Labor Share in the Developing World

Shresth Garg and Brandon Tan

Harvard University
Introduction

- We are interested in how labor share levels are different across developed and developing countries.
- We show there is a positive correlation between share of GDP going to labor and the per-capita income of a country across a variety of data sets.
Gollin (2002) explores the positive correlation between labor share and income. He attributes the difference to measurement error due to self-employment in the developing world. Using data from the Penn World Tables and using correction methodologies described in the paper, he finds that the difference goes away. We argue that the difference remains even after taking into account the measurement error correction.
Labor Share vs Per capita GDP

- We start by establishing the relationship between labor share and GDP per-capita using the Penn World Tables (Feenstra et al., 2015).
  - PWT corrects for labor share of self-employed in multiple ways, depending on data availability. We use only the countries where the correction is done as suggested by Gollin (2002).
- In Figure 1, we find a positive correlation pooling all data across all years and including time fixed effects.
  - Replicating Figure 1 for a set of years, plotting only the cross section variation, shows consistent results.
- In Figures 2 and 3, we break this down by country (showing a set of big countries).
# Labor Share vs Per capita GDP: PWT

**Figure 1:** Labor share versus GDP per capita
Labor Share vs Per capita GDP by country: PWT

Figure 2: Labor share versus GDP per capita
Figure 3: Labor share versus GDP per capita
We also use data from Karabarbounis and Neiman 2014 on corporate labor share.

Corporate labor share reduces the concern about measurement error driving the results.

As Figure 4 shows, corporate labor share increases with GDP per capita.

Also robust to analysis restricted to a single year, plotting only the cross section variation.

In Figures 5 and 6, similar to before we break this down by country (showing a set of big countries).
Data from Karabarbounis and Neiman 2014

Figure 4: Corporate Labor share versus GDP per capita
Corporate Labor Share vs Per capita GDP by country: KN

Figure 5: Corporate Labor share versus GDP per capita
Figure 6: Corporate Labor share versus GDP per capita
ILO data

- ILO also estimates labor share for a large number of countries using microdata from ILO Harmonized Microdata Collection.
- To get around the issue of measurement error, they estimate the labor income of the self-employed based on employees of similar characteristics.
- We use the adjusted labor share data to generate the figures below.
Figure 7: ILO data: All countries
The relationship between income and labor share is not that strong for ILO data. However, the relationship is being driven by high income outlier economies with low labor share. These include economies like Qatar which are mostly reliant on oil income, and the economic structure is not like other major economies. The following figure plots the relationship when excluding the high income countries.
Figure 8: ILO data: Excluding High Income countries
EU KLEMS data

- We replicate the above result using EU KLEMS dataset.
  - EU data uses more consistent reporting standard and reduces concern about measurement error.
  - The data also allows de-aggregation at the industry level.
- Again, we find a positive relationship between labor share and GDP per capita in Figure 9.
- But Figures 10 and 11 shows that this is relationship is only within services not manufacturing.
EU KLEMS data

Figure 9: Labor share versus GDP per Capita
Figure 10: Manufacturing Labor share versus GDP per Capita
Figure 11: Services Labor share versus GDP per Capita
Decomposition - Between versus within industry

- The variation could be driven by within or across industry differences across countries.
- In the first exercise, we fix the industry share in total GDP to the mean country in the dataset and plot the resulting labor share.
- If the result was driven by differences in industry composition across countries, this will mechanically force the labor share to be the same in each country.
- As can be seen in Figure 12, this exercise hardly changes anything, and therefore across industry differences cannot explain the result.
Figure 12: Fixing Industry Share to the Mean
Decomposition - Between versus within industry

- In the second exercise we fix the labor share for each industry for each country to the mean labor share for that industry in our data.
- As Figure 13 shows the relationship goes away in this case. Thus, the difference is likely driven by within industry differences in labor share.
EU KLEMS - Fixing Labor Share to the Mean

Figure 13: Fixing Labor Share to the Mean
Aside: Correlation over time

In Figure 14, we plot the correlation between labor share and per capita GDP by decade and find that the coefficient is decreasing over time.

This could suggest that $\sigma_i$, particularly for services, is increasing towards 1 over time.
Correlation over time

Figure 14: Correlation between labor share and per capita GDP by decade
Next Steps

- Estimate a model of structural transformation to replicate the empirical pattern.
- Explore the pattern with other data sets.
- Improve measurement by reconstructing ILO and EU KLEMS from micro-data.