

# **Long term changes in industry structure**

## **Effects on trade, real wages and the labour share of income**

*Project LINK Conference, Geneva, October 3-5, 2017*

John L Perkins

National Institute of Economic and Industry Research, Melbourne



# 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

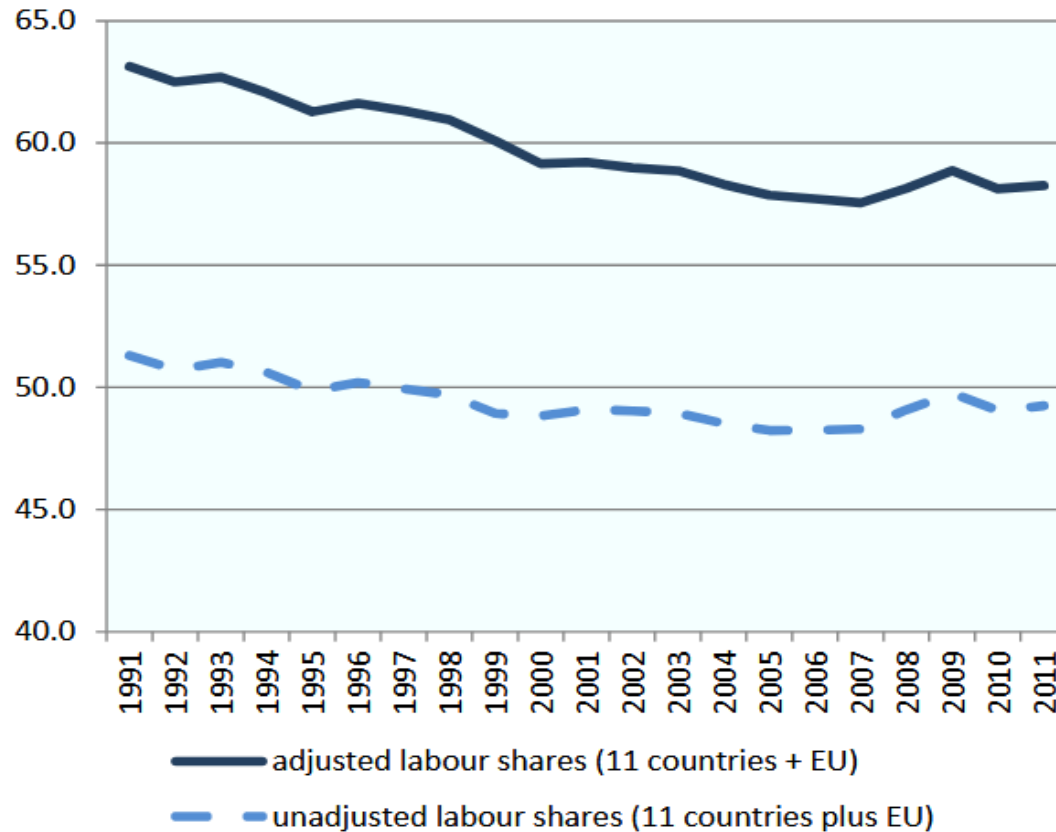
- AMECO - European Commission, Annual Macro
- UNSATS - UN, National Accounts 150+ countries
- COMTADE - UN, Commodities, 200+ countries
- ILOSTATS - ILO, Industries, 100- countries
- WEO - IMF - 150+ countries

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

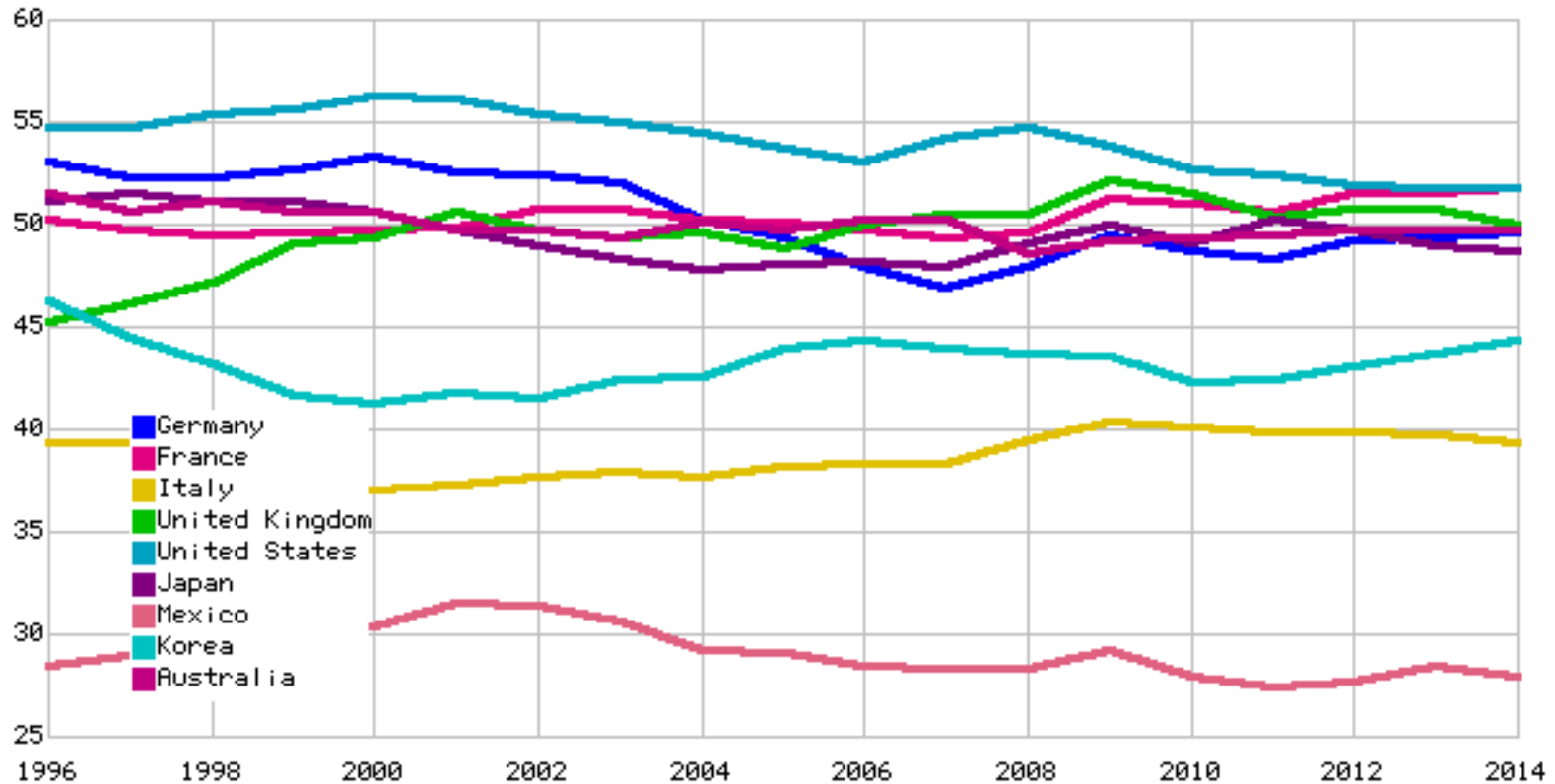
**Figure 2. The adjusted and unadjusted labour shares in selected G20 countries, estimated by ILO**



Source: The Labour Share in G20 Economies, ILO



# Labour share of total income

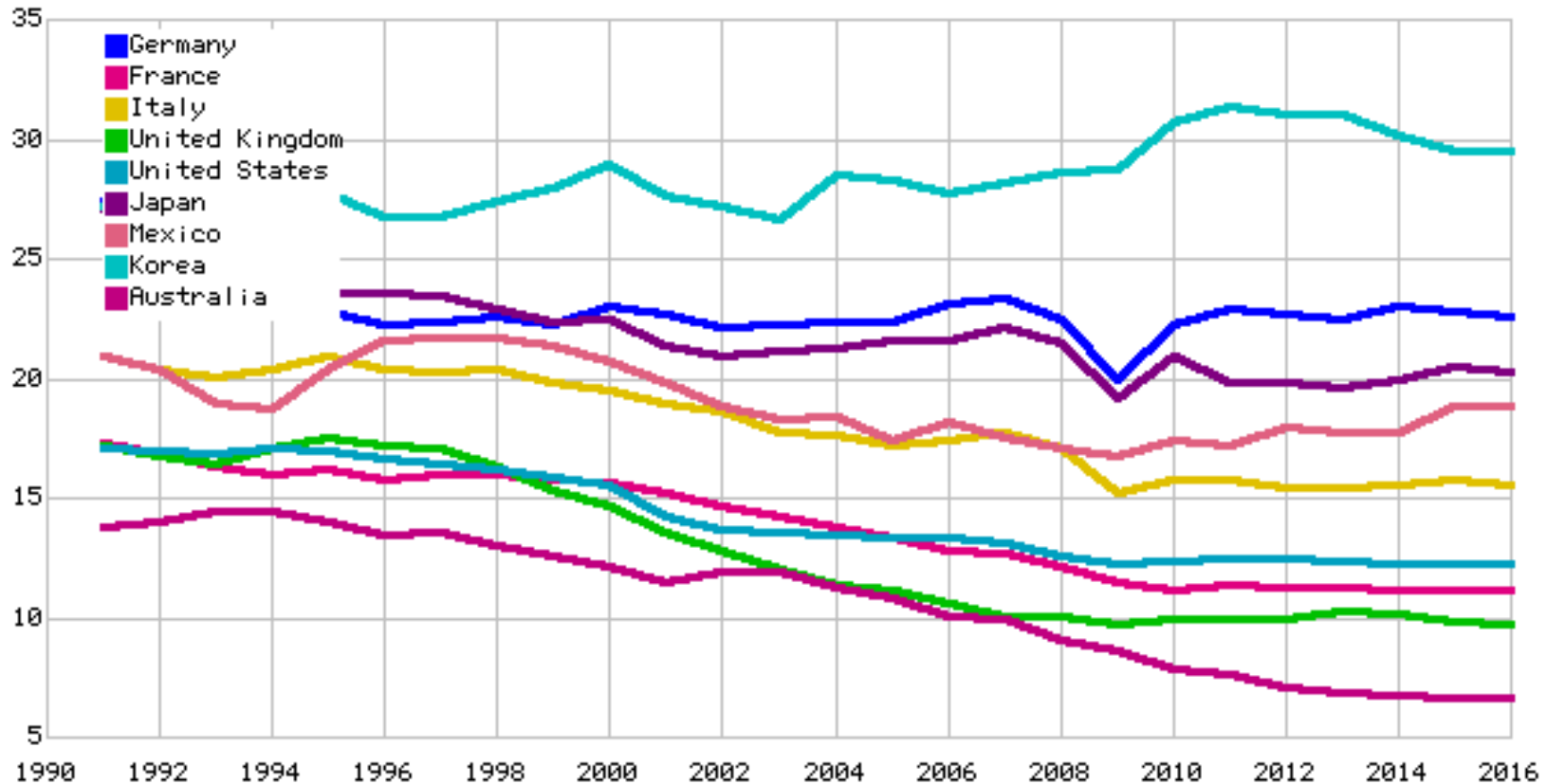


Compensation of employees in total income - selected G20 countries

Source: AMECO. Annual Macroeconomic Database of the European Commission's Directorate General for Economic and Social Affairs



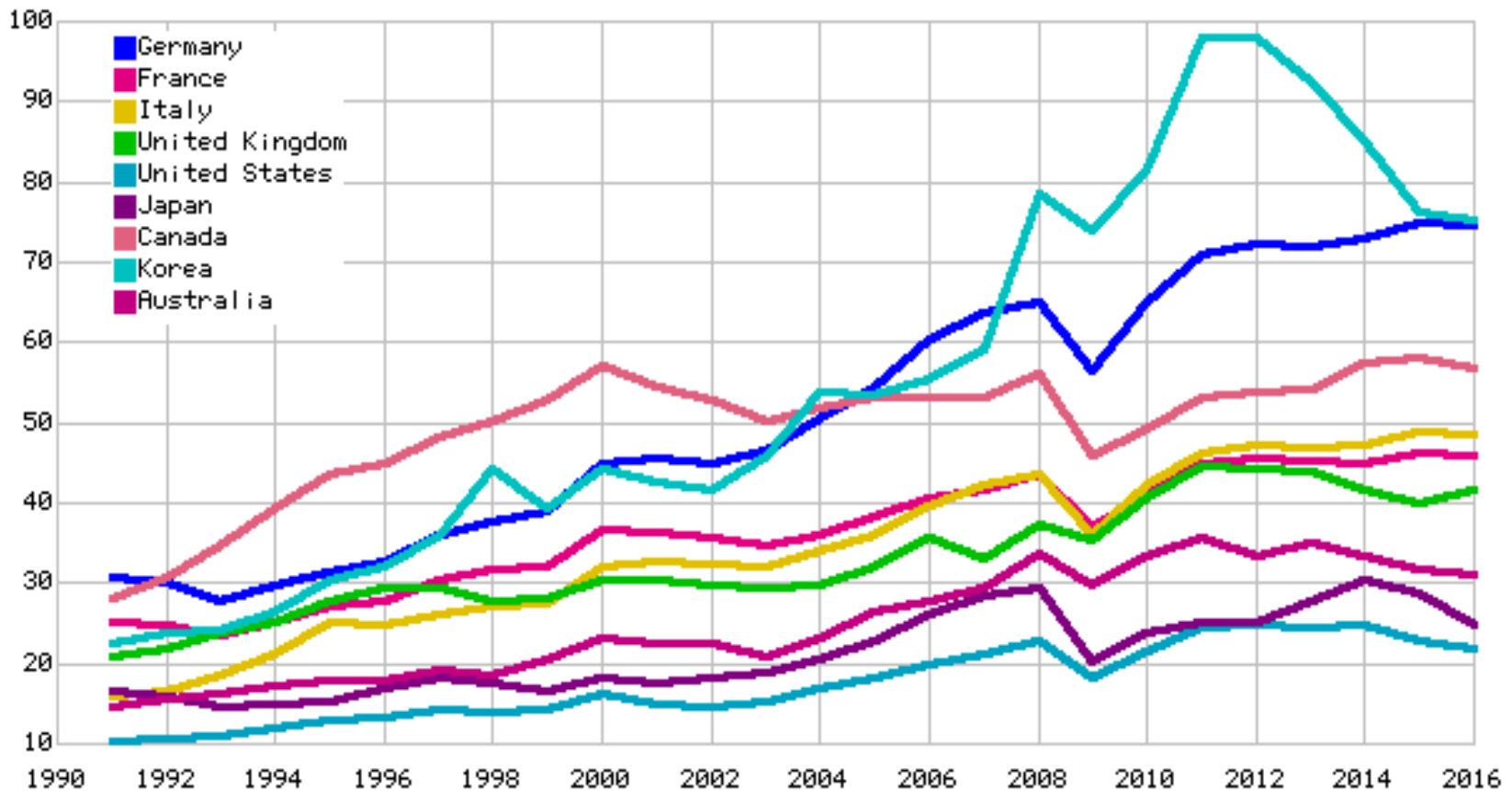
# Manufacturing share of total value added



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

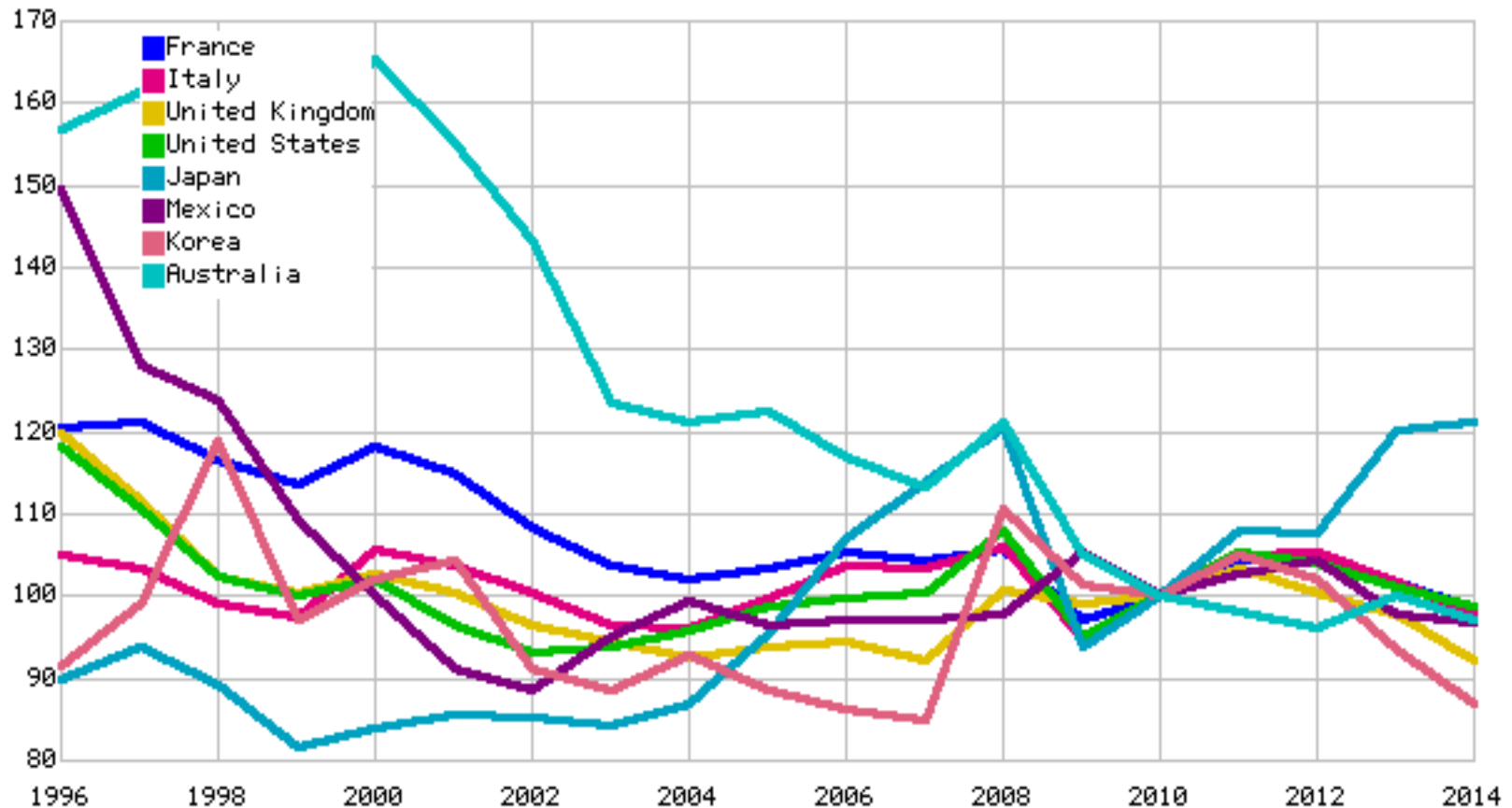


## Exports plus imports as a proportion of GDP

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



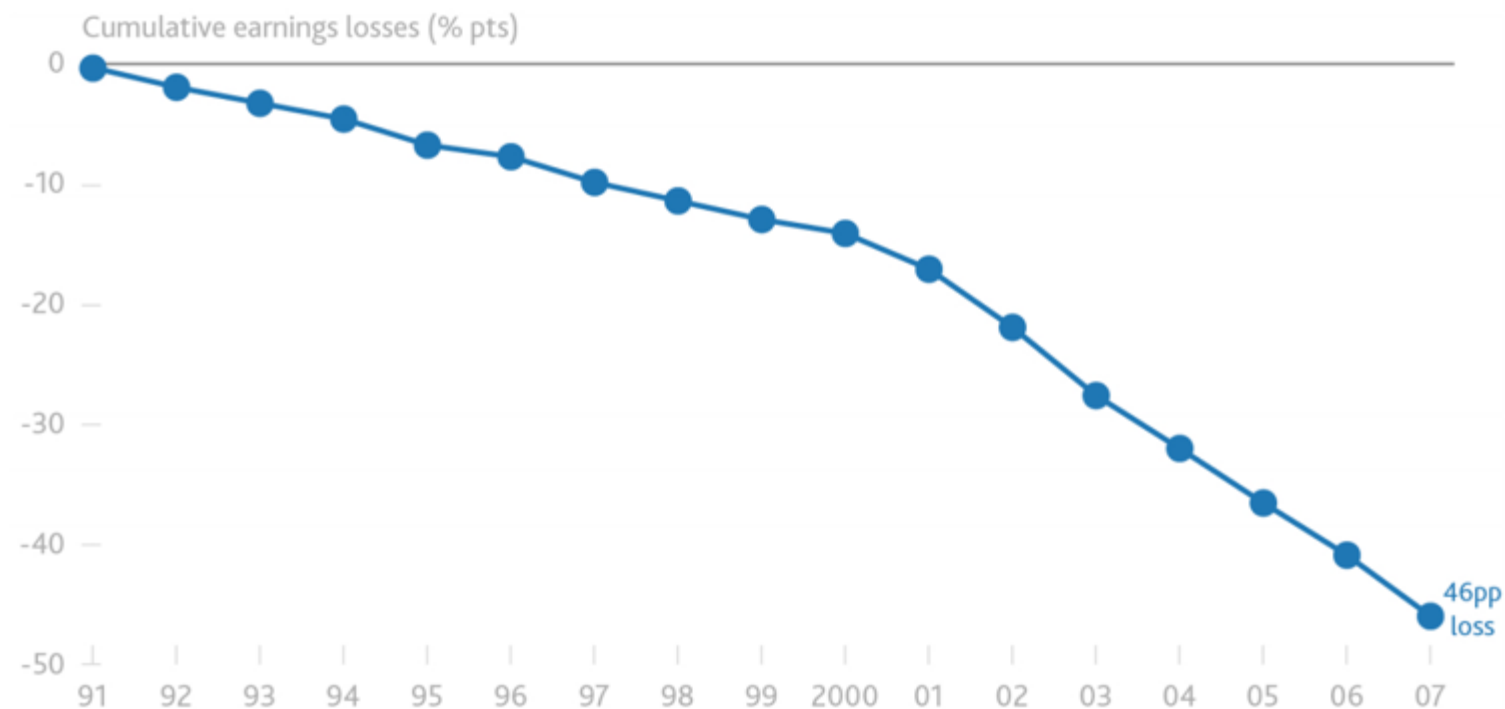
## Import deflators relative to CPI

Source: AMECO. Annual Macroeconomic Database of the European Commission's Directorate General for Economic and Social Affairs. Selected G20 countries.





# 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>
  - 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

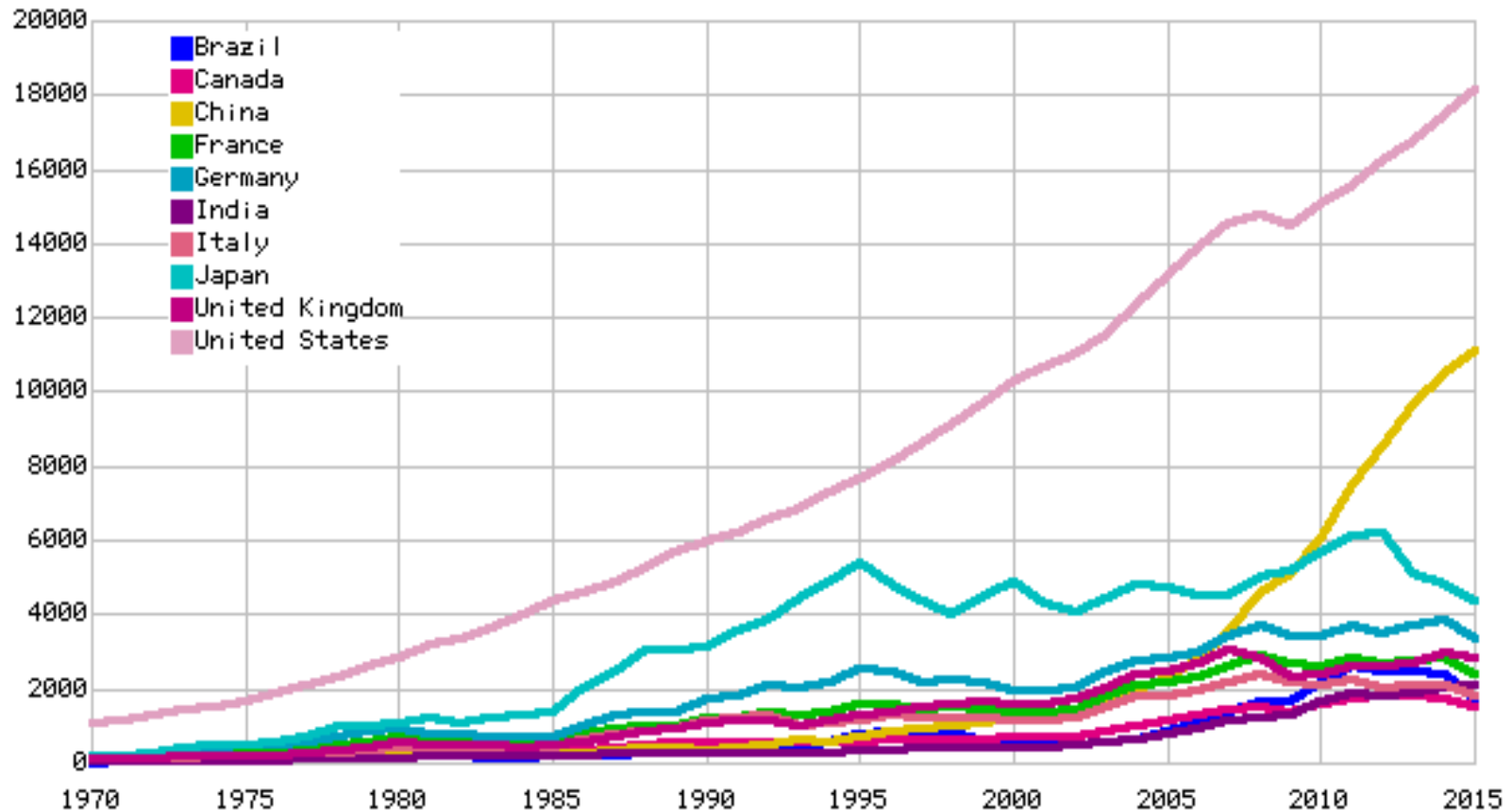
*Note: seven sector  
breakdown. Can we  
link to employment  
earnings?*

Source: National Accounts Main Aggregates Database

<http://unstats.un.org>



# The ten largest economies - nominal GDP



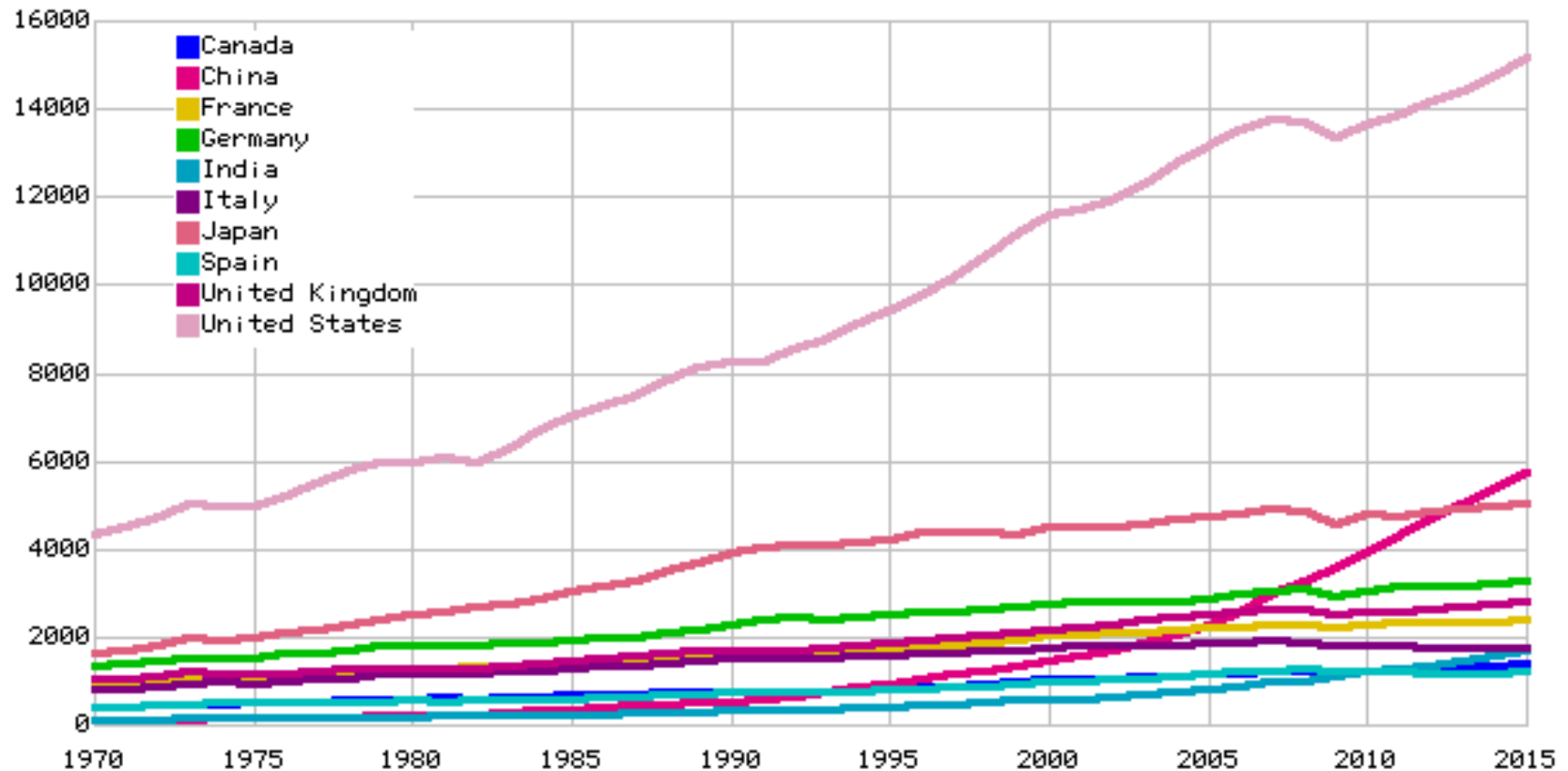
US\$ billion

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



National Economics  
National Institute of Economic and Industry Research

# The ten largest economies - real GDP

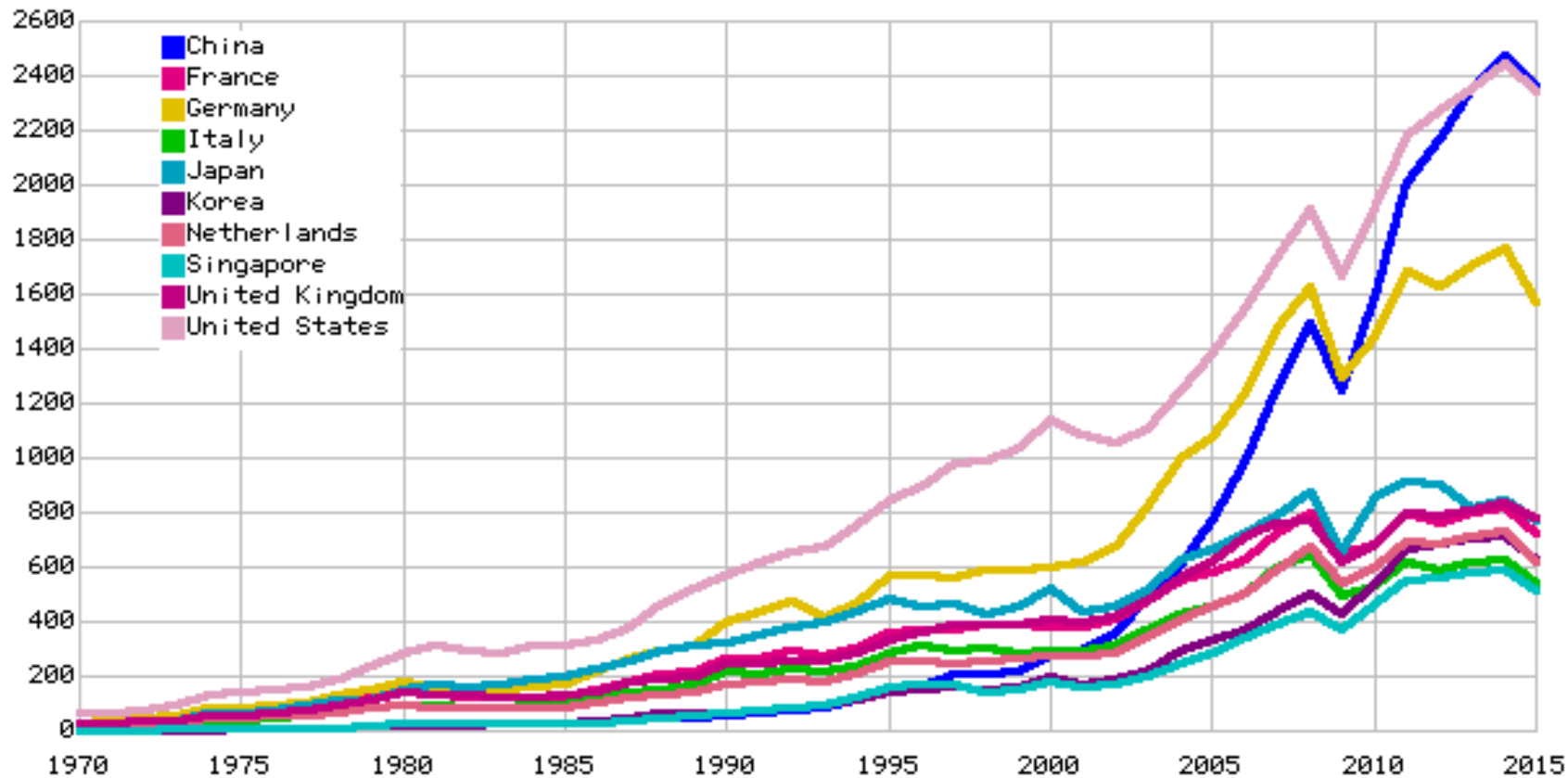


US\$ billion at 2005 prices

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



# The ten largest exporters - nominal

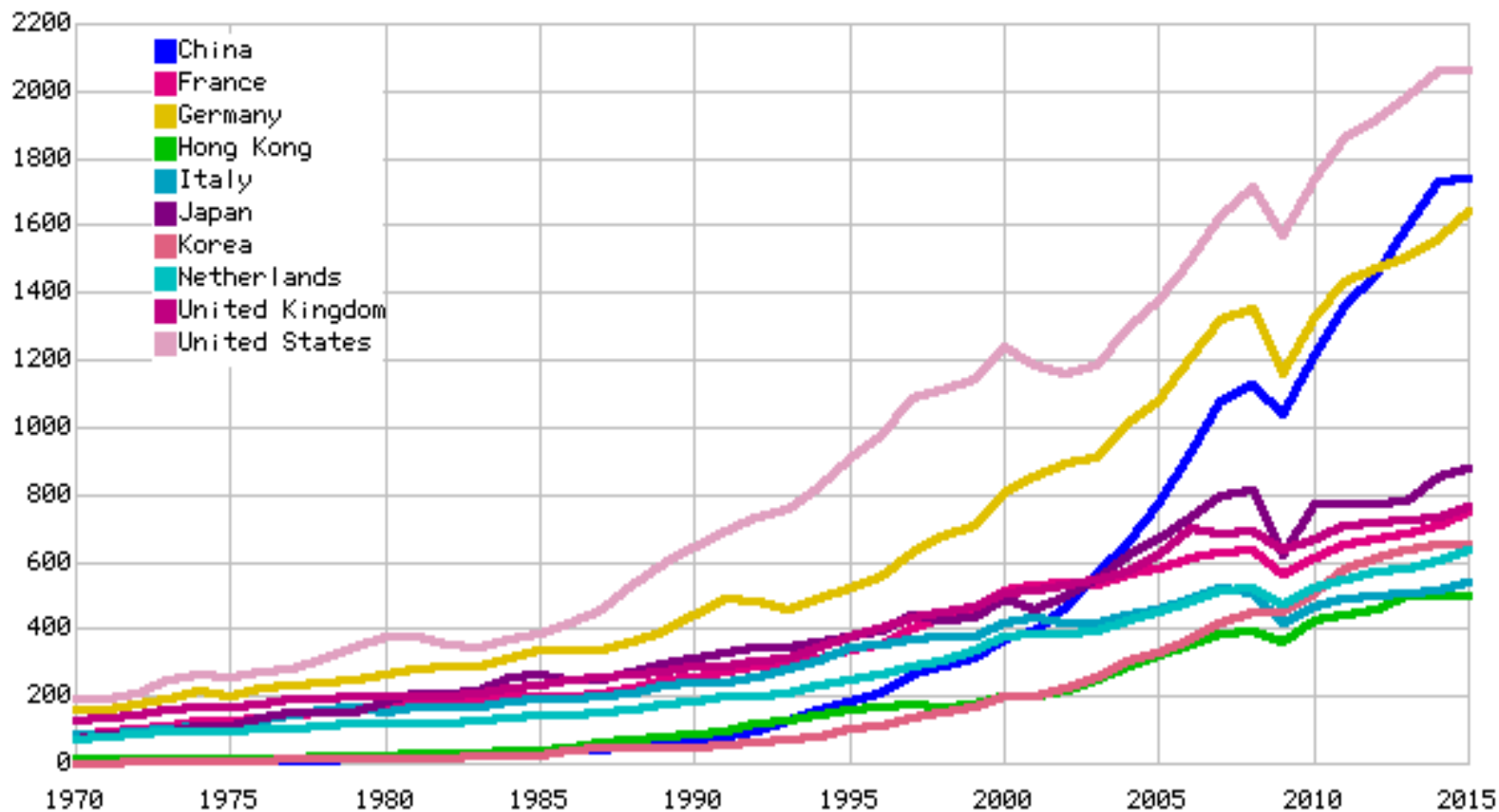


Exports of goods and services, US\$ billion

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



# The ten largest exporters - real

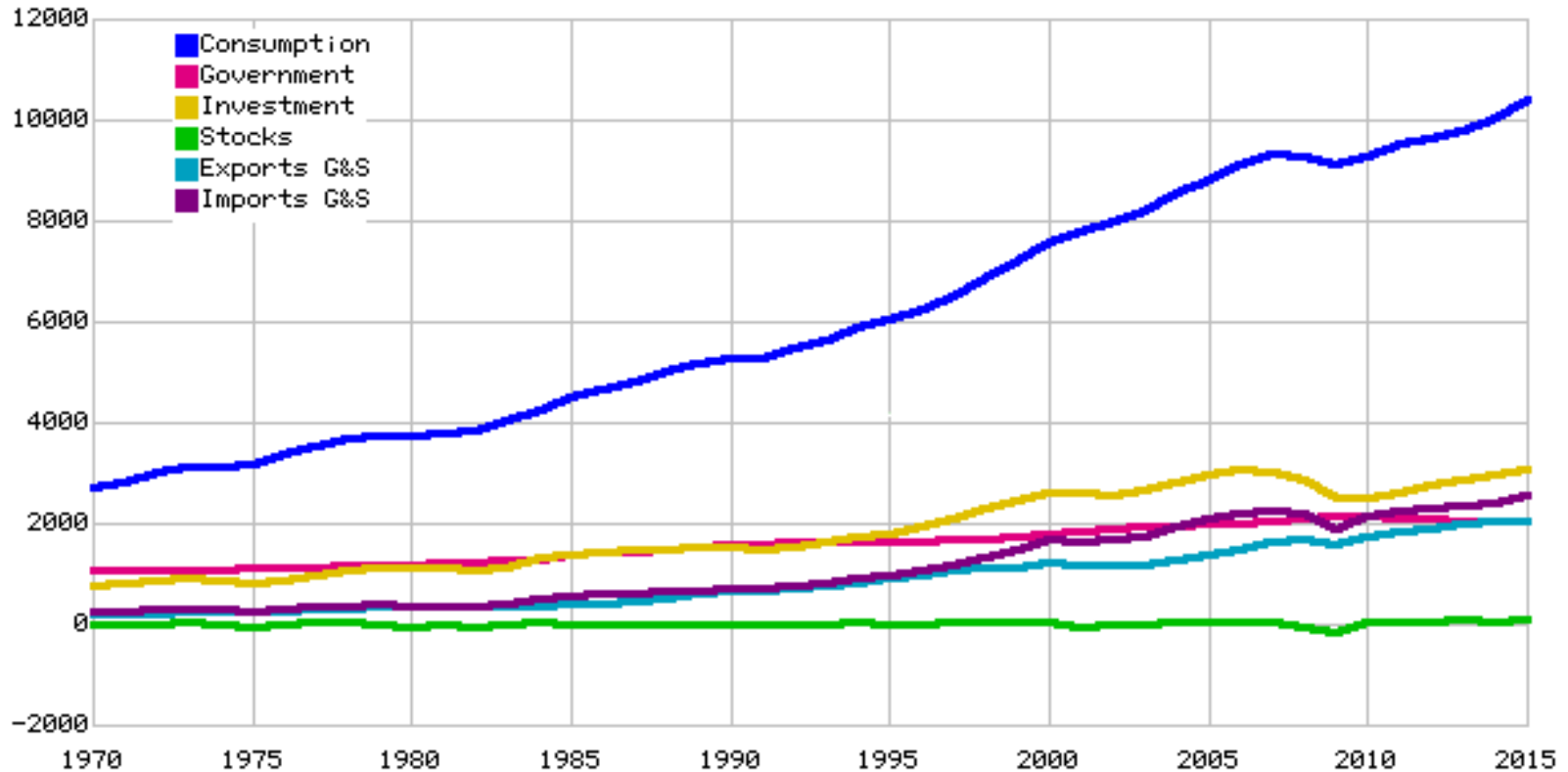


Exports of goods and services, US\$ billion at 2005 prices

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



# Expenditure on GDP - United States



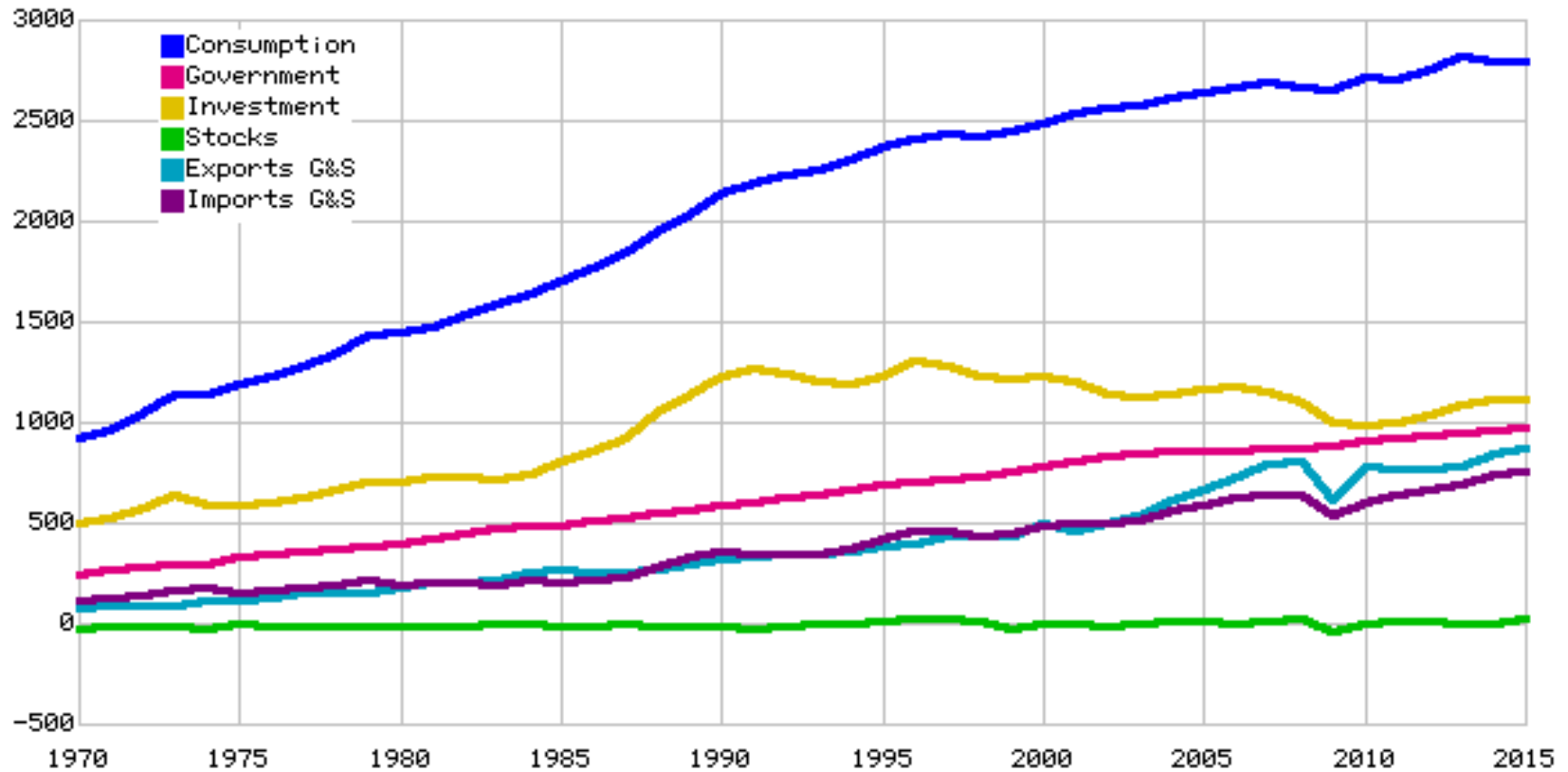
US\$ billion at 2005 prices

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





# Expenditure on GDP - Japan

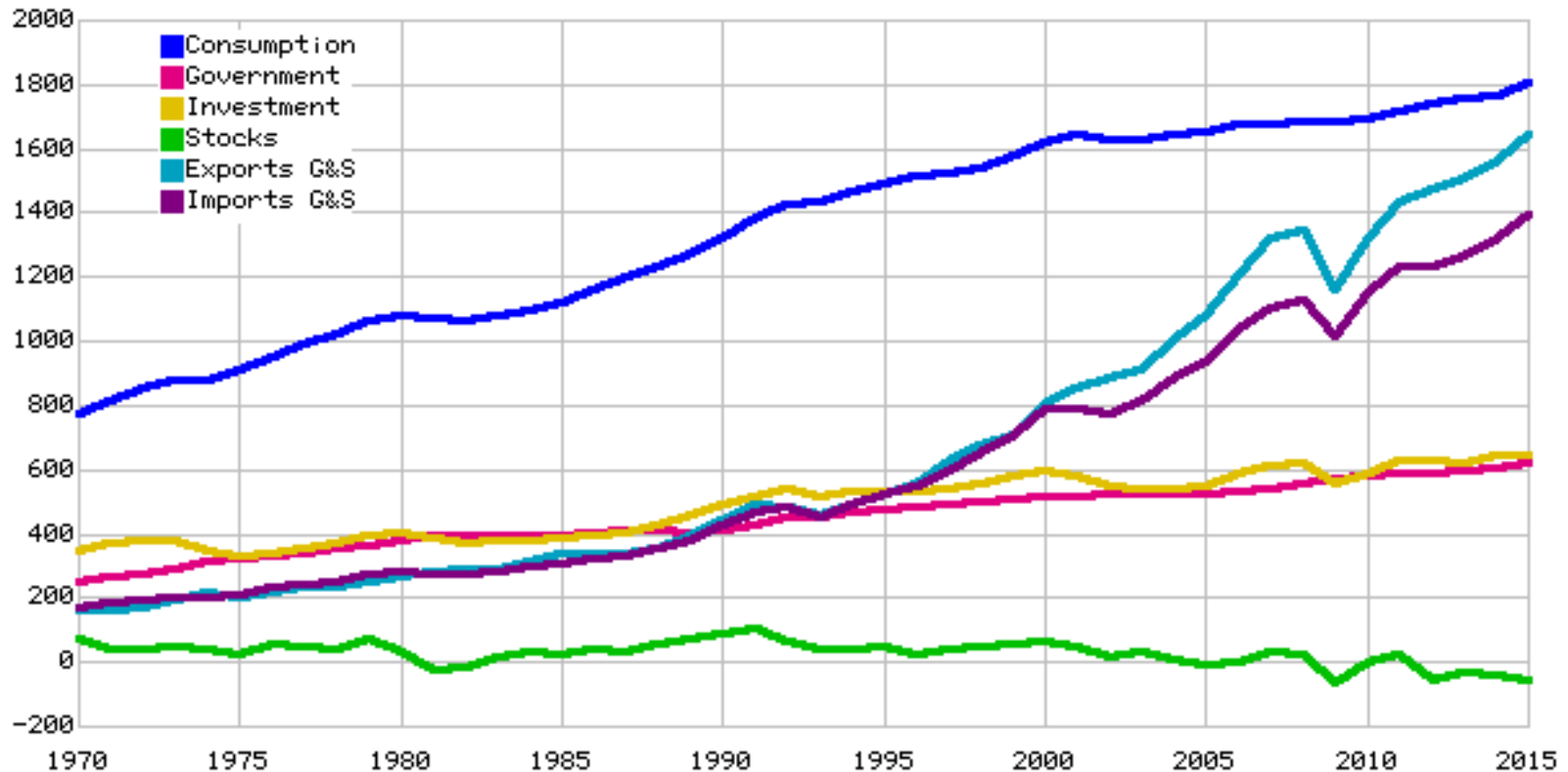


US\$ billion at 2005 prices

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



# Expenditure on GDP - Germany

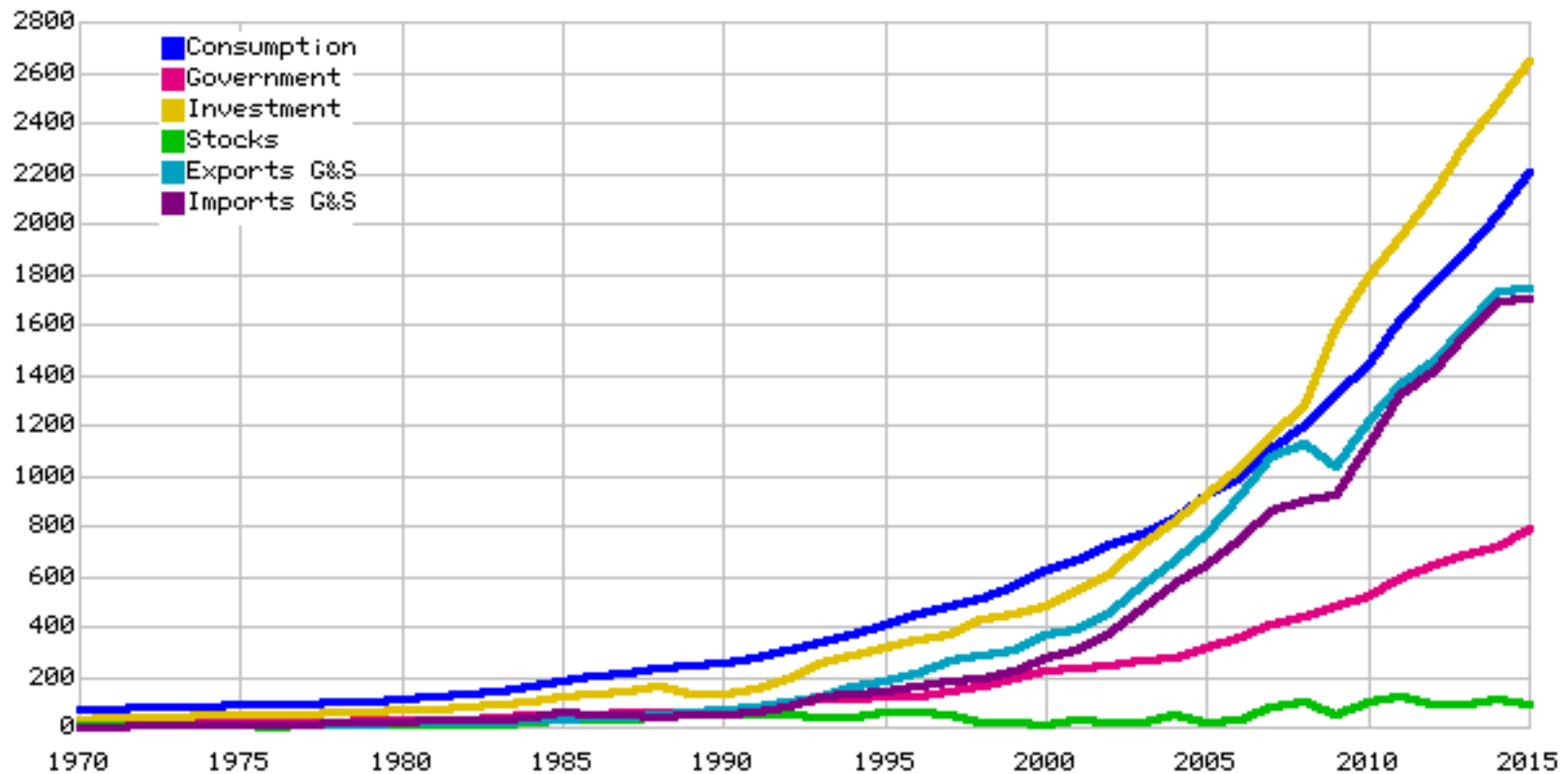


US\$ billion at 2005 prices

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



# Expenditure on GDP - China

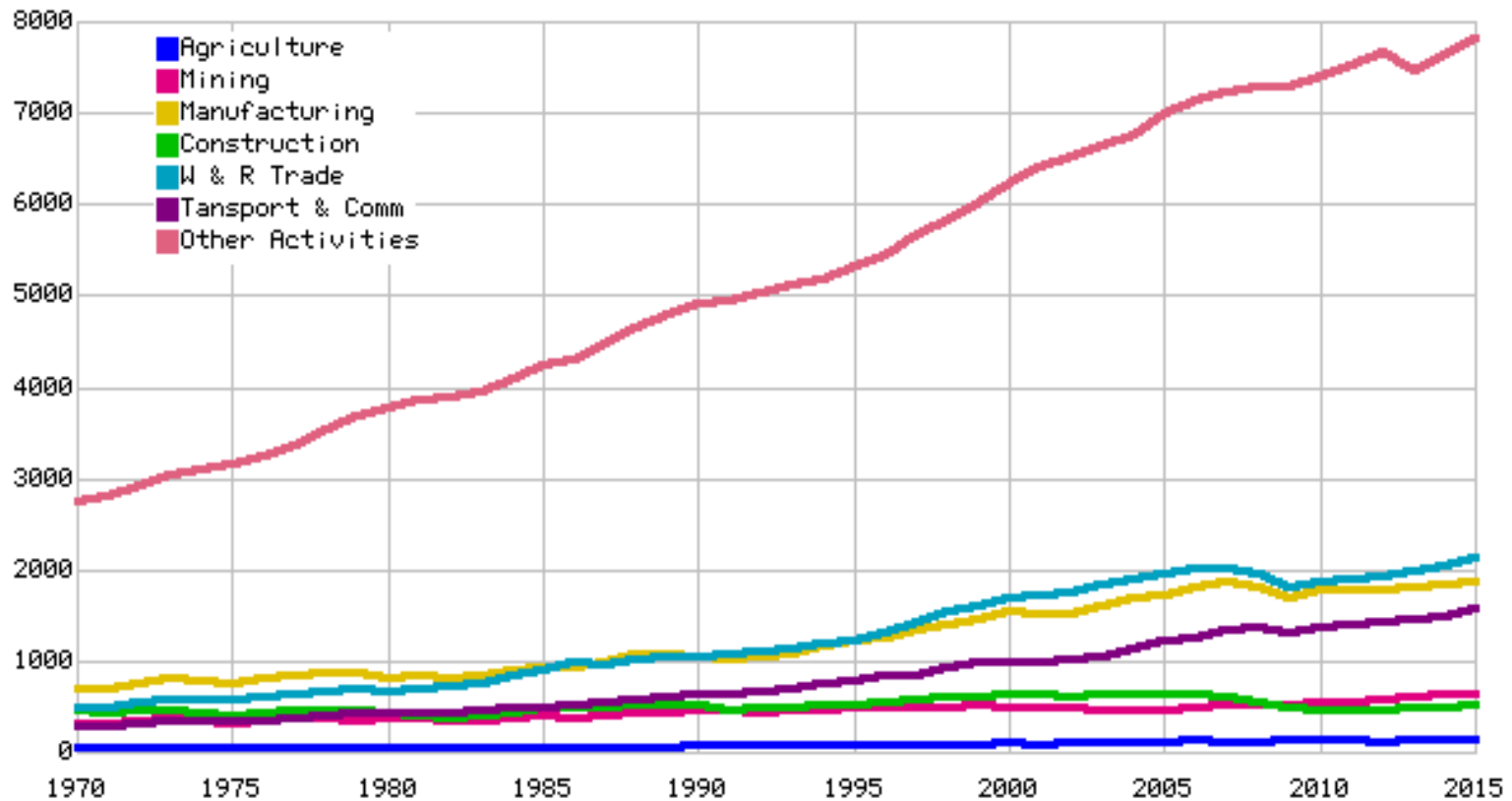


US\$ billion at 2005 prices

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



# Components of value added - US

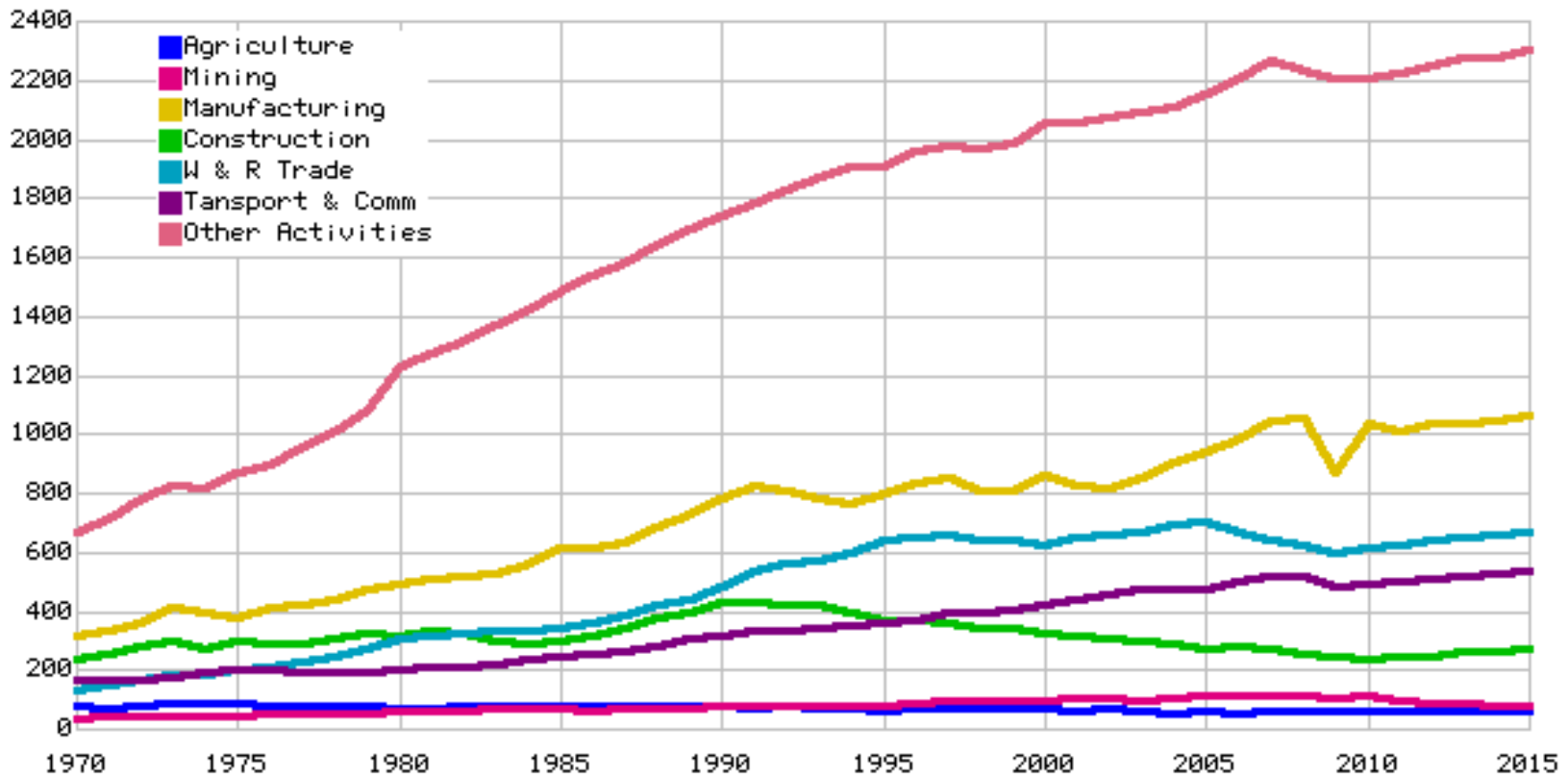


US\$ billion at 2005 prices

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



# Components of value added - Japan

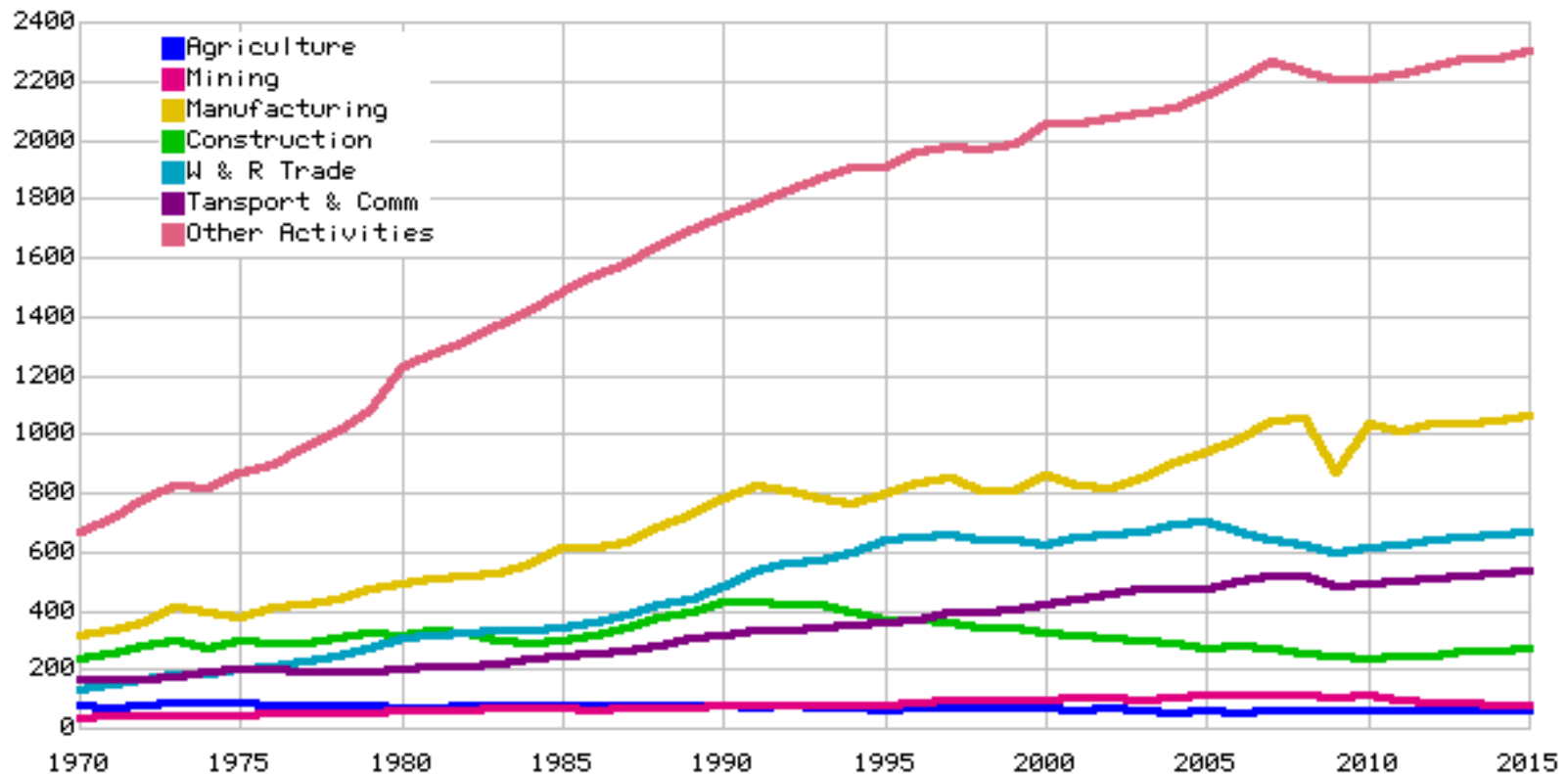


US\$ billion at 2005 prices

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



# Components of value added - Germany

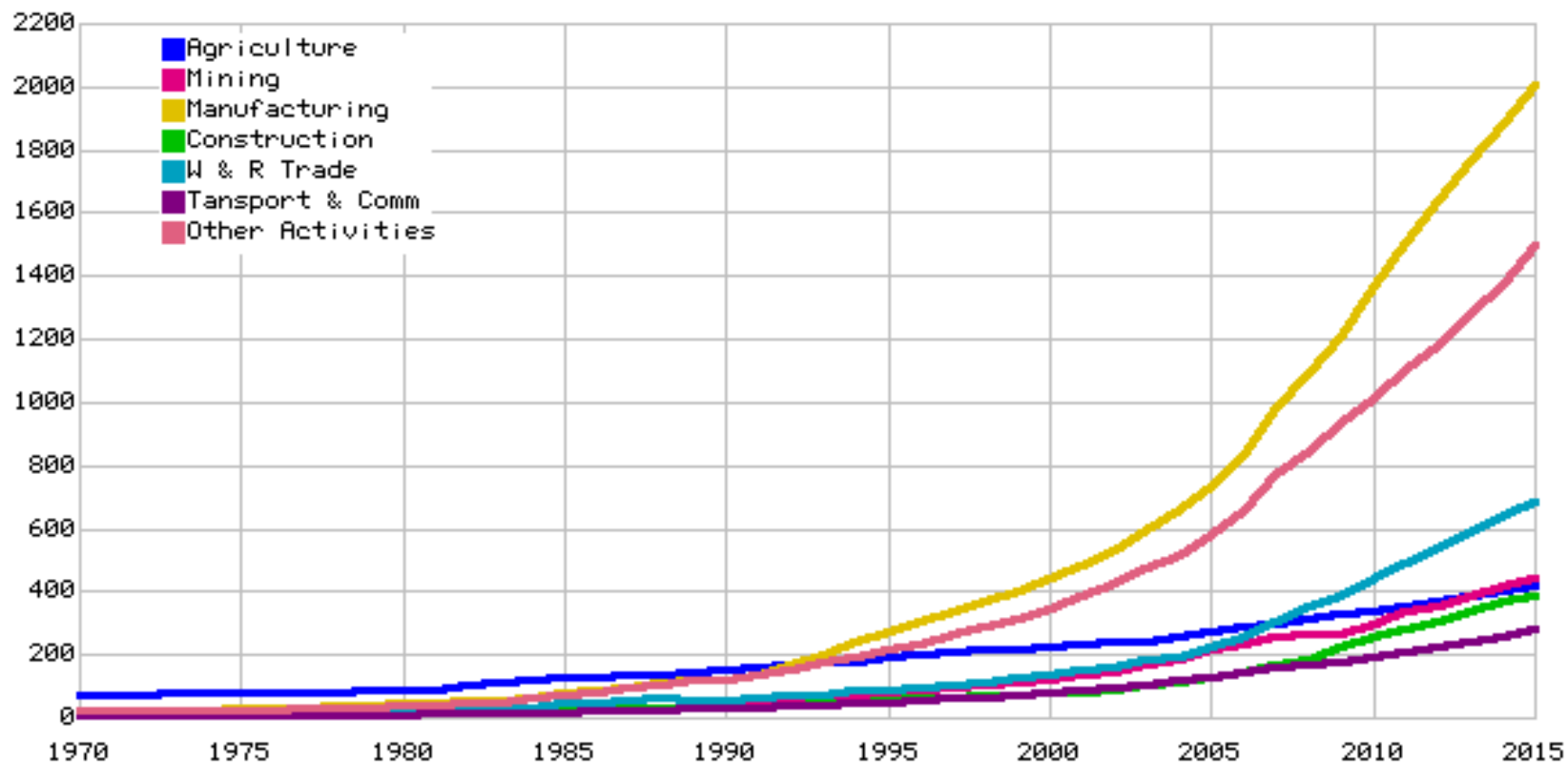


US\$ billion at 2005 prices

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



# Components of value added - China



US\$ billion at 2005 prices

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



# Trends in world trade

- Source: UN Comtrade  
<https://comtrade.un.org/>
- Overview: trade by SITC group
  - all data nominal





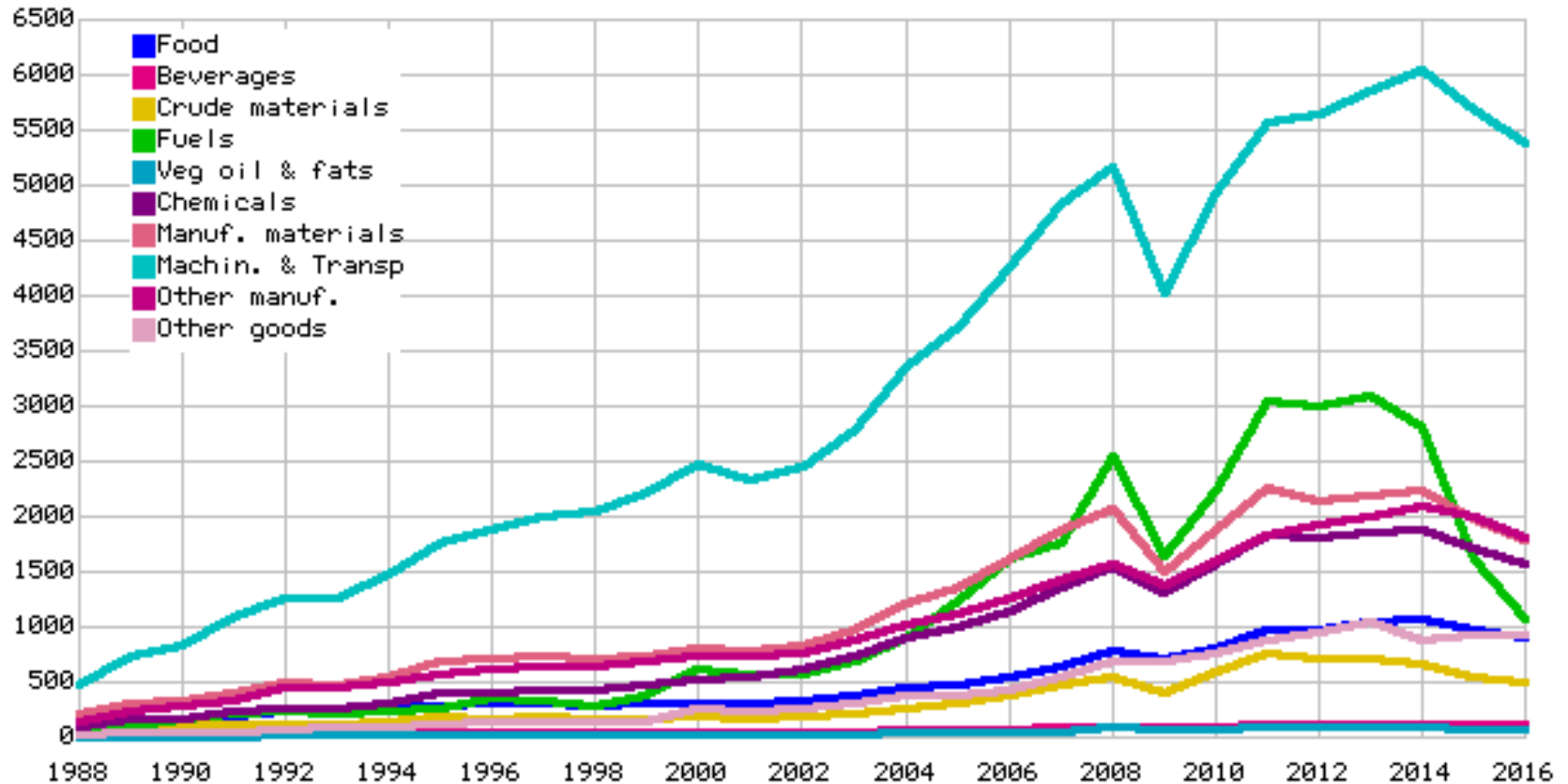
# Standard Industrial Trade Classification

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

*Note: Of Machinery and transport equipment, Electrical equipment is 26% and Transport equipment is 27%.*



# World trade by SITC

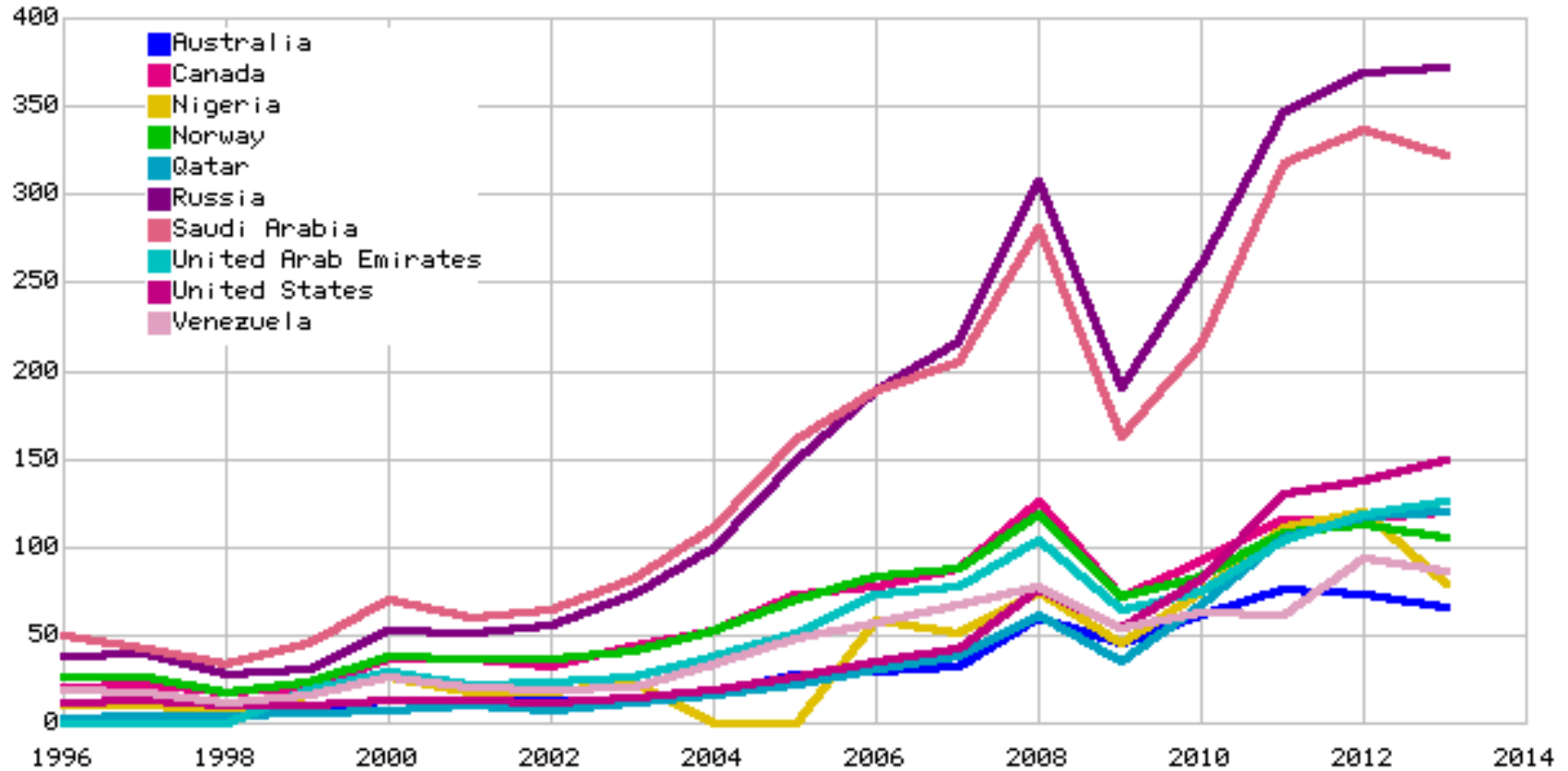


Exports, US\$ billion.

Source: UN Comtrade, <https://comtrade.un.org/>



# SITC 3 Mineral fuels

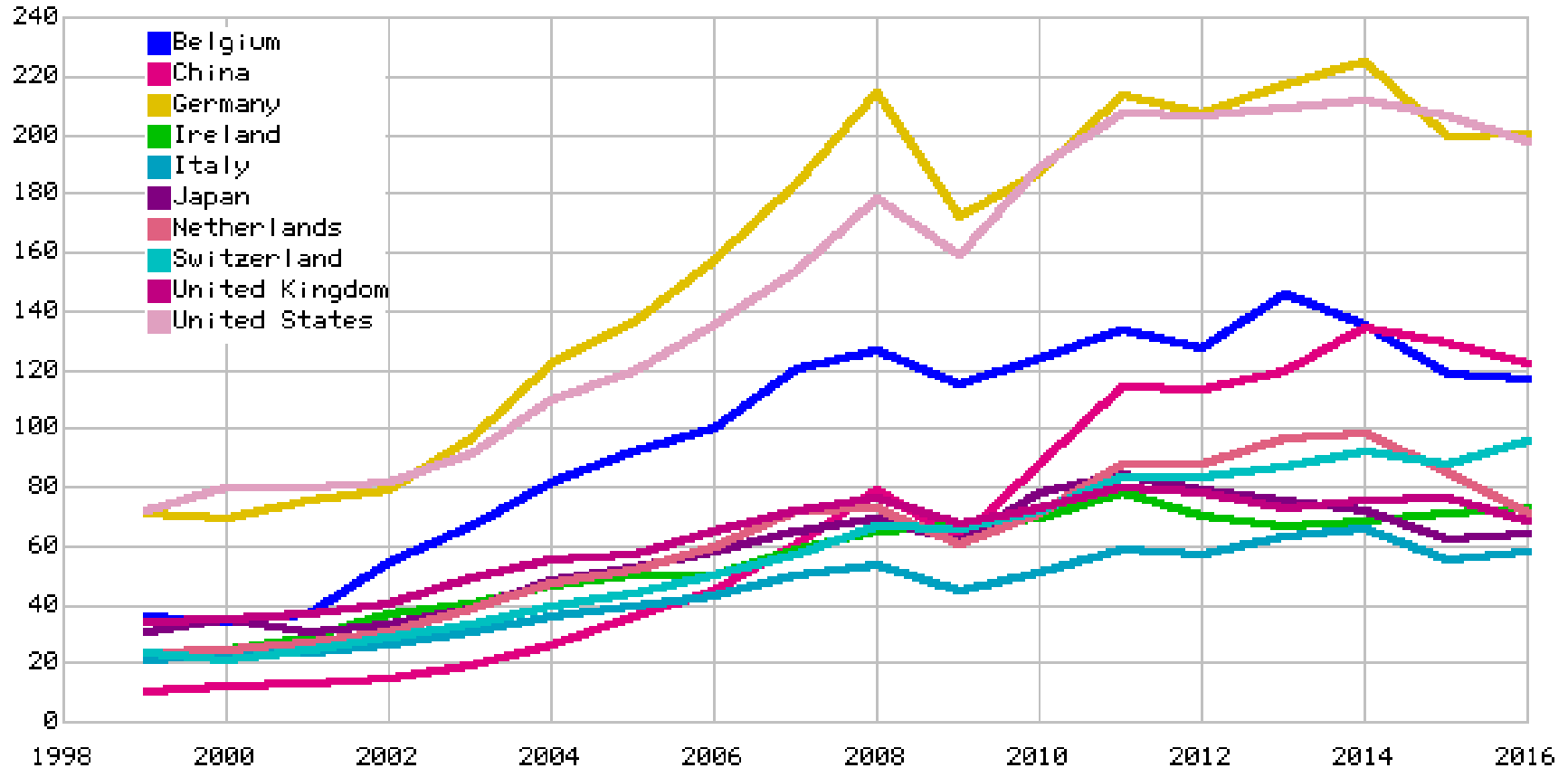


Exports, US\$ billion. Second largest SITC

Source: UN Comtrade, <https://comtrade.un.org/>



# SITC 5 Chemicals

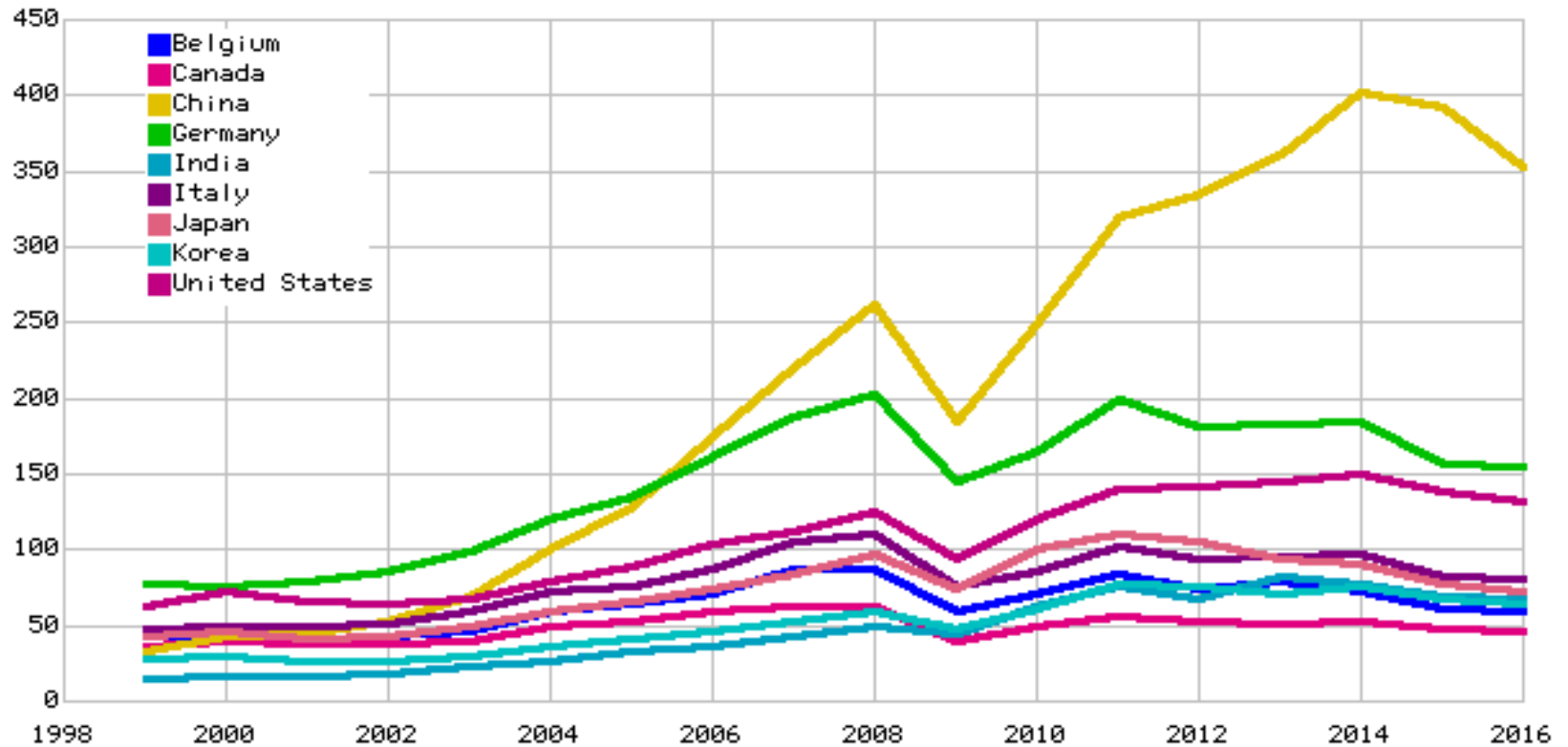


Exports US\$ billion. Fifth largest SITC

Source: UN Comtrade, <https://comtrade.un.org/>



# SITC 6 Manufactured materials

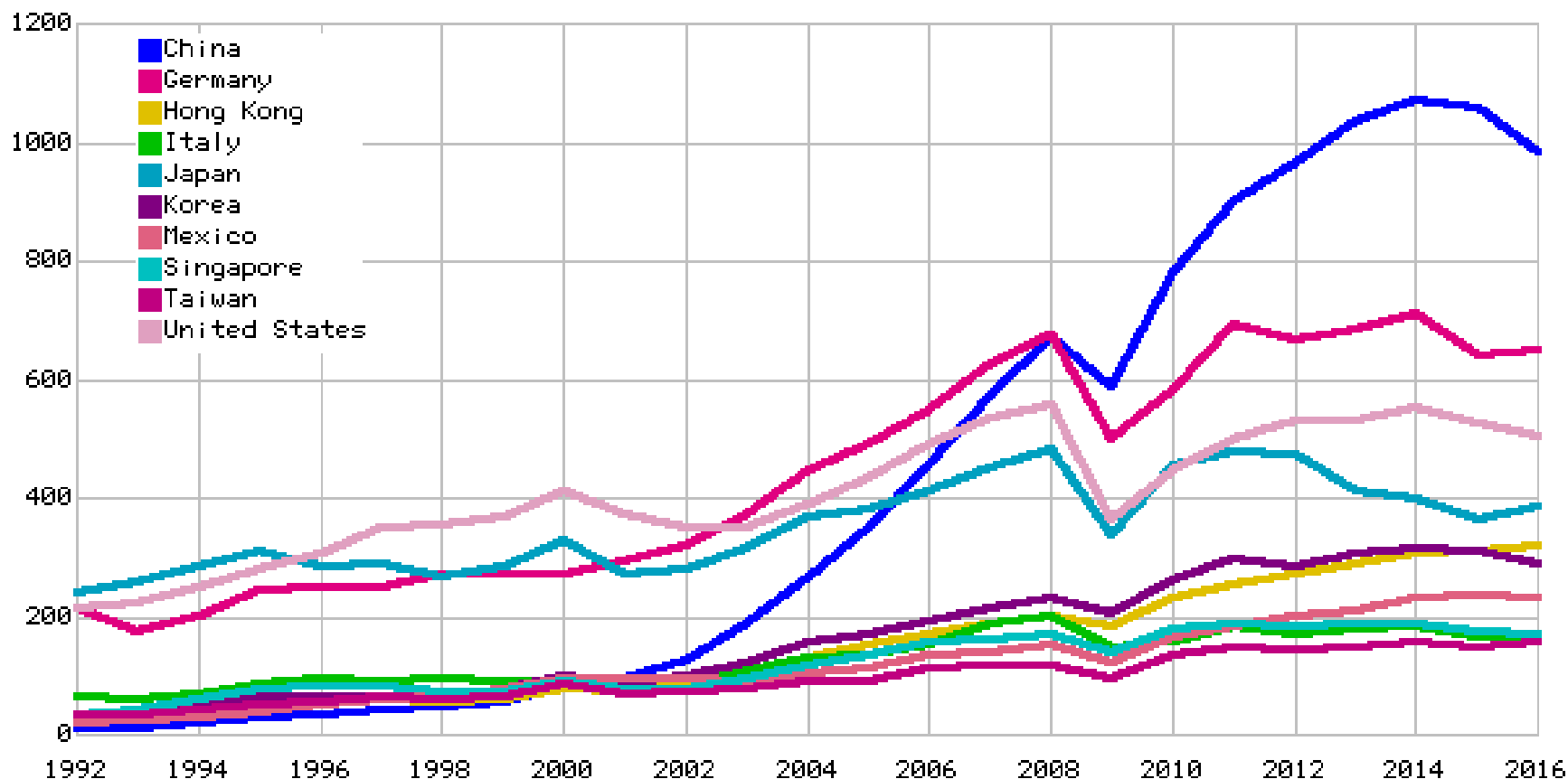


Exports US\$ billion. Third largest SITC

Source: UN Comtrade, <https://comtrade.un.org/>



# SITC 7 Machinery and transport equipment

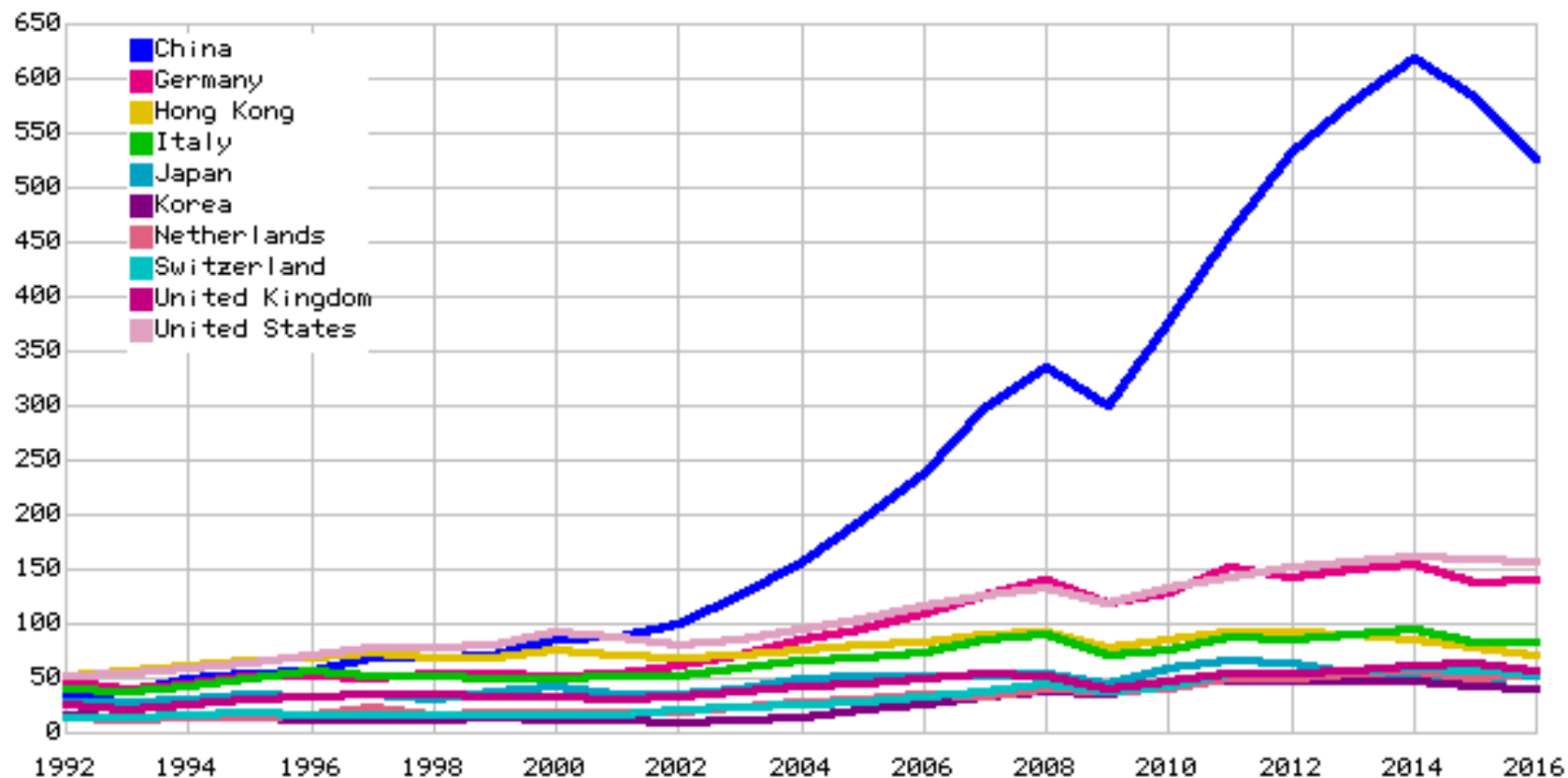


Exports US\$ billion. Largest SITC

Source: UN Comtrade, <https://comtrade.un.org/>



# SITC 8 Other Manufactured articles

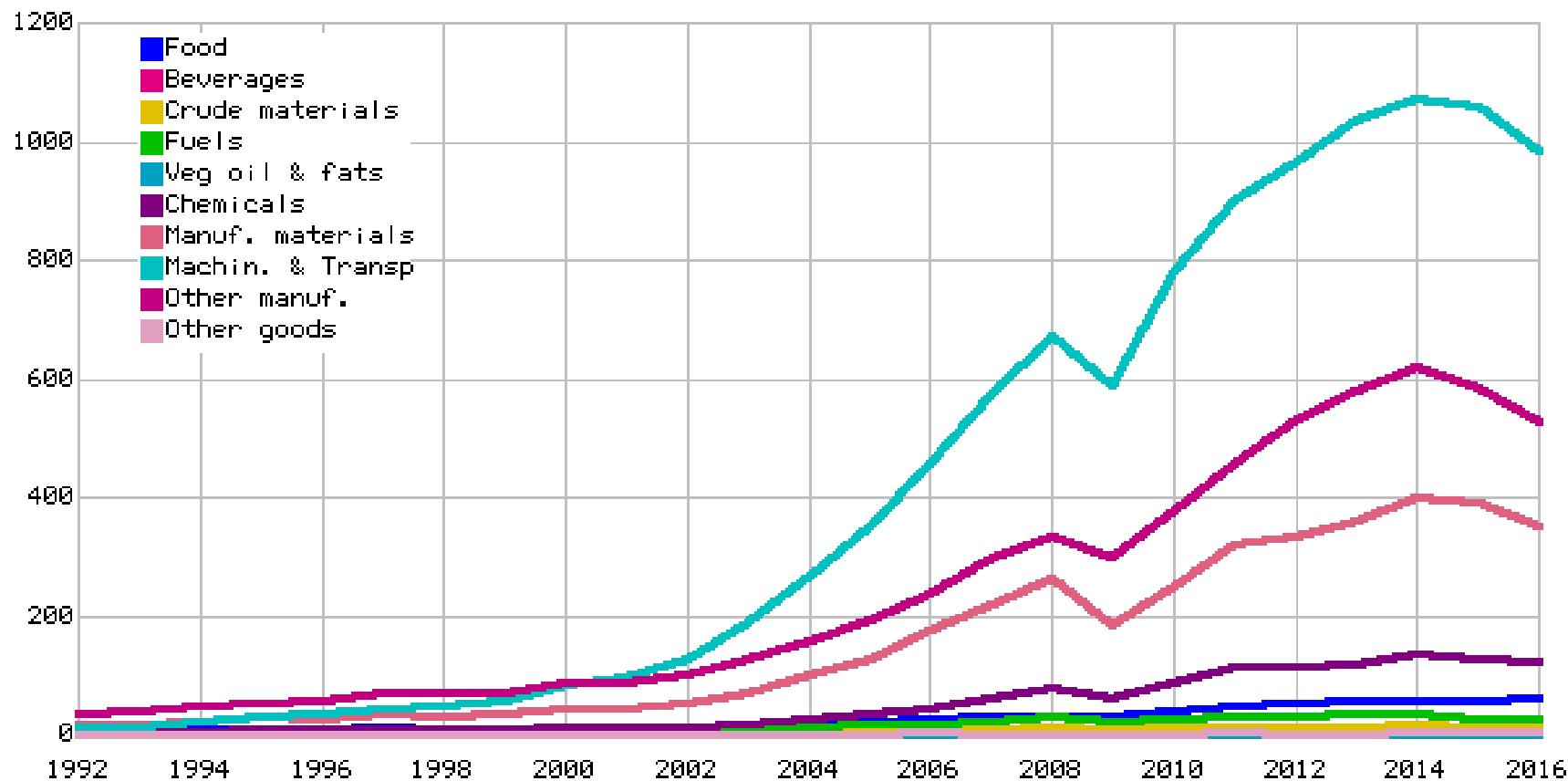


Exports US\$ billion. Fourth largest SITC

Source: [UN Comtrade, https://comtrade.un.org/](https://comtrade.un.org/)



# Exports by SITC - China



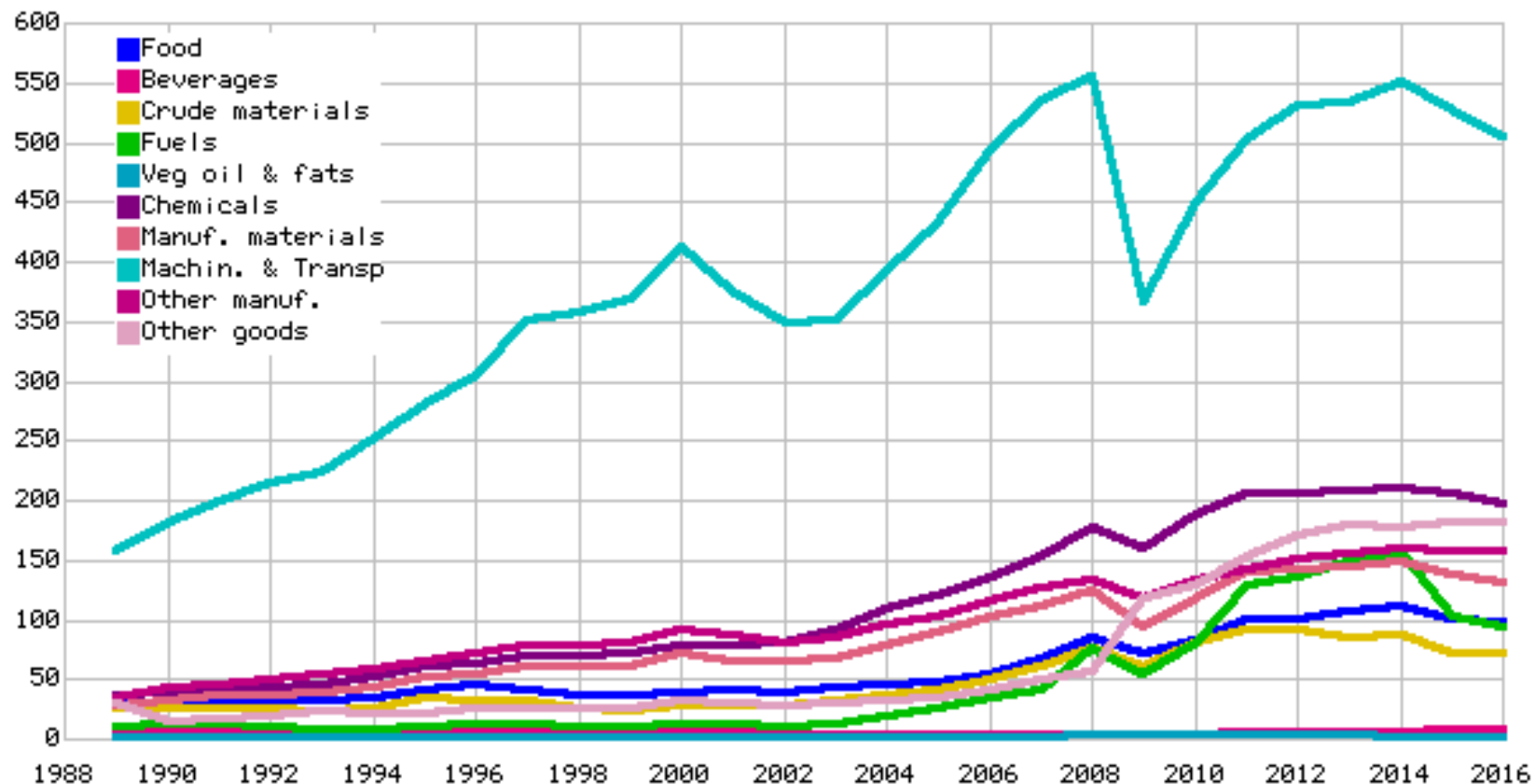
US\$ billion. Equal largest exporter.

Source: UN Comtrade, <https://comtrade.un.org/>





# Exports by SITC - United States

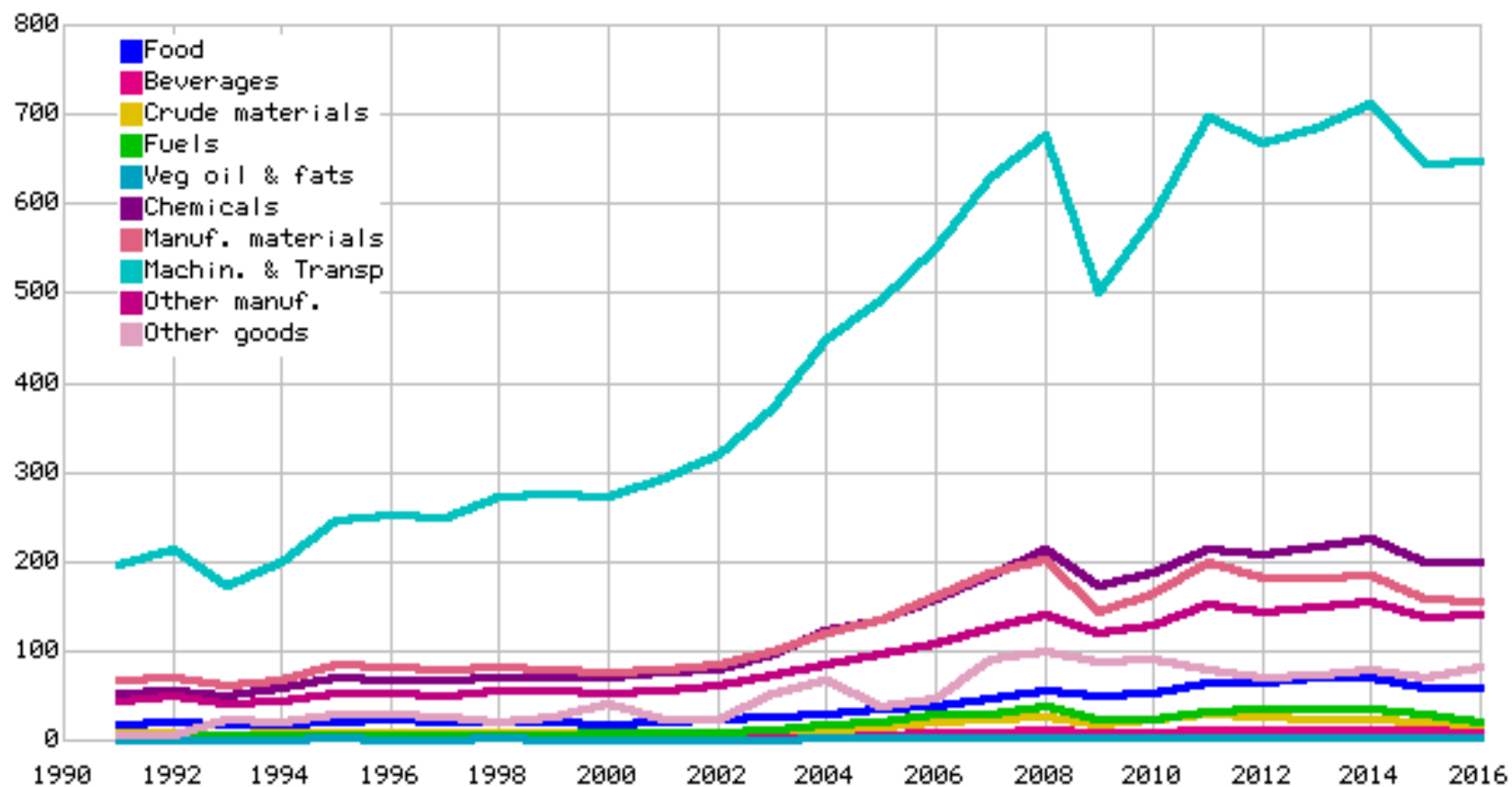


US\$ billion. Equal largest exporter.

Source: UN Comtrade, <https://comtrade.un.org/>



# Exports by SITC - Germany



US\$ billion. Third largest exporter.

Source: UN Comtrade, <https://comtrade.un.org/>



# Trends in industry structure

- Source: ILO, ILOSTAT  
<http://www.ilo.org/ilostat/>
- Overview: industries by ISIC group



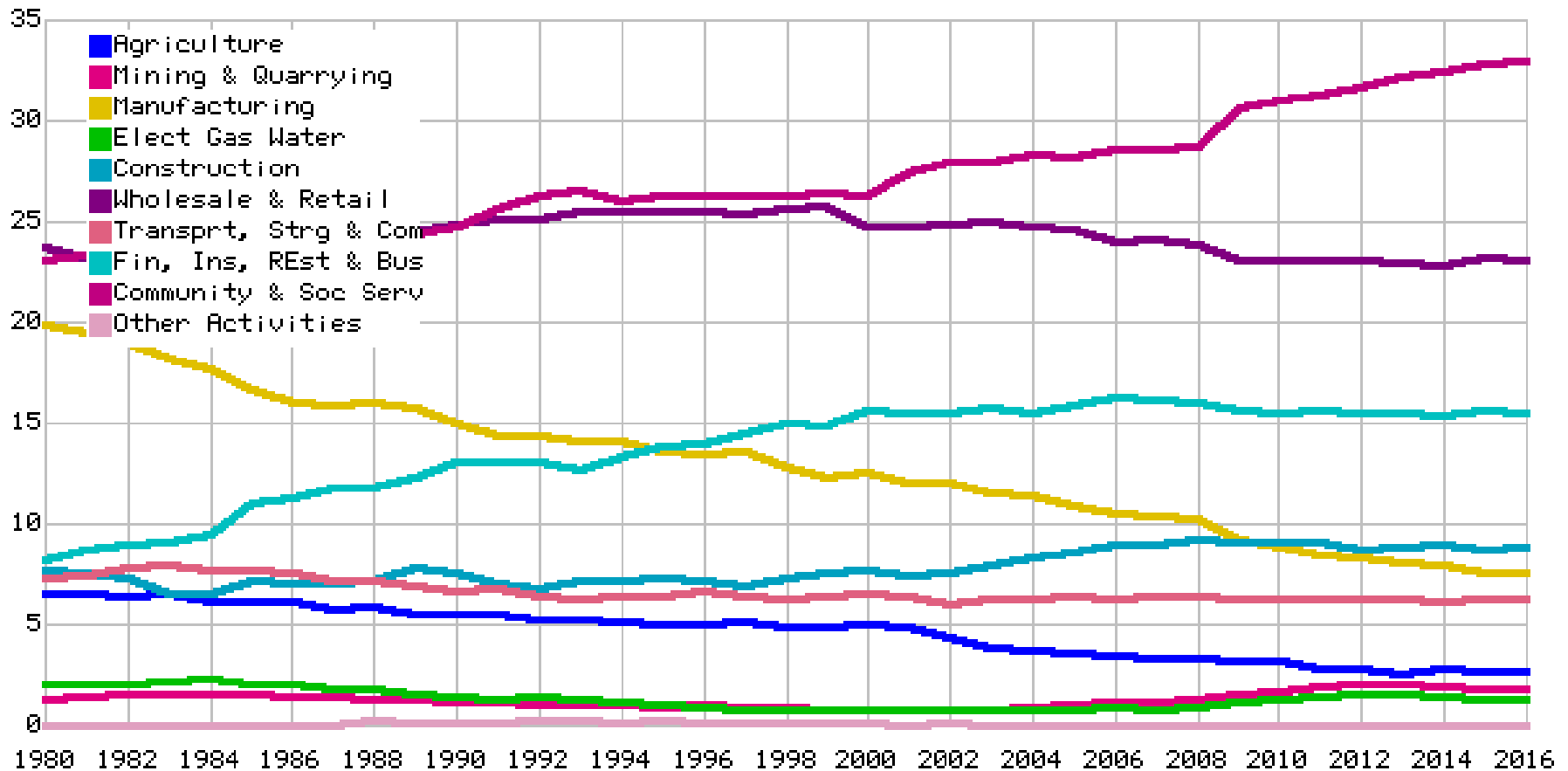
# Classification of Economic Activities

## 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

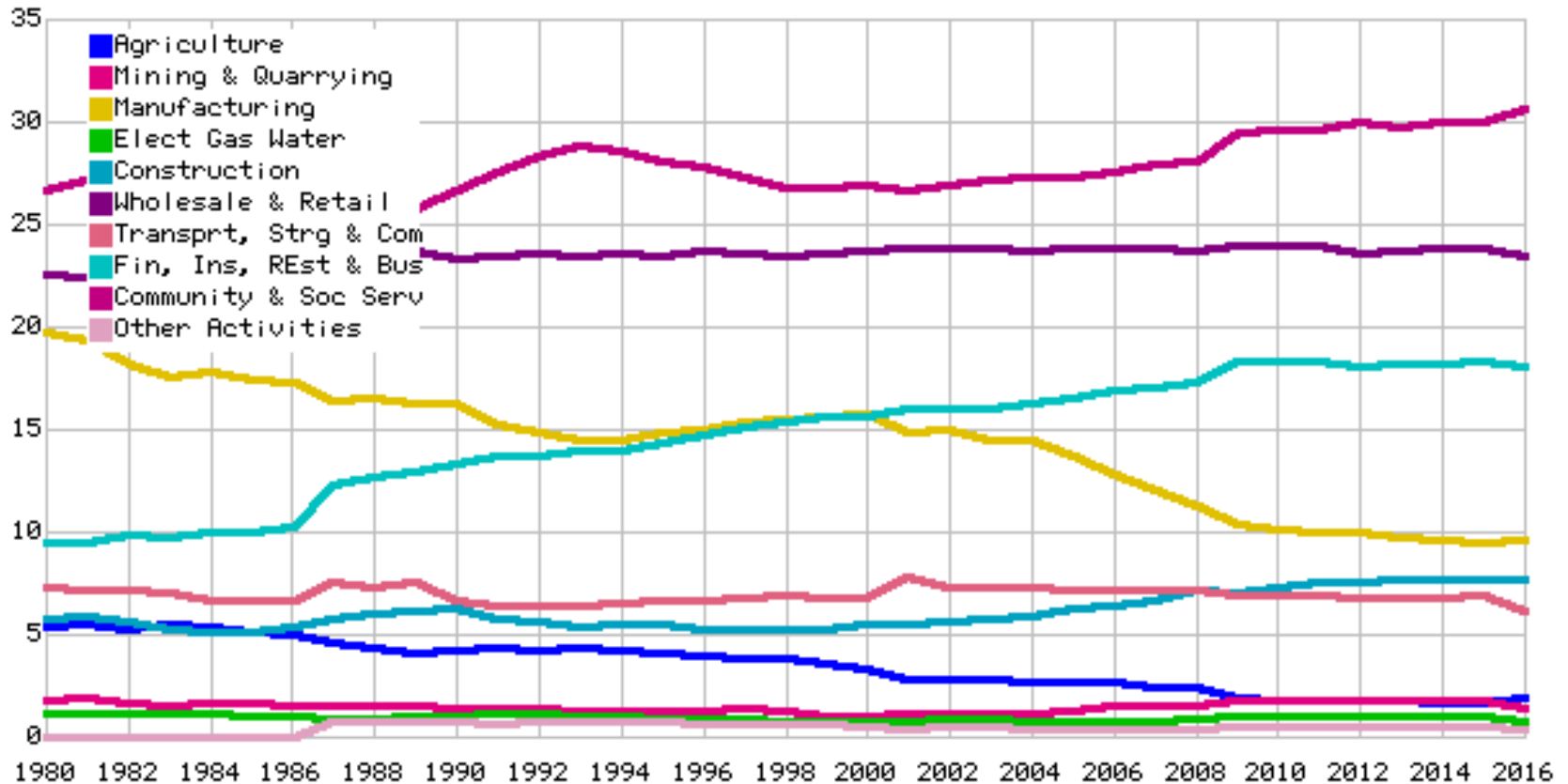


Source: International Labour Organization, ISIC Rev.2

ILOSTAT <http://www.ilo.org/ilostat/>



# Share of employment - Canada

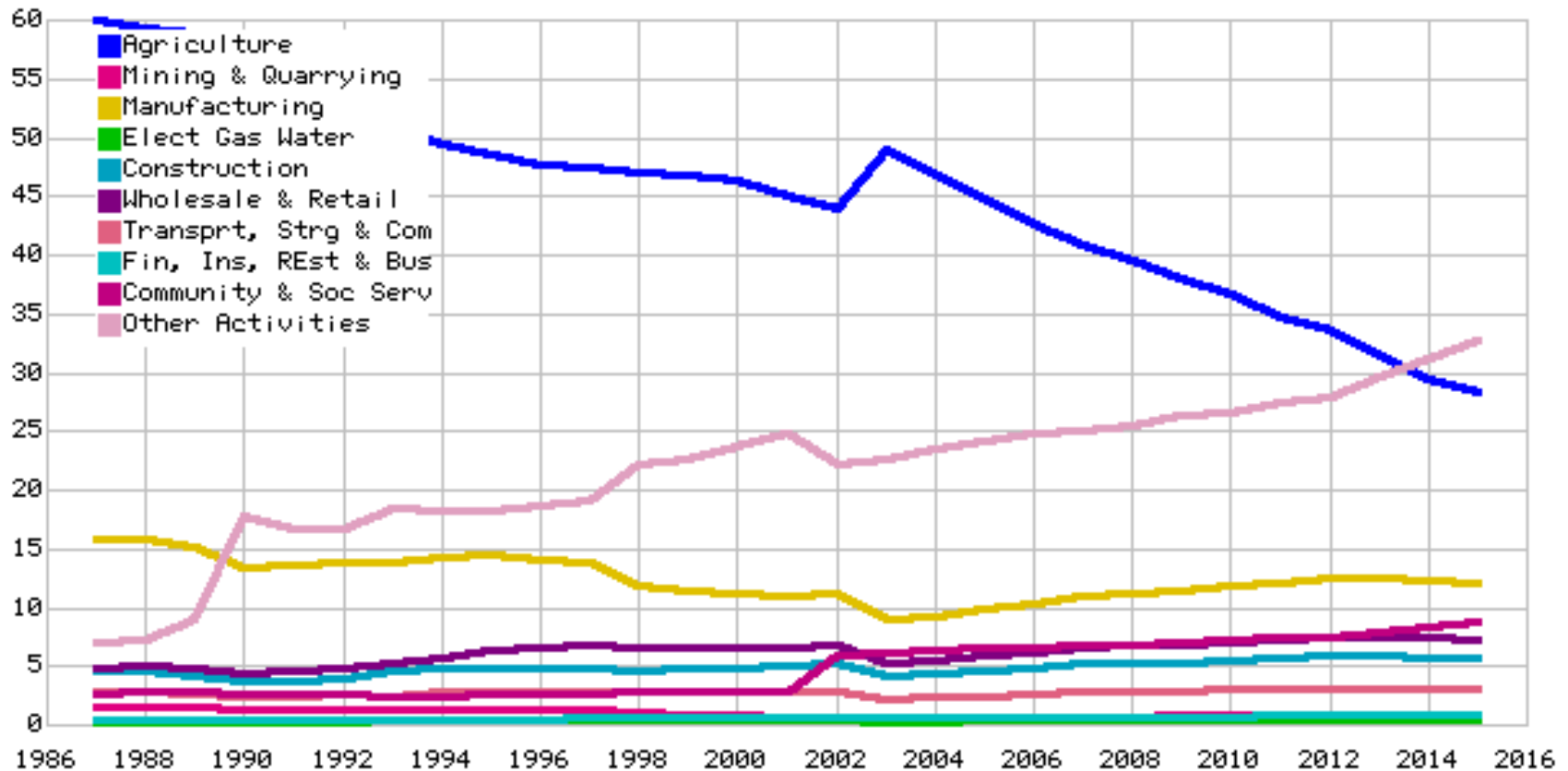


Source: International Labour Organization, ISIC Rev.2

ILOSTAT <http://www.ilo.org/ilostat/>



# Share of employment - China

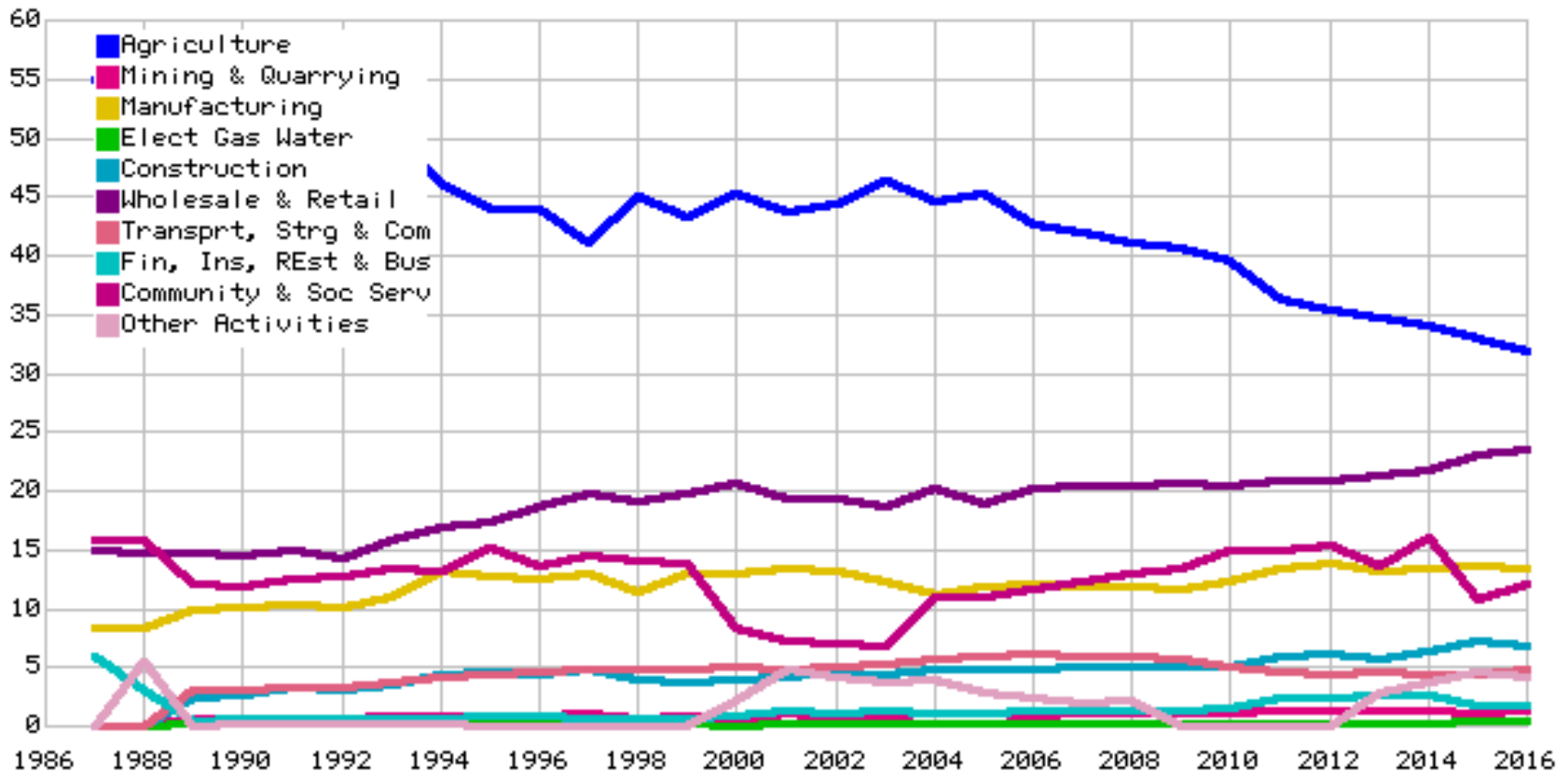


Source: International Labour Organization, ISIC Rev.2

ILOSTAT <http://www.ilo.org/ilostat/>



# Share of employment - Indonesia



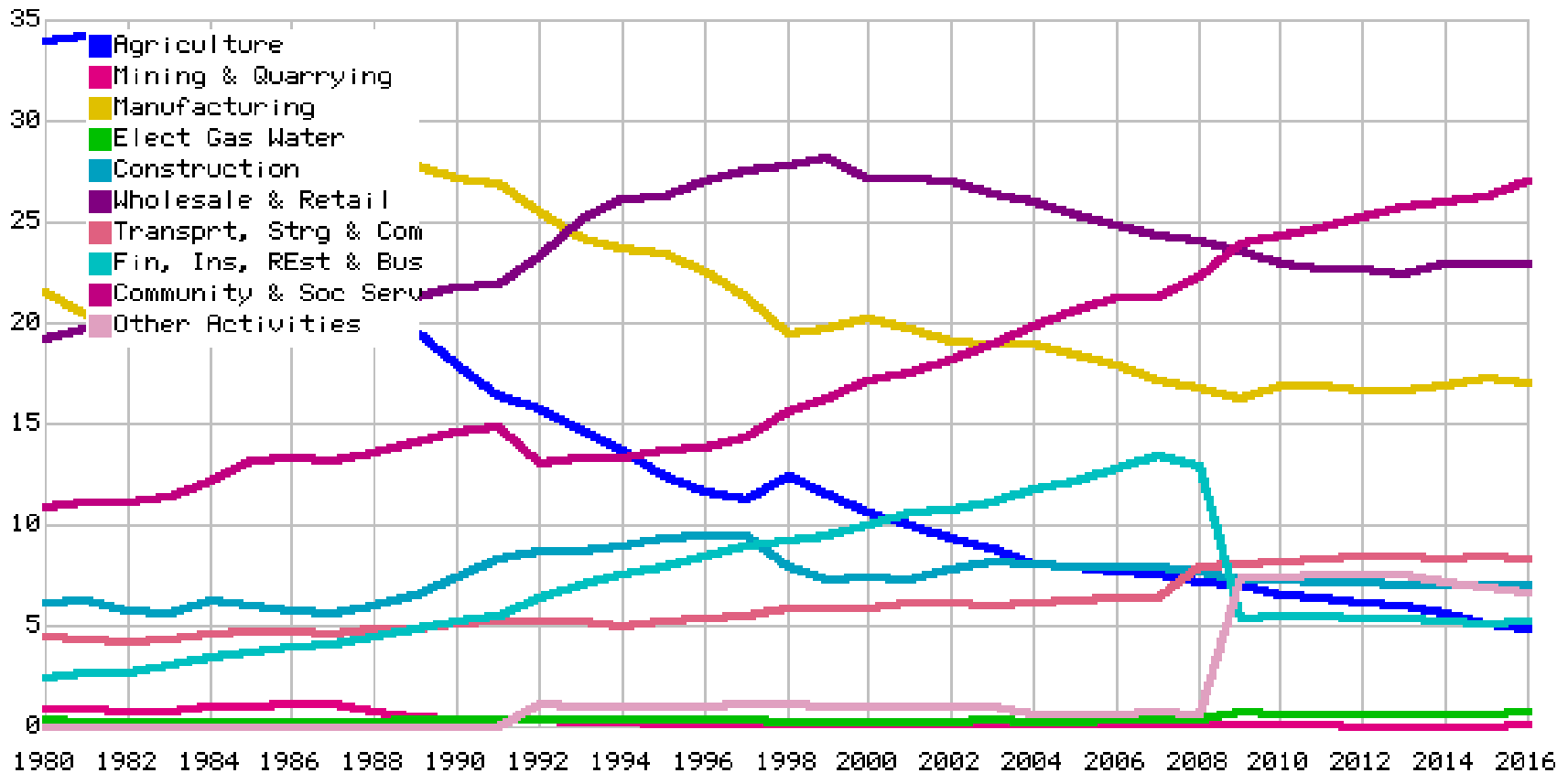
Source: International Labour Organization, ISIC Rev.2

ILOSTAT <http://www.ilo.org/ilostat/>





# Share of employment - Korea

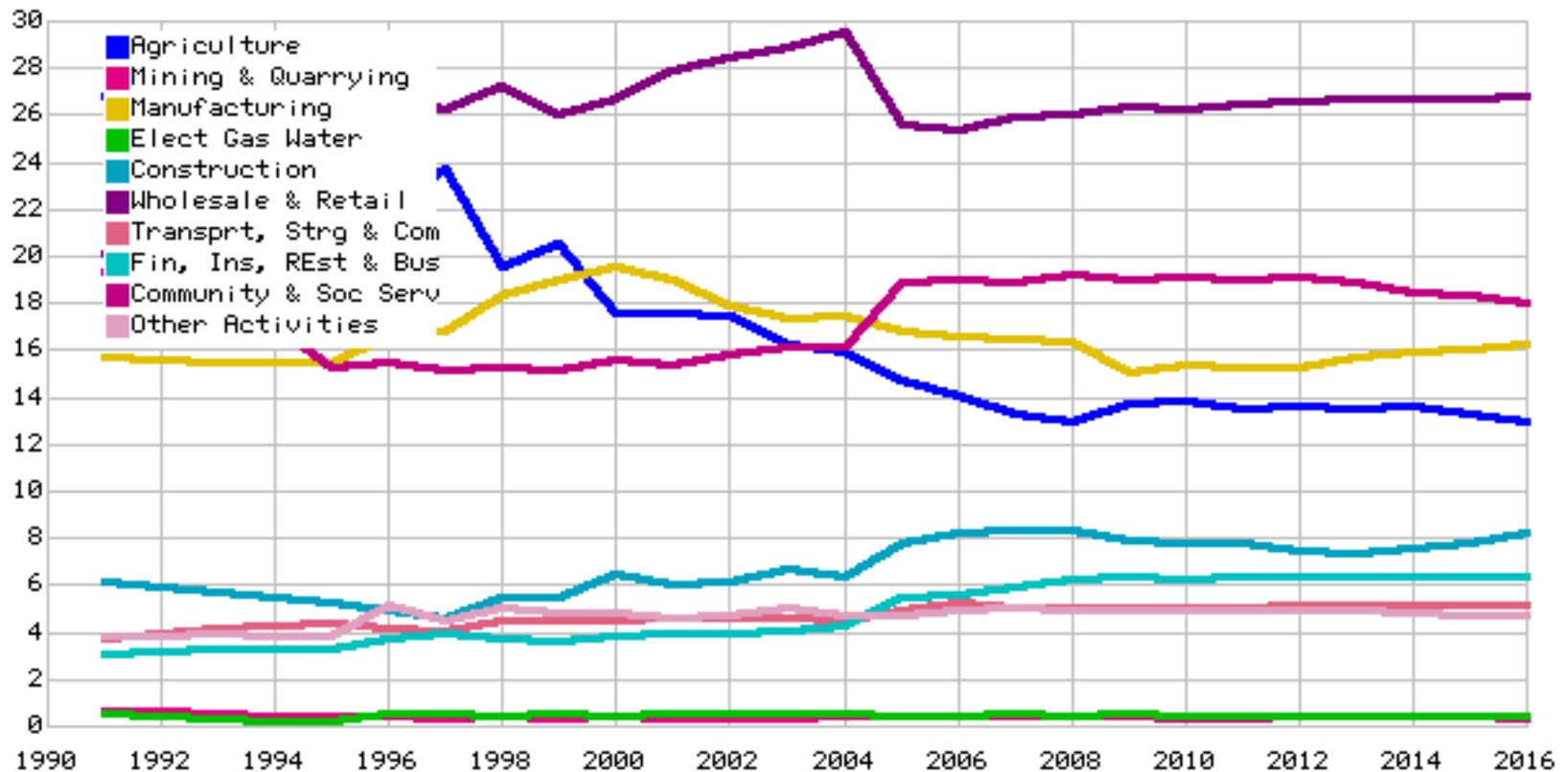


Source: International Labour Organization, ISIC Rev.2

ILOSTAT <http://www.ilo.org/ilostat/>



# Share of employment - Mexico

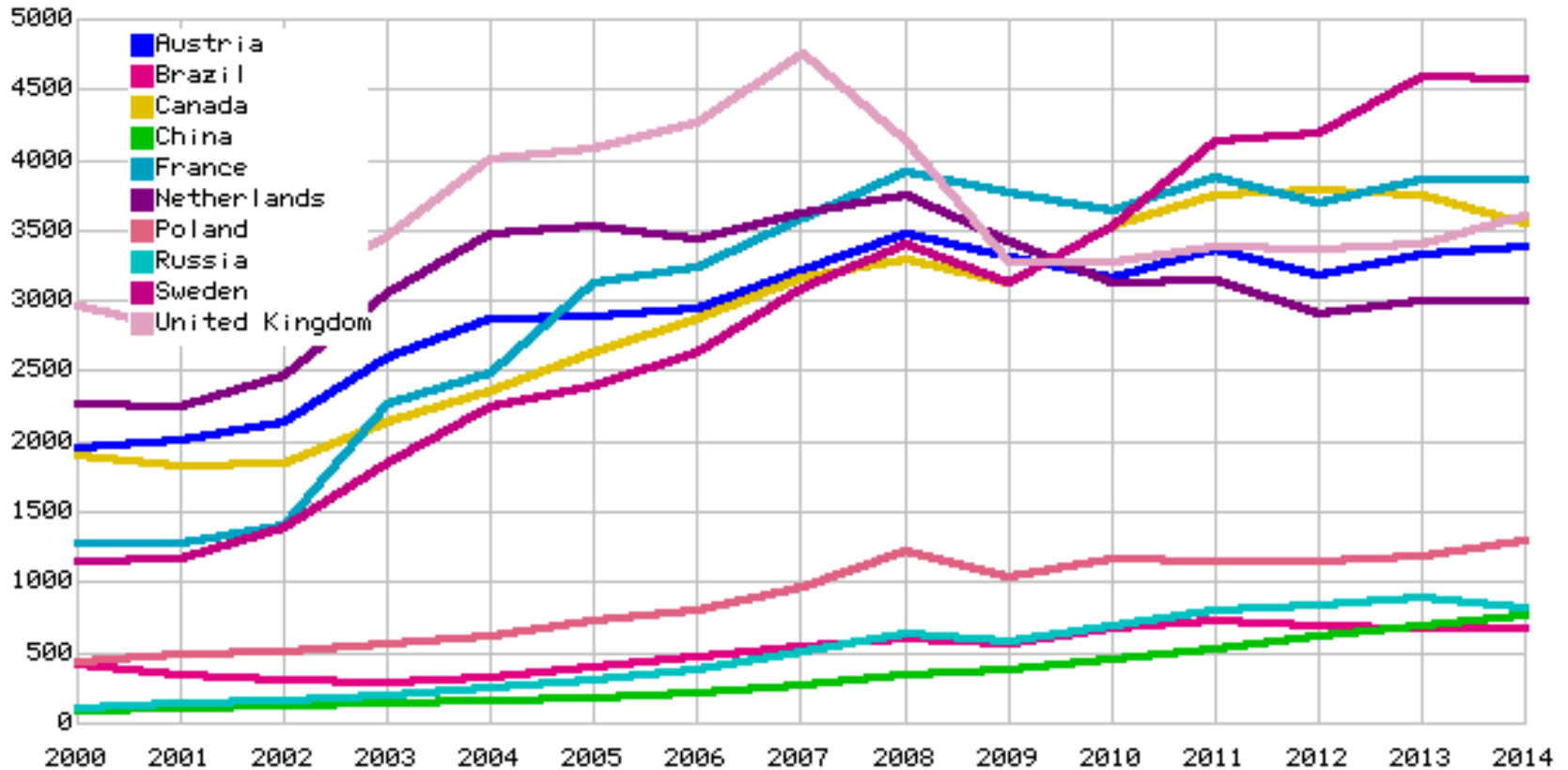


Source: International Labour Organization, ISIC Rev.2

ILOSTAT <http://www.ilo.org/ilostat/>



# Earnings per employee per month - nominal

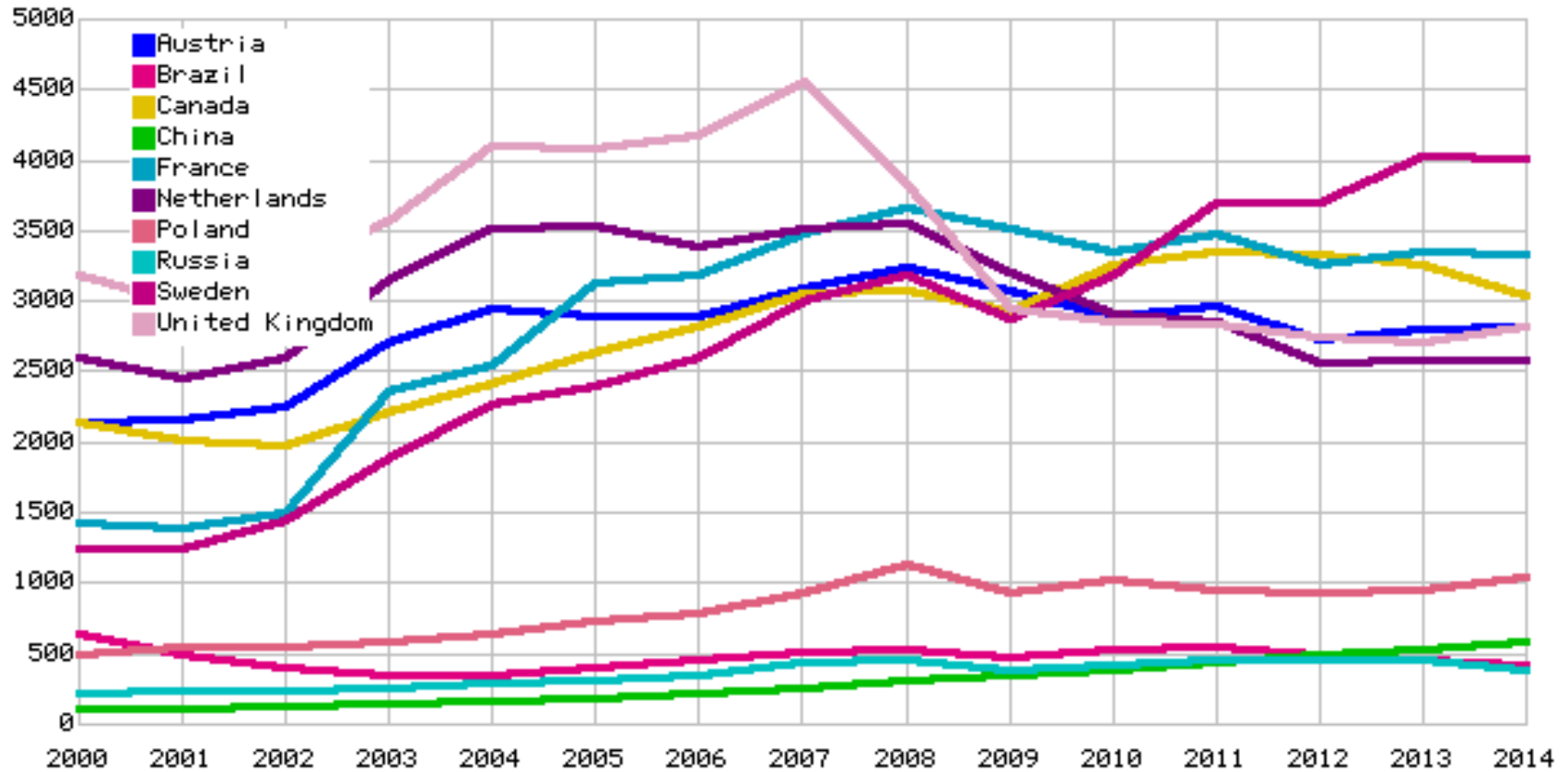


US\$, Largest countries by GDP for which data is available

Source: International Labour Organization - ILOSTAT



# Earnings per employee per month - real

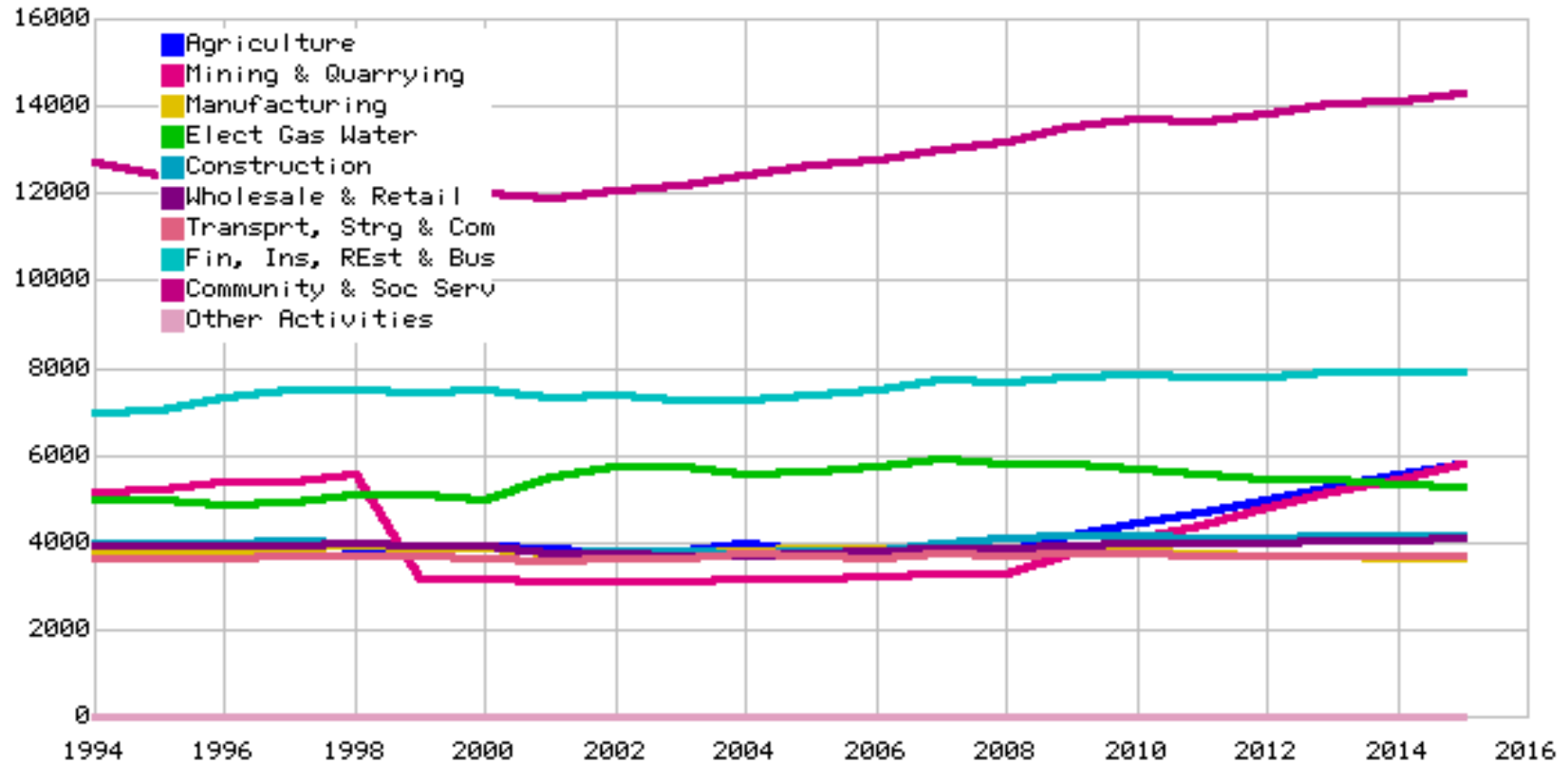


US\$, Largest countries by GDP for which data is available.

Source: International Labour Organization - ILOSTAT



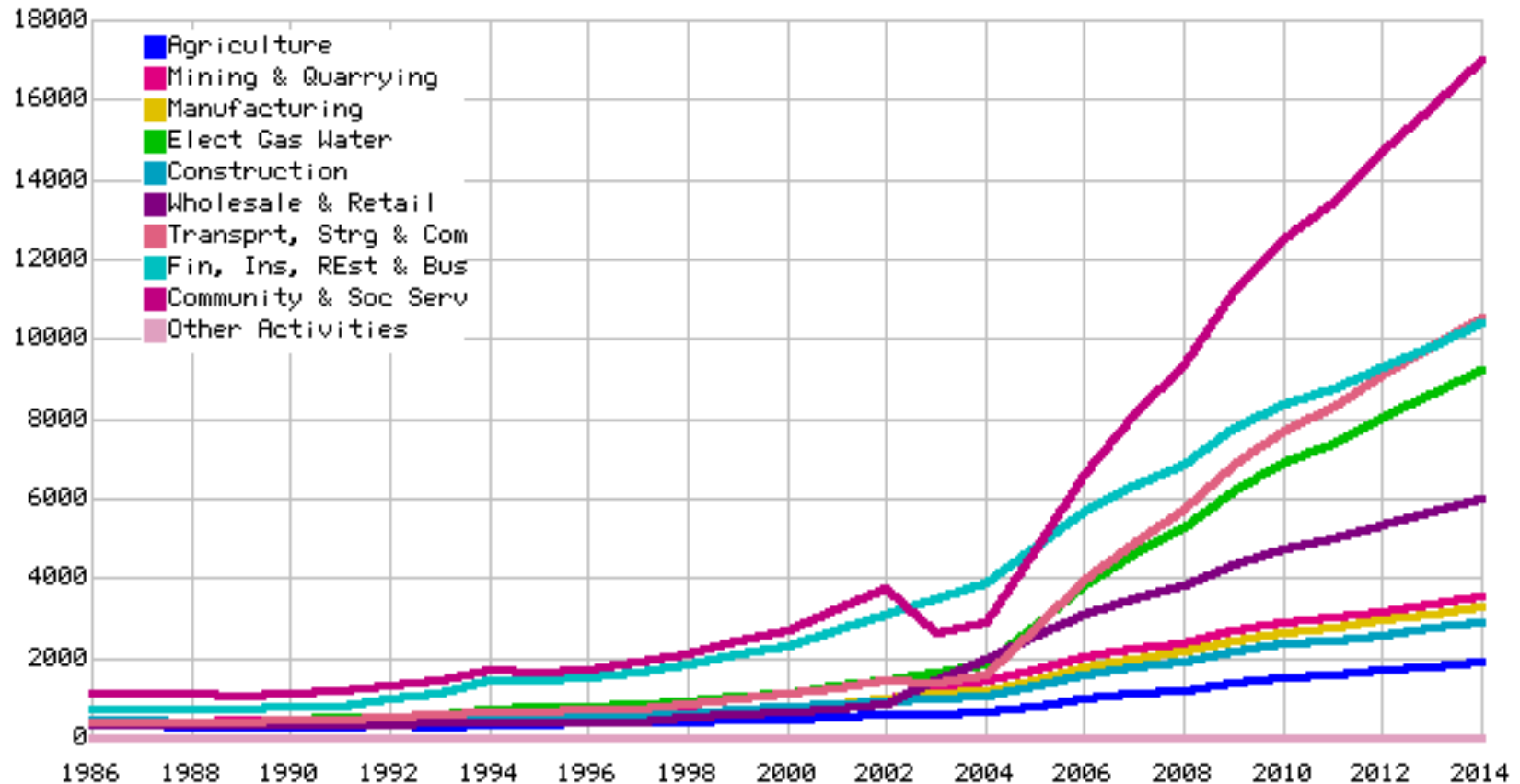
# Earnings per month - Canada



CAN\$, deflated by CPI.

Source: International Labour Organization - ILOSTAT

# Earnings per month - China

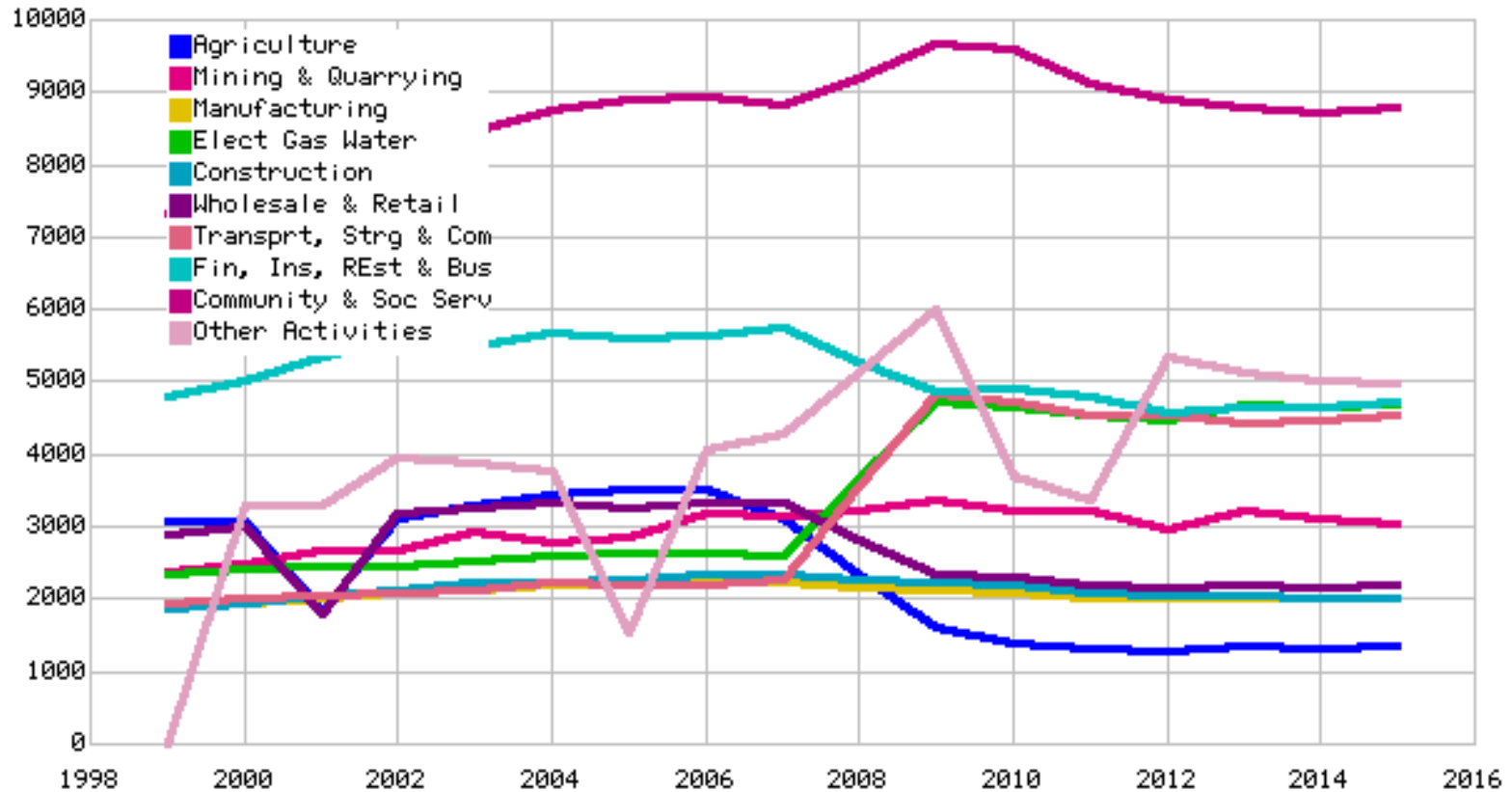


RMB, deflated by CPI.

Source: International Labour Organization - ILOSTAT



# Earnings per month - United Kingdom

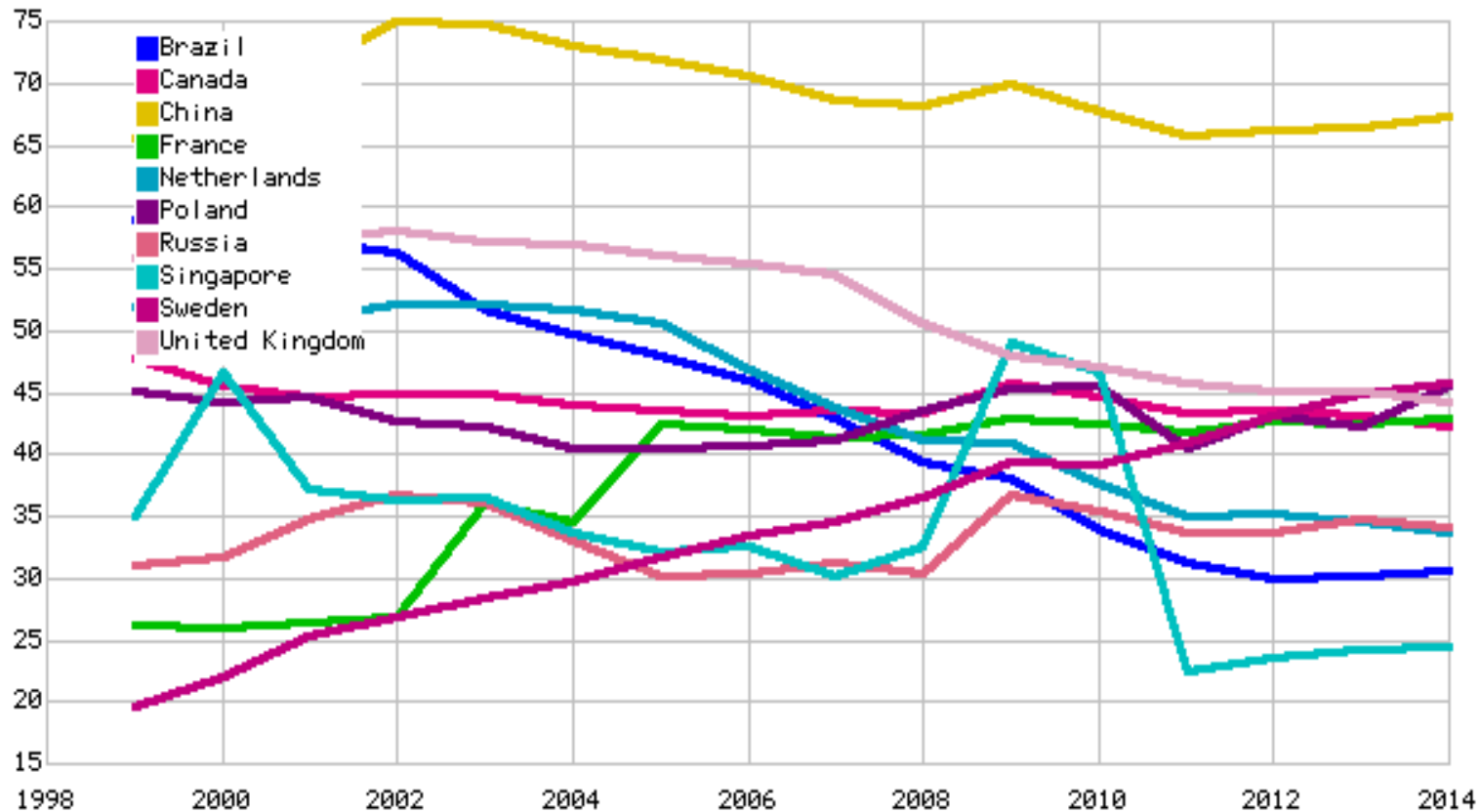


UKP, deflated by CPI.

Source: International Labour Organization - ILOSTAT



# Wage share of GDP - 10 larger economies



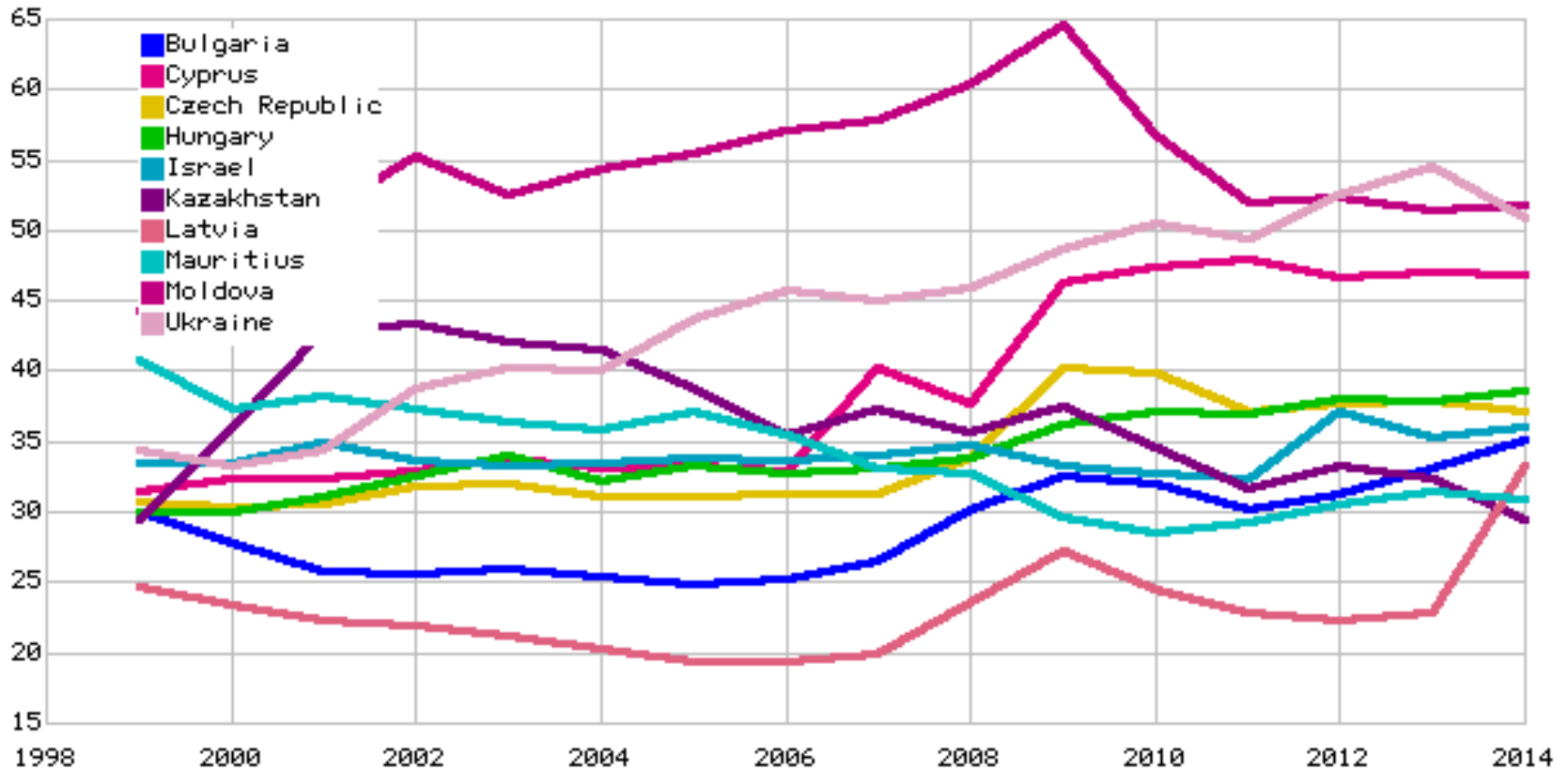
(Earnings x Employment) / GDP, where data available.

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

