Long term changes in industry structure
Effects on trade, real wages and the labour share of income

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Overview (of overview)

- Economic slowdown - possible causes
  - change in structure of traded goods
  - changes in industry structure - by industry type
  - lower real wages - labour share of income (good or bad?)

- Objective - long term considerations
  - tends - to continue or not?
  - elasticities - reaching long term values?
  - use in long term elasticity based model (to 2050)
Data Sources

- AMECO - European Commission, Annual Macro
- UNSATS - UN, National Accounts 150+ countries
- COMTADE - UN, Commodities, 200+ countries
- ILOSTATS - ILO, Industries, 100- countries
- WEO - IMF - 150+ countries

Plan: replicate AMECO (Europe plus six: Japan, Australia, NZ, Canada, US, Mexico) for as many other countries as possible.
Falling labour share of total income

Figure 2. The adjusted and unadjusted labour shares in selected G20 countries, estimated by ILO

Source: The Labour Share in G20 Economies, ILO
Labour share of total income

Compensation of employees in total income - selected G20 countries
Source: AMECO. Annual Macroeconomic Database of the European Commission’s Directorate General for Economic and Social Affairs
Manufacturing share of total value added

Source: AMECO. Annual Macroeconomic Database of the European Commission’s Directorate General for Economic and Social Affairs (NB: does not include China)
Share of trade in total GDP

Exports plus imports as a proportion of GDP
Source: AMECO. Annual Macroeconomic Database of the European Commission’s Directorate General for Economic and Social Affairs (NB: does not include China)
Relative import prices

Import deflators relative to CPI
Globalisation’s squeeze on relative wages

Relative earning loss for trade exposed manufacturing workers.

Source: David Autor, cited by Mark Carney, Governor, Bank of England, 18 September 2017
Trends in GDP structure

- **Source:** National Accounts Main Aggregates - UNSTATS [http://unstats.un.org](http://unstats.un.org)
  - nominal, real and US$ terms

- **Overview**
  - Expenditure components
    - expansion of trade
  - Value added components
    - expansion of services sector
Expenditure components of GDP

- Household consumption expenditure
- General government final consumption expenditure
- Gross fixed capital formation
- Changes in inventories
- Exports of goods and services
- Imports of goods and services

Value Added components of GDP

- Agriculture, hunting, forestry, fishing
- Mining & Utilities
- Manufacturing
- Construction
- Wholesale, retail trade, restaurants and hotels
- Transport, storage and communication
- Other Activities

Source: National Accounts Main Aggregates Database
http://unstats.un.org

Note: seven sector breakdown. Can we link to employment earnings?
The ten largest economies - nominal GDP

US$ billion
The ten largest economies - real GDP

US$ billion at 2005 prices

The ten largest exporters - nominal

Exports of goods and services, US$ billion
The ten largest exporters - real

Exports of goods and services, US$ billion at 2005 prices
Expenditure on GDP - United States

US$ billion at 2005 prices
Expenditure on GDP - Japan

US$ billion at 2005 prices

Expenditure on GDP - Germany

US$ billion at 2005 prices

Expenditure on GDP - China

US$ billion at 2005 prices

Components of value added - US

US$ billion at 2005 prices

Components of value added - Japan

US$ billion at 2005 prices

Components of value added - Germany

US$ billion at 2005 prices
Components of value added - China

US$ billion at 2005 prices

Trends in world trade

- Source: UN Comtrade
  https://comtrade.un.org/
- Overview: trade by SITC group
  - all data nominal
Standard Industrial Trade Classification

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Food and live animals</td>
</tr>
<tr>
<td>1</td>
<td>Beverages and tobacco</td>
</tr>
<tr>
<td>2</td>
<td>Crude materials, inedible, except fuels</td>
</tr>
<tr>
<td>3</td>
<td>Mineral fuels, lubricants and related materials</td>
</tr>
<tr>
<td>4</td>
<td>Animal and vegetable oils, fats and waxes</td>
</tr>
<tr>
<td>5</td>
<td>Chemicals and related products, n.e.s.</td>
</tr>
<tr>
<td>6</td>
<td>Manufactured goods classified chiefly by material</td>
</tr>
<tr>
<td>7</td>
<td>Machinery and transport equipment</td>
</tr>
<tr>
<td>8</td>
<td>Miscellaneous manufactured articles</td>
</tr>
<tr>
<td>9</td>
<td>Commodities and transactions not classified elsewhere in the SITC</td>
</tr>
</tbody>
</table>

Note: Of Machinery and transport equipment, Electrical equipment is 26% and Transport equipment is 27%.
World trade by SITC

Exports, US$ billion.
SITC 3 Mineral fuels

Exports, US$ billion. Second largest SITC
Exports US$ billion. Fifth largest SITC

SITC 6 Manufactured materials

Exports US$ billion. Third largest SITC
Source: [UN Comtrade](https://comtrade.un.org/)
SITC 7 Machinery and transport equipment

Exports US$ billion. Largest SITC
SITC 8 Other Manufactured articles

Exports US$ billion. Fourth largest SITC
Exports by SITC - China

US$ billion. Equal largest exporter.
Exports by SITC - United States

US$ billion. Equal largest exporter.
Exports by SITC - Germany

US$ billion. Third largest exporter.

Trends in industry structure

- Source: ILO, ILOSTAT
  http://www.ilo.org/ilostat/
- Overview: industries by ISIC group
Classification of Economic Activities

International Standard Industrial Classification, ISIC, Revision 2

1 - Agriculture, Hunting, Forestry and Fishing
2 - Mining and Quarrying
3 - Manufacturing
4 - Electricity, Gas and Water
5 - Construction
6 - Wholesale and Retail Trade and Restaurants and Hotels
7 - Transport, Storage and Communication
8 - Financing, Insurance, Real Estate and Business Services
9 - Community, Social and Personal Services
0 - Activities not Adequately Defined
Share of employment - Australia

Source: International Labour Organization, ISIC Rev.2
ILOSTAT http://www.ilo.org/ilostat/
Share of employment - Canada

Source: International Labour Organization, ISIC Rev.2
ILOSTAT http://www.ilo.org/ilostat/
Share of employment - China

Source: International Labour Organization, ISIC Rev.2
ILOSTAT http://www.ilo.org/ilostat/
Share of employment - Indonesia

Source: International Labour Organization, ISIC Rev.2
ILOSTAT http://www.ilo.org/ilostat/
Share of employment - Korea

Source: International Labour Organization, ISIC Rev.2
ILOSTAT http://www.ilo.org/ilostat/
Share of employment - Mexico

Source: International Labour Organization, ISIC Rev.2
ILOSTAT http://www.ilo.org/ilostat/
Earnings per employee per month - nominal

US$, Largest countries by GDP for which data is available
Source: International Labour Organization - ILOSTAT
Earnings per employee per month - real

US$, Largest countries by GDP for which data is available.
Source: International Labour Organization - ILOSTAT
Earnings per month - Canada

CAN$, deflated by CPI.
Source: International Labour Organization - ILOSTAT
Earnings per month - China

RMB, deflated by CPI.

Source: International Labour Organization - ILOSTAT
Earnings per month - United Kingdom

UKP, deflated by CPI.
Source: International Labour Organization - ILOSTAT
Wage share of GDP - 10 larger economies

(Earnings x Employment) / GDP, where data available.
Source: International Labour Organization - ILOSTAT
Wage share of GDP - next larger economies

(Earnings x Employment) / GDP, where data available.
Source: International Labour Organization - ILOSTAT
Conclusions

• Many/Most graphs show trends levelling off.
  • Are we reaching long term saturation, maturity?
  • Are all long term income elasticities 1.0?

• China: has manufactured goods revolution played out?
  • One Belt One Road - boost, but how transformative?
  • China labour costs will lead to relocation? Africa?

• World trade to GDP: Are we reaching peak?
  • renewable energy not traded.
  • Shift to service industries, not traded

• Downward pressure on real wages may ease in future.
  • manufacturing decline nearing completion?
  • technical progress to continue e.g. renewable energy
  • long term 2% growth in real per capita incomes