

The Long-term Impact of Trade Wars and 'Make in India' on the Indian Economy



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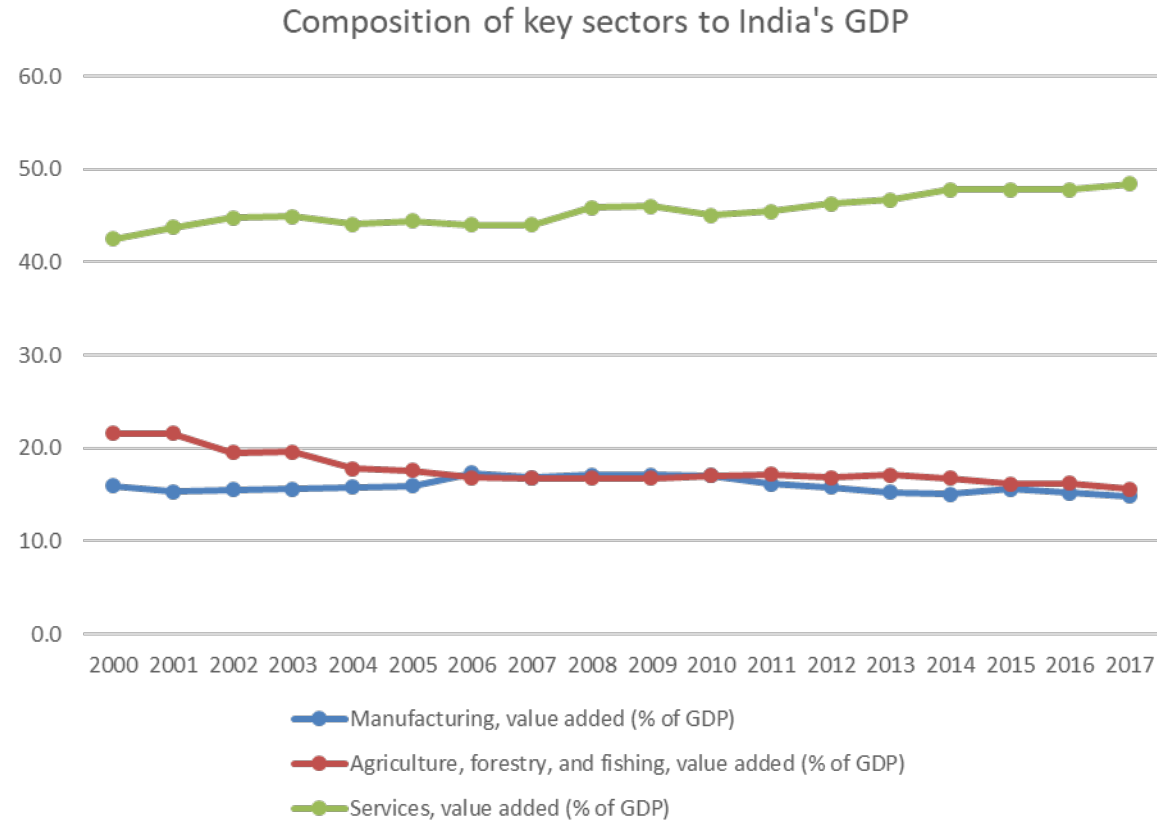
Outline

- Context
- Research Agenda and Key Questions
- Model and Simulation Scenarios
- Results
- Conclusions and Future Research

Context

- Make in India – government’s flagship industrial programme since 2014 that involves business-friendly policies to reduce transaction costs and improve doing business in India, while involving a fair degree of protectionism against imports
- Three key objectives
 - 1) Make India a manufacturing hub
 - 2) Increase manufacturing's share in the country's GDP from 16 percent to 25 percent by 2022
 - 3) Create 100 million jobs

Why Make in India ?



Over 2000-2017, share of Services value added increased by 6%, while that of Agriculture declined by 6%

Share of manufacturing value added in GDP has been 16% on an average over 2000-2018

Make in India, launched in 2014, was aimed at increasing the share of manufacturing value added in India's GDP from about 16% currently to about 25% by 2022

25 Sectors targeted – heavy focus on FDI and investment promotion



in 2016-17, India attracted the highest ever FDI inflow of 60 billion USD. In 2017-18, India's FDI equity inflow was worth \$33.75 in the first half of the fiscal year, but compared to that year, April-December 2018-19 FDI flows declined by about 7%

The liberalization of FDI policy allowed for over 50 percent of the investments in 25 sectors.

Context

- Make in India is a mix of proactive and reactive policies
- Reactive more recently due to external factors , e.g. Global Trade War (mainly involving US and China), which was non-existent when this program was launched
- Trade War scenario also involves protectionism both against India and also by India
- Combined impact of both on the economy could be ambiguous, and not yet studied

Research Agenda and Key Questions

- Research agenda – to model an economy wide combined impact of both policies in the Indian context, based on a global economic model that incorporates macroeconomic data, trade flows, and input-output tables
- Key Questions :
- How has the Global Trade War, affected the Indian economy ? – Macroeconomic and Sectoral impacts
- What are the AV tariff equivalent of Make in India programme on the specific targeted sectors ? Are they having a positive or adverse impacts when combined with a Trade War scenario ?
- What does this inform policymakers so far ?

Model and Simulation scenarios

- **Model** – based on GTAP 9 database - Baseline 2017 (static), 33 GTAP sectors, 47 individual countries allowing for CO₂ emissions, inequality and food security
- **Simulation scenario** –

Scenario 1 (Trade War)- Tariff hikes by US and retaliations that have already occurred in 2018 (“Implemented tariffs”)

- In this scenario, for 33 GTAP sectors, 11 individual countries (USA, China, Japan, Korea, Indonesia, India, UK, Turkey, Canada, Mexico and France) raise their tariffs against each other.
- The additional tariff rates range from 10% to 140% (Turkey imposed this high an additional tariff on US Beverages and Tobacco Products exports to it)

Model and Simulation scenarios

- **Data Sources (among others)**

- 1) India - based on 18 May 2018 notification to the WTO)
 - 2) US - based on USTR Documents including September 2018 Press release on finalizing tariffs on US \$ 200 billion worth of imports from China.
 - 3) China – Ministry of Commerce PRC September 2018 Announcement on Tariffs on Certain Goods Originating in the United States
- Note, as of 2018, United States accounted for US\$51.6 billion (16% of total Indian exports) and China accounted for \$16.4 billion (5.1%) respectively (1st and 3rd largest export destination for India)

Where does tariff escalation take place ?

GTAP sector code	India to US	<i>tms</i> (%)
36	Metals nec	50.0
38	Motor vehicles and parts	22.1
35	Ferrous metals	13.4
41	Machinery and equipment nec	5.5
40	Electronic equipment	4.9
30	Wood products	4.6
34	Mineral products nec	3.7
37	Metal products	3.3
33	Chemical,rubber,plastic prods	0.1
	US to India	
4	Vegetables, fruit, nuts	50.0
10	Animal products nec	50.0
37	Metal products	32.4
35	Ferrous metals	9.4
33	Chemical,rubber,plastic prods	4.7
39	Transport equipment nec	1.1

Note : these are not actual tariffs, but power of tariff shocks *tms* variable in GTAP, which may be higher or lower than the actual percent point increase in tariffs.

As an example, to eliminate an ad valorem rate of 20% , the power of the tax changes from 1.2 to 1.0: a change of -16.67%

Model and Simulation scenarios

- **Scenario 2 (Make in India)** –
- 14 Make in India sectors that concords with 21 GTAP sectors (tariff shock in terms of AV equivalent)
- **Data Source** – Customs tariff as on 01-07-18, Central Board of Indirect Taxes & Customs
- Tariff shocks (reactive) are calculated as power of tariff shocks for 20 GTAP sectors for 46 trading partners; total of 920 shock statements
- To capture the proactive investment shock, we also incorporate a policy shock of capital stock growth by 2% (based on average growth of gross capital formation of 6.6% over 2014-2017 (Make in India period) compared to that over 2010-2013

Model and Simulation scenarios

- **Scenario 3 (Make in India and Trade war) –**
- We analyse the combined effect of both on welfare, output, trade, and employment, both for the overall economy, and for specific sectors that are likely to be affected by both policies.
- This gives us a sense of whether trade war makes it better or worse for the success of Make in India, in the short to medium term, as this is a static model.
- It also provides a sense of whether both aspects of Make in India (proactive and reactive policies) have a similar impact on the economy, and whether some elements could be changed to make it more successful

Model and Simulation scenarios

Make in India sectors	HS code 2012	Average Tariff %)	GTAP sector code
Automobiles	87	28.1	38
Aviation	88	8.3	39
Chemicals	28,29	9.5	33
Pharmaceuticals	30	10.0	33
Defence manufacturing	87,88,89,93	14.6	38,39,33,35,37,41
Electrical machinery	85	8.8	41
Food processing	16,17,18,19,20,21,22	48.5	19,20,21,22,23,24,25,26
Textiles and garments	50,51,52,53,54,55,56,57,58,59,60,61,62,63	23.4	27,28
Leather	41,42,43	10.6	29
Mining	25,26,27	8.2	15,16,17,18
Railways	86	10.0	39
Automobile components	87	28.1	38
Renewable energy	85	8.8	41
Electronics systems	85	8.8	40

An example of tariff shocks modelled – GTAP sector motor vehicles *mvh* initial tariffs for China's imports of automobiles (including parts) into India is 12.2% which escalates to 28.1%, so calculated power shock is 14.2

Results – Scenario 1- Trade War (impact on India)

	<i>EV (US \$ billion)</i>	<i>Real GDP (%)</i>	<i>Volume of goods exports (% change) qxwreg</i>	<i>Volume of goods imports (% change) qiwreg</i>	<i>Investment (% change) qcgds</i>	<i>Terms of Trade (tot)</i>	<i>Trade Balance (US \$ billion)</i>
India	7.5	0.06	-1.07	0.54	0.69	0.35	-11.6

Note : This is based on September 2018 announced tariff escalation in the trade war, but even if further “threatened” tariffs were modelled, results do not change substantially, e.g. welfare is now up by US \$ 7.2 billion, and exports growth down by 1.03%

Results – Scenario 2- Make in India (impact on India)

	<i>EV (US \$ million)</i>	<i>Real GDP (%)</i>	<i>Volume of goods exports (% change) qxwreg</i>	<i>Volume of goods imports (% change) qiwreg</i>	<i>Investment (% change) qcgds</i>	<i>Terms of Trade (tot)</i>	<i>Trade Balance (US\$ million)</i>
Protectionism (reactive)	-15235.2	-0.75	-2.73	-3.63	-1.92	0.71	19483.44
Investment (proactive)	19451.27	1.00	1.24	0.75	0.88	-0.29	-138.65
Total	4216.18	0.25	-1.49	-2.88	-1.03	0.42	19344.77

Results – Scenario 3- Make in India & Trade war

	<i>Welfare (US \$ million)</i>	<i>Real GDP (%)</i>	<i>Volume of goods exports (% change) qxwreg</i>	<i>Volume of goods imports (% change) qiwreg</i>	<i>Investment (% change) qcgds</i>	<i>Terms of Trade (% change) (tot)</i>	<i>Trade Balance (US \$ mn.)</i>
Trade War	7487.01	0.06	-1.07	0.54	0.69	0.35	-11564.1
Make in India & Trade War	11703.08	0.31	-2.56	-2.34	-0.35	0.77	7780.67
Make In India only	4216.18	0.25	-1.49	-2.88	-1.03	0.42	19344.77
Make in India (proactive) & Trade War	26938.28	1.06	0.17	1.29	1.57	0.06	-11703.00

No Overall negative impact on the Indian economy due to Trade War, Make in india, or both !

Results – Scenario 1- Trade War (impact on India)

GTAP sector code	India to US	tms (%)	Output go (%)	Exports (to US) (%)
36	Metals nec	50	-0.46	-99.97
38	Motor vehicles and parts	22.1	-0.3	-44.32
35	Ferrous metals	13.4	-0.29	-36.78
41	Machinery and equipment nec	5.5	-0.5	-6.64
40	Electronic equipment	4.9	-1.27	1.27
30	Wood products	4.6	0.44	23.07
34	Mineral products nec	3.7	0.41	1.47
37	Metal products	3.3	0.17	14.66
33	Chemical,rubber,p plastic prods	0.1	0.17	5.765
	US to India			
4	Vegetables, fruit, nuts	50	0.21	-72.04
10	Animal products nec	50	0.11	-60.28
37	Metal products	32.4	0.17	-86.82
35	Ferrous metals	9.4	-0.29	-36.18
33	Chemical,rubber,p plastic prods	4.7	0.17	-18.50
39	Transport equipment nec	1.1	-0.53	-1.21

The top 5 sectors that involved tariff escalation from India to US due to trade war also suffers losses in domestic production

Ferrous metals (Iron and Steel) sector output falls as it faces tariff escalation on both sides, but more on India to US

Chemical Rubber plastics, and Metal products both have higher tariff barrier equivalent from US to India so protectionism leads to increased domestic production there

As expected, bilateral exports between India and US fall the most wherein tariff escalation takes place

Results – Scenario 1- Trade War (impact on India)

GTAP sector code	Sector	Output changes (%)	Exports to China (%)	Exports (to US) (%)
36	Metals nec	-0.46	0.32	-99.97
38	Motor vehicles and parts	-0.3	1.81	-44.32
35	Ferrous metals	-0.29	-2.00	-36.78
41	Machinery and equipment nec	-0.5	-0.54	-6.64
40	Electronic equipment	-1.27	-4.03	1.27
30	Wood products	0.44	-0.45	23.07
34	Mineral products nec	0.41	4.11	1.47
37	Metal products	0.17	-0.62	14.66
33	Chemical,rubber,plastic prods	0.17	1.09	5.765

Comparing changes in bilateral exports from India to China and US in sectors that involved greatest tariff escalation from India to US, there's evidence that Iron and steel have been the hardest hit, while some sectors involved in global value chains (parts of component of machinery and electronic equipments) are also negatively affected

Top 20 GTAP sectors wherein India's domestic output falls/rises due to Trade War

No	GTAP sector code	Description	Output qo(%) fall	GTAP sector code	Description	Output qo (%) rise
1	28	Wearing apparel	-2.13	19	Meat: cattle,sheep,goats,horse	1.01
2	29	Leather products	-1.90	NA	Capital Goods	0.69
3	49	Sea transport	-1.78	46	Construction	0.62
4	40	Electronic equipment	-1.27	24	Sugar	0.59
5	42	Manufactures nec	-1.00	6	Sugar cane, sugar beet	0.48
6	54	Business services nec	-0.89	7	Plant-based fibers	0.47
7	39	Transport equipment nec	-0.53	30	Wood products	0.44
8	41	Machinery and equipment nec	-0.50	34	Mineral products nec	0.41
9	27	Textiles	-0.48	57	Dwellings	0.41
10	36	Metals nec	-0.46	25	Food products nec	0.31
11	53	Insurance	-0.44	56	PubAdmin/Defence/Health/Educat	0.31
12	51	Communication	-0.39	3	Cereal grains nec	0.30
13	38	Motor vehicles and parts	-0.30	14	Fishing	0.23
14	35	Ferrous metals (Iron and Steel)	-0.29	2	Wheat	0.23
15	55	Recreation and other services	-0.17	26	Beverages and tobacco products	0.22
16	52	Financial services nec	-0.12	4	Vegetables, fruit, nuts	0.21
17	31	Paper products, publishing	-0.11	23	Processed rice	0.21
18	16	Oil	-0.10	47	Trade	0.21
19	15	Coal	-0.08	9	Cattle,sheep,goats,horses	0.19
20	50	Air transport	-0.02	13	Forestry	0.18

- Involved tariff escalation from India to US
- Involved tariff escalation from US to India
- Involved tariff escalation from both sides

Sectoral Results are mixed – Output rises/falls due to trade war in lot of sectors wherein there was no direct tariff escalation involved !!

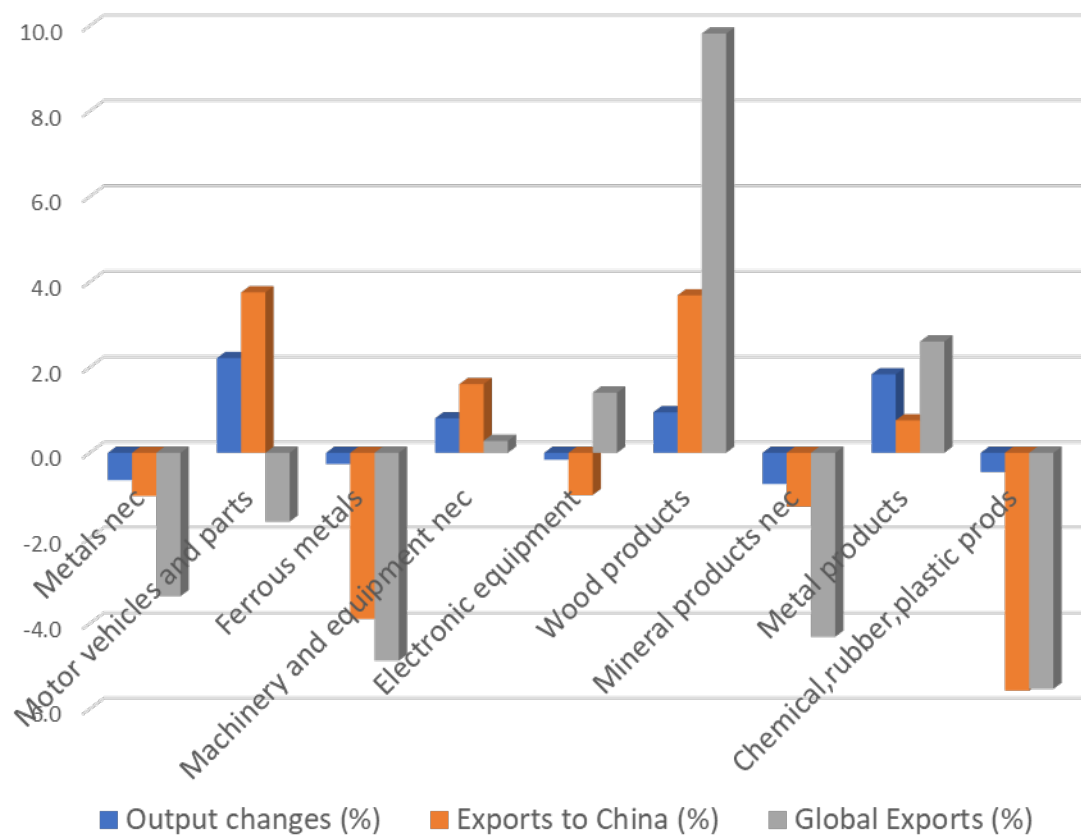
Summary of sectoral output changes in top 10 GTAP sectors due to Make in India

GTAP Sector code	Sector	Output rises by (%)	GTAP Sector code		Output falls by (%)
29	Leather products	2.73	3	Cereal grains nec	-0.01
21	Vegetable oils and fats	2.53	36	Metals nec	-0.18
38	Motor vehicles and parts	2.52	44	Gas manufacture, distribution	-0.23
54	Business services nec	2.52	48	Transport nec	-0.26
27	Textiles	2.05		Skilled Labour (fop)	-0.43
	Capital (fop)	2.00	50	Air transport	-0.45
39	Transport equipment nec	1.97	33	Chemical,rubber,plastic prods	-0.62
37	Metal products	1.67		Unskilled labour (fop)	-0.64
28	Wearing apparel	1.6	46	Construction	-0.86
16	Oil	1.54		Capital Goods	-1.03

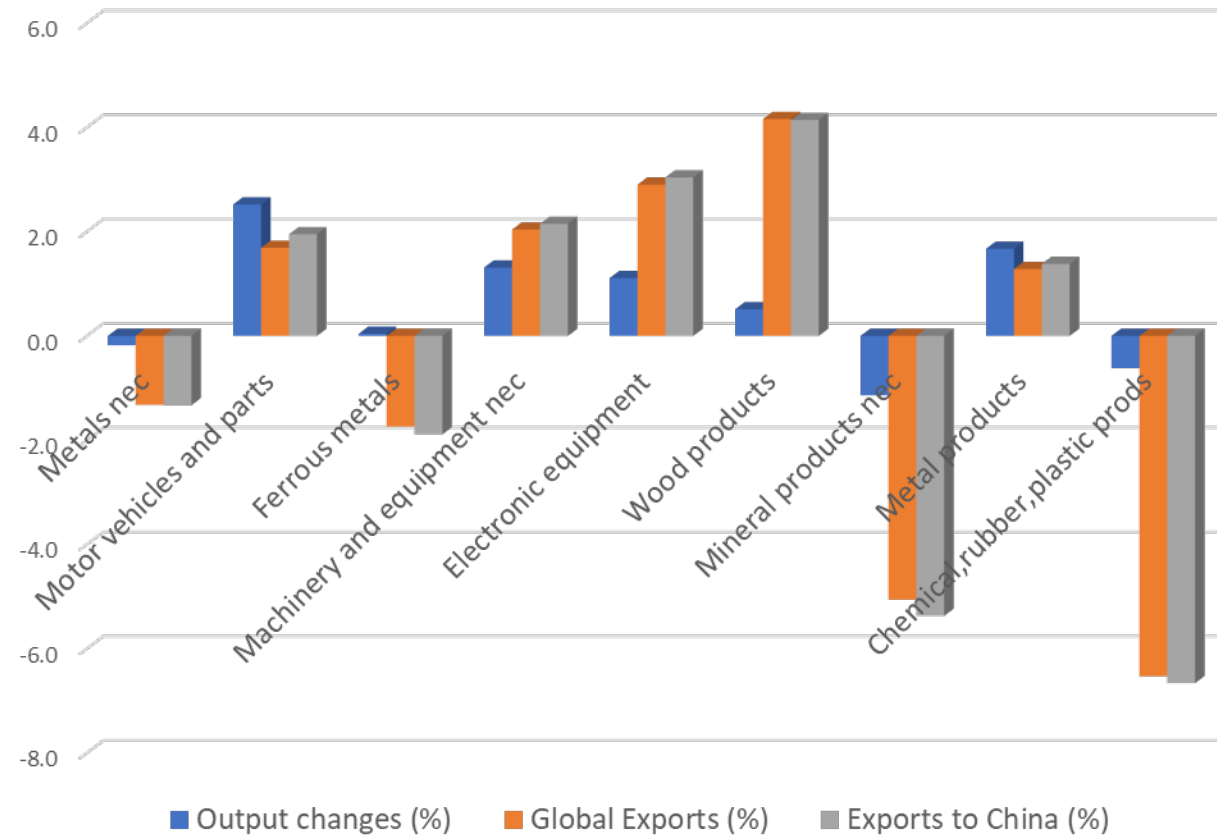
Note : *fop* refers to factor of production

- 8 of the fastest growing sectors in India are part of “Make in India” (Milnd) and investment in capital contributes strongly to it.
- 19 out of 20 Milnd sectors witness output expansion
- Chemical rubber plastics (crp) seem to be the key sector wherein Make in india does not increase domestic output, and this likely affects chemicals, pharmaceuticals and defence manufacturing sectors in Milnd sectors; this sector relies on lot of intermediate imported inputs which becomes costly

Impact of Make in India and Trade War on selected industrial sectors



Impact of Make in India on selected industrial sectors



Policy Implications (Trade war only)

- Trade War did not appear to be harming India in terms of output, jobs, or investment.
- There are many sectors wherein India's exports to US don't fall in spite of rising tariff escalation in US (e.g. wood products, metal products, chemicals rubber plastics, and electronic equipment and mineral products)
- The sectors that suffer the biggest decline in exports to US (and also fall in domestic output) are Metals n.e.c, Motor vehicles and parts, and Iron and steel respectively (Last two are also part of Make in India targeted sectors Automobiles and Auto-parts and Defence manufacturing)

Policy Implications (Make in India and Trade War)

- Make in India policies only will likely benefit the economy as a whole, but exports will fall more than imports, investment and employment will fall, with high tariffs affecting imported intermediate inputs and potential GVC sectors
- Proactive policies of Make in India through investment push generate higher growth benefits, compared to a mix of proactive and reactive policies
- Assuming the unexpected trade war was non-existent, Make in India only would also have yielded similar results - the exceptions being the extra negative impact on export growth added due to the trade war that leads to a net import growth, instead of a net exports growth
- The present model does not include a range of other policies that are a part of Make in India, as well as any latest retaliations from China, so its impact may currently well be underestimated

Future extensions (in progress)

- Dynamic time path, incorporating impact of covid19 – how does this affect Make in India viz. over 2020-2025 ?
- Incorporate GVC trade data to understand if supply chains are reoriented in favour of some industries to India post- Covid19, how does the sectoral impacts change ?

THANK YOU

GRACIAS
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SHUKURIA
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