, demographic transition, etc.
- This calls for a broader measure of structural transformation
  - Multi-dimensional structural transformation index (MSTI)
- The multidimensional structural transformation index (MSTI) needs to capture both economic and social transformation
Thank you!