

SANSKRITI IAS EDITORIALS HIGHLIGHTS

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GS 3: SCIENCE AND TECHNOLOGY

THE HINDU PAGE: 07

How a star with an extreme magnetic field could prove space is not empty

The work could pave the way to show that the 'nothingness' of space is actually a complex and active medium, and help scientists refine their maps of the universe

Vasudevan Mukunth

Quantum physics has made numerous strange predictions, and scientists have checked and confirmed many of them. But one of the strangest ones persists unresolved. In the 1930s, the German physicists Werner Heisenberg and Hans Heinrich Euler proposed that empty space is not really empty. Instead, they predicted that in the presence of a magnetic field, the vacuum of space would behave like a crystal, changing the properties of light passing through it.

The trouble with testing this prediction – called vacuum birefringence – is that the magnetic field has to be extraordinarily strong.

In a study published in *Nature* on August 5, astronomers from Australia, Canada, Japan, South Africa, Taiwan, and the U.S. reported it had observed such birefringence using two satellites and a telescope in Australia, almost confirming the prediction at long last.

The work could prove 'nothingness' is actually a complex and active medium and also potentially help scientists refine their maps of the universe.

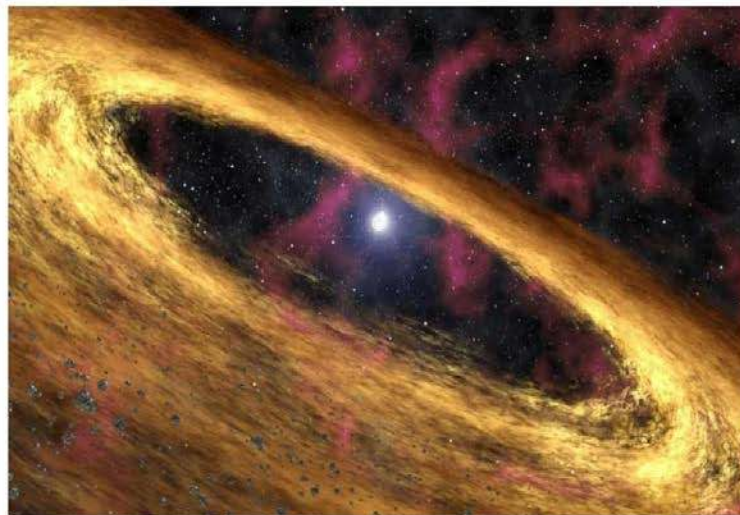
Staggering numbers

In classical physics, a vacuum is absolute nothingness. But in quantum electrodynamics (QED) – which is a theory in quantum physics – a vacuum is a soup of virtual particles: pairs of electrons and anti-electrons that constantly pop in and out of existence, and so quickly that they cannot be observed.

Normally, these virtual particles have a negligible effect on light. But when a magnetic field nearby becomes strong enough, it changes how the short-lived charged particles can move, so they respond differently to light depending on the direction in which its electric field is vibrating. This part of space will then behave like a calcite crystal when light passes through it, splitting it into different paths depending on its electric field. (As an electromagnetic wave, light consists of electric and magnetic fields travelling through space.)

For vacuum birefringence to become noticeable, the magnetic field has to be around 88 trillion times stronger than the earth's magnetic field, and more than 500 million times as strong as the

largest powerful magnets in the world's latest science experiment, the CERN supercollider. These are staggering numbers far beyond the abilities of current technologies, so physicists have been looking for proof of vacuum birefringence in outer space, where objects called magnetars generate the



An artist's impression of the magnetar 4U 0142+61. In May 2022, the IXPE satellite had hinted at vacuum birefringence around this dead star, NASA.

universe's most extreme magnetic fields. Sometimes the core of a dead star can collapse to form a neutron star. Neutron stars with powerful magnetic fields are called magnetars.

Railroading polarisation

The international team focused its attention on one magnetar named 1E 1547.0-5408, located 14,700 lightyears away. As independent experts Ekaterina Sokolova-Lapa and Joern Wilms wrote in a commentary accompanying the team's paper, "1E 1547.0-5408 belongs to a rare subclass of magnetars that also emit pulses at radio wavelengths".

By combining X-ray and radio frequency measurements, then, the team could piece together the geometry of the magnetar's magnetic field.

If the vacuum of space were truly empty – as in classical physics – the X-rays from the magnetar would reach the earth with a low degree of polarisation. But the team found the opposite: the NASA Imaging X-ray Polarimetry Explorer (IXPE) satellite in particular detected very high levels of polarisation, up to 80% in some instances, which is the smoking gun of vacuum birefringence.

As X-rays leave the magnetar and move through the surrounding space, QED predicts that their electric field will have to lock itself into one of two directions – a condition that unmagnetised space does not impose – thus polarising the light.

Since these directions are defined by the direction of the magnetic field, the X-rays' polarisation is effectively railroaded along the magnetic field lines. And as the X-rays travel away from the magnetar, their polarisation will stay fixed even as the magnetic field becomes less and less able to 'hold on'.

According to the team, the amount of polarisation dropped as the energy of the X-rays increased, which QED predicts as well. The team was also able to elucidate that the magnetar rotated along an axis that aligned almost perfectly with its magnetic poles, like a top spinning upright – a detail that informed the team's models of how the X-rays from the magnetar would look with and without vacuum birefringence.

The models that did not account for the phenomenon fit substantially worse with the telescope data than those that included it.

Direct observation

Other than IXPE, the team had also used the Neutron Star Interior Composition Explorer instrument onboard the International Space Station and the Murrumbidgee radio telescope in Australia.

The finding takes a big step towards bolstering space's character as a complex medium that both gravity and magnetism can manipulate.

On a final note, the team wrote in its paper that its next goal is "to more

directly probe the nature of the ... polarisation". And this, the commentary noted, requires "coordinated astronomical campaigns that observe multiple magnetars and cover a wider part of the electromagnetic spectrum".

The current finding is indirect because the astronomers recorded polarised light and inferred from that that it had passed through extremely magnetised space.

Not yet proven

As Sokolova-Lapa and Wilms put it, the high polarisation reported in the study only proves vacuum birefringence if the team's model of the magnetar's geometry is correct. If, instead, its axis of rotation and magnetic poles are further apart, the X-rays could have been polarised by plasma on the magnetar's surface.

A paper published in *The Astrophysical Journal* by researchers from Italy, Spain, and the U.K. has already raised doubts about the alignment.

Physicists are also interested in the vacuum resonance: a distinctive dip in the polarisation – from one of the two allowed directions to the other – at a specific energy level. The international team itself reported a dip but said it was too noisy to be dispositive.

But one way or another, the dark voids between the stars we see when we look up are far from dead, buzzing with activity.

(mukunth.v@thehindu.co.in)

THE GIST

In the presence of strong magnetic fields, a phenomenon called vacuum birefringence can make the vacuum of space behave like a crystal and polarise light passing through it

Using NASA's IXPE satellite, NICER instrument, and Australia's Murrumbidgee radio telescope, researchers observed highly polarised X-rays from magnetar 1E 1547.0-5408, matching predictions made by quantum electrodynamics (QED)

The evidence depends on models of the magnetar's geometry, and some scientists suggest the observed polarisation could instead be caused by plasma near the star; further observations of more magnetars are needed for a direct confirmation

GS 2: POLITY THE HINDU PAGE: 08

The politics of calling minds 'Naxal'

In his Independence day address this year, Prime Minister Narendra Modi declared that his government had eliminated the threat of armed Naxals/Maoists, but added that 'dimaagi Naxals (brainy Naxals)' remain. These dangerous individuals, he said, had been elevated to policy advisers by his predecessors. Now, they look for opportunities to 'drag society onto the wrong path' and 'steer the nation's youth' away from the 'mainstream effort' to turn India into 'a developed nation.' He asked Indian citizens to 'identify and isolate' such individuals among them.

Defining the enemy

Is Mr. Modi the first leader of a democratic nation to declare thoughts to be crimes, without resort to innuendo or euphemism, in a formal address to the nation? A search for other instances came up empty.

But has he not used terms such as 'urban Naxal' before? Is 'dimaagi Naxal' any different? I believe it is a significant escalation.

First, while he has used the term 'urban Naxal' in campaign speeches and in Parliament, he has not previously used it in an Independence Day address to the nation.

Second, 'urban' implies an alleged connection to 'rural' Naxals: urban individuals are alleged to be facilitating crimes attributed to Maoist insurgents. The actual charges may be fabricated, and individuals might in fact be criminalised for their ideology, that is, for thought crimes. But the government did not admit this. In this case however, Mr. Modi declared the end of rural Naxals, and then formulated the category of 'dimaagi Naxals'. It is their 'dimaag' alone, cut off from any alleged ties to armed Maoist insurgents, that he declares to be criminal.

Had Mr. Modi chosen to say 'Naxali dimaag' or 'Naxali soch' (thinking), it might be taken to mean Maoist ideology. But 'dimaagi Naxal' does not identify a specific ideology as dangerous.

'Dimaag' itself is the deadly weapon. In Hindi/Urdu, *dimaag* is used to mean the brain, head, mind, consciousness, intellect, and intelligence. To use your *dimaag* is to 'use your head' – that is, to think out of the box, to reason, to think critically, to use your intelligence for resourceful problem-solving.

Mr. Modi is notorious for asking Indians to identify terrorists by what they wear – '*kapde se pehchano*' (Identify/judge someone by their clothes) – a dog whistle for Muslims wearing lungis, skullcaps or hijabs. Now, he is saying '*dimaag se pehchano*' – identify anti-nationals by how they think.

Operation Demonise Dimaag began a decade



Kavita Krishnan

Author of
'De-democratisation,
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The new
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ago in 2016, with the attempt to incite hatred and violence against Jawaharlal Nehru University students and teachers. For six years the regime has declared student protesters (such as Umar Khalid, Sharjeel Imam, Gulfisha Fatima, Natasha Narwal, Devangana Kalita) to be terrorists, without a trial, without much push-back from the judiciary and the press. Emboldened, it deployed the same tactic against students protesting examination paper leaks, calling them 'dehshatgarh' (terrorists). But stretched to such lengths, this tactic snapped – and backfired. It 'leaked' the key to the regime's propaganda codes. All of a sudden, all too many people could see the pattern plainly. The government rewarded mindless obedience, reverence and adulation for Power. Apply your mind, your *dimaag*, to demand democratic accountability from Power, and it would "identify and isolate" you as a terrorist, an *andolanjeevi* (parasite feeding on protests), a cockroach.

Echoes of an old template

The timing is telling. Mr. Modi is attacking *Dimaag* when he is still smarting from his debacle at the hands of young students armed only with wit and imagination. He wants to prevent a recurrence. Ironically, since he calls his critics 'Naxals' (Maoists), he seems to be embracing the Chinese template for thought crimes.

A Chinese Communist Party memorandum, of 2013, warns that Internet forums, "lectures, seminars, university classrooms, class discussion forums, civilian study groups" as well as "open letters and... petition-signings to vocalise requests for political reforms, improvement of human rights" represent a threat to the nation. Why? Because "if we allow any of these ideas to spread, they will disturb people's existing consensus on important issues like which flag to raise, which road to take, which goals to pursue".

That is what the student protests did: demolish Mr. Modi's claim to represent a monolithic popular consensus, challenged only by a tiny gang of unpopular critics. That consensus must be restored.

Mr. Modi identified 'dimaagi Naxals' as the foremost internal threat to national security. Is his plan for "a huge voluntary force of civil defence" intended to deal with them?

The examples Mr. Modi cites are unconvincing. Defending refineries from aerial bombardment and banks from cyber attacks cannot be left to 'civilian volunteers' – these would need enhanced air defence and cyber-security systems comprising experts. We already have the Civil Defence Act 1968 and the Home Guards to organise civilians for non-combat roles. Is Mr.

Modi's proposal inspired by his ideological gurus from a century ago?

In 1931, Dr. B.S. Moonje, Hindu Mahasabha leader and close associate of Rashtriya Swayamsevak Sangh (RSS) founder K.B. Hedgewar, visited Italy to meet the fascist leader Benito Mussolini. Mussolini was notorious for civilian militias such as the 'Voluntary Militia for National Security', colloquially known as the Blackshirts, which unleashed violent terror against political rivals, union leaders, journalists and writers. In 1934, Moonje and Hedgewar met to discuss the need for a Hindu-supremacist militia to achieve the "ideal" of "a Hindu as a dictator... like Mussolini or Hitler of the present day Italy and Germany". In 1935, Moonje explained that his aim was to also militarise Hindu society so as to completely choke off any other expressions of social life – "There will thus be no longer any distinction between the citizen and the soldier, between the civilian and the man in uniform."

In 1939, Moonje expressed the hope that the RSS "might be useful and handy" in the task of preparing such a Hindu-supremacist militia. Who would it fight? Not so much the British Raj or potential Japanese invaders, but "internal enemies" – i.e., Muslims and the Congress wing of the freedom struggle. Moonje specifically visualised a conflict between "the mutually antagonistic and clashing ideologies", i.e., between "the Rifle" (symbolising the Hindutva militia) and "the Charka" (symbolising Gandhi). Nearly a decade later, Nathuram Godse wielded the Rifle that killed Gandhi.

The road ahead

Today, a woman who proudly declared herself a 'fan of Godse' and said the very name 'Gandhi' is like a '*gaali*' (a swear word), has been elevated to the leadership of the Bharatiya Janata Party's social media cell. As has a man who used foul abuse against Congress Parliamentary Party chairperson Sonia Gandhi, and the "b****y voting right" for Muslims and oppressed castes as the "root cause" of India's problems. Meanwhile, online and offline pro-Modi mobs as well as police are hounding student protesters, especially girls and women. The pretext is that the students, as a last resort, raised profane slogans at Mr. Modi himself, which turned out to be the only thing to move him to remove his corrupt Minister.

Will these mobs, together with the moral policing mobs and the anti-Muslim lynch mobs, be elevated to the ranks of Mr. Modi's 'civilian defence force'? This is a real danger, given that his supporters believe he is the 'Hindu Hitler' of Moonje's and Hedgewar's dreams.

GS 3: DISASTER MANAGEMENT THE HINDU PAGE: 08

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The new labelling is an escalation of the government's attitude towards dissent and democracy

GS 2: POLITY

THE HINDU PAGE: 10

OBC creamy layer and the income test

Why is the Centre finding the ruling difficult to implement? What exactly did the Supreme Court rule on the creamy layer? Why is the Centre seeking clarification? What are its concerns over implementing the ruling? What happens next in the creamy layer case?

EXPLAINER

Abhinav Lakshman

The story so far:

The Supreme Court has said it will consider setting up a Bench to hear the Centre's application seeking clarification over its March 11 judgment on the income test component of the OBC creamy layer exclusion criteria. Retrospectively implementing the judgment on the income/wealth test for OBC creamy layer determination is "extremely difficult" and will cause a "cascading effect" in the settled services from 2012 till now, with the impact extending to "all categories, including the Unreserved category", the Centre said in a batch of applications.

Why does the Centre call the ruling 'extremely difficult' to implement?

The Supreme Court on March 11 delivered its judgment in a batch of cases pending for close to a decade, relating to how the Department of Personnel and Training (DoPT) should interpret the crucial income/wealth test, which is one of the layers through which the "creamy layer" (or relatively socially and economically forward) among the Other Backward Classes communities is excluded from availing the benefit of reservation.

The cases that eventually came before the court involved claims by at least 50 OBC candidates who had appeared in Civil Services Examinations (CSE) since 2015 and were excluded from consideration for an OBC-reserved post after the DoPT classified them as part of the creamy layer solely based on their parents' income.

The Supreme Court found that the DoPT was incorrectly applying the income test for this category of OBC candidates and directed the government to create supernumerary posts for the OBC candidates to whom the income test had been applied with what it called "hostile discrimination," and allot them services according to their ranks in their respective CSE years.

What are the criteria for exclusion?

The creamy layer concept among OBCs emerged from the Supreme Court's 1992 ruling in the *Indra Sawhney* case, which paved the way for the implementation of OBC reservations. The idea was to exclude OBC candidates whose families had accumulated social and economic privileges over the years from the benefits of reservation. Such candidates came to be described as belonging to the "creamy layer".

To clarify which categories of OBC candidates would fall under the creamy layer, the DoPT issued an Office Memorandum (OM), a guiding charter in September 1993, laying down the criteria for exclusion.

The OM prescribed several categories of exclusion, including children of senior constitutional, judicial, government and armed forces officers.

Besides this, the DoPT also prescribed a crucial income or wealth test, applicable to people in the salaried professional class or engaged in trade; people holding plantations, vacant land and/or buildings in urban areas; and people whose parents held posts in Central or State PSUs where the equivalence of these posts with government service posts had not yet been established. It is this last category, that is, children of parents holding posts in Central or State PSUs or in private employment, that the court delivered its March 11 judgment.



GETTY IMAGES

What was the problem with the 1993 OM and 2004 letter?

Under the 1993 DoPT OM on the income/wealth test for OBC reservations, a candidate would be considered part of the creamy layer if their parents' gross family income exceeded the prescribed limit for three consecutive years, or if they possessed wealth above the exemption limit prescribed under the Wealth Tax Act, 1957. The income limit, which was ₹1 lakh when the 1993 OM was issued, was revised several times and now stands at ₹8 lakh, with the last revision having come in 2017. Importantly, the 1993 DoPT OM specified that income from salaries and agricultural land should be excluded when applying the income/wealth test, with income from other sources such as property, business, or capital gains being considered.

However, in October 2004, the DoPT issued a letter meant to clarify issues that had arisen in interpreting the 1993 OM. In paragraph 9 of this letter, the DoPT took up the issue of how to calculate income for the income/wealth test for OBCs whose parents were in Central or State PSUs where equivalence of posts had not yet been established. The DoPT seemed to suggest that income from salaries was to be counted to determine if the income was above the prescribed threshold for three consecutive years. The threshold was subsequently revised to ₹8 lakh per year in 2017.

In the 2016 ruling, the Division Bench noted that until the government establishes equivalence between the posts of Central or State PSUs and government services, the income/wealth test must continue to apply equally.

How did the Supreme Court interpret the income test?

The March 11 *Union of India vs Rohith Nathan* judgment said that OBC candidates whose parents work in PSUs or the private sector, where the government has yet to establish equivalence of posts with government services, cannot be treated differently from OBC candidates in other categories under the creamy layer exclusion criteria.

Significantly, the Supreme Court ruled that the income/wealth test component of the exclusion exercise must be seen and operated as a "residual filter", adding that salaries and agricultural incomes had been consciously left out while applying this test under the 1993 OM. The court found that while the 1993 OM was clear about excluding income from salaries from the calculation of the income/wealth test, the 2004 letter appeared to call for its inclusion in circumstances that were

not clearly specified.

The court went on to note that the interpretation of the 1993 OM, read with the 2004 letter, had led to "hostile discrimination" between the children of those in government service and those in PSUs or private employment.

Without establishing equivalence of posts, the income test, including salaries, was being applied to rule out OBC candidates whose parents were not in government service, while OBC candidates whose parents were in government service were being subjected to a test that did not include salaries. This is what the court had described as "hostile discrimination".

The court said, "Treating the children of those employed in PSUs or private employment, etc., as being excluded from the benefit of reservation only on the basis of their income derived from salaries, and without reference to their posts (whether Group A or B, or Group C or D) would certainly lead to hostile discrimination between parties who are similarly placed and would amount to equals being treated unequally."

The court had directed the Centre to implement this reading of the income test within six months by creating supernumerary posts for the petitioners, who were OBC candidates in the Civil Services Examinations and had been excluded from the creamy layer on account of their parents' salaries alone. The parents were working in public sector undertakings or the private sector.

Did the Centre try to implement the Supreme Court's directions?

The Supreme Court's ruling in the *Rohith Nathan* case was a watershed moment for this category of OBCs, who had said that the issue had been pending for more than a decade. As per the Supreme Court's direction, the Union government was supposed to issue further instructions in pursuance of the court's reading of the income test component – on how the supernumerary posts must be created and how the existing strength of the services must be adjusted to accommodate them.

According to government records, the Union Ministry of Personnel, Pensions and Public Grievances wrote to the Ministry of Social Justice and Empowerment on June 3, seeking advice on implementing the directions of the *Rohith Nathan* judgment. The Personnel Ministry told the Social Justice Secretary that the Allocation of Business Rules provide for the Social Justice Ministry to formulate policy on reservations and that it was therefore seeking

"clarification/action" in this regard. The Personnel Ministry further sought "advice on instructions to be adopted or notified" by the DoPT.

As of August 19, the Centre's position before the Central Administrative Tribunal in a matter identical to that of the aggrieved OBC candidates in the *Rohith Nathan* case was that it was in the process of implementing the March 11 judgment.

However, a few days later, the DoPT filed an application highlighting why it was seemingly impossible to follow the Supreme Court's directions and the issues that were arising in implementing them retrospectively. In this application, the Centre said that despite its efforts to create the supernumerary posts as called for in the *Rohith Nathan* judgment, it was facing an increasing number of claims for adjustment, issues of seniority arising from such adjustments, and concerns that even this exercise could be "unfair" to a different category of OBC candidates and candidates of "all categories, including the unreserved category".

The Centre noted that since the March 11 judgment, 22 other judgments have been issued by courts applying the principles laid out in *Rohith Nathan*. In addition, the DoPT said that 12 new cases have been filed seeking reconsideration of OBC non-creamy layer status under the *Rohith Nathan* principles, by candidates who had not previously approached the courts.

However, OBC candidates who spoke to *The Hindu* argued that the Centre's reluctance to implement the directions does not appear to make sense. These candidates have asked why the DoPT had not mentioned these larger issues with implementation earlier.

These candidates have noted that the older reading of the income test – the one that the court said practised "hostile discrimination" – was being applied only by the DoPT, and that too arbitrarily.

What happens next?

Along with the application that the DoPT has filed setting out the difficulties it was facing in implementing the *Rohith Nathan* judgment's directions, especially retrospectively, the Union government had filed a separate application, seeking that it be allowed to continue allotting services as per the old reading of the income test for CSE 2025 candidates, and seeking clarification on how to implement the directions. The Centre said that more than 950 CSE 2025 candidates were about to start their Foundation Course and that they had been recommended based on the old reading of the income test.

The DoPT argued, in this application, that the retrospective application of the judgment was specifically running into the issues mentioned above.

The Supreme Court has now said it will consider setting up a Bench to hear the Centre's request for clarification on how to implement its directions and its request to allow the allotment of services to CSE 2025 candidates to continue as settled for the time being.

However, in the other application filed along with this, the Centre has asked for clarification on how to implement the direction overall. It has further argued that there might be some value in including income from salaries, as in some cases it might be the "sole intelligible differentia" between two OBC candidates from "similar social backgrounds". It has also argued that, in the absence of salary consideration, some cases might lead to OBC candidates with parents earning up to ₹1 crore being considered non-creamy layer.

Now, the question is how far will the Supreme Court's March 11 verdict reach?

THE GIST

The Supreme Court's March 11 ruling held that salary income should not be used to exclude OBC candidates from the creamy layer where their parents work in PSUs or private employment without established equivalence of posts with government service.

The Centre says retrospective implementation could have a cascading effect on settled services, while triggering fresh claims from candidates who were previously denied OBC non-creamy-layer status.

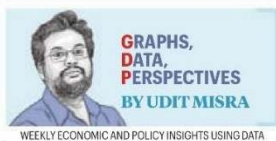
The Supreme Court will consider setting up a Bench to hear the Centre's plea for clarification on implementing the ruling, including its application to CSE-2025 candidates.

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• ECONOMY

Worries behind India's robust GDP, inflation data

Six months after the war in West Asia broke out, the Indian economy appears to be holding up. But several risks to growth remain.



OVER THE past three financial years, the Indian economy recorded a GDP (gross domestic product) growth rate of more than 7%, alongside a sharp drop in the inflation rate. Many analysts expected the US-Israeli War on Iran to dent this trajectory, owing to factors like an increase in the prices of crude oil and a reduction in foreign investments. Making matters worse was the prospect of high temperatures thanks to El Niño, which threatened to hit food production.

The growth rate was expected to fall, while the inflation rate was expected to skyrocket from 2% in 2025-26 to near 6% — from the lower end of RBI's "comfort zone" to its upper limit. On May 11, Prime Minister Narendra Modi even appealed to Indians to tighten their belts by stopping gold purchases and reducing fuel consumption, among other measures.

But macroeconomic data shows India hasn't fared as poorly as feared. On Monday, GDP data for Q1 will be released and is expected to yet again cross the 7% mark.

Resilient economy?

Six months since the war began, the GDP growth rate, inflation rate, and current account balance do not show the impairment initially feared.

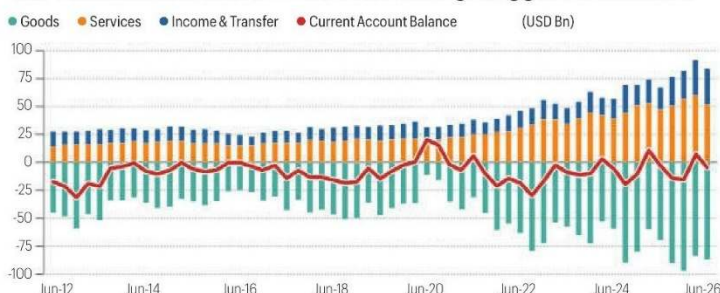
A research note from HSBC states: "Growth remains high, inflation remains low, and the current account deficit surprisingly contained. Headline numbers across the board feel more goldilocks than crisis."

"Goldilocks" refers to a term analysts used at the start of the year to describe the economy, referring to an optimal state of affairs. The term, however, quickly lost favour once the West Asia war exposed persistent weaknesses in the Indian economy, best captured by the sharp fall in the rupee's exchange rate. As such, it makes sense to examine whether the economy has genuinely returned to a "Goldilocks" scenario or if the data hides risks.

On GDP growth

In a detailed note, HSBC economists led by Pranjul Bhandari have explained both scenarios — why India's macros did not worsen as much as expected, and the

1. Services trade balance and remittances offsetting rising goods trade deficit



SOURCE: CEIC, HSBC

triggers that could make the picture worse.

HSBC's 100-indicators of growth data: base points towards India's GDP growing by 7-7.5% during the first quarter (April, May and June). SBI's research team has gone a step further, projecting an 8% growth.

What's driving this? Some of it can be ascribed to the 125-basis point cut in the repo rate between December 2024 and December 2025. The repo rate is the interest rate at which the RBI lends money to commercial banks. A lower repo rate makes it cheaper for banks to borrow money from the RBI and, in turn, cheaper for individuals and businesses to borrow from commercial banks. Cheaper loans incentivise economic activity, thus boosting growth. Often the "transmission" of a repo rate cut takes a couple of quarters to show up as faster GDP growth.

Another factor could be the effect of cuts in Goods and Services Tax in 2025. Lower tax rates reduced prices and improved people's purchasing power, resulting in higher economic activity. Yet another factor noted by HSBC economists is the rise of India's exports to the US as Donald Trump's tariffs were removed. Lastly, evidence suggests that manufacturers front-loaded production as they were anxious about future energy availability.

On inflation, CAD

First, while the monthly retail inflation rate — the rate at which the general price level went up over the year — has moved up since October, it is still well-contained and near the RBI's target level of 4% (see chart). Often, inflation remains muted be-

Heavy lifter

HSBC researchers argue that it is the services sector that is saving India the blushes as of now.

Accounting for 55% of India's GDP, the sector heavily affects where growth and inflation will land and how external deficits will be contained.

cause growth is muted. In this case, however, inflation has remained muted despite supply pressures, as well as demand holding up fairly well.

Secondly, the current account refers to the net amount of money flowing in or out of India as it trades (exports and imports) goods and services with the world. Typically, when the GDP is growing fast, or when imports are getting costlier, the country imports more than it exports, leading to a trade deficit. It translates into the outflow of billions of dollars.

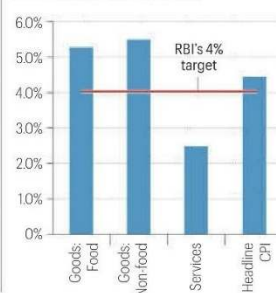
What India often earns from exports of services (like software services) as well as from remittances from Indians working abroad is not enough to make up for the dollars India shells out for imports, in general. The net result is called a current account deficit (CAD). But despite fast growth and costlier imports, India's CAD too has remained fairly muted. "The headline c/a deficit is low at 0.3% of GDP as per RBI's aggregated monthly data, and not showing signs of excesses," note HSBC economists (see chart).

Reading the numbers

While macro indicators look counter-intuitively robust on the face of it, risks to growth and inflation persist.

On growth, HSBC researchers state that a lot of the credit growth (increased loans) has been driven by factors such as "(t)he new government credit guarantee scheme for small firms, the rise in working capital needs spurred by higher commodity prices, and the proliferation of gold loan growth (which can sometimes be seen as

2. Inflation contained



an indicator of stress)". Moreover, the front-loading of manufacturing could be followed by a lull, and agricultural growth could weaken if the El Niño strengthens.

On inflation, the overall benign levels hide fairly divergent trends. HSBC Research stated that food inflation and non-food goods inflation are already averaging 5.4% (year-on-year) in July (see chart). What is holding back the headline inflation from surging is that services have remained "remarkably low at 2.5%". Therein lies the risk. "Low services inflation data is keeping headline (rate) contained. If it rises from here, reflecting growth better, headline inflation numbers could rise quickly," notes HSBC.

Similarly, on CAD, a closer look at the chart shows that it is low as of now because even though the goods trade deficit is growing, rising services exports and remittances are offsetting the rise in the trade deficit. HSBC states, "Given the uncertainties around the impact of AI on services exports growth, one needs to be careful on how long services can fund a rising goods deficit. Already, services exports have grown at a softer pace this year."

Few expected India to survive this phase of global disruption without taking a big hit. HSBC researchers argue that it is the services sector that is saving India the blushes as of now. Accounting for 55% of India's GDP, the sector plays a crucial role in determining where growth will land, how long inflation will remain low, and until when external deficits will be contained. If services inflation goes up and services exports take a hit, the RBI may be forced to raise interest rates, which could dampen growth.

GS 3: DISASTER MANAGEMENT INDIAN EXPRESS PAGE: 10

The mountains have sounded a warning, we ignore it at our peril

AS A frequent visitor to the Himalayan region in India, Nepal and Bhutan over four decades, I have witnessed the relentless spoliation of this majestic but fragile mountain zone. The eternal is becoming episodic as the snows covering the high peaks melt at an accelerated pace from global warming, exacerbated by indiscriminate ecological degradation. Despite persistent and alarming warning signs, human greed and cupidity have continued to provoke the fury of the mountains, visiting death and destruction on communities residing in their valleys and along river banks.

Nepal is the latest victim of catastrophic flash floods, sweeping down from mountains just across the border with Tibet, caused by what is technically termed a glacial lake outburst flood (GLOF). A mountain river upstream may be blocked by a portion of a glacier breaking away or by an avalanche, thereby forming a lake. When the loose banks of this lake burst under pressure, then a huge volume of water hurtles downstream. It is reported that about 20 km east of the Rasuwagadhi Nepal-Tibet border crossing, a massive avalanche brought surging waters and sheets of mud down the Lhunde River, sweeping away villages, settlements, and a large number of people downstream. The avalanche may have been triggered by a 4.4 magnitude earthquake recorded in the area just minutes earlier.

The border crossing connects Nepal's Rasuwa district with Gyirong county on the Tibetan side. Chinese media report similar loss of life and property across the border. The flash floods spread south from Rasuwa to Dhading, Gorkha and Nuwakot districts in Nepal, and the impact will be felt across the border in India. At least six hydropower

projects downstream have been wiped out, causing a loss of 405 MW of power capacity, constituting 12 per cent of the national total. This is a loss of power that Nepal can ill afford. Recovery and rehabilitation may take several years. Some video reports on this Himalayan tsunami are most disturbing. One sees a huge wall of water and mud tossing aside buildings, cars and frightened people with an elemental fury — a reminder once again of how utterly defenceless humanity can be before the raw power of nature.

Rasuwigadhi is the most important border crossing between Nepal and Tibet for trade as well as tourism, including for pilgrim tours to the holy Kailash-Mansarovar. It is reported that over 160 Indian pilgrims are missing. The hotels and guest houses in which they were staying were washed away in the flood. Cross-border trade and traffic are likely to remain suspended for the foreseeable future.

India has been quick to respond to the disaster in a friendly neighbouring country, sending urgent medical and food supplies and specialised rescue teams.

There are 48,000 sq km of glaciers spread over the Himalaya. Another 18,000 sq km are located in the Karakoram. Researchers have mapped over 5,000 glacial lakes in the Himalaya, of which about 500 are classified as "hazardous" or "significantly hazardous". There have been at least 388 recorded instances of GLOF so far in the Himalaya-Karakoram mountains but their frequency has been increasing in recent years.

In August 2025, there was a GLOF event in Dharali in Uttarakhand on the route to Gangotri, which caused large-scale loss of life and property. One should also re-



SHYAM SARAN

call the 2013 Kedarnath flash flood caused by a combination of torrential rains and a GLOF at the Chorabari lake to the north. The surge of flood waters and debris washed away towns and settlements along the highway to Gangotri. In the immediate aftermath, there was talk of how the human carrying capacity of these remote pilgrimage places should be assessed and strictly observed. No construction 500 metres from the river banks was to be permitted hereafter. But no lessons have been learnt.

Hotels and guest houses have mushroomed once again on the river banks. During the pilgrimage season, Kedarnath may have a daily turnover of 15-20,000 pilgrims. Even at 18,000 feet elevation, there are prefab guest houses, restaurants and dhabas with gas cylinders being transported back and forth for heating and cooking. There are no proper arrangements for waste management. The Uttarakhand government is reportedly considering making Badrinath and Kedarnath open for pilgrimage the whole year round.

Hydropower development continues apace in the Himalayas despite the risk of GLOF and earthquakes. This is known to be an active seismic zone. In October 2023, a GLOF from the South Lhonak lake in Sikkim completely washed away the 1200

MW Teesta-III hydropower dam and power station. Earlier in 2021, a sudden flash flood triggered by a glacial collapse in Chamoli in Uttarakhand wiped out the Rishiganga Hydropower project and blocked the associated Chamoli tunnel.

Despite this mounting and compelling evidence, major hydropower projects continue to be pur-

sued across the mountain zone, creating mounting risks to life and property. But these are being cynically ignored.

There are several rivers that rise from the Tibetan plateau and flow through Nepal and India. There have been flash floods on some cross-border rivers that have caused large-scale damage on the Indian side.

The sharing of information and early warning between India and China has never been regular and has been subject to the state of their political relations. We now have, potentially, an even greater threat facing India from across the border with Tibet. China has begun constructing the gigantic Medog dam at the great bend of the Brahmaputra River just across the border. It is slated to deliver 300 billion kWh of power annually and will be several times larger than the largest hydro project in existence anywhere in the world, the Gezhouba on the Yangzi River, which is rated at 15.6 billion kWh of power annually. Chinese scientists have warned that the project sits very close to the Paizhen Fault, a major fracture in the Earth's crust, making it vulnerable to seismic events. Should there be a major earthquake in the project vicinity, there could be a massive discharge of flood waters and debris into India's Northeast.

The Himalayan glaciers have been a source of life-sustaining rivers for the entire Indo-Gangetic plain, populated by over 500 million people. It is this life-source that we are despoiling and for which our succeeding generations will pay the price. The mountains have sounded a loud warning of a cataclysm that lies round the corner. We ignore it at our collective peril.

The writer is a former foreign secretary and was ambassador to Nepal from 2002 to 2004

Despite compelling evidence, major hydropower projects continue to be pursued across the mountain zone, creating mounting risks to life and property. But these are being cynically ignored

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Unlocking soft power with Saptadhara



C V ANANDA
BOSE

PRIME MINISTER Narendra Modi introduced Saptadhara from the Red Fort on August 15. This concept includes seven streams of national strength that can help India achieve its Viksit Bharat goal. One of these is soft power. Coined by Joseph S Nye Jr, soft power is about influencing others through admiration instead of coercion. India has a wealth of soft power, including a long civilisational history, rich cultural diversity, and a strong tradition of knowledge. Yoga connects people worldwide with India. Ayurveda provides a philosophy of wellness. Our spiritual centres draw people seeking peace, and our festivals celebrate harmony and renewal. Indian literature, music, dance, and cinema transcend languages. Our cuisine is recognised globally. Handicrafts and handlooms reflect the skill and creativity of generations. India's democracy, scientific progress, digital systems, space programme, and global diaspora further enhance its global reputation.

However, India lacks a coherent system to turn its cultural assets into influence, economic value, and sustainable livelihoods. Having cultural wealth doesn't guarantee global influence, and appreciation won't ensure income for artistes or knowledge-holders. The Saptadhara vision offers a chance to fix this gap.

Each district should create a soft power and creative economy plan. This plan should identify local artists, artisans, writers, and cultural workers. It should connect them to training, technology, finance, intellectual property protection, local markets, and international opportunities. Experienced practitioners should mentor young apprentices. The guru-shishya system should receive modern support while staying authentic. Schools and universities should introduce students to India's cultural diversity.

Soft power can drive significant employment. Areas like tourism, cinema, music, fashion, and education can create millions of jobs. The government should enable this growth. It should invest initially, set standards, connect markets, and be a first customer when possible. Cultural workers should not rely solely on grants but should be empowered to earn regular incomes.

A national mission can aim to create 1 crore new jobs in tourism, arts, media, and the creative economy. Districts should prepare soft-power employment plans. Indian missions abroad should facilitate market access and promote Indian culture and businesses. Success should be measured by real livelihoods created and opportunities gained. Missions can help creators secure opportunities for touring, publishing, and international collaboration. Young people must be central to this movement. They should become creators and innovators. By blending heritage with technology, young Indians can share their stories and cultures with the world through digital platforms and new industries.

India does not need to create soft power; it should enhance, connect, and protect it. The path forward should be clear: Kala (art) to kaushal (skill), kamai (earning) to rozgar (employment), bazaar (market) to vishwa prabhav (global influence). Saptadhara can ensure that those who preserve traditions receive dignified livelihoods and that youth inherit both identity and opportunity. This way, India's cultural voice will confidently reach the world.

India does not need to create soft power; it should enhance, connect, and protect it

The writer is former governor of West Bengal

GS 3: AGRICULTURE AND ENERGY

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Atmanirbharta in fuel must strengthen, not undermine, India's food security



FROM PLATE TO PLOUGH

BY ASHOK GULATI
AND TANMOY ADHIKARI

SUGAR PRICES have spiked sharply within weeks. The all-India modal retail price climbed from around Rs 45/kg on July 24 to about Rs 65/kg by August 24 — a nearly 44 per cent increase in a month. The government has blamed traders and millers for hoarding and threatened strict action. While speculative behaviour may have amplified the spike, the deeper reality is a tightening of the supply situation just before the festive season.

Three supply-side pressures seem to have caused a "perfect storm". First, opening stocks in the current sugar year (October to September) were significantly lower (5 MT) when compared to the situation last year (8 MT). The lower carry-over stocks reflected weak production in the previous season and left little room to absorb another supply shock.

Second, sugar production in 2025-26 fell short of expectations. The initial estimate was around 34.3 MT, but the government has now revised it to 30.6 MT, citing damage from red rot and top borer. About 27.35 MT of sugar had been produced by June, implying that another 3.25 MT would have to be produced during July-September to reach the revised estimate. Yet the production in these three months averaged only around 0.38 MMT over the previous six seasons. We expect a further downward revision of sugar production — between 28 and 29 MT.

Third, the ethanol programme diverted about 2.75 MT of sugar even when supplies were tight. The more important issue is that ethanol blending has progressed much



ILLUSTRATION: C R SASIKUMAR

faster than feedstock supplies. Ethanol blending remained largely stagnant for years, reaching only 1.53 per cent in 2013-14, before accelerating to around 5 per cent by 2019-20 and ultimately 20 per cent in 2025-26. The feedstock supplies could not keep pace with the blending programme. No wonder energy policy started competing with food markets.

The timing is particularly difficult. The festive season is approaching, when sugar demand typically rises, while fresh cane supplies will not arrive in significant quantities until mid-October. The market must, therefore, rely on existing stocks for many more weeks. Thin inventories are pushing up sugar prices, which could go even higher if timely action is not taken.

In a more open economy, a production shortfall would normally be corrected through price signals triggering imports and changes in consumption. But India's sugar sector remains heavily regulated: Sugarcane pricing, sugar sales, imports, exports and ethanol feedstock allocation are decided by the government. When the government controls every step of the sugar/ethanol value chain, the resulting spike in sugar prices also has to be owned by the government. It is a classic case of policy failure.

The government's response so far has been to allow 1 MT of duty-

free raw sugar imports. We feel this is too little, too late. Our calculations suggest that the government needs to import at least 3-4 MT of refined sugar and increase supplies in the open market before and during the festive season. The import duty on refined sugar (100 per cent) must be slashed to zero or just 5 per cent.

The second response should be to temporarily alter the ethanol feedstock mix. Sugar-based ethanol should be drastically reduced, with greater use of alternative feedstocks. FCI is overflowing with rice stocks far in excess of buffer norms. The government can allocate more from those stocks and minimise the use of sugar for ethanol. But FCI must charge at least the procurement price of rice from ethanol plants, if not its full economic cost.

However, maize is the best option as a feedstock for ethanol. It doesn't guzzle as much water as rice or sugarcane. The government is already using maize as a primary feedstock for ethanol. Although maize production has been increasing over the last decade or so, our productivity levels hover around 3.5 tonnes/ha — way below the US's 11 tonnes/ha. Further use of maize for ethanol without a commensurate increase in production will put pressure on maize prices and, consequently, on poultry meat,

eggs, and milk, where it has been the main feed. Thus, shifting from sugar to rice or maize does not eliminate the food-fuel trade-off. The only way is to generate large surpluses of maize by raising its productivity. Would India allow GM maize, which drives US yields?

The third response could be either to directly import ethanol, when domestic supplies are putting pressure on food prices, or reduce the blending from 20 per cent to about 15 per cent.

The deeper lesson is that India's ethanol programme needs a little rethink and recalibration. We need to know the net energy balance with different feedstocks. Rather than rigidly allocating the amount of ethanol from sugar, rice or maize, oil marketing companies could be given flexibility to choose the most economical source, subject to safeguards for food security, farmers and the environment. The government should focus on strategic buffers and food-security safeguards rather than managing every feedstock allocation.

The immediate response is clear: Bring in enough sugar to rebuild the stock cushion, temporarily shift ethanol away from sugar, use FCI grain only when genuine surplus exists, and retain imported ethanol as a safety valve. Maize-based ethanol would save water and would be more benign to the environment. But we need to invest more in raising its productivity. India's ethanol programme has made major strides, and going from 5 per cent blending in 2019-20 to 20 per cent in 2025-26 is putting huge demand on its feedstocks. Overall, we feel that fuel self-reliance should never force a choice between food and fuel. Atmanirbharta in fuel must strengthen, not undermine, India's food security: food must remain the higher-order priority.

We hope the Modi government can undertake a 360-degree evaluation of its ethanol programme and recalibrate the policy design so that it does not push up food prices.

Gulati is distinguished professor and Adhikari a research assistant at ICRIER. Views are personal

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