The world economy in 2025
Macro-Economic Projections and the Role of Asia

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Motivation

• What we don’t know about world trade at the 2025 horizon:

• Detailed composition of exports:
  ▫ A given product exported by a given country to a given market
  ▫ Large churning of exporters
  ▫ Specialisation by product unpredictable
Motivation

• Evidence on extensive and intensive margins of world trade at HS6 level
  ▫ Intensive: increase in the value of existing trade flows
  ▫ Extensive positive: value of new trade flows
  ▫ Extensive negative: value of disappeared trade flows
• 200 countries trading in 5,000 products bilaterally
• Overwhelming proportion of zeros
• Restriction to cases where a country declares exporting a given product to at least one market
Motivation

• Intra-EU excluded
• 75 million potential trade flows in 1994
  ▫ 3.7 million non zeros
• 100 million potential trade flows in 2007
  ▫ 5.5 million non zeros
• Corresponding to:
  ▫ 3.3 million new flows…
  ▫ 1.6 million destroyed flows…
  ▫ … over the period
Motivation

• Conclusion
  ▫ Huge uncertainty on detailed trade flows
  ▫ But 90% of the increase in the value of world trade over the period is in the intensive margin (existing flows)

• Bottom line:
  ▫ Detailed evidence can hardly be predicted
  ▫ But the broad picture *can* be predicted

• Tools available to forecast the intensive margin
Motivation

• What do we guess about world trade at the 2025 horizon?
  ▫ New big players
  ▫ Shift of gravity centre of the world economy toward Asia
  ▫ Profound changes in demand patterns
  ▫ Changes in relative prices mirroring demand patterns and scarcity issues
Motivation

• Need to address these macroeconomic issues using a structured representation of the world economy
  ▫ World economy split in regions
  ▫ Economies split in sectors
  ▫ Inter-sectoral relationships
  ▫ Demography
  ▫ Technical progress
  ▫ Resource constraints
  ▫ Behavioural patterns
Methodology

• General equilibrium
  ▫ All markets represented in a consistent way
  ▫ Relations between integrated markets
  ▫ Consistent representation of sectors and regional structures with trade relations
  ▫ Microeconomic behaviour driving macroeconomic variables
  ▫ Relative prices variations in response to structural changes driving microeconomic behaviour
Methodology

• World level
  ▫ Decisions made in the EU impact prices, demand, supply elsewhere
  ▫ Demand for steel in China impacts profitability of car industry in Europe
  ▫ Resources constraints are global (energy, other primary resources)
  ▫ Markets are integrated
Methodology

• Dynamics
  ▫ Growth depends on:
    • Labour force
    • Investment and capital accumulation
    • Technical progress
    • Resource depletion
  ▫ Economic agents adjust over time their behaviour to signals received
Methodology

• Beyond terminology a key issue:

• *Exogenous*: provided to the model by external information (e.g. Russian population in 2025)

• *Endogeneous*: determined by the internal consistency of the model (e.g. price for steel in China in 2012)
Implementation

• Based on simulations performed with Mirage
• By Yvan Decreux, Christophe Gouel, Hugo Valin
• Mirage:
  ▫ Large scale CGE model of the CEPII
  ▫ Also used by various international institutions and universities
  ▫ Relies on GTAP data for economy, ILO data for population etc.
Implementation

• Assumptions
  ▫ 20 regions of the world eco with specific focus on emerging world
  ▫ In each region, the economy is decomposed in 26 sectors
  ▫ Energy prices derives from IEA model (scenario « Business as usual »)
  ▫ All other prices adjust endogenously
  ▫ Price drive demand and supply reactions
  ▫ Invested capital is sticky
  ▫ Imperfect competition in services and manufacturing
  ▫ Perfect competition in agriculture
Implementation

- *Demographic* projections
- ILO until 2020
- 2020-2025: use last 2020 growth rates
- Two notions of population:
  - Total population: important: dynamics of consumption
  - Economically active population: labour dynamics
Implementation

- Projections of economic growth
- IMF: Medium term projections until 2013
- CEPII: Longer-term projections until 2050:
  - Based on Solow-type growth model
  - Labour and capital dynamics with accumulation and savings
  - Technological catch up
  - Education effect on productivity
Results

- We now detail forecasts for:
  - Demography and world population shares
  - Economic growth and world GDP shares
  - Total consumption and consumption patterns (mirrored by relative prices)
  - Trade and market shares
Results

• Demography
• 1.5 billion extra inhabitants in 2025 (+23%)
  ▫ 97% in developing countries
  ▫ 95% in cities
Demography: Changes in world population shares
Results

• Economic size
• World economy size should almost double
• +93 % for world GDP
• China:
  ▪ Second largest (single) economy in 2025 behind USA
  ▪ With a 2025 GDP equal to 2/3 of EU and 1/2 of US
  ▪ With a 2025 GDP equal to the US one in 2000
• India
  ▪ The sixth largest economy in 2025
  ▪ Similar to France
Economic size: GDPs

The world economy in 2025

Billion constant dollar (2007)

USA
Japan
Germany
China
UK
France
Brazil
Korea
India
Russia

Economic size: GDPs
Changes in world consumption

• Larger share of industry and services (world income increases)
• 2025 horizon: + 85% global consumption
• Patterns change
• Emerging countries boost demand for industrial goods and construction
• Goods with rising prices (scarcity) are less consumed
  ▫ Energy (resource)
  ▫ Fishing: fisheries exhausted, limits to farms
  ▫ Forestry: deforestation
  ▫ Agricultural goods: land use
Changes in expenditure composition with income
Change of sectoral consumption (1)
Index ratio to the aggregate consumption (2007=1)
Change of sectoral consumption (2)
Index ratio to the aggregate consumption (2007=1)
Changes in world trade

- **Determinants:**
  - Changing demand patterns
  - Competitive advantage
  - Endowment in skilled labour
- **Factors of resilience**
  - Investment capacities to adjust world demand shifts
  - Distance to buoyant markets
  - Protection
Changes in world trade

• Trade relations will be rebalanced
• The South will export 43% of the world merchandise in 2025 …
• … against 33% today.
• Asia and EU positions as world trade leaders will be inverted
• China will become the first (single) exporter in the world by 2012 and will account for 14% of world exports by 2025
Change in world market shares

<table>
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<tr>
<th>Share of world exports (%)</th>
<th>0</th>
<th>10</th>
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<td>2025</td>
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</table>

Legend:
- USA
- European Union
- Rest of the World
- China
- Japan
- India
- Brazil
- Russia
Conclusion

• 2025
  ▫ +23% population
  ▫ +93% economic activity

• Depletion of resources and environment
  ▫ Maritime resource
  ▫ Forests
  ▫ Land use

• Shift of the centre of the world economy toward Asia
  ▫ Emergence of new economic players
  ▫ Multipolar world

• Change in trade distribution
Thank you
Demographic projections (1)
Demographic projections (2)

<table>
<thead>
<tr>
<th>Region</th>
<th>Total population</th>
<th>Economically active population</th>
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<tbody>
<tr>
<td>Rest of developing Asia</td>
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<td>Rest of Europe</td>
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<tr>
<td>Russia</td>
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<tr>
<td>SADC</td>
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<tr>
<td>USA</td>
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<tr>
<td>North Africa</td>
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<tr>
<td>Oceania</td>
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<tr>
<td>Oil Middle East</td>
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<tr>
<td>Other industrialised countries</td>
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<tr>
<td>Rest of Africa</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2015</th>
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<th>2025</th>
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<tr>
<td>Population growth (%)</td>
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</table>

The world economy in 2025

Lionel Fontagné
GDP growth projections (1)
GDP growth projections (2)
Production price (1)
Index (2007=1)
Production price (2)
Index (2007=1)
## 20 regions

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<tr>
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<td>Oceania</td>
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<td>Other Industrialised countries</td>
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