

Impact of GST on Indian Economy: A CGE Modelling Exercise

Objective

Presently, some sectors are outside the purview of GST. The notable ones among them are some of the important petroleum products like petrol, diesel, and Aviation Turbine Fuel (ATF). GST is not imposed on crude petroleum, natural gas, and the electricity sector. It is expected that the economy will gain if these sectors are brought under the GST regime through the elimination of cascading taxes. As different types of taxes are built into our model, we have attempted to understand the impact on the economy if these sectors are brought under the GST regime.

Methodology

We have used NCAER's India Energy Model, patterned after the ORANI-G Model, to analyse the implications. The model has 56 sectors wherein all the major sources of electricity production in India are modelled as separate sectors. Similarly, energy-intensive sectors like cement, aluminium, iron and steel figure as independent sectors. The same holds true for the transport sector in the model. There are four factors of production (including land, capital, unskilled labour, and skilled labour), three types of domestic institutions (including households, enterprises, and the government), and an external sector. Our CGE model of India also incorporates five income quantile classes each for rural or urban households.

The base year of our model is 2020-21 and the static version of the model is used for the simulations.

We use statutory GST rates for commodities which are not specific to their end-use. For the same commodity, there are multiple rates and all the items under the same heading (commodity) are not homogenous.

Policy Scenarios

The following policy scenarios have been analysed.

Simulation 1

Reduction in concurrent tax (CGST and SGST) levied on petroleum products by 20 per cent and imposition of revenue neutral-GST on the same. Presently, sales and excise taxes are levied on the same. We are thus interested in studying the impact of GST separately on the same.

Simulation 2

Reduction in excise tax on petroleum products by 20 per cent and introduction of revenue neutral-GST on same.

Simulation 3

Reduction in sales tax on crude oil and natural gas by 20 per cent and introduction of revenue neutral-GST on the same.

Simulation 4

Reduction in sales tax on electricity by 20 per cent and introduction of revenue neutral-GST on the same.

Results

All the variables are represented as percentage changes over the base year, that is, 2020-21

Indicator	Sim 1 Sales tax (-) + GST on Petrol Prod	Sim 2 Excise s tax (-), + GST on Petrol Prod	Sim 3 Sales tax (-), + GST on Crude Petrol, gas	Sim 4 Sales tax (-), + GST on Electricity
Real GDP	1.442	0.054	0.075	0.020
Real wage	0.020	0.002	0.002	0.001
GDP Deflator	1.145	-0.073	0.035	-0.022
Real household consumption	1.156	0.033	0.055	0.005
Import volume index	4.8369	0.0946	0.2118	0.0174
Export volume index	5.7122	0.1155	0.2501	0.0447
CPI	1.145	-0.073	0.035	-0.022
Industry Output Broad Sectors				
Agriculture	0.495	0.011	0.030	0.001
Manufacturing	3.173	0.118	0.189	0.044
Services	0.227	0.031	0.016	0.014
Mining	8.379	0.183	0.377	0.046
Electricity	0.907	0.065	0.056	0.103
Transport	1.392	0.132	0.093	0.034
Gini inequality	0.509	0.509	0.509	0.509

- There is a positive effect on GDP, real household expenditure, except in simulation 1, the CPI does not seem to increase.
- Both the export and import volume index is positive.
- There is no change in the measure of inequality (Gini Inequality)
- There is a positive effect on the industry output.

All the variables are represented as percentage changes over the base year, that is, 2020-21								
Indicator	Sim 1		Sim 2		Sim 3		Sim 4	
	Labour- Unskilled	Labour Skilled	Labour- Unskilled	Labour Skilled	Labour- Unskilled	Labour Skilled	Labour- Unskilled	Labour Skilled
Agriculture	0.341	0.341	-0.005	-0.005	0.019	0.019	-0.006	-0.006
Manufacturing	0.025	0.524	0.061	0.066	0.045	0.063	0.035	0.035
Services	0.430	-0.636	0.014	-0.030	0.021	-0.042	0.006	-0.013
Mining	8.062	8.062	0.155	0.155	0.355	0.355	0.034	0.034
Electricity	0.073	0.073	-0.009	-0.009	-0.004	-0.004	0.072	0.072
Transport	0.848	0.848	0.072	0.072	0.051	0.051	0.008	0.008

- By and large, there is positive effect on both unskilled and skilled labour.

Policy Implications

- The initial policy implication of the analysis is that the production responses of businesses to changes in the tax regime have the potential to yield efficiency gains in the long term.
- Our analysis shows that the tax regime change does not lead to an increase in income equality.
- A change in the revenue tax regime leads to economic expansion and allows for real wage increases, fuelling further demand and rises in consumption and imports.