Doubling farmers' income by 2022- Lecture 1

Concept & Past trends - Part 1

NITI Aayog Policy Paper by Ramesh Chand

WHAT IS THE NEED ?

- Past strategies has focused primarily on raising output and food security thorough :

A Increasing productivity with better technology and increased use of quality seeds, fertilizers , agrochemicals and irrigation

B Incentive structure in form of remunerative prices for crops and subsidies

C Public investments in agriculture and institution building in form FCI , APMC etc.

- Strategies were successful as country able to secure food in shortage period in mid 1960s
- Since the green revolution (1965-2015) food production has multiplied by 3.7 times while population has multiplied by 2.55 times.
- Result has been a 45 percent increase in per person food production , which made us food sufficient as well a food exporting country.
- But the strategy didn’t explicitly recognize the need to raise farmer’s income , result has been that the growth in farm output has not been matched by similar increment in farm incomes
- As a result farm incomes has been low, evident from prevalence of poverty among farm households.

- More than 20% of households declaring farm incomes as their principal activity were below poverty line as per 2011-12 NSSO consumption survey.
- In some states , this figure was quite high at 45% (farm households below poverty line in Jharkhand)
- Further farm household incomes gone down relative to those working in non farm sector . This was only 34% of the non farm incomes and after reform it went further down to being 25% of non farm incomes.
- The country also witnessed sharp increase in the number of farmers suicides during 1995 to 2004 –losses from farming, shocks in farm income and low farm income are identified as important factors for this.

Is it even possible ?

- This goal has been dubbed as impossible by some experts (Gulati 2016)
- According to some experts it will require a growth rate of 14% which is quite impossible considering we haven't achieved anything like it
- It is said that these assertion lags some important aspect of government announcements which were :
- One , what is the period and targeted period for doubling farm incomes ?
- Second , What is to be doubled, is it output , valued added or income earned ?
- Third ,whether nominal income to be doubled or real income ?
- Fourth , whether it will include income of farmers from other sources as well ?

- Chand clarifies that according to him, what PM meant from doubling farmer incomes is essentially current incomes of farmers , that is agricultural incomes of the year 2015-16 by 2022 , in seven year period
- Based on this it will require a growth rate of 10.4 % not 14.86%
- Second , it is important to clarify what sought to be doubled , is it output , value added or income of the sector or the income of farmers ?
- As it is quite clear that source of increase in farmers income could be quite different like,
- If the technology , input prices ,wages and labour use could result in per unit cost savings then farmers income would rise much higher than output

- During 2004-05 to 2011-12 , real output in agriculture increase by 34% while farm real income increase by 63%. In nominal terms output increase by 2.65 times while income tripled.
- Therefore doubling of farmers income is nowhere same as doubling of farm output

- Another important source of increase in farmers incomes is the relative increase in prices of farm products compared to price of non-agricultural commodities.
- It is obvious that if inflation in agricultural prices is high, farmers income in nominal term will double in much shorter period. In fact it has happened in the past twice during 1987-88 to 1992-93 and then during 2004-05 to 2009-10.
- It also leads to increase in real farm incomes if the relative prices of agriculture rise more compare to prices paid by farmers , that is term of trade for agriculture improves

Past trends in farm incomes

- Chand et al (2015) calculates total and per cultivator farm income for the period 1983-84 to 2011-12.
- Authors report that increase in productivity , increase in real farm prices and shift of labour force from agriculture are important determinants of farm income.
- Study also finds that agrarian distress (farmer's suicide) is also related to farmers income levels.
- According to SAS (Situation assessment survey of agricultural households , 2012-13) average annual farm income from farm sources as well non farm sources was just 77000 (approx.)
- 60% of it was from farm activities like cultivation and farming of animals) and rest 40% was from non farm sources like wages , salary , non farm business etc)

- In absolute term cultivation only generated 37000 Rs. (approx.,.) while livestock accounted for 9000 (Rs.) as annual income per agricultural household.
- Most recent estimates of farm income is estimated by Chand et al. (2015) for the year 1983 to 2012. Updating these estimates for 2015-16 gives us following trends:
- During the past 22 years farmers income in nominal terms increased 9.18 times but inflation in rural India measured by CPIAL increase by 4.62 times. Taking the effect of inflation real farm income just only doubled during this time.
- Farmer income increased at different pace in different time periods depending upon growth in output , increase in wage bill and increase in relative price for farmers relative to increase in consumer prices for agricultural labour (CPIAL).

First period – 1993-94 to 2004-05

- Which marks the first decade of reforms and liberalization value added in agriculture at 2004-05 price witnessed 2.52 % per cent annual growth. Income of all farmers taken together increase at 8.45% at nominal prices .
- This also witnessed an increase in the number of cultivators from 14 crore to 16 crore. This resulted in much smaller increase in per farmer income as compared to the growth rate in income of all the farmers.

Second period – 2004-05 till 2011-12

- In this period total farm income grew at the rate of 5.52% but in a sharp contrast to first decade of the reform, this period witness decline in the number of cultivators which translated to higher growth in farm income in per capital basis compared to total growth in farm income..

- Rate of growth in per capital farm income was around 7.5% per year. This period also saw a combination of favourable factors such as higher price rise of farm produce compare to rise in consumer price index for rural labour, growth in output was impressive and number of farmers to share farm income declined .

Period after 2011-12

Tempo of growth after 2011-12 got big set back after 2011-12. Output of crop sector witnessed a decline (0.29%) in the year 2012-13. This was followed by two consecutive below normal monsoons in the years 2014-15 and 2015-16.

Consequently value added decelerated to 1.6% per cent during 2011-12 to

2015-16. Also consumer price index rose to 10% and agricultural prices remained depressed which lead to decline in real income of farmers in this period.

Doubling farmers' income by 2022 –Lecture 2

Sources of growth in farmers' income – Part 2

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Sources of growth in farmers' income

- Major sources of growth operating within agricultural sector are:

1 Improvement in productivity

2 Resource use efficiency or saving in cost of production

3 Increase in crop intensity

4 Diversification towards high value crops

Sources outside agriculture includes :

1 Shifting cultivators from farm to non farm occupations, and

2 Improvement in term of trade for farmers or real prices received by farmers

Increase in agricultural productivity

- Due to the rising demand for land for non agricultural uses & already high share of arable land to geographical area of the country , further expansion in area under cultivation is not possible. Rather there is a decline of 10 lakh hectares in cultivable land. Therefore further increment warrants growth in productivity.
- Productivity is low in most crops and there is considerable scope to raise it . Except wheat, in most other crops it is lower than world average and much lower than agriculturally advanced countries.
- Even within country large variation exist due to differential access in irrigation but even for states with similar irrigation coverage , productivity show significant variation
- Total crops productivity was 3% per annum from 2000-2014 . Assuming same increase in input , that is no saving on costs. It will require 10 years to increase farm incomes by 25%. In seven years it will increase income by 16.5%.

- Livestock sector grew 4.5% around this time on yearly basis . It already contribute 30% of overall farm incomes , at this pace it will raise total farm income by 10.8% in seven year period.
- Contribution of these two add up to being 27.5% of increase in farm income by 2022 in seven years time.

Improvement in total factor productivity

- Total factor productivity is the amount of output not explained by the amounts of inputs used in production. TFP represents the effects of technological change, skills , infrastructure etc., which are not counted in the set of production inputs .Also, includes increase in efficiency in inputs utilization in production process.
- Studies have found growth in TFP to be around 2.26 per cent annually from 2004-2012. The implication of this is that farmers income will also increase at the same rate.
- if it assumes to grow at the same rate it will lead to 16.7 percent increase in farm’s income by the year 2022-23.

Diversification towards high value crops

- Staple crops occupies 77% in total cropped but contribute only 40% of the total output of crop sector
- Interestingly same amount of output is contributed by HVCs (fruits, vegies, fiber, condiments & spices and sugarcane), which just occupied 19% of the cropped area in 2013.
- Between 2004 to 2013, area under HVCs in the country increased by 9.16 million hectare (Mha),at an annual growth rate of 3.31 percent .
- Due to the large difference in area under HVC and staples , a 1% increase in area under the former is equal to 0.25 % decrease in area under staples.
- Thus a 1% increase in area under HVCs results in increment of 0.31% in output of crop sector netting out the effect of decline in output due to area shift from staples to HVCs.

- So if assumes past diversification trends to pursue . This will result in increase of 1% in output of crop sector annually and can increase farmers' income by 5% by 2022-23.
- Scope also exist in diversifying toward other allied enterprises apart from cultivation like forestry. Various legal restrictions on felling of trees and setting up of timber industry & transmit permit for marketing are major deterrent to raise trees on private land.
- We import wood and wood products of around Rs. 33 thousand crore whereas thousand of hectares of private land is barren. We import around 40% of our non fuel timber requirements through imports

Increased in crop intensity

- Cropping intensity refers to raising of a number of crops from the same field during one agriculture year. It can be expressed as.
- [Cropping intensity = (Gross cropped area / Net sown area) x 100]
- India has two main crop growing seasons in a year namely kharif and rabi which make it possible to cultivate two crops on same piece of land in a year.
- But the land use statistics tells us that second crop only take 40% of the net sown area. This implies that more than 60% of land remans unproductive for half of the productive period
- Lack of access to water to meet crop requirement is said to be the reason behind this low crop intensity.
- However crop intensity on irrigated as well in rain fed area is found to be similar of around 140. The reason for this could be that irrigation is not available throughout the year

- It is ironic that despite a large a number of household surviving on land its is not used intensively . In most states second crop is taken on less than ¼ of the net sown area.
- Large potential exist to raise crop intensity in most states . If we assumed similar trend in increment of cropped intensity from 2000 onwards (that is , 0.7% point per year) then it has the potential to raise farmers' income by 3.4 % in 7 years & 4.9% in ten years.

Sources of income outside agriculture

- Improving term of trade for farmers
- When prices received by farmers for agricultural produce rise faster than CPIAL (consumer price index for agricultural labour), it adds to the real income even without an increase in the volume of output.
- During 2011-2015, farmers' income received serious blow on two counts. One, growth in value added in agriculture at constant prices was very low.
- Two increase in CPIAL was 50% higher than increase in farm gate prices of agricultural produce.
- In this context initiatives that promotes better price discovery in the form e-NAM launched by centre is welcome move.

- No study available that can reflect on effect of various market reforms and market modernization on prices received by farmers.
- In this context initiative by Karnataka government can give some insights into beneficial aspect of these reforms
- Effect of online marketing by farmers using unified market platform created by ReMS (a joint venture of Karnataka & NCDEX spot exchange) in Karnataka shows big benefits to farmers.
- After the introduction of online trading & UMP prices in mandis in Karnataka witnessed much higher increase than the increase in wholesale prices of the same commodity in the country. Increase in real terms varies from 1% to 43%.

- Karnataka experience shows that small reform in the system of marketing can make a big difference to the prices received by farmers.
- Two provisions, namely, online trading and opening market to traders outside mandis have made a significant difference.
- Accordingly a 13% increase in crop prices translate to 9% increase in farmers' incomes.

Shifting cultivators to non farm & subsidiary activities

- Too many people engage in agriculture (69%) but their contribution is only 39% of rural net domestic product. This show over dependence on agriculture causing low productivity in comparison with other sectors.
- Their income can improve substantially by shifting workers away from the agriculture sector and many are looking for suitable opportunities to leave agriculture.
- As per NSSO workforce in agriculture in rural areas declined by 34 million between 2005 & 2012, showing annual decline at the rate of 2.04 %. If the same trend continues then workforce share will fall to 55% of total rural workforce.
- But the employment diversification is quite slow on account of many factors. But nonetheless if the trend persist it will reduce cultivators by 13.4% between 2015 - 2022 implies that income will be distributed among 13% less farmers.

S.No.	Source	Scope	Contribution		Remarks
			7 years	10 years	
1	Crop productivity 70% seg	3.1	16.7	25.0	Same as in 2001-13. For crop sector (70%) ag.
2	Livestock value added 30% seg	4.5	10.8	16.6	Same as in 2004 to 2014
3	Improvement in resource use efficiency	2.26	16.7	25.0	Same as in 2005 to 12
4	Crop Intensity (70% seg-ment)	1 percentage point	3.4	4.9	same as during 2001-12
5	Crop diversification (70% seg)	Area increase by 3.13 per cent, elasticity 0.319	5.0	7.3	
6	Better price realisation: crops only	13%	9.1	9.1	Implemented in 7 or 10 years
7	Shift to non -farm occupa-tion	1.81%	13.4	19.6	Same as in 2005 to 12
	Total		75.1	107.5	

Doubling farmers' income by 2022- Lecture 3

Strategy & Prospects – Part 3

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Sources of growth in output & income can be put into four categories :

- Development initiatives
- Technology
- Policies
- Institutional mechanism

Development initiative

- Some recent initiatives launched by government aiming to raise output and reduce cost include *Pradhan Mantri Krishi Sinchai Yojna*, *Soil Health Card, Prampragt Krishi Vikas Yojna*. Another major initiative that provide insurance against crop and income loss *is Pradhan Mantri Fasal Bima Yojna*. Besides coverage of risk , it will increase investment in farming.
- Interlinking of rivers is another initiative with high potential to raise output and farm incomes . These programmes need to be implement in a time bound to get the desired effects.
- Quality seed and optimum utilisation of fertilizer are important for growth and productivity. It is also observed enhanced supply of power to agricultural bring efficiency as well as economy

- These three inputs needs to promoted appropriately to raise farmers income and output.
- Further public investment in agriculture used for creating infrastructure need too raise to 4% as per high powered committee suggestion from present low of 2.7% of GDP of agriculture & allied sectors.

Technology & innovation

- Sustainable growth in productivity & farmer income requires a paradigm shift from input intensive technologies , which have dominated Indian agriculture since the onset of green revolution.
- Emphasis is also laid on transformation rather than incremental gains from agricultural research and innovation.
- Addressing mounting agricultural challenges requires a vibrant , responsive , & globally competitive research system with state of art knowledge & scientific manpower of high caliber with adequate resources.
- Public sector institutions largely dominate our agricultural research comprising state agricultural universities and network of ICAR institutes. Resources have been thinly spread on proliferating universities & institutions around the country , simultaneously facing a severe resource crunch.

- Lab to land connect is weakening . While public sector research show symptoms of decline there are serious apprehension regarding the role of private sector, particularly related to pricing , protection & safety of their technologies.
- Moreover, with the tightening of IPR regime across the world , scope of spill over benefit from lateral inflow of technology from developed countries is declining.
- Public policy on agriculture R & D is facing a serious dilemma. Scientific community by and large favours development and use of transgenic and genetically modified crops to address future agri-food demand and other challenges.
- However there is a strong sensitivity towards the alleged health and environment safety aspects of these technologies in India & most other countries. Therefore other alternatives and options need to be explored.

- Genome editing has emerged as alternative to transgenic technology. It involves engineering of desired plant traits by modifying endogenous genes , unlike GM technology which involves transfer of genes from one species to another. Such genome can transferred to next generation and can become even heritable.
- Public R & D should be supported to develop capacity in these cutting-edge technologies which appear to have great potential.
- Evidence is growing about the scope of agronomic technology like precision farming to rase production and income of farmers.
- Similarly modern machinery such as laser land leveller , precision seeder and planter, and practices like SRI(system of rice intensification), direct seeded rice , zero tillage , raised bed plantation ,and ridge plantation allow technically highly efficient farming.

- These technology are developed by public sector and their marketability is very poor. They require strong extension for adoption by farmers . Emphasis should be on teaching farmers about the benefit of these technologies and provide credit facilities for their adoption.

Policies

- Polices affect production , price realization and farmers' income in a large number of ways.
- Union government brought a series of reforms in agriculture sectors in quick succession beginning year 2002.
- These included

A. Removal of (licensing , stock limits and movement restrictions) on specified food stuffs order, 2002 and 2003.

- As per this order, wheat, paddy , coarse grains , sugar , edible oilseeds, pulses, gur, wheat products and hydrogenated vegetable oil or vanaspati were removed from the list of essential commodities act (1955) and they did not require a permit or license for trade , storage and movement.

B. Milk and Milk product order of 2002 modified MMPO of 1992 and removal of restrictions on setting up of new capacity in milk processing and to do away with the concept of milkshed.

C. Removal of prohibition on futures trading in any commodity , in year 2003.

- This was followed by move to bring reforms in agricultural marketing. Union government made the model APMC act 2003 and shared with states for its implementation.
- Changes made in ECA were reversed in year 2006 & 2007. Majority of the states reported that they have implemented key area of reforms as suggested in the Model Act.
- However the policy environment for agriculture sector did not see much change as the reforms in agriculture sector remained patchy, sporadic and partial.

- Most of provisions of APMC act has been followed in a very dilute form. In totality we can say market reforms more and less remained unsuccessful.
- Besides marketing , serious restrictions remain on land leasing and harvest and transit of trees and woody material raised on private land, which deprives farmers from raising their income.
- Neglect of reforms has created wide spread disparity between agriculture and other sectors . Till 1990 growth rate in both sectors were moving in tandem and shows very close correlation. As the reforms progressed , growth trajectories diverged.
- Growth rate in non agriculture sector ranged from 6% to 8% formost of the period after reforms while for agriculture sector it moved cyclically around a long term growth rate of 2.8%.

Institutions

- Indian agriculture is dominated by marginal and small farmers , who suffer serious disadvantage in terms of scale.
- Small farm size discourages many farmers to go for diversification of fruits and vegetables mainly because of the price risk and uneconomic lot for marketing.
- They are also disadvantaged in terms of bargaining power in various transactions in the input and output markets.
- SFAC (Small Farmers Agribusiness Consortium) has complied case studies of successful examples of collective action by farmers working through organized institutions.it provides convincing evidence of benefits to farmers from integration with the value chain (SFAC 2013).
- These are several other success stories of increase in production and better returns from market through collective action through some type of group action or organization (Gupta 2015).

Doubling farmers' income by 2022- Lecture 4

Roadmap and Action map needed – Part 4

Ramesh Chand, NITI Aayog Policy Paper

Action needed in sources of growth in farm incomes

- It can be grouped in three categories:
- A Development initiatives including livestock targets as well
- B Technology generation and dissemination
- C Policies and reforms

Development initiatives

- It includes increase in productivity through better technology and varieties and increased use of quality seed, fertilizer ,irrigation and agrochemicals . The targeted level of these variable for crop sector , which constitutes about 70% of income from crops and livestock presented in next slide
- Required targets indicates that supply of certified seeds needs to be raised from 3.03 million to 7..97 million.
- Fertiliser use is required to reach 36.2 million tone which comes to 175kg per hectare of cropped area. This quite close to normative levels reached in 2011-12. With cropping patterns shifting to more fruits and vegetables and area under irrigation expanding ,it may be a little higher. However it is possible to get the same output with lower doses if used efficiently.

Base level and target for development initiatives to double farmers' income

Source	Base level and year	Target 2022-23
Quality seed: million tonne	3.03 (2014-15)	7.97
Fertilizer: million tonne	25.58 (2014-15)	36.24
Irrigation: million hectare	92.58 (2012-13)	110.40
Electricity for agri purposes: 000GWH	147.48 (2012-13)	307.39
Are under more than one crop: per cent	40.00 (2012-13)	53.00
Area under fruits and vegetables: million hectare	16.75 (2013-14)	26.38
Area under High Yielding Varieties: %	69.3 (2014-15)	90.0

- DFI (Doubling farmers' income) requires area under irrigation to reach 53% of the total cultivated area and crop intensity to reach 153%. Highest increase is required in power supply which is a dismal level in many states.
- Fruits and vegetables were grown at 8% of total cropped area in 2015 , this needs to rise to 12.7% of the total area by 2022.
- HYVs seeds are grown only on 62% of total grown area in the country in the production of rice while for this coverage is around 90%. With better supply of certified seeds area under traditional seeds nned to replace by HVYs seeds in states with low coverage.
- Apart from this credit expansion need to be addressed.

Targets for livestock productivity

- In terms of development initiatives following targets are suggested by 2022-23:
- In India , coverage under artificial insemination in cattle and buffaloes is hardly 35%. Main reason for low artificial insemination is semen straws. We require 160 million doses of semen straws against the current availably of 81 million to reach reasonable level of AI.
- Age of buffaloes at puberty need to be reduced by 3 -4 months currently it is around 33 months.

Technology generation and dissemination

- Doubling farmers income requires 3% increase in total factor productivity on annual basis through improved varieties , breeds , practices ,improved knowledge and innovations, which encompasses increase in productivity , lower cost of production through efficient use of inputs.
- We have very large number of ICAR institutes and state agricultural universities entrusted with these task to perform. Apart from that we also *Krishi Vigyan Kendras* in every rural district of the country.
- Despite a plethora of technologies developed by scientist in National agricultural research system , adoption rate for improved technology remained low in many states. Some states covered 100% of cropped area under HVY while some states struggle to cross 1/3 mark.
- Second , other than varieties ,seed & agrochemicals, adoption of other technologies, particularly relating to the natural resources management, remains quite low. The focus of agricultural research has remained mainly on raising productivity , protection and efficiency in farm operations.

- Third, the recommendations related to different aspects of farming are passed on to farmer in isolation rather than a package for her farm. Packages of practices published by various institutes prescribes packages for individual crops or enterprises. This is important to raise production of individual items but it does not optimize use of farm resources , which is vital for raising farm income.
- It is being claimed based on some anecdotal evidence that traditional practices and indigenous and local species, which don’t use inorganic fertilizers and plant protection chemicals are yielding higher income besides being ecofriendly ,resilient and safe. Such technologies and practices should also be tested by research institutions and promoted.

Policies and reforms

- Following are key areas already pointed out in this year economic survey as well as in past slides :

1. Agricultural marketing : below is the list of reforms needed

1	Institutional reforms: Make provisions for 1.1 to 1.7	
	1.1	Private mandi
	1.2	Direct marketing
	1.3	Contract farming
	1.4	e-Trading
	1.5	Single point levy
	1.6	Direct sale to consumers by farmers
	1.7	Single traders license
2.	Special treatment to fruits and vegetables: Denotify from APMC	
3.	Participation in E-NAM	

2. land lease
3. Forestry on private land
4. Price incentives for producers
5. Promoting responsible agricultural investments
6. Promoting value chains
7. Promoting producers' alliances
8. linking production to processing
9. Coordination and involvement of states

Conclusion

S.No.	Source	Recent achievements		Required growth rate for DFI
		Period	Growth rate/change	
1	Crop productivity 70% segment	2001-2013	3.1	4.1
2	Livestock value added 30% segment	2005-2014	4.5	6.0
3	Improvement in resource use efficiency	2005-2012	2.26	3.0
4	Crop intensity (70% segment)	2001-2012	1 %age	1.3
5	Crop diversification towards fruits and vegetables (70% seg)	2003-2014	3.89	5.17
6	Better price realisation: Crops	Karnataka experience. Reforms	13% total (in real terms)	17.0
7	Shift to non - farm occupation	2005-2012	1.81	2.4

Food Policy – Lecture 5

Part 1 - Insights from Montek Singh Ahluwalia's book, *Backstage: The Story Behind India's High Growth Years*

Part 2 - Budget and lost opportunity to reform food grain management

By Ashok Gulati

PART 1 – Insights into food policy

- Last month, Montek Singh Ahluwalia's book, *Backstage: The Story Behind India's High Growth Years*, was released. It is an account of India's economic reform journey— a process in which Montek was an insider for about 30 years.
- Besides some very interesting episodes pertaining to Montek's personal and professional life, the book is full of useful insights into policy debates and their complexities. At many places, it provides evidence of the impact of these policies.
- This can be extremely useful as we try to rejuvenate the country's sluggish economy and abolish poverty. It is impossible to do justice to every issue covered in the book. Here, we will confine ourself to the policy debates and choices in the agri-food space

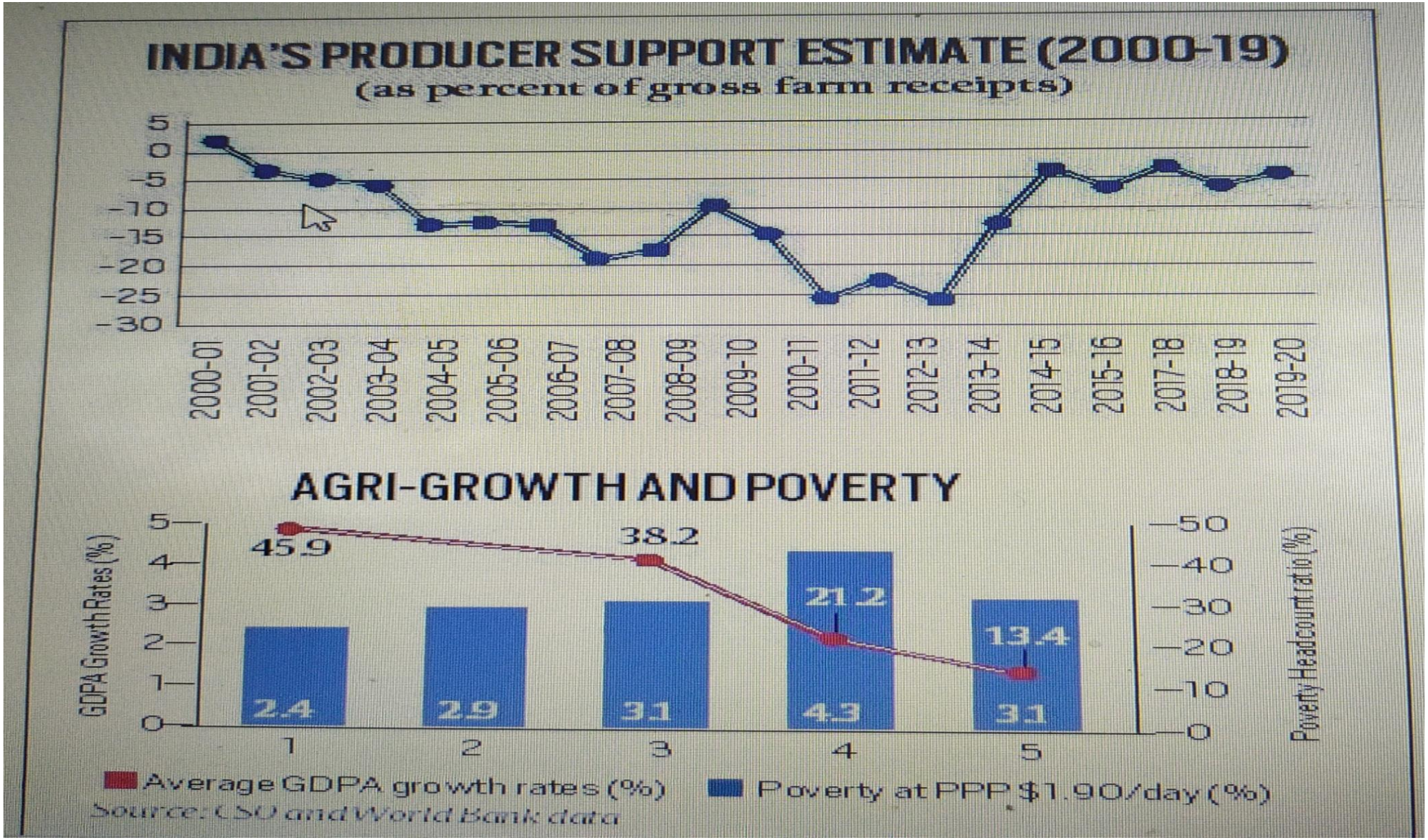
- Agriculture strategy appears in the chapter on inclusive growth. During the UPA period, from 2004-05 to 2013-14, it was believed that inclusive growth is not feasible unless agriculture grows at about 4 per cent per year while the overall economy grows at about 8 per cent annually.
- The reason was simple: More than half of the working force at that time was engaged in agriculture and much of their income was derived from agriculture. But many political heavyweights, even within the regime of that time, did not believe that Agri-growth could reduce poverty fast enough.

- The main instrument of agricultural strategy was the Rashtriya Krishi Vikas Yojana (RKVY), which gave more leverage to states to allocate resources within agriculture-related schemes.
- This, along with other infrastructure investments in rural areas, had a beneficial impact on Agri-growth, which increased from 2.9 per cent during the Vajpayee period (1998-99 to 2003-04) to 3.1 per cent during the UPA-1 period (2004-05 to 2008-09) and further to 4.3 per cent during UPA-2 (2009-10 to 2013-14).
- Some experts believe that the Agri-GDP growth during UPA-2 was driven not as much by RKVY as it was by high Agri-prices in the wake of the global economic crisis of 2007-08.

- Agri-GDP growth had a significant impact on poverty reduction, whichever way it was measured — the Lakdawala poverty line or Tendulkar poverty line, which is higher.
- The rate of decline in poverty (head count ratio), about 0.8 per cent per year during 1993-94 to 2004-05, accelerated to 2.1 per cent per year, and for the first time, the absolute number of the poor declined by a whopping 138 million during 2004-05 to 2013-14. Interestingly, this holds even on the basis of the international poverty line of $1.9 per capita per day (on 2011 purchasing power parity, PPP, also see graphs).
- However, instead of celebrating this success of the growth strategy in alleviation of poverty, several NGOs and even ruling regime stalwarts remained skeptical.

- They advocated food subsidy under the Right to Food Campaign. National Advisory Council (NAC) came up with a proposal to subsidies 90 per cent of people by giving them rice and wheat at Rs 3/kg and Rs 2/kg.
- Montek tried to convince them that this was likely to create an unsustainable burden on the exchequer. He also argued that India could end up importing grains to the tune of 13-15 million tonnes per year. Montek favored a cap at 40 per cent of the population to be covered under the Food Security Act as the poverty ratio (HCR) in 2011-12 was 22 per cent.
- He also favored providing smart cards to the beneficiaries so that they could opt for buying more nutritious food rather than just relying on rice and wheat. That would have also allowed diversification of agriculture and augmented farmers' incomes. But he could not win over the NAC — although the coverage for food subsidy was reduced from the original proposal of 90 per cent to 67 per cent of the population.

- No wonder, years later, when we estimated the producer support estimates (PSEs), as per the OECD methodology — used by countries that produce more than 70 per cent of the global Agri-output — we found a deeply negative PSE.
- This indicates implicit taxation of agriculture through trade and marketing policies, even when one has accounted for large input subsidies going to farmers (see graph on PSE , next slide).
- Today, the food subsidy is the biggest item in the Union budget's agri-food space. In the current budget, it is provisioned at Rs 1,15,570 crore. But this factoid hides more than it reveals. Lately, the government has been asking the Food Corporation of India (FCI) to borrow from myriad sources, and not fully funding the food subsidy, which should logically be a budgetary item.
- The outstanding dues of the FCI are more than the provisioned subsidy, and if one adds these dues to the budgeted food subsidy, the effective amount of food subsidy comes to Rs 3,57,688 crore. This displays the consumer bias in the system.

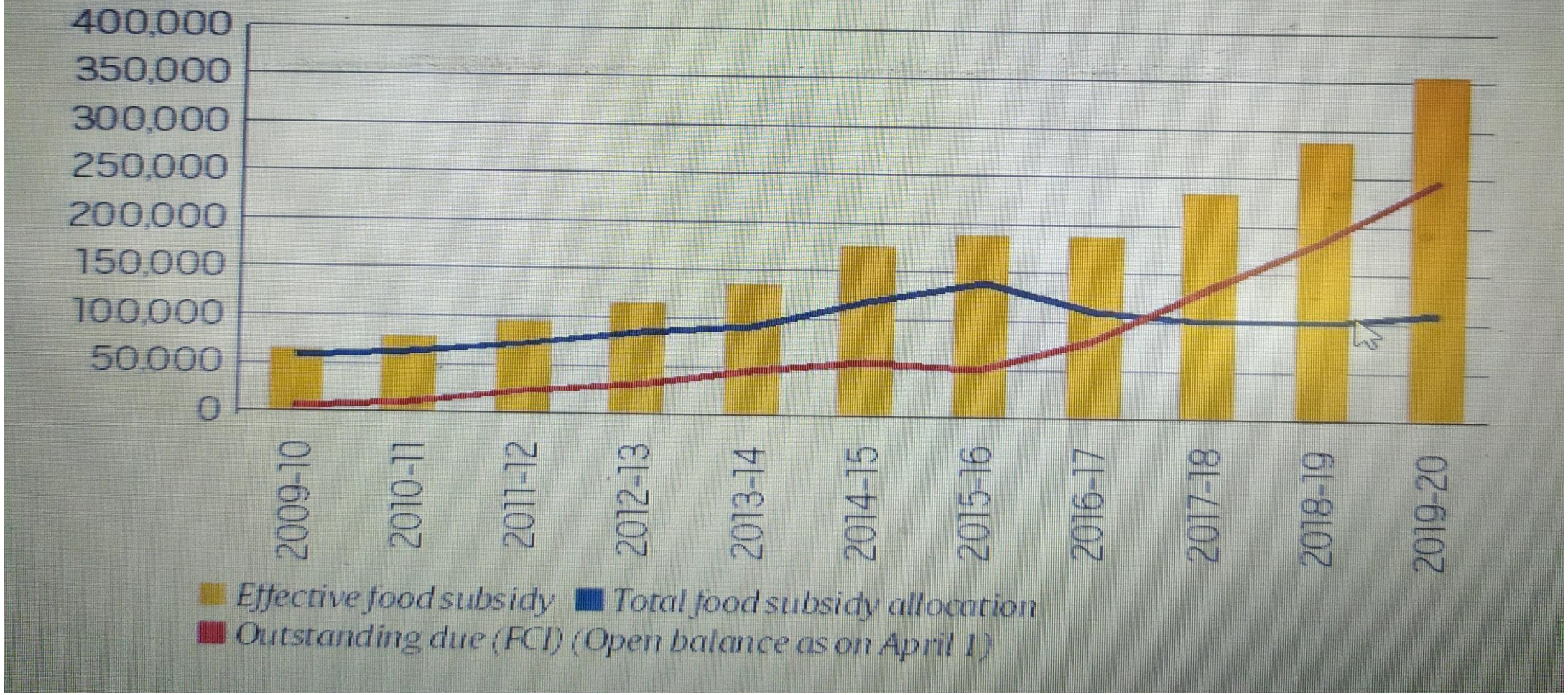

INDIA'S PRODUCER SUPPORT ESTIMATE (2000-19)
(as percent of gross farm receipts)
5
0
-5
-10
-15
-20
-25
-30
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2017-18
2018-19
2019-20
AGRI-GROWTH AND POVERTY
GDPA Growth Rates (%)
5
4
3
2
1
0
45.9
38.2
21.2
13.4
2.4
2.9
3.1
4.3
3.1
1
2
3
4
5
50
40
30
20
10
0
Poverty Headcount ratio (%)
Average GDPA growth rates (%)
Poverty at PPP $1.90/day (%)
Source: CSO and World Bank data

- How do we move forward and what lessons can one learn from Montek's engagement with policy formulation?
- The Economic Survey of 2019-20 makes a case for restricting food subsidy to 20 per cent of the population — the head count poverty in 2015 as per the World Bank's $1.9/per capita per day (PPP) definition was only 13.4 per cent.
- For the others, the issue prices of rice and wheat need to be linked to at least 50 per cent of the procurement price or, even better, 50 per cent of the FCI's economic cost. Unless we make progress on this front, it is difficult to unlock resources for the growth of agriculture, which slumped from 4.3 per cent during UPA-2 to 3.1 per cent during Modi 1.0.

Part 2 –budget & food grain management

- If there is one thing that bewilders a reader of the Union budget for 2020-21 in the agri-food space, it is the massive reduction in food subsidy.
- The revised estimates (RE) for food subsidy for 2019-20 have been slashed by a whopping Rs 75,552 crore — from the budgeted estimate (BE) of Rs 1,84,220 crore to Rs 1,08,668 crore (RE).
- For the next fiscal year, the budget estimate has been kept at Rs 1,15,570 crore. One wonders whether any major reforms have been undertaken in the grain management system or in the National Food Security Act such that this massive reduction in budget estimates is feasible
- The Food Corporation of India (FCI) has been asked to borrow more from a myriad sources, but most importantly from the National Small Savings Fund (NSSF). An item that should have been in the budget, is now getting reflected as outstanding dues of FCI

FIGURE 1: FOOD SUBSIDY ALLOCATION, OUTSTANDING DUES TO FCI, EFFECTIVE FOOD SUBSIDY (₹ CRORE)

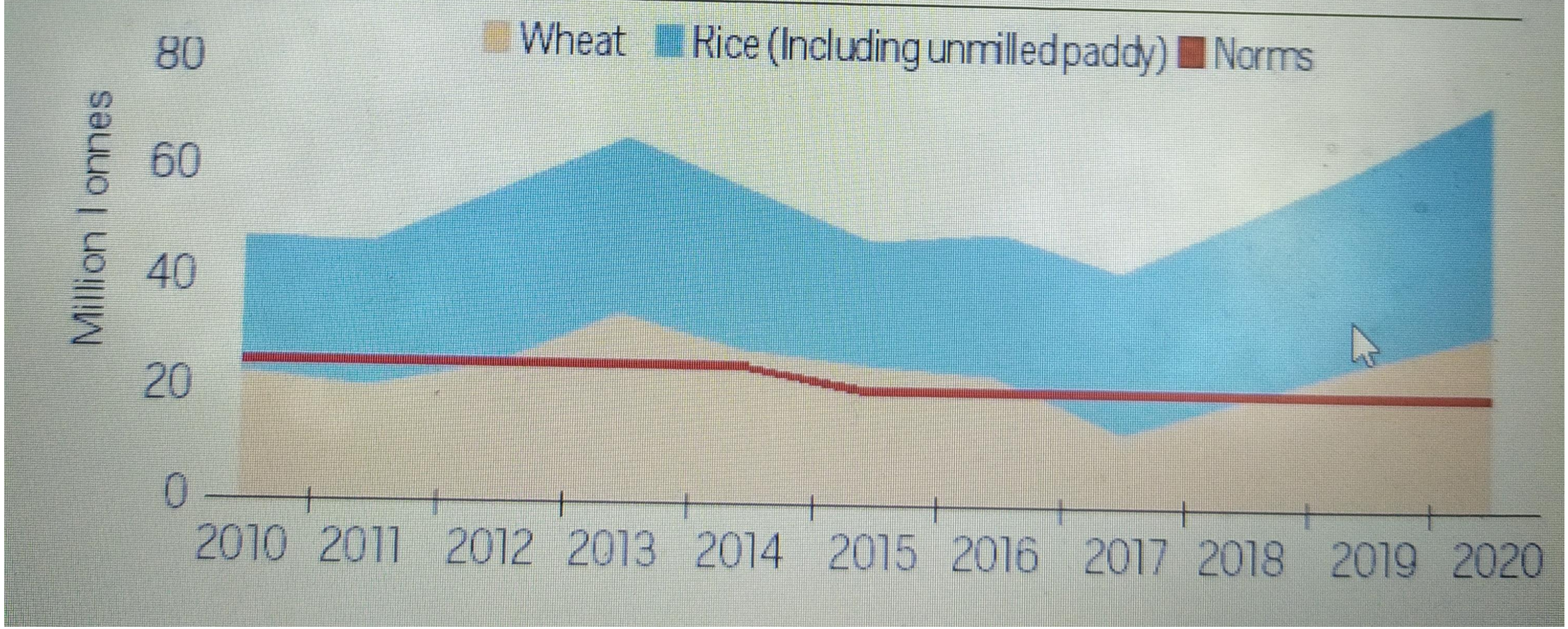


- Figure 1 gives the implications of this. In order to gauge how much is the effective food subsidy in the country, the budget numbers are becoming totally irrelevant.
- One needs to add the actual subsidy numbers reflected in the budget to the outstanding dues of FCI. If one does that, the effective food subsidy turns out to be Rs 3,57,688 crore. By not provisioning for it fully in the budget, and not undertaking any reforms in the foodgrain management system or the NFSA, the government is only postponing the crisis.

- While the Economic Survey clearly states that the coverage under NFSA needs to be revisited, and brought down to say 20 per cent of population, the budget did not bite this bullet. Maybe something will come up later in the year.
- In the meantime, it is worth noting that the expected cost of rice to FCI in 2020-21 is going to be about Rs 37/kg, and for wheat it will be Rs 27/kg.
- The issue price, that covers 67 per cent of the population, is just Rs 3/kg and Rs 2/kg respectively. Can 67 per cent of the Indian population not afford even basic food? If so, what is the development that we have been talking about all these decades?
- Now, look at the grain situation in the country. Compared to a buffer stock norm of 21.4 million tonnes, actual stocks with FCI (including unmilled paddy) were 3.5 times higher. It speaks of a colossal waste of scarce resources, especially when tax revenues have been sluggish

- Given that Skymet has predicted that the coming wheat crop is going to be one of the best in many years — it is likely to touch 113 million tonnes — and with procurement prices being above global prices, the chances of wheat exports are bleak unless there is a subsidy for exports and that will be challenged in the WTO.
- So, one should expect a piling up of grains stocks with a record procurement of wheat. FCI may run out of storage capacity. Stock levels may touch 85-90 million tonnes, or even more, by July 1, 2020.

FIGURE 2: GRAIN STOCKS WITH FCI AND BUFFER STOCK NORMS (AS ON JANUARY 1 EACH YEAR)



- The budget does not give any indication of reforms in the grain management system that may be ushered in months to come. In their absence, one wonders what is the game plan of the government.
- Reforms in food grain management have to start with reforming the PDS system, and gradually moving away from grains to cash transfers.
- The policy of procurement prices, with open-ended procurement in the Punjab-Haryana belt is doing more damage by depleting the water table and not letting crop diversification take place.
- This is very unfortunate as the “dead loss” in grain management runs to more than Rs 1,00,000 crore. This does not speak good of the government. It looks like the government’s attitude is like an ostrich with its head in sand, nay grain.

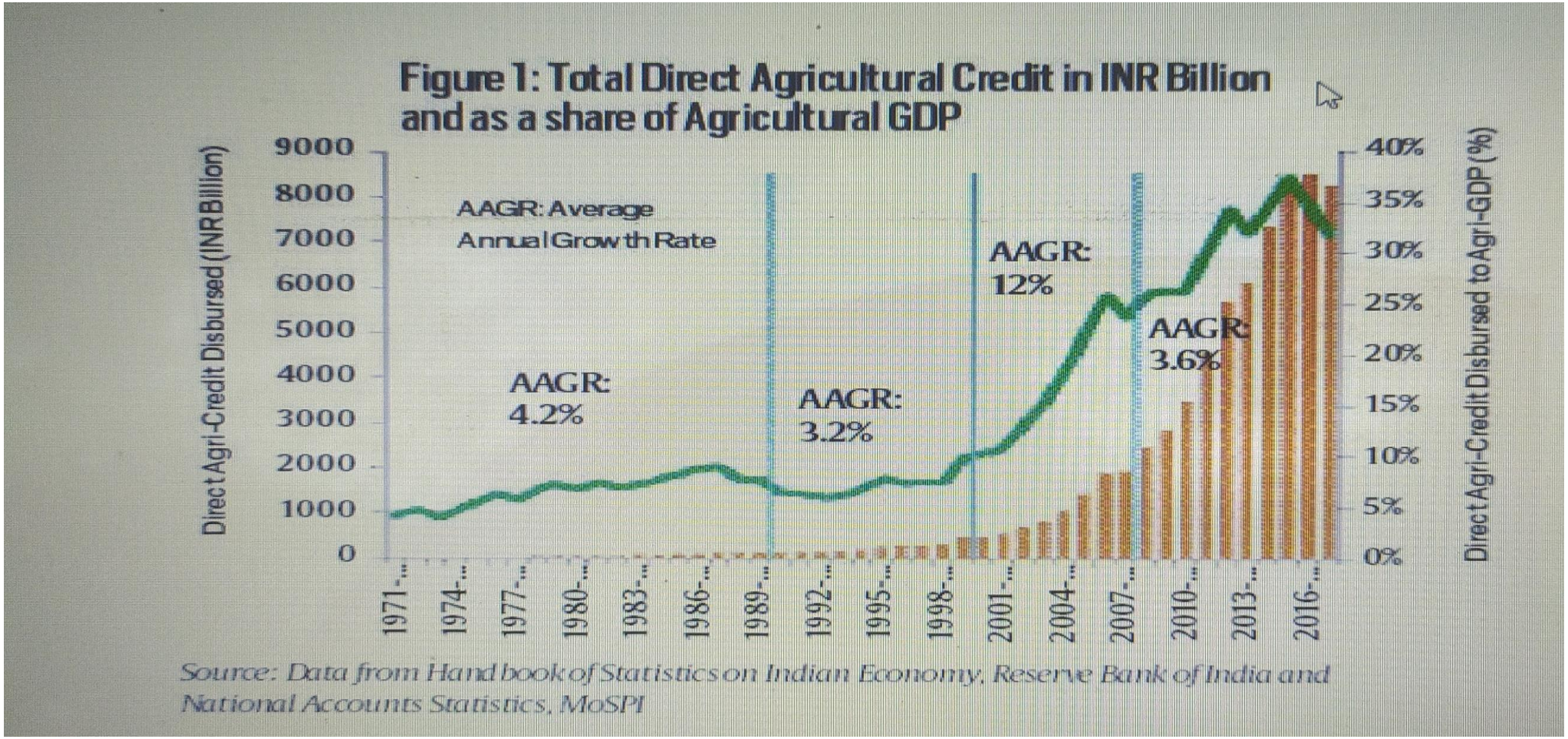
- The other part related to this is the fertilizer subsidy, which is largely used in wheat and rice. The budget estimates for 2020-21 show a reduction in the subsidy, while dues of the fertilizer industry keep on piling.
- The fertilizer industry estimates that by April 2020, the dues will be roughly Rs 60,000 crore. While FCI has been asked to borrow, the fertilizer industry does not have that type of window. It is feeling totally demoralized.
- No private player wants to come and invest in this sector. Due to which, all new plants are being set up by the public sector, which will be another major problem in years to come.
- This is happening when the budget speaks of zero budget natural farming. This gives the impression that there is a serious coordination problem within the government in terms of policy.

Agricultural credit – Lecture 6

For non agricultural purposes

- Normally, a sector’s credit off-take is a sign of its health. Higher the off-take, the better the sector’s performance. There has been a healthy off-take of ground-level credit (GLC) in agriculture and allied sectors. In the financial year (FY) 2018-19, banks disbursed Rs 12.55 trillion as GLC to agriculture, surpassing the government’s target of Rs 11 trillion.
- This should be cause for celebration but, unfortunately, the agriculture sector’s performance has not been commensurate with the credit that it has received.
- What has gone wrong? Let us go into some lesser-known facts about Agri-credit in India to answer this question.

Agricultural credit as ratio of Agri-GDP



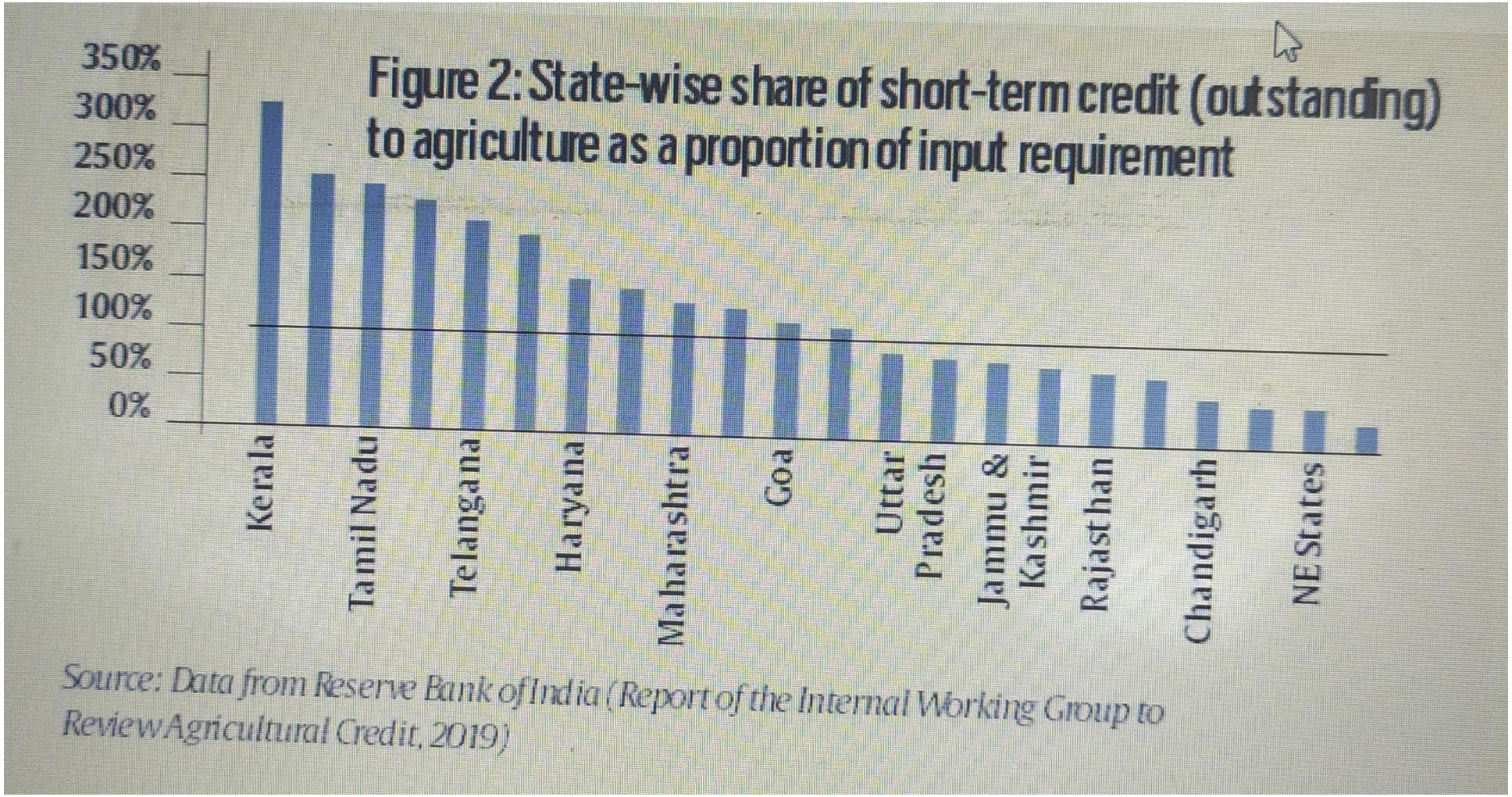
- Figure 1 presents the absolute amount of direct institutional credit flow to the agriculture sector. There is no doubt that over a more than 40-year period, from 1971-72 to 2017-18, there has been a more than 1,000 time increase in Agri-credit — from a meagre Rs 7.8 billion to Rs 8,235 billion.
- However, as a percentage of the agricultural GDP, which should be the real measure of Agri-credit growth, the rise has not been smooth.
- For example, during the pre-reform period (1971-72 to 1989-90), direct Agri-credit flow as percentage of Agri-GDP increased at a modest average annual growth rate (AAGR) of 4.2 per cent. However, during 1990-91 to 1999-2000, AAGR decelerated to 3.2 per cent per annum

- But during 2000-01-2007-08, it witnessed a tremendous growth at 12 per cent per annum, only to fall back to just 3.6 per cent per annum in the period between 2008-09 and 2017-18.
- The massive growth during 2000-01 to 2007-08 appears to be due to an innovative credit instrument, the Kisan Credit Card (KCC), and a policy intervention, the Interest Subvention Scheme, which incentivized short-term credit.
- The slowdown after 2008 appears to be due to a loan waiver scheme, which led bankers to be more conservative in lending to farmers. Bankers feared that farmers will default on their loans because they expect loan waiver schemes.

- Interestingly, the All India Financial Inclusion Survey (NAFIS) of 2015-16 by NABARD reported that 30.3 per cent of all agriculture households availed credit from institutional sources.
- It could be said that the remaining Agri-households either don't need credit or they are not "bankable", or both.
- However, the fact that almost 70 per cent of Agri-households did not avail institutional credit shows that there is much scope for the banking sector to extend its reach — be it lending for production purposes (crop loans), investment or even consumption purposes.

- The Centre started an interest subvention scheme in 2006. This involved giving crop loans to farmers at 7 per cent interest rate; those who paid their loans back regularly would then get crop loans at a 4 per cent interest rate.
- This is usually done in a situation when the informal sector's interest rates — even the rates of micro-finance institutions — range from 15-30 per cent.
- The scheme created opportunities for farmers to take crop loans at subsidized interest rates from the banking sector and then divert them for non-agriculture purposes. An idea of this diversion of Agri-credit to non-agricultural purposes can be had by looking at Agri-credit as a percentage of the value of input requirements in agriculture.

Short term credit as ratio of input requirement



- Figure 2 presents the state level picture for the triennium average ending (TE) 2016-17. The total short-term credit (outstanding) to agriculture and allied sectors as a proportion of input requirements (GVO-GVA) was substantially above 100 per cent for many states in South and North India — Kerala (326 per cent), Andhra Pradesh (254 per cent), Tamil Nadu (245 per cent), Punjab (231 per cent), Telangana (210 per cent).
- This is a clear indication that Agri-loans are being diverted for non-farm purposes. One reason for this diversion is the low interest rate being charged under the interest subvention scheme.
- Another interesting feature is that in the total direct credit (outstanding) to agriculture and allied sectors, the share of short-term credit witnessed a significant jump from 44 per cent in 1981-82 to 74.3 per cent in 2015-16 whereas, somewhat worryingly, the share of long-term credit fell from 56.1 per cent in 1981-82 to 25.3 per cent in 2015-16.

- Since long-term credit is basically for investments and capital formation in agriculture, this dramatic fall in the share of such credit takes a heavy toll on farm productivity and the overall growth of the Agri-sector.
- It is, therefore, high time to revisit the interest subvention policy, which is leading to sub-optimal results in the agriculture sector. For the sake of transparency, all crops loans, especially those availing interest subvention, should be routed through Kisan Credit Cards.
- The last Economic Survey reported that 150 million such cards had been issued by March 2016. But the NAFIS survey reported that only 10 per cent of farmers used such cards in the agricultural year 2015-16. The reluctance of farmers to use Kisan Credit Cards requires more research. Even then, the issuing of these cards in remote villages needs to be expedited.

- A bolder step in this direction would be to empower farmers by giving them direct income support on a per hectare basis — rather than hugely subsidizing credit.
- Streamlining the Agri-credit system to facilitate higher crop loans to farmer-producer organizations against commodity stocks can be a win-win model to spur agriculture growth.

LET THE FARMER CHOOSE
Lecture 7

Zero budget natural farming

Zero Budget Natural Farming

- The concept, fathered by Subhash Palekar, uses dung from desi black cows, their urine, adds jaggery and pulses' flour in certain proportions and deploys that, as jeevamrit, to augment microbial activity in soil.
- This is supposed to make our soils healthier and augment productivity in a sustainable manner. Incidentally, ZBNF was also mentioned as the future of Indian agriculture by Nirmala Sitharaman in her maiden budget speech.
- ZBNF's basic concept is that over 98 per cent of the nutrients required by crops for photosynthesis – carbon dioxide, nitrogen, water and solar energy – are already supplied "free" from the air, rains and sun.

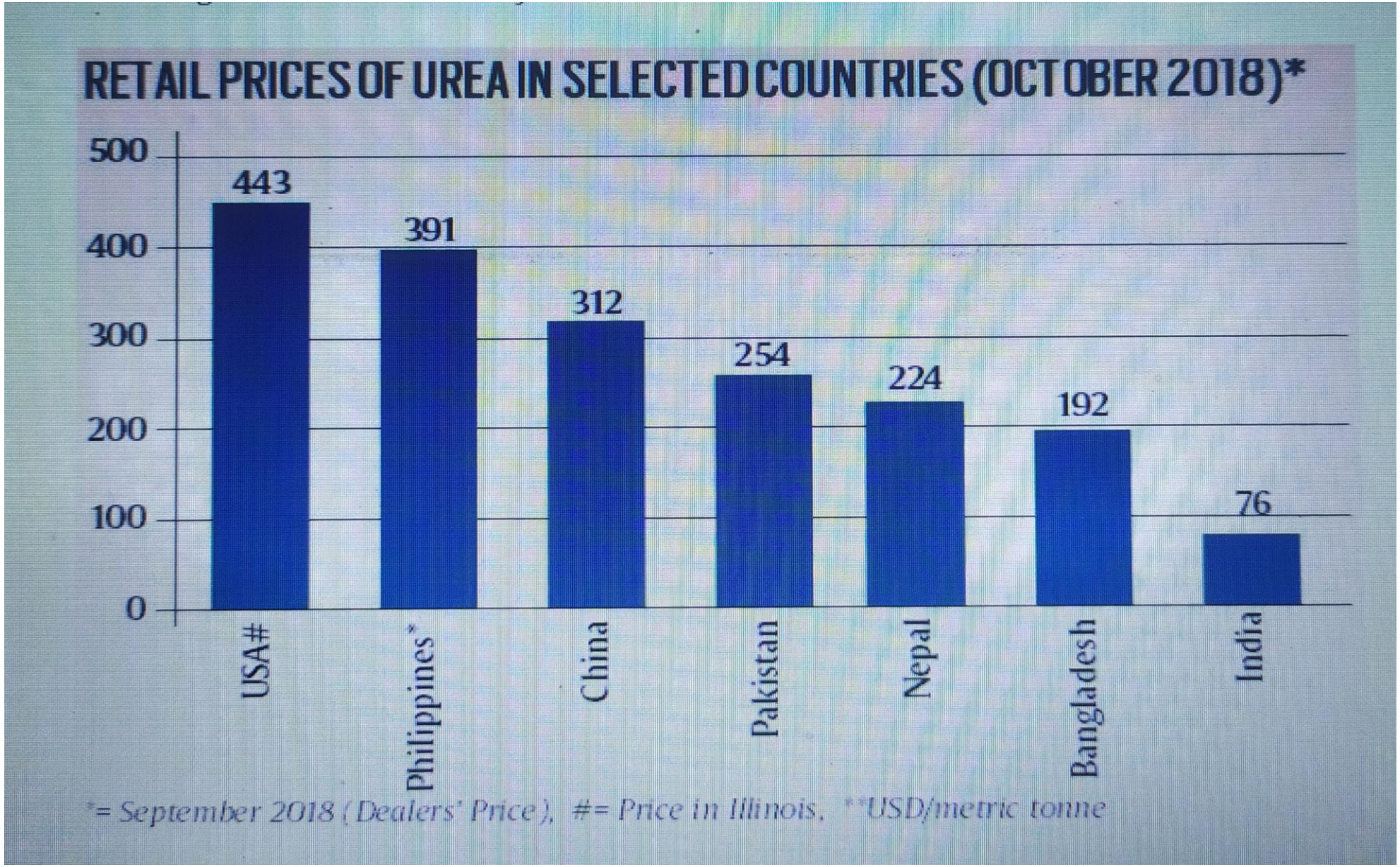
- Only the remaining 1.5-2 per cent nutrients need to be taken from the soil and converted from “non-available” to “available” form (for intake by the roots) through the action of microorganisms.
- To enable the microorganisms do their jobs, farmers must apply ‘Jiwamrita’ (microbial culture) and ‘Bijamrita’ (seed treatment solution), besides ‘Mulching’ (covering plants with a layer of dried straw or fallen leaves) and ‘Waaphasa’ (giving water outside the plant’s canopy) to maintain the right soil temperature-moisture-air balance.
- For insect and pest management, ZBNF recommends use of ‘Agniastra’, ‘Brahmastra’ and ‘Neemastra’, which, like ‘Jiwamrita’ and ‘Bijamrita’, are concoctions based mainly on urine and dung from desi cows. Since these also do not have to be purchased, it makes farming practically “zero-budget”.

- Critics, however, note that plant growth and crop yields require nitrogen, which is also a major component of amino acids that are the building blocks of proteins. “78 per cent of air is nitrogen, but it is not freely available to plants.
- Being non-reactive, atmospheric nitrogen has to be fixed into a plant-usable form such as ammonia or urea. Even maintaining indigenous cows and collecting their dung and urine — the main ingredients in Palekar’s microbial, seed treatment and insect pest management solutions — entails labour cost.
- Simply put, agriculture can never be zero budget. Also, crop yields cannot go up beyond a point with just cow dung that has only around 3 per cent nitrogen (as against 46 per cent in urea), 2 per cent phosphorous (46 per cent in di-ammonium phosphate) and 1 per cent potassium (60 per cent in muriate of potash).

- That said, there is a strong case for promoting techniques such as conservation tillage, trash mulching, green manuring and vermi-composting, apart from reducing use of chemical fertilizers and insecticides through integrated nutrient and pest management. The time has also come for eliminating fertilizer subsidies to encourage their judicious use.

Subsidy promoting overuse

- Nutrient Based Subsidy (NBS) scheme was introduced in 2010. It almost freed prices of P and K from government control and provided some fixed subsidy on these fertilizers on a per tonne basis.
- However, N (urea) was excluded from this scheme. As a result while DAP (di-ammonium phosphate) and MOP (muriate of potash) carry a subsidy of about 25-30 per cent of their cost of production, urea has a subsidy of more than 75 per cent on its cost of production
- The Indian urea prices are perhaps lowest in the world, and certainly lowest amongst the major countries (see graph on next slide).
- No wonder, there is overuse of urea in relation to DAP and MOP. Normally, whenever chemical fertilizers are used, a good dosage of FYM is recommended. So FYM, or something akin to jeevamrit, is conceived as a supplement, not a substitute of chemical fertilisers.


RETAIL PRICES OF UREA IN SELECTED COUNTRIES (OCTOBER 2018)*
500
400
300
200
100
0
443
391
312
254
224
192
76
USA#
Philippines*
China
Pakistan
Nepal
Bangladesh
India
*= September 2018 (Dealers' Price), #= Price in Illinois, **USD/metric tonne

- The PM-Kisan Yojana (PMKY) — an income support of Rs 6,000 per year to small and marginal farmer households — was announced before the parliamentary elections. Later it was extended to the families of all farmers. The 2019-20 Union budget has provisioned Rs 75,000 crore for this scheme.
- This is the first step towards direct cash (income) transfer to farmers' accounts. This scheme will be meaningful if other subsidies — such as those on food, fertilizer, power and irrigation, and Agri-credit — are clubbed with the PMKY and given directly to farmers. The move should be complemented by allowing market forces to set prices.

- But there could be serious questions if the government’s intention is to completely jettison chemical fertilizers — PM talked of halving fertilizer consumption in his “Mann ki Baat” speech of November 26, 2017.
- First, has the Indian Council of Agriculture Research (ICAR) studied the possible impact of ZBNF on yields of major crops like wheat and rice in comparison to chemical fertilizer-based farming? It needs to do large scale testing in different regions to see the nationwide implications of ZBNF on the overall production of major crops.
- In fact, the limited information that is available suggests a 30 to 50 per cent drop in yields. That could puncture a big hole in India’s food security basket.

- Second, if the PM wants to cut fertilizer consumption by half by 2022, why is the government investing in new urea plants of 1.27 million tonne, each under the public sector —at Gorakhpur in UP, Barauni in Bihar, Ramagundam in AP, Sindri in Jharkhand and Talcher in Odisha.
- The combined capacity of these plants is likely to be about 6.35 million tonne and the production cost more than $400 per tonne. This raises question regarding the coherence in government plaining and its actions.
- The government should give farmers a fixed sum of money per acre, which they can use to buy chemical-based inputs or to engage the extra labour necessary for organic agricultural practices. Discrimination must end; let the farmer choose between non-organic, organic or even ZBNF.

Fertilizer Subsidy- Lecture 8

Excessive Use of Urea

- While presenting the Union budget 2020-2021 on February 1, 2020 finance minister Nirmala Sitharaman emphasized that the central government would encourage balanced use of all types of fertilizers, including traditional organic and other innovative varieties to bring about a change in the prevailing regime that encourages excessive use of chemical fertilizers.
- While the announcement is a move in the right direction, its implementation is a huge challenge for essentially two reasons: One, due to policies that favor excessive and imbalanced use of chemical fertilizers; two, due to lack of any serious attempt to promote organic fertilizers and city compost on a large scale.
- Consider this: In the Union Budget 2019-20, the government emphasized on ‘zero-budget farming’ that reduces dependency on chemical fertilizers. But its widespread adoption is yet to be seen.

- Last year, Delhi-based Centre for Science and Environment conducted a comprehensive study of the fertilizer sector and identified policy gaps that lead to imbalanced use of fertilizers in the country.
- The imbalanced use of fertilizers in India is evident from the fact that the current ratio of nitrogen, phosphorus and potassium (N:P:K) in agricultural soil in several states is skewed towards nitrogen.
- While the desirable ratio of N-P-K application is 4:2:1, it is 31.4:8:1 in Punjab. This imbalance causes problems, right from stagnating or declining productivity to soil sickness, widespread deficiency of secondary nutrients and micronutrients, and soil alkalinity and salinity.
- Eventually, it results in reduced efficiency of fertilizers, low yields and low profitability for farmers. Also, nitrogen pollution of surface and groundwater due to excessive fertilizer use has reached alarming levels in several states.

- In parts of Punjab, Haryana and western Uttar Pradesh, nitrate (NO3) concentrations in dug wells and shallow bore-wells exceed the limits prescribed by the World Health Organization (WHO) by several times.
- Chemical fertilizers are currently the major emitters of nitrous oxide gas (N2O), which is a potent greenhouse gas and ozone depleting substance.
- The prime reason for such nutrient imbalance in the country is heavy subsidies on urea — in the 1970s, urea subsidy used to be 10-20 per cent of the cost of production; its now at 75 per cent.
- This has led to excessive use of urea in agriculture over the other chemical fertilizers. In fact, the share of urea consumption among all nitrogenous fertilizers is the highest 80 per cent in India, compared with 23 per cent in the United States and Europe, 54 per cent in Brazil and 46 per cent in China.

- This shows there is an urgent need for the sector to shift its focus from urea alone to producing and promoting a balanced spectrum of NPK fertilizers as well as micro-nutrients such as Sulphur, zinc, boron, iron, manganese and copper which are dwindling in the Indian soil at an alarming rate.
- The government must also bring in reforms in its policies to promote the balanced use of fertilizers. To begin with, it must introduce a measure of decontrol in the urea sector. Decontrolling urea will promote balanced fertiliser use, improved soil health and will reduce subsidy burden.
- Simultaneously, efforts must be made to promote the use of organic manure, bio-fertilizers and city compost. One way of doing this is to assess the sector not in terms of the volume of fertilizers it produces but by analyzing the improved soil health and better yield.
- As bio- fertilizers, organic manure and city compost come with a much lower environmental footprint than synthetic fertilizers, their use must be promoted through suitable policies.

- Organic fertilizers not only contain essential plant nutrients, but also increase organic soil carbon and support soil microbial life, which is the key to good soil and plant health. They also promote more efficient use of any synthetic fertilizers applied.
- Long-term fertilizer experiments conducted in India have indicated that the response to fertilizers could be increased significantly with balanced application of organic manures in addition to synthetic fertilizers.
- The average response ratios (grain: nutrient) were 8.1, 10.1, 12.8 and 15.2, respectively under N, NP, NPK and NPK+ Farm Yard Manure, thus pointing to the importance of organic manures and fertilizers.
- Bio-fertilizers are the other product that can be profitable to industry and farmers while being less harmful to the environment. While the fertilizer industry already produces and sells bio-fertilizers, it needs to do more in this potential growth area.

- City compost contains all 17 elements essential for soil health but it has not been encouraged much by governments. Since poor segregation of inorganic and organic wastes at source hampers the growth of city composting, the government must spread awareness about it and offer subsidies, along the lines of other fertilizers, to promote its sales.

- Note : We are done with agriculture , next lecture will be on recent GDP numbers related controversy.

THE GREAT INDIAN GDP DEBATE
Lecture -9

Summarised under five heads

By Nikita kwatra

Revision Controversy

- In January last year, the Ministry of Statistics and Programme Implementation (Mospi) published the revised growth estimates for fiscal 2017, raising growth for that year by 1.1 percentage points to 8.2 percent, the highest in a decade. Stunned economists were unable to fathom how such a large revision could take place in a year when demonetization had sucked out 86 percent of the cash in circulation, and evidence from other sources indicated that the economy was hit even if temporarily by that move .
- In a joint statement in March 2019, 108 economists and social scientists highlighted this issue as one of the areas of concern, suggesting that the revision might have been affected because of ‘political considerations’.
- There is no evidence as yet that there were indeed such considerations at play in this episode. However, it does show that an old problem with the GDP series --- of volatile revisions --- may have become worse.

- In a first-of-its-kind analysis of revisions to GDP data, Amey Sapre of the Delhi-based National Institute of Public Finance and Policy (NIPFP) (a think tank funded by the finance ministry) and Rajeshwari Sengupta of the Mumbai-based Indira Gandhi Institute of Development Research (IGIDR) (a research institute funded by the Reserve Bank of India) showed that sectoral revisions for some sectors has historically been large and unpredictable.

- Their research published by NIPFP as a working paper in 2017 suggested that the revisions (between advance estimates and revised estimates) in overall GDP numbers are relatively smaller in magnitude (and volatility) but noted that overall revisions tend to have an upward bias. Given data limitations, there is no separate analysis for the old and new series.
- Nonetheless, the data presented by the scholars suggest that the revision between the first and second revised estimate in fiscal 2017 (1.1 percentage points) was indeed exceptional. The average difference between the first and second revised estimates between 2004-05 and 2015-16 was 0.3 percentage points.
- Large revisions not only raise questions on credibility but also create challenges for policymakers. Since revised data is available much later, policymakers rely on initial (advance or provisional) estimates to take policy decisions. If advance estimates suggest weak growth, it can prompt policymakers to stimulate the economy.

- But revised estimates may suggest the opposite and by the time those estimates are available, the economy could be in the midst of a stimulus-driven inflationary spiral. Policymakers designing sectoral packages face even greater challenges.
- The problem of revisions could have been managed better had there been transparency regarding revisions. Unfortunately, that is not the case in India.
- “We...find a lack of information about the process of revisions as compared to international practices," wrote Sapre and Sengupta. “An ideal revision process undertaken (by) the national statistical agency should also contain a discussion on the relevance, reliability, and accuracy of the GDP estimates so as to convey a transparent picture to the various stakeholders."

The overestimation bias in informal sector growth

- Ever since the new GDP series was introduced in 2015, critics have questioned the manner in which informal sector growth has been estimated. The assumption in the new series that the informal manufacturing sector grew at the same rate as the formal manufacturing sector (as measured by the Annual Survey of Industries or ASI) was also questioned.
- Subsequent research by G.C. Manna, a senior adviser at the National Council of Applied Economic Research (NCAER) and a former director general at the Central Statistics Office (CSO), showed that there was indeed a wide divergence between growth rates reported by ASI for quasi-corporates (proprietary and partnership units) and those derived from informal sector surveys.
- This suggests that the informal sector growth in the new series could be substantially inflated. This may also explain why the impact of demonetization on the economy was not captured adequately in our official statistics.

The deflator controversy

- The other source of controversy around the new GDP series has centered on the issue of deflators, which are used to separate the nominal growth in GDP from the real GDP growth (adjusting for inflation or deflation in prices).
- This is partly a legacy problem, but some critics argue that this problem may have worsened in the new series
- In a 2016 op-ed article for Mint (See 'Real GDP is growing at 5%, not 7.1%', 14 March 2016) , Sengupta of IGIDR pointed out that the use of the wholesale price index (WPI) as deflator for several sectors of the economy (particularly services) is inappropriate, and if alternative deflators were used, the growth rate could come down by a couple of percentage points.
- Other scholars have also pointed out that the use of a single deflator is problematic since it assumes that input and output prices move in the same manner. If that assumption is dropped and a 'double-deflation' method is applied to compute real GDP growth, the estimates could change significantly.

- Even if there is no systematic bias because of single deflation, underestimating growth in one year and overestimating it in another can complicate the task of policymakers, who rely on real-time estimates to frame policies. It is not surprising therefore that the chief economist of the International Monetary Fund (IMF), Gita Gopinath, raised red flags over the way deflators are being used in India's growth calculations and the lack of transparency around them.

The MCA-21 controversy

- The most contentious aspect of the new GDP series has been the use of an untested corporate database, MCA-21 and the manner in which it has been plugged into the national accounts.
- There are three main issues regarding MCA-21. The first relates to CSO's assumption that non-reporting companies contribute positively to GVA growth, and hence a multiplier (or blow-up factor based on paid-up capital) is justified to account for the missing firms in the database. Several experts including the former chief statistician, Pronab Sen, have questioned the 'blow-up' methodology.
- The second issue relates to the quality of the returns filed by companies, which according to some experts should not be directly plugged into national accounts estimation without cross-checks and validation, as is being done now (See 'The unanswered questions in India's GDP estimation', Mint May 21 2019).
- Even a National Statistical Commission (NSC) committee raised red flags on these issues in its 2018 report on real sector statistics.

- The third issue relates to the mis-classification problem. The use of the MCA-21 database has led to a situation where we don’t know clearly ‘how much is being produced in which sector and in which state’, in the words of Rajakumar of EPWRF.
- The mis-classification of firms has important implications for economic policy. The policy response to a manufacturing slowdown can be different from a policy response to a slowdown in services.
- But if there is no way to tell from the data, policymakers will continue to have to rely on rough proxies and their intuition for important policy decisions.
- The MCA-21 database also lacks state-wise details, which has ‘distorted’ the state-level GDP numbers, according to Dholakia, who is now heading a Mospi-appointed committee to improve the gross state domestic product (GSDP) estimates. The new series has led to huge swings in the fortunes of states.

- The change has boosted the size of several state economies, easing their financing constraints even while raising such constraints for poorer states. This has created complications for the 15th Finance Commission, which is now trying to 'reconcile' the data, according to Finance Commission officials (See 'How new GDP series has swung fortunes of states', Mint May 15 2019).
- While some of these issues can be resolved only in the next base-change exercise, greater transparency on the methodology and better data dissemination standards can help improve the credibility of the official GDP numbers.
- The CSO, which has now been merged with NSSO, can learn from the latter's dissemination policies and start releasing unit-level data for all databases used in national accounts estimation (including MCA-21) in a machine readable format so that independent researchers can assess the quality of the data being fed into national accounts.