

Export-import

- India's merchandise exports shrunk 12.7% on a year-on-year (YoY) basis to \$34.66 billion in April a six-month low.
- Imports fell sharper by 14% to \$49.90 billion during the same period.
- As reported by The Hindu earlier, the fall in imports and exports is not limited to India as other countries too have recorded similar declines

What are the current underlying trends in global trade?

- The essential headwinds observed with respect to global trade are weaker economic activities worldwide, inflation and tightening of monetary policies, disrupted supply chains because of the Russia-Ukraine conflict, and financial instability because of the collapse of several financial institutions in advanced economies.
- The ongoing conflict in Eastern Europe continues to have a bearing on the prices of energy, food, and commodities.
- The collapse of financial institutions such as the crypto exchange FTX (November 2022) alongside three banks in the U.S. since March (the Silicon Valley Bank, Signature Bank, and First Republic Bank), and the loss of confidence in Credit Suisse added

to the troubled scenario

How are these related to trade?

- To put it simply, in a period of economic slowdown, international trade, both exports, and imports, falls sharply as overall demand for goods and services stands reduced.
- There is an aversion for discretionary spending which particularly weighs on some imports and postponable expenditures.
- It is in this light that the exports of engineering goods, gems, jewelry, chemicals, readymade garments, and plastics, along with petroleum products, contracted or grew slower in 2023.
- Similarly, inflation, the uneven rise in prices especially of essentials such as food and energy erodes the purchasing power of an individual.
- Additionally, inflation also affects the flow of capital to a developing country.
- "Global demand is not looking good from markets like the EU and the US

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Deepfakes

- Deep fake is something that a machine has produced using deep learning and which contains false

information

- “Manipulation of hyper-realistic digital representations of our image and voice.
- China has responded the strongest. It has banned deep faked visuals whose creators don't have permission to modify the original material

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Railway Safety

- The Indian Railways carries nearly 15 million passengers every day now compared to the peak of 23 million a day the year before the COVID-19 pandemic.
- India has an ambitious plan to improve its rail infrastructure, and in the year 2023- 24, ₹2.4-lakh crore has been allocated for capital expenditure.
- Accidents per million train kilometers have fallen over the last decade, but poor maintenance of tracks and the rolling stock, and overstretched staff are problems that the Railways can no longer camouflage with glitzy facades.
- Safety measures including anti-collision systems are expanding, but evidently not at an adequate pace.
- In 2021, the Prime Minister announced that 75 new semi-high-

speed trains labeled Vande Bharat would be started over 75 weeks, and several have been started already.

- There has also been attention to passenger amenities, but nothing is more important than safety.
- The accident in Balasore should prompt India's railway development plans onto the right track. Speed should be strived for, but safety is paramount.
- Sabotage is not ruled out in the Balasore accident, which will be probed by the Central Bureau of Investigation

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Higgs boson

- Last week, physicists working with the Large Hadron Collider (LHC) particles masher at CERN, in Europe, reported that they had detected a Higgs boson decaying into a Z boson particle and a photon.
 - This is a very rare decay process that tells us important things about the Higgs boson
- What is a Higgs boson?**
- An electron is a subatomic particle that has mass
 - The stronger a particle's interaction with the Higgs boson, the more mass it has. This is why electrons have a certain mass, protons have more of

it, neutrons have just a little more than protons, and so on. A Higgs boson can also interact with another Higgs boson

- The Higgs boson is a type of boson, a force-carrying subatomic particle.
- It carries the force that a particle experiences when it moves through an energy field, called the Higgs field that is believed to be present throughout the universe.
- For example, when an electron interacts with the Higgs field, the effects it experiences are said to be due to its interaction with Higgs bosons.
- Since all the matter in the universe is made of these particles, working out how strongly each type couples to Higgs bosons, together with understanding the properties of Higgs bosons themselves, can tell us a lot about the universe itself
- This significance is even now not high enough for the teams to claim that a Higgs boson decays to a Z boson and a photon with 100% certainty, reflecting the rarity of the decay pathway.
- Now, why do physicists go to such lengths to spot the decay in the first place?
- This is because the Standard Model predicts that the Higgs boson will take this path 0.1% of the time if its

mass is 125 billion eV/c² (a unit of mass used for subatomic particles).

- The Standard Model has made many accurate predictions but it can't explain what dark matter is or, in fact, why the Higgs boson is so heavy

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Paleo diet

- The paleo diet urges us to mimic our prehistoric ancestors' food choices.
- In practice, this means eschewing dairy products, cereals, pulses, and processed sugar, and consuming vegetables, fruit, nuts, pasture-raised meat, and wild-caught seafood.
- The paleo diet proponents contend that by eating this way, we will lose weight and reduce our risk of chronic diseases.
- The roots of the paleo diet can be traced to the 1950s, but it owes its current popularity to a book by Loren Ordain called The Paleo Diet: Lose Weight and Get Healthy by Eating the Food You Were Designed to Eat, the first edition of which was released in 2001.

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