Geopolitical shocks and Inflation: Critical raw materials

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Green and digital technologies rely on many **critical raw materials**

Minerals used in transport (kg per vehicle)

- Electric car
- Conventional car

Minerals used in power generation (kg per MW)

- Offshore wind
- Onshore wind
- Solar PV
- Nuclear
- Coal
- Natural gas

Emerging minerals (kg per vehicle):
- Copper
- Lithium
- Nickel
- Manganese
- Cobalt
- Graphite
- Zinc
- Rare earth
- Silicon
- Molybdenum
- Others

Source: IEA (2022).
Production of critical raw materials is concentrated in a handful of countries, notably China.
Mounting geopolitical tensions raise concerns about the security of supply of critical raw materials.
**Export restrictions** on critical raw materials have increased substantially.

Source: Global Trade Alert (as of 24 June 2024), UN Comtrade, US draft list of critical supply chains and authors’ calculations. US Executive Order 14017 of 14 February 2021, with products defined on the basis of 8 or 10-digit HS codes and assigned to the critical minerals and materials for energy and ICT sectors.
Geopolitical tensions may lead to further export restriction.

Note: Critical products are a broader category than critical raw materials.
What is certain
Export restrictions can be introduced quickly
Developing a new mine takes more than a decade

What are the known unknowns
How will geopolitical tensions affect the supply of critical raw materials?
Will the speed of green transition, and hence the demand for critical raw materials, change?
How fast can innovation find ways of substituting away from some critical raw materials?

What it implies for inflation
Trade in critical raw materials as a source of inflationary shocks