An assessment of the impact of liberalization and globalization on Indian agricultural Sector: With special emphasis on the role of WTO-AOA

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0. Introduction

In the midst of a wave of globalization, some dark aspects of the problems associated with preaching for Liberalization, privatization and globalization policies in India need to be revisited. India is among the very few countries to open up their economy to the whole world only after continuous battles with tariffs in the 1991 economic reforms. Till then we largely depended on our own resources to meet the demands of people in a self-sufficient economy. The idea of LPG was to have manufacture led growth and development (following the path of Europe, USA Asian Tigers etc.). Thus the 1991 reforms, although brought the primary sector closer to world markets, have somehow simultaneously co-existed with the increasing agrarian stress and declining agrarian prosperity in India in both measurable units (wages and yield per hectare) as well as intangible losses in terms of increased incoherence between social groups et al. Till date, livelihood of 836 million people is dependent on agriculture in India and close to half of employed Indians work in agriculture. The proportion of people depending in India on agriculture is about 60 % whereas the same for the UK is 2 percent, for USA it is 2 percent and for Japan it is 3 percent. The statement is of course a gross understatement if we consider the fact that Indians do not consider women as farmers and landless farmers are also not considered as farmers. Indian agrarian system is fundamentally of different nature. Majority of the agrarian land in Europe and also in Latin America are large areas were one can apply the mechanized modern technologies for large scale production. In India the lands are extensively divided and yield low marginal value. Keeping aside the agency principal problem arising due to the unique and controversial Landlord-tenant relationship In India, the lands are very small for applying even tractors. Besides, Indian agriculture heavily lacks in proper irrigation facilities and storage infrastructure. It is very much evident that Indian Primary sector is not working at its full capacity. With fundamental issues like lack of comprehensive food security and insufficient earnings of the farmers still persistent, the question automatically rises, whether India jumped too early away from primary sector? To follow a western pattern of growth directly, without meeting the perquisites is like building a mansion over a weak foundation. Besides, after Liberalization the impact of WTO, ILO and other multinational institutions on Indian agriculture are now much more significant. Thus, this assessment of ours is to delineate the impact of opening up to trade on Indian farmers by analyzing not just the economic problems outlined by incoherent liberalization policies but also the political economy of institutions spearheading the free trade movement and their real impact on our economy.

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Approach of Study

Notwithstanding numerous domestic policies cited by central government at various stages, the problems in agriculture in Indian states continues till the day and in light of this our study is to find the missing linkages. The basic domestic institutional and infrastructural problems (collection of seeds, storage et al) of the country are highlighted, and improving upon them should be in pari passu with trade and not left out to be taken care of by international markets alone.
We also delve into the important problems within the structure of global associations such as WTO In terms of which countries are generally "most favored", and how clauses could be misrepresented to yield undue advantage to certain beneficiaries. We invoke politico-economic cases to read into the problems of such institutions and if our country genuinely requires to yield to certain "universal" clauses to redress it's more or less "localized" problem. The political aspect of this problem could tell us much more than just the problems of low and irregular incomes so that we can argue for a different administrative or rather advisory structure for third world countries in general. The paper also deals with some of the criticisms involving certain widely followed theories and their representations and attempt at suggestions to improve the agrarian condition in India. Moreover, insights from the cases and data are used to argue if developing nations can be simply grouped together and bland "global" policies can be used to solve different "local" problems. Valuable comments are provided to stress on the evidence that the developed nations are themselves interested in an intro-word, self-sufficient, highly protective policy while blaming the developing nations of being over protective and conservative. This paper is trying to address the economic and political issues which the primary sectors of India is facing with equal importance as we believe that economic aspects are just half of the story in the real world. It proposes along, with some possible temporary but very important solutions through policy and infrastructural changes, a serious revisiting of the very idea of open economic development strategy for developing nations like India. In other words, it will try to argue, with suitable case studies from history, that an institutional rather than policy change is what is required for improving the agrarian situation in India.

The paper consists of six parts. In the first section a brief summary of the Indian Agrarian performance is documented with emphasis on post liberalization agrarian crisis. Second section comprises of the functioning of WTO and AOA. The third and the fourth section, through economic and political literature review is arguing out that theory and reality are different like hell and heaven. Problems associated with the economic theories of negligence of the market power in one hand and overemphasizing on liberalization is presented in this two sections. Besides the blatant mistakes in WTO measurement and assessment are also criticized here. The fifth section is an effort to present a GLM model to judge the effect of trade openness index and

capital formation index on the agricultural output. Sixth section tries to give a set of policy level as well as institution level solution with emphasis on nurturing the community property rights

Key Words: LPG, WTO, AOA, agriculture, farmers, institutions, competition, power, community rights, agricultural extensions, infant industry, agrarian crisis, politics, domestic policies.

1. Agriculture in India

1.1.Performance of Agricultural sector in India

Agriculture forms the backbone of Indian economy. Although its share in the country's GDP has declined, to 13.9% during 2013-14, it continues to retain its importance in the economic and social fabric of the system. Nearly three quarters of India's families are dependent on this sector for subsistence. This sector has been a major driving force in stimulating Indian economy on its growth path. Although, it seemed to be neglected initially, policies have been implemented in various Five Year Plans to reach the status of self-sufficiency in food grains that we enjoy today.

Agriculture and allied sectors provide employment to almost 60 percent of people in the workforce. Agricultural export constitutes 10 per cent of the country's exports and is the fourth-largest exported principal commodity. These exported products include tea, coffee, tobacco, spices, cereals, oil meals, fruits and vegetables, marine products, meat and preparations et al. 'India is a global agricultural powerhouse. It is the world's largest producer of milk, pulses, and spices, and has the world's largest cattle herd (buffaloes), as well as the largest area under wheat, rice and cotton. It is the second largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables and tea. The country has some 195 m ha under cultivation of which some 63 percent are rainfed (roughly 125m ha) while 37 percent are irrigated (70m ha). In addition, forests cover some 65m ha of India's land' states the World Bank. All these data suggests that India has a definite comparative advantage in the primary sector and can be the driving force for growth through trade.

On the contrary, in the policy field the scenario is astonishingly very different. Right from the early five year plans India tried to grow through industrialization and the importance of agriculture was only confined to its linkage effects with manufacturing sectors. Jawaharlal Nehru was with a strong belief that self-sufficiency is not achievable if agriculture is not ensuring at least a healthy subsistence living for all. But in practice, even today, this sector is very much underperforming and has been undervalued for growth.

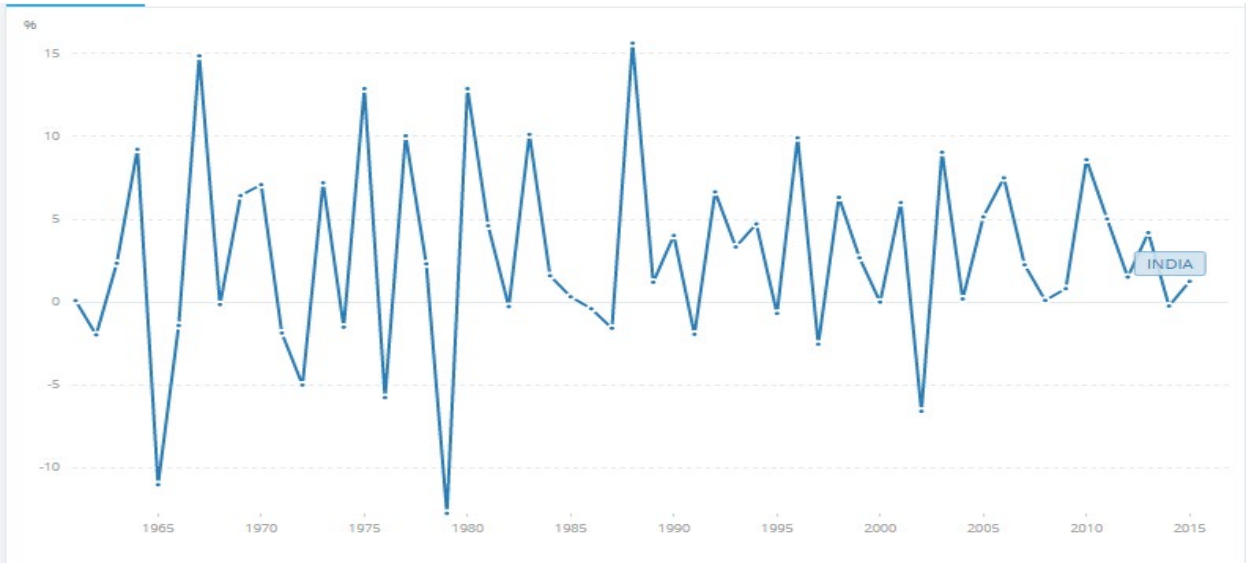

Fig 1: Source:http://data.worldbank.org/indicator/NV.AGR.TOTL.KD.ZG?end=2015&locations=IN&start=1961

The above data suggests that Agriculture growth has been stagnant at a low level of 1-2% from 1960 to 2015. This has been a major matter of concern because of the indispensable role it plays in the socio-economic arena of our country. But when looked at closely, there are several factors that can be attributed for this slow growth in agriculture.

1.2. Common Problems in Agriculture in India

Marginal and small landholding is one of the major reasons for this distress. Nearly 80% of the 140 million farming families hold less than 2 acres of land. Large land holdings enable the farmer to implement modern agricultural techniques and boost productivity. Small land holdings restrict the farmer to use traditional methods of farming and limit productivity (Mahendra Dev, 2012). So a comprehensive tenancy reform with proper incentive schemes is needed to enhance productivity (Ghatak & Roy, 2007). Another factor that can be accounted for is the *unsophisticated infrastructure* like poor roads, lack of proper irrigation system, underperforming agricultural extensions, insufficient storage facility. The state initiatives, through its protectionist policy is creating lots of unnecessary intermediaries and loosing accountability leading to inefficient use of public resources (Dwiwedi, 2011). In addition to all this, is the problem of uncertainty arising due dependence of this sector on the monsoon seasons. This is the case primarily because irrigation system is not fully developed. Only one third of the farmers in India have access to irrigation facilities (Thakkar, 1999). In such cases, farm yield, crops, livestock are all affected owing to the poor risk mitigation support.

Further, India's agricultural practices have become both economically and environmentally unsustainable. Economic instability is due to the excessive price volatility which have increased drastically after the 1991 liberalization (fig: 2), putting farmers into huge uncertainty. The environmental uncertainty is coming due to the use of chemical fertilizers and pesticides along

with high yield variety seeds which is disturbing the natural nutritional cycles of the land. Besides, commercialization of agriculture is creating a monoculture in primary sector hampering the ecological balance. (Vandana Shiva, 2016) The need of the hour is to carefully scrutinize and arrive at a solution that is sustainable and at the same time growth boosting to the agricultural sector in coordination with the ecology.

(Base 1993-94 = 100)

Year/ Month	Rice	Wheat	Jowar	Bajra	Barley	Maize
1	2	3	4	5	6	7
2007	188.1	225.2	300.0	235.2	225.9	237.7
2008	204.9	236.5	326.3	241.0	242.4	248.8
2009	237.9	254.9	367.4	310.5	240.3	285.5

Table 1: All India Index Number of Wholesale Prices of Food Grains; Source: http://eands.dacnet.nic.in/publications.htm

1.3.Agricultural policy in India

Agricultural policies can be broadly classified into three phases; the period from 1950-1960s, the pre green revolution period, second is the period of green revolution which extended till late 1970s and the third began in 1980s. In the first phase, there was a wave of agrarian reforms, development of irrigation projects, land consolidation and land ceiling acts were implemented, and most importantly there was abolition of intermediary landlordism. The Green Revolution period focused mainly on research, spread of technology, price support, credit marketing and input supply. The next stage that was reached in 1980s, was basically market driven. It witnessed 'the process of diversification which resulted in fast growth in the nonfood grain output, such as milk, poultry, fishery, vegetables and fruits which accelerated growth in agricultural GDP during 1980s' (Chand, 1999).

Post 1991 witnessed a series of policy changes through the introduction of liberalization, privatization and globalization. With the aim to make the economic condition market friendly the subsidies on the exports of a set of commercial crops, such as tea and coffee, were withdrawn. Secondly, consequent to India's signing of the WTO agreement in 1995, export controls on almost all the crops were gradually phased out. Thirdly, quantitative restrictions on the imports of commodities like wheat and wheat products, rice, pulses and oilseeds were removed from 2000 onwards and converted to tariff which was consequently followed by significant reduction of tariff rates through the late-1990s and 2000s. (R. Ramakumar, 2007)

1.4.Post liberalization Agrarian crisis

Having mentioned about the success rate and the distress of agricultural sector in our country, we now move on to discuss about the plight of the protagonist of this part, i.e. the farmers. India, even after 70 years of independence remains in the grip of agrarian crisis and this can be seen through the increasing number of farmer's suicides, not only in areas of united Andhra Pradesh and

Vidharba, but also in the flourishing areas of Punjab and Haryana. 'Farmers count has fallen by 9 million since 2001 and this is what makes the farmers' suicides alarming' (Sattiraju, 2016).

Table 2

Farmers' Suicides and All Suicides by Sex in India, 1995-2012

Year	Farmers' Suicides				All Suicides			Farmers' suicides as % of all suicides, Persons
	Males	Females	Persons	Males as % of Persons	Males	Females	Persons	
1995	8295	2425	10720	77.4	52357	36821	89178	12.0
1996	10897	2832	13729	79.4	51206	37035	88241	15.6
1997	11229	2393	13622	82.4	56281	39548	95829	14.2
1998	12986	3029	16015	81.1	61686	43027	104713	15.3
1999	13278	2804	16082	82.6	65488	45099	110587	14.5
2000	13501	3102	16603	81.3	66032	42561	108593	15.3
2001	13829	2586	16415	84.2	66314	42192	108506	15.1
2002	15308	2663	17971	85.2	69332	41085	110417	16.3
2003	14680	2463	17143	85.6	70068	40511	110579	15.5
2004	15929	2312	18241	87.3	72651	41046	113697	16.0
2005	14973	2158	17131	87.4	72916	40998	113914	15.0
2006	14664	2396	17060	86.0	75702	42410	118112	14.4
2007	14509	2123	16632	87.2	79295	43342	122637	13.6
2008	14145	2051	16196	87.3	80544	44473	125017	13.0
2009	14951	2417	17368	86.1	81471	45680	127151	13.7
2010	13592	2372	15964	85.1	87180	47419	134599	11.9
2011	12071	1956	14027	86.1	87839	47746	135585	10.3
2012	11951	1803	13754	86.9	88453	46992	135445	10.2
All years	240788	43885	284673	84.6	1284815	767985	2052800	13.9

Note: There is no farmers' suicides data for Tamil Nadu in 1995 and West Bengal in 2012 because profession-wise data was not provided. There is no suicides data for Jharkhand in 2003, as the published data are a repeat of 2002.
Source: National Crime Records Bureau (NCRB) (Various Years).

The NSSO Report, 2013, states that the monthly income of the agricultural households was 6426 Rupees and their monthly expenditure for the same period was 6223 Rupees. These people earn barely to sustain themselves and on the top of this they have to back their debts. Indebtedness amongst the farmers is not restricted only to the backward areas, the affluent areas, equipped with technology and endowed with diverse crop patterns, face the same distress. The reason for this debt trap can be as followed;

In the post liberalization period there have been cutbacks in agricultural subsidies along with the necessity to meet the international standards of quality which in turn increased the costs of input. There was a shift from the production of food grains to production of cash crops, as anticipated earlier. However in the late 1990s, prices of cash crops began to fall due to removal of all restrictions to import these products, making it uneconomical to produce. The increased cost of production is not being covered under the Minimum Support price and other subsidies even today, due to accepting of WTO conditions over the ceiling of domestic support. Since increase in cost was and continues to be accompanied with reduction in prices, and non-availability of assets and wealth of the poor farmers, there has been enormous debt burden. The problem becomes critical when these farmers' start lending from the informal sector, like the moneylenders, who charge high rate of interest ranging to 60% p.a due to unavailability of easy loans, leading them towards a debt trap. (Aerthayil, 2008)

With opening up of the economy the Indian farmers became the new targeted market for multinational agrochemical and agricultural biotechnology corporations like Monsanto. These

company introduced the BT cotton seed which was resistant to the bollwarm. The royalties and the patents led to rise in prices of cotton seeds. Seeds that were sold at Rs.9 per kg to farmers earlier, cost them Rs.1600 after the Monsanto's entry into the market. After a lot of scrutiny, it has been brought down to Rs.930 per 450 gm packet. Furthermore, contracts had been signed by many Indian Seed Companies with Monsanto, and they had to pay royalties for 'technology traits', and these payments being too high were passed on to the farmers in the form of higher prices. This led to heavy indebtedness of the farmers since they had to borrow from the banks or moneylenders in order to buy seeds which failed in serving what they were supposed to. Besides, the BT cotton seed needed huge infrastructure like irrigation facility or pumps to bring out underground water, which was favoring the large farmers mainly and creating inequality. On the other hand, to make the seed function at its best, i.e. yield more per capita, the seed was sold only in package with pesticides and fertilizers, those were carcinogenic in nature. The future repercussions of the seed was also dangerous as it completely destroys the soils innate nutritional quality creating a derived demand for further fertilizers and chemicals. All these led to nothing but increasing cost, debt and further debt to finance debt. (Shiva, 2009) The current NDA government have taken serious steps to prevent functioning of Monsanto. Instead the baton is passed to Delhi University; with their attempt to pass GM Mustard and GM Brinjal (K P Nair, 2016)

Another reason being given for the agrarian crisis is the drastic reduction in the state's spending on rural development after 1991as a corollary of privatization which has led to loss of purchasing power among rural people. The expenditure of the government in rural development, including agriculture, irrigation, flood control, village industry, energy and transport, declined from an average of 14.5 per cent in 1986-1990 to six per cent in 1995-2000. When the economic reforms started, the annual rate of growth of irrigated land was 2.62 per cent; later it got reduced to 0.5 per cent in the post-reform period. (Gulati & Bhala, 2001)

Reghabendra Jha (Investment and Subsidies in Indian Agriculture), points out that while public investment and investment in agriculture as such has been declining, subsidies for irrigated lands, power and fertilisers have risen.This possible explains the rising Natural assistance to farmer (NRAs) in the face of declining productivity and answers Pursell et al's question of distorting agricultural incentives. Models of full cost recovery and rationalisation of water tariffs have led to a culmination of financing water resources for private sectors offered by development banks. However such privatisation has led to large scale opposition on social, economic and environmental grounds.(such as oppositions in the case of Shivnath river water supply to Borai Industrial Area, Durg in Chhatissgarh, privatisation of domestic water supply in Khandwa and Shivpuri in Madhya Pradesh). Gaurav Dwivedi from the Citizen Consumer and civic action group, on water privatisation and restructuring programs points out that *"none of the above (restructuring projects) discusses in details about the services improvement aspects and better, quality, coverage and access to the local people especially poor and marginalised"*.

Fan and Hazell (2000) write about the possibility of agricultural productivity being higher in rain fed areas and the need to augment productive capacity of agriculture and the technology that can

be dealt with along with increasing availability of working capital (fertilisers subsidies etc). These are further confirmed with the econometrics work of Sudha Narayanan (2015) where a positive correlation is seen to exist between agricultural credit and fertiliser consumption and tractor purchases while yielding no sensitivity of agricultural produce to credit flow. Formal credits have not just been used to purchase inputs that maximise yields but also to irrigate lands to support less rain fed crops which show a lagged effect on productivity and also to pay off informal loans that have been taken and involve high interest rates.

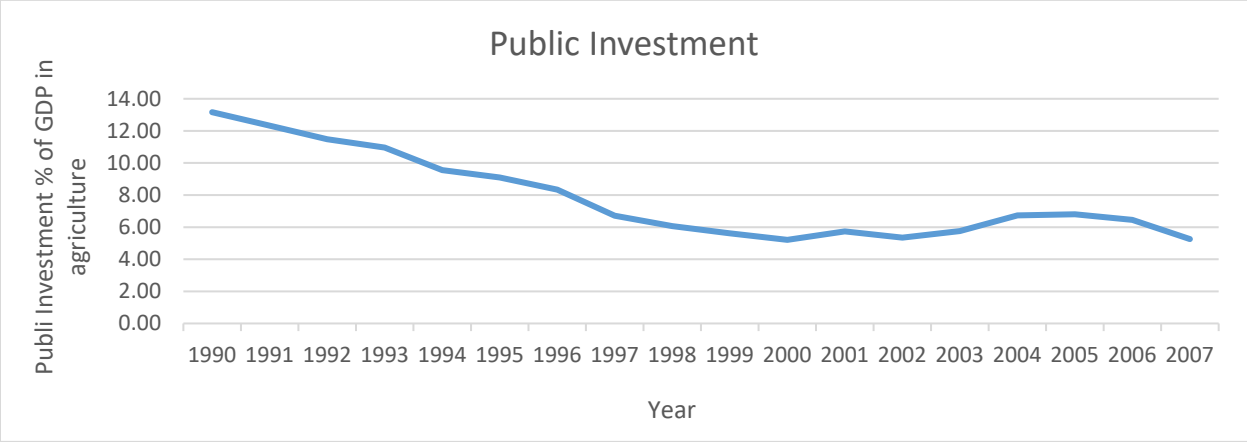

Fig 2: Public Investment in agriculture as a percentage of agrarian GDP; Source: CSO

1.5. Financing public investment and examining the trend in subsidies

With all these factors portraying the need for public investment in agriculture, possible questions of how to finance these payments and what could be the effect of a reduced investment in industrial sector becomes important to economic theory and practice. The right form of taxing the well to do farmers who receive major benefits of state investment is the need of the hour. Bhaduri (Productivity, Production Relations and Class Efficiency: Illustrations from Indian Agriculture) points out about how an existing dominating class in rural areas could deliberately prevent technological improvements to maintain a larger share of the pie in their favour. In this way production relations it form a barrier to raising agricultural productivity by reducing class efficiency, a bigger political economy debate.

Thus financing such public investment would require taxation of rich farmers and monopolies which necessitate political debates. In the February budget, Arun Jaitley promised to double farmers' incomes and proposed measures such as improving rural roads and irrigation, better management of groundwater, more organic farming, modern wholesale markets, increased credit and improved crop insurance, which are likely to benefit large farmers. Indian Human Development Report (2011), shows that roughly 10.5% households own land in excess of 5 hectares, and do not fall into the marginal farmers' category. Of these 7% own a washing machine and 6% of them own a car. Moreover, even companies investing in agriculture are exempt from taxation Taxing such groups is likely to aid public investment. Rao and Sengupta,

2012, argue that over 50 companies reported agricultural incomes larger than Rs 100 crore (in 2009-10), and their total agricultural income amounting to Rs 31,313 crore.

Plotting food subsidies as a proportion of GDP at market prices and fertiliser subsidies as a proportion of GDP at market prices we see a continuous rising trend, which supports our statement that while public investment in agriculture as a proportion of GDP is falling, the public expenditure is rising on account of subsidies (fig 3).

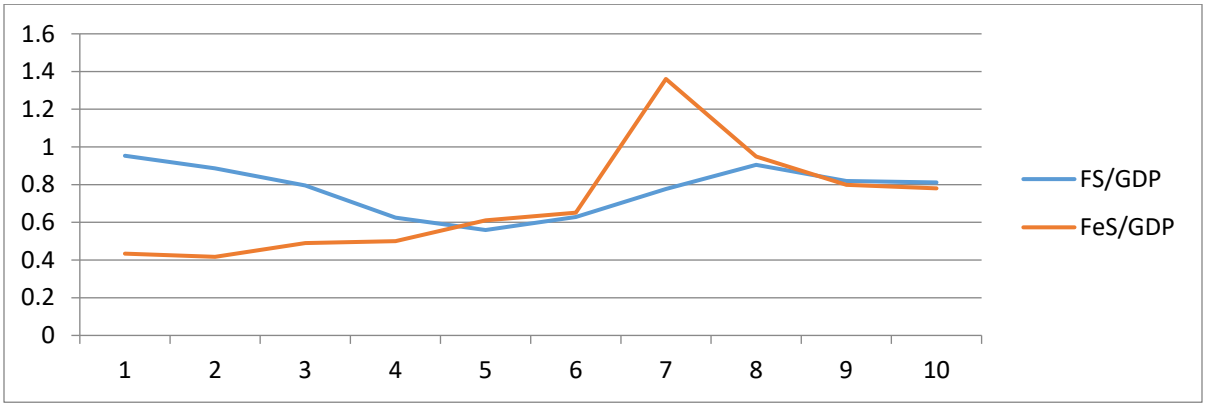

Fig 3

So, with the advent of LPG the Indian agriculture have become vulnerable due to many reasons. Opening the market had put Indian agriculture under the competitive pressure from the west, made the price much more volatile and dependent on many foreign events. Besides, the international institutions like WTO and World Bank started influencing the local agriculture much more substantially. Thus we felt a need for critical analysis of the role of WTO-AOA on Indian agriculture especially due to the changed circumstances after 1991. The liberalization, for sure, made the agrarian issue not only economic but also political. With this motive, we are moving towards the next section which takes the duty of explaining the functioning of WTO in general and how it is influencing India in particular

2. WTO and India

2.1. Functioning of WTO

World Trade Organization, as an institution was established in 1995. By replacing General Agreement on Trade and Tariffs (GATT) which was in place since 1946. The WTO broadened the domain of GATT by incorporating services in trade along with commodities. The WTO agreements are lengthy and complex because they are legal texts covering a wide range of activities. They deal with: agriculture, textiles and clothing, banking, telecommunications, government purchases, industrial standards and product safety, food sanitation regulations, intellectual property, and much more. The WTO reduced the flexibility of GATT by taking away the option of the member nations to “opt out” of an agreement or specific discipline. WTO works with a motive to create a cross country free market condition. The WTO engages in removing all the nontariff barriers like quantitative restrictions, converting nontariff barriers to tariff and

subsequently reduces the barriers to a minimum level. In principle it tries to reject all those policies which distorts the condition of free market. It is primarily a dispute settlement body trying to create a level playing field for all the member nations. Instruments like anti-dumping and countervailing duties are used by WTO to ensure a global trade with equal justice to all. It works with the belief that smooth functioning of the market with minimum interference will lead to economic growth of the world. It tries to ensure a stage for different nations to reap the direct benefits from trade through the gains from terms of trade. A free market allows each nation to specialize on those commodities on which they have the comparative advantage, then by exporting they can import the diverse commodities of the world thus enhancing their economic pie. Free trade also allows the developing nations import knowledge and technologies from the developed nations thus creating indirect benefits from trade also. Currently there are 126 member nations in the WTO. India being the member of GATT since 1948 was the inaugural member of WTO, joining before China and Russia.

2.2. WTO – Agreement on Agriculture

Under the auspices of the WTO, many trade-related agreements were signed by the member countries (WTO 1995), and, for the first time, an Agreement on Agriculture (AOA) was reached to reform and dismantle trade barriers in the agricultural sector. All WTO members, except least developed countries (LDCs), were required to make commitments in all these areas in order to liberalize agricultural trade, with developing countries were getting some element of special and differential treatment. Agreement is highly complicated and controversial; it is often criticized as a tool in hands of developed countries to exploit weak countries. It has been fashioned in such a way as to enable developed countries to continue high levels of protection, whilst many developing countries have liberalized and their farmers are facing severe and often damaging competition, often from imports artificially cheapened through subsidies (Das, 1998 & Third World Network, 2001). The Agreement is made up of three 'pillars': market access, export competition and domestic support.

2.2.1. Market Access

The market access requires that tariffs fixed by individual countries be cut progressively to allow free trade. This process starts by all member countries being committed to abolish quantitative restrictions and non-tariff barriers and replace these with tariffs. By this initiative, the WTO ensures that all nations get the versatile commodities of the world at the cheapest cost. Free market access also reduces the cost of living of the people but enhancing the economic growth of the nations. It gives access to the technology and knowledge from different corners of the world required for producing the commodities at the cheapest possible price and theoretically will eventually lead to convergence of prices across the different nations. During the Uruguay Round members had to reduce their tariff levels: by 36 per cent over six years 1995-2000 for developed countries, and by 24 per cent over 10 years 1995-2004 for developing countries (Khor.M). Least developed countries (LDCs) do not have to reduce their tariffs, but also commit not to raise their bound rates.

2.2.2. Export Subsidy

Nearly every country supports their agriculture in form of subsidy on inputs of agriculture, making export cheaper or can be other incentives for exports such as import duty remission etc. But it has drastic market distorting effects creating inefficient results. Export subsidy makes it cheaper for a nation to produce goods and sell in the foreign markets. Thus it forces all nations to give subsidy, creating a war for the first mover. On the other hand, an excess demand situation arrives in the domestic market (Krugman, 2008). WTO aims at reducing the subsidy to ensure an efficient functioning of the market.). Direct export subsidies are subject to reductions from the 1986-90 average level by 36 per cent in value and 21 per cent in volume for developed countries (over six years 1995-2000) and by 24 per cent in value and 14 per cent in volume for developing countries (over 10 years 1995-2004). Extreme situations like dumping also takes place when, in order to capture foreign markets and leading towards monopoly in global scale, many firms sells the commodity in the abroad at a price lower than even the cost of production. Dumping threats are dealt by Anti-Dumping duty introduced in the Doha Round (McCalman, Stahler, Willmann, 2009)

2.2.3. Domestic Subsidy

Just like Export subsidy aims at promoting export, domestic support aims at promoting agricultural productivity. As mentioned earlier, since agriculture is to a large extend dependent on climate, its prices fluctuates. Domestic support policies include policies like minimum support price, procurement price etc. which ensures a certain minimum earning for the farmers. Different types of subsidies are given by governments to the farmers–including input subsidies, subsidies for R&D, subsidies for food security etc. These subsidies are categorized by AOA in terms of their distorting effects. There are three categories of subsidies namely, Green Box, Blue Box and Amber Box.

2.2.3.1. Green Box:

Under this category all those supports are considered which are no or least market distorting. It includes measures decoupled from output such as income-support payments, safety – net programs, payments under environmental programs, and agricultural research and-development subsidies. All these supports are provided uniformly across all the farmers and is independent of the crops. Mainly these subsidies are not given directly on the crops, instead on agricultural extensions and infrastructure. Majority of the developed nations are subsidizing in this category. India is underutilizing this avenue which, if utilized properly, can produce long term higher return, making the farmers more productive and production more profitable. Basically Green Box subsidies encourages on creating the social overhead capital needed in agriculture. At present India is in need for direct support to crops. Our nation first need to ensure food security and farmer security, then can proceed further towards surplus generation and export earnings. Developed nations like USA are giving 90% of their total subsidies under this category (fig 3). Fundamentally their mode of production, type of land and land ownership, skills of the workers and the objective of production in primary sector, is different from nations like India. So Green Box is more useful to developed nations. (UNCTAD, 2007)

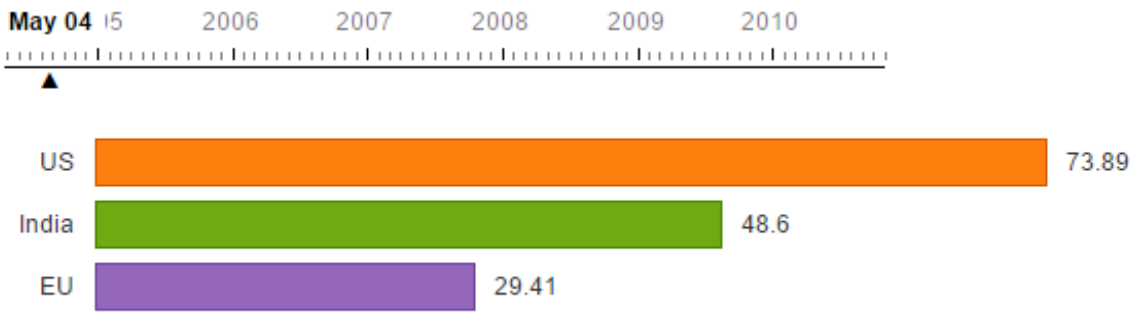

Fig 4: Green Box subsidies for USA, EU and India; Source: WTO

2.2.3.2. Blue Box:

This category is covering those subsidies which are directly given to specific crops. Minimum support price of India fall under this category. The subsidy creates a wage between selling price and production cost thus distorts the market directly. The AOA would like to reduce this subsidy gradually, which is evident by their conditions put forward in the different ministerial conference (Discussed in Section 4). This subsidies are used to provide security to the farmers and encourage farmers to engage in production. 'Targets price' are allowed to be fixed by government and if 'market prices' are lower, then farmer will be compensated with difference between target prices and market prices in cash. However this cash shall not be invested by farmer in expansion of production and have to be used up in immediate consumption. Loophole here is that there no limit on target prices that can be set and those are often set far above market prices deliberately aggravating the distortion.

2.2.3.3. Amber Box:

Those subsidies which are trade distorting and need to be curbed. The Amber Box contains category of domestic support that is scheduled for reduction based on a formula called the "Aggregate Measure of Support" (AMS). The AMS is the amount of money spent by governments on agricultural production, except for those contain in Green Box, Blue Box and de minimis.

It required member countries to reduce it according to an agreed upon schedule. Developed countries agreed to reduce these figures by 20% over six years starting in 1995. Developing countries agreed to make 13% cuts over 10 years. Least – developed countries do not need to make any cuts.

- De-Minimis provision

Under this provision developed countries are allowed to maintain trade distorting subsidies or 'Amber box' subsidies to level of 5% of total value of agricultural output. For developing countries this figure was 10%. So far India's subsidies are below this limit, but it is growing consistently. This is because MSP are always revised upward (fig 4) whereas Market Prices have fluctuating trends. In recent times when crash in international market prices of many crops is seen, government doesn't have much option to reduce MSP drastically. (more about WTO in section 3.1)

Kharif Support Prices (in Rs/quintal)

	2009-10	2010-11	2011-12	2012-13	2013-14
Paddy (Common)	1,000	1,000	1,080	1,250	1,310
Paddy (Grade A)	1,030	1,030	1,110	1,280	1,345
Jowar Hybrid	840	880	980	1,500	1,500
Jowar Maldandi	860	900	1,000	1,520	1,520
Bajra	840	880	980	1,175	1,250
Ragi	915	965	1,050	1,500	1,500
Maize	840	880	980	1,175	1,310
Tur (Arhar)	2,300	3,000	3,200	3,850	4,300
Moong	2,760	3,170	3,500	4,400	4,500
Urad	2,520	2,900	3,300	4,300	4,300
Groundnut	2,100	2,300	2,700	3,700	4,000
Sunflower seed	2,215	2,350	2,800	3,700	3,700
Soyabean (black)	1,350	1,400	1,650	2,200	2,500
Soyabean (Yellow)	1,390	1,440	1,690	2,240	2,560
Sesamum	2,850	2,900	3,400	4,200	4,500
Nigerseed	2,405	2,450	2,900	3,500	3,500
Cotton (medium staple)	2,500	2,500	2,800	3,600	3,700
Cotton (long staple)	3,000	3,000	3,300	3,900	4,000

Table 3: Khariff support price of major crops in India; Source: Indiastat

The empirical result shows that the developed nations are managing to maintain higher subsidies in agriculture than India. Figure 5 show that Indian aggregate subsidies are less than USA as well as European Union in 201-11. Ideally India needs the subsidy more due to its backward production mechanism and more uncertainty. On the other hand developed nations have agriculture were only 3% of the work force are engaged and is equipped with insurances and efficient techniques of production. This reverse result needs critical assessment which will be taken in the next section (section 3) separately. This is where the issue of agriculture and trade goes beyond economic phenomenon and political aspects of power and control enters the play.

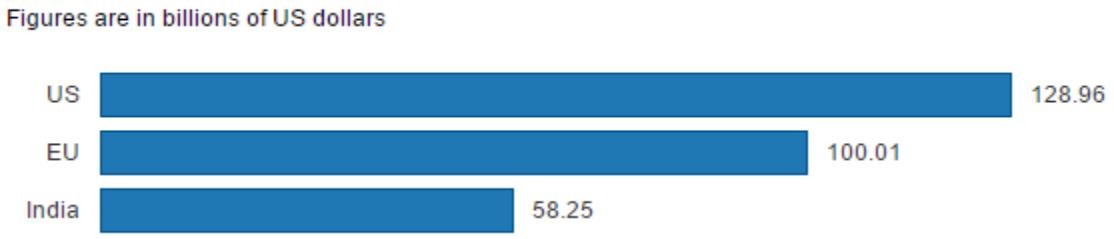

Fig 5: Total Agricultural Subsidy 2010-11; Source: WTO

3. Economic literature review : Effects of Liberalization and Globalization on Indian agricultural markets

As we saw earlier the impact of trade on agriculture has had a tortuous history spanning from an age where economic self-sufficiency and protection from international disturbances formed the ideal policy to an age were almost every analysis of farm policies involves trade and

liberalization as a crucial element (Section 1.4). There has been substantial contribution to this field with its origins in the American Agricultural Economics Association (AAEA) in the 1930s and their estimates of export share in GDP for economies. However, it was not until farm policies were initiated that government intervention in agriculture was taken up as a serious consideration to mitigate effects of market distortions and price failure. Modern trade theory itself developed in 1948, following which extensive work by Johnson (1950) and Condliffe (1951).

3.1. International commodity prices and Indian agriculture

The goal towards self-sufficiency and the requirements to feed a growing population has been at the agenda of most political parties that have taken up state interventions in agriculture. From a country which dealt in high import duties and export controls, we are integrating more towards a global market for agricultural products. In this context, among other factors, it is the behaviour of commodity prices in international markets which decides the fate of agricultural goods exported and also the amount of disturbance that opening up of the economy leads to. In this context, we must at the outset recognise that commodity prices in world agricultural markets depend on supply shocks in raw materials and energy products, domestic and international farm policies, exchange rate policies, distribution of market power an industrial organisation, non-farm policies arising out of trade negotiations, establishment of cartels, international institutions and existence of interest groups which could act as rent seekers. Apart from demand shocks induces by a general failure of effective demand, agricultural products often face disturbances in short run and long run arising out of a change in any or more than one of the factors lined out above. Although, by no means is this an exhaustive list, our prime focus in this paper will be to analyse which of these finds its implication in Indian markets, and hence establish the relation between trade liberalisation and agricultural productivity.

Trade liberalisation and their impact on agriculture has been analysed under various lenses. Gulati and Pursell (2007) showcase the skewed nature of liberalisation in manufacturing and industry as compared to agriculture. As per their report, "*both domestic and trade policies affecting the rural sector were basically untouched by the 1991 reforms".* In an analysis with the South Asian countries, they point out that because of extensive controls in the second half of the twentieth century, despite competitiveness, Indian agricultural exports garnered diminutive profits and the import licensing system impeded the effect of negotiations in SAPTA. (As correctly pointed out by Nayyar and Sen (1994), products such as tea, coffee, tobacco and spices have often enjoyed open trade regimes in India. Imports on wheat were liberalized after GATT, however the Food Corporation of India's monopoly power considered its effects nullified)On the face of it, their argument is strong when it comes to liberalizing markets in agriculture, however, we find that their analysis leaves out the other factors that come into picture, once agricultural trade openness is given priority. These include the disproportionate rate at which the incomes arising from such an openness are distributed between low income groups and the intermediaries and the resultant dangers for food security. In fact some of the major drawbacks

of implementing a generalised model to interpret the effects of trade face shortcomings such as the failure to consider imperfect markets and information, the necessary relation between domestic and international policies and the extent to which the assumptions of a small country in most trade models applies to India. (Currently India exports 168.64 billion US dollars of agricultural products and assumes more than a "small" country status). Moreover, although it might seem like a Luddite argument, Indian institutions currently lack the necessary tools required to address price volatility in agricultural markets arising out of trade openness. Such effects manifest themselves in low income groups, where wages are not based on contracts and there are important hindrances to adapting to changing prices by altering supply conditions. Effects of price fluctuations can be mitigated through a system of buffer stocks and support prices, which however have turned into the yoke for agricultural farmers. An extensive study by Batra and Russell (1974) and Feder et al (1977) along with the use of modified Ricardian model have gone on to show that net gains to the society are reduced in a market of uncertainties and that necessary regulation of agricultural markets is required. However there has been extensive literature compelling theorists and politicians to believe in an ultra-free trade regime. Supporters of such regimes are often interest groups themselves who undertake negotiations with a given motive. In a recent publication by C S C Chandrashkehar, evidence of inter-year variations in prices due to international markets in certain commodities has been confirmed (Table 4). The bigger revelation is that of bound rates (to keep prices from falling) are adequate for soyabean oil and sugar. He writes,

"*For most commodities, they (bound rates on import duty) are much higher than what is needed in terms of the wedge between domestic and international prices. Therefore, for the commodities whose bound rates are much higher than the observed price wedge, the bound rates may be lowered. Such a move would strengthen India's case in the negotiations for raising bound duties on certain other commodities such as soyabean oil and sugar, where protecting domestic producers is necessary"*

Table 4: Coefficient of Variation of Prices of Select Commodities

Period / Commodities	**Rice**		**Wheat**		**Edible Oil**		**Sugar**		**Overall Food**	
	India	**World**	**India**	**World**	**India**	**World**	**India**	**World**	**India**	**World**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1995-2000	14.7	18.6	17.1	26.2	9.3	13.2	10.1	27.2	12.5	13.2
2001-2006	3.0	21.7	7.4	15.5	12.9	12.3	12.7	35.8	6.3	12.2
2007-2009	6.2	40.8	3.4	25.9	6.6	14.9	5.4	13.4	4.5	15.3

1995-2009	**15.1**	**46.7**	**20.0**	**36.8**	**18.2**	**21.1**	**12.4**	**29.6**	**18.1**	**21.3**

Note: Data for 2009 is upto April 2009.
Source: RBI.

The following table show that the coefficient of variation of world agricultural prices are higher for each period than the domestic prices.

In Nayyar and Sen (1994), while realising the demerits of trade controls, a comparison of world prices relative to Indian prices shows that, except wheat, most crops in India are cheaper than in the world markets. Freer trade is likely to raise such domestic prices (especially of rice). Their basis of analysis is that while understanding that India has a large share in world output, it has a relatively smaller share in world trade. They also confirm that since the coefficient of variation of domestic prices in India is lower than world markets, it is likely that trade liberalisation would have immediate impacts on domestic price variation. They also argue for a case against reduction of subsidy on inputs such as fertilisers, which is often advocated in structural adjustment programmes and even till today in the WTO. Because, Indian farm subsidies are often misrepresented in public accounting systems, by not considering their effect on protecting domestic fertiliser industries and that world markets being imperfect often lead to higher subsidies by countries than those which are imposed which would further weaken our comparative advantage.

3.2. Securing the Balance of Payments position

In exportable goods such as rice, the impact of a unilateral liberalisation is likely to lead to a deterioration in terms of trade and even with export liberalisation a devaluation might be necessary to increase export demand since price effects show more flexibility than quantity effects (J curve). A weak balance of payments position could ensue if liberalisation in imports such as oilseeds are carried out without the necessary export increases. With India's long history of balance of payments crisis, further devaluations could occur the effect of which will be felt worldwide.

3.3. Distributional consequences

It is possible, as can be seen, that with liberalisation producing its own set of winners and losers, the concept of allowing a welfare state to reallocate the gains and establish an equilibrium where the winners gain and are able to use these gains to make the losers better off without themselves achieving a lower level of satisfaction, is a mythical creation mostly stemming from the applications of 2nd welfare theorem. A set institutions to manage such impacts of trade is

required and mere dispute settlements at WTO do not seem to address these ground root issues. In fact, there has not been many studies regarding how much representation is provided to problems concerning Indian agriculture such as farmer suicides, chronic starvation et al which are left to domestic policies to address. The recognition of any organization that is supposed to mediate negotiations about trade should differentiate between agreements based on the terms of trade requirements and those which are politically motivated.

The argument that increased liberalisation and privatisation would raise competitive prices of exportables and thus raise incentives for agriculture have been modelled in various works such as "Distortions to agricultural incentives in India" (Pursell, Gulati and Gupta). However understanding the distinction between "involvements" in markets and granting "independence" to markets is a much broader category. Papers from Servaas Storm's, *'Trade Liberalisation, the Terms of Trade and Agricultural Growth: The Example of India*' and by Hans-Bernd Schafer, *'Farm Prices and Agricultural Production*' stress the importance of public interventions and how price mechanisms might falter. But the necessary change that will yield a larger output and employment following a rise in prices requires that labour is able to reap those price gains and also raise their output supply. (Put in argument about how much farmers receive from net value). As Nayyar and Sen point out, "*Available studies show that more than 50 per cent of increments in agricultural output in India in recent years are attributable to shifter variables, such as technology and infrastructure"*

4. Political Literature review: Review of performance of WTO

The story of the evolution of agricultural trade agreements is an often told one. Since the inception of GATT in 1947, trade was confined to manufacturing. Because agriculture constituted a major sector for developing economies, trade negotiations on this front warranted political battles. In India, protectionism under the Nehruvian era implied that trade was virtually non-existent except in a few commodities. Much before the Prebisch Singer hypotheses, the Soviet planning model implemented in India in its first plan restricted imports (Katano. H, 2003). The initial Mahalanobis model of growth has often been criticized as having neglected the agricultural or in specific the wage goods sector and that since trade was limited and Indian competitiveness in international markets was dubious, it would be impossible to export food grains to import other commodities (Karmakar, 2012). In the 1970s, on account of oil shocks and droughts in developing nations, agriculture and trade became a major topic of discussion. It was the completion of the Uruguay round in 1995 and the signing of the Agreement on agriculture (AoA) which paved way for trade liberalisation in agriculture. Based on this was constructed the World Trade Organisation (WTO). Modelling of agricultural trade and noticing trends in globalisation of food industry were worked upon. Moreover, with the emergence of biomass as a source of energy and the realisation of the importance of agriculture in developing econimies, focus shifted to seeing how policy implications could drive agricultural behaviour.

4.1. Effect of WTO's policies on Indian markets: Supports or Barriers?

India having a comparative advantage in agriculture is expected, theoretically, to sell their commodities at a price lower than the world price. But unfortunately heavy subsidization and import restrictions by the western world on the primary products destroys this advantage. An essential work of WTO is to liberalize the market to attain efficiency. However as studies show, domestic prices are almost on a par with International prices after the effect of subsidies have been taken care of. Especially in the case of rice, "domestic prices (Rs 27.42 per kg) are almost on a par with international prices (Rs 28.62 per kg)" (Soumya Kanti Ghosh, CEA,SBI)

GREEN BOX SUPPORT: Issues regarding the Green Box Subsidy have been reported in theoretical as well as empirical arguments of the WTO subsidies. At least two caveats which need to be included within the Green box measures to improve its efficacy include the requirements to include environmental support for marginal farmer within GB subsidies and to include GB support for training, market promotion and advisory programmes. (UNCTAD India Team, 2007). Moreover the problems concerning decoupled payments, such as increasing concentration of income in the hands of few rich farmers and the problems concerning adequate specifications of indicators to describe low income countries have been reported. (UNCTAD, 2007) Since Green Box subsidies are decoupled, farmers are given a paycheck regardless of their production, which although is said to be non-distorting, definitely works to raise protection for farmers in developed economies. *(The Real Cost of cheap food, Michael Carolan)*

In India, domestic support regime provides livelihood guarantee to farmers and also ensures food security and sufficiency. For this MSP regime tries to promote production of particular crop in demand. And this makes decoupling Support with output very complicated. Almost 90% of the US subsidy on agriculture is under the Green Box, while the same for India is around 42%. The skewed nature of subsidies can be seen from the following graph

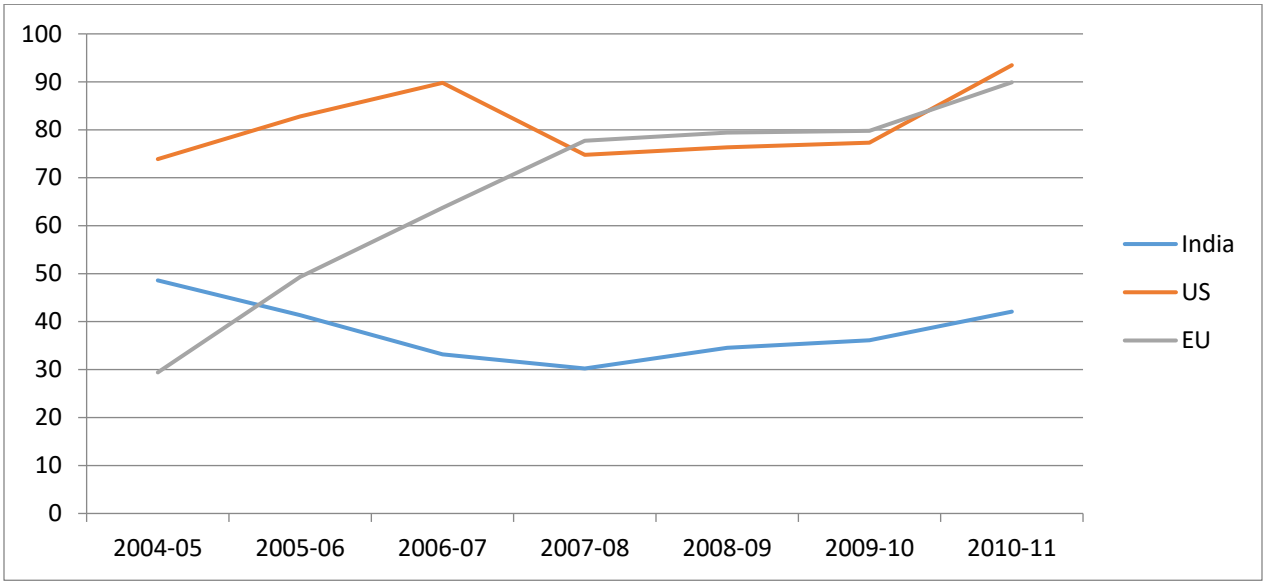

Fig 6: Percentage of uncapped subsidies in EU, India and US; Source: Mint 2017 (data)

They are heavily subsidizing in R&D. Majority of the Indian farming are on subsistence living. Of course Green Box can help in providing better technologies to make agriculture a commercial success also, but for sure Green Box can't take care of the immediate profitability crisis and uncertainty of the distressed farmers associated with the production of their daily crops. Minimum Support Price is vital and Green Box subsidy can be at best a complimentary support with MSP not a substitute for sure. For instance, WTO has a base reference (fixed) ERP for rice at Rs 3.52/kg and MSP is 14.70/kg, whereas cost of production is 19.35/kg. Thus even with such changes in MSP, Indian farmers continue to face problems with productivity.

A study by Soumya Kanti Ghosh, CEA, SBI, shows that in order to conform to WTO measures, India must reduce its subsidies by 93.2% which would greatly harm the Food Security Act's spending plans.

ESTIMATED TOTAL SUBSIDY SUPPORT TO AGRICULTURE (₹ crore)

	2009–10	2010–11	2011–12	2012–13	2013–14
Total agriculture subsidy	1,71,020	1,86,575	2,22,702	2,39,551	2,60,128
Gross agricultural output	10,79,365	13,06,942	14,65,753	16,43,145	17,20,373
Current subsidy as % of gross agricultural output	15.80%	14.30%	15.20%	14.60%	15.10%
Discount factor*	7.9%	8.1%	8.1%	8.1%	8.2%
Agri output at 1987 price using discount factor	1,48,533	1,63,084	1,71,482	1,72,737	1,80,517
WTO mandated subsidy**	14,853	16,308	17,148	17,274	18,052
India thus needs to cut subsidy in % from current level as per WTO 1986 base	91.4%	91.4%	92.4%	92.9%	93.2%

Source: SBI Research, Planning Commission, CMIE; *Average rate of inflation using GDP deflator from 1986–87, the WTO reference year; **10% of Agri Output at 1987 price using discount factor

Table 5

The impact of a rising awareness about the significance of agriculture to developing economies has led to rapid advances in farm policies. Such policies as administering prices, subsidizing certain goods, setting minimum support pricing schemes, often however, have more than just "price effects". In fact the complex web of policies designed to protect agricultural markets are even difficult to monitor and often lead us into methodological problems. In India, there has been a history of such price controls starting with the establishment of the Essential Commodities Act (1955), establishing controls on import, export, credit and storage et al. Although, the stringency of such controls have eased, there still exists rules for market protection such as Agricultural Produce Market Committees (APMCs) which designate special licenses to agricultural vendors in states. There exists vast economic literature which point out to both the domestic and international bias and ignorance in policymakers which has continued to keep agriculture in India a sluggish affair. However before delving making a strong claim against forces which drive the move towards globalization and liberalization and its rosy effects on agriculture, as an economist we must view those determinant forces which affect Indian agricultural output.

BLUE BOX SUPPORT: One of the primary and inevitable threat of opening up the agriculture to the world is that the agro-prices become extremely vulnerable and fluctuating. This makes the

Blue Box subsidy even more essential. The loophole in this process is that there is no upper limit of this minimum support, which is exploited by the European Union very smartly.

AMBER BOX SUPPORT : As mentioned earlier (2.2.2) that Subsidies were bind to levels of 1986-1988, there was inequality at very beginning of the agreement. At that time subsidies which latter came under 'Amber Box' were historically high in western countries. In developing countries, including India these subsidies were very limited. It is only now under pressure of Inflation in prices of agricultural Inputs, and wide differences between market prices and Minimum support Price, subsidies have grown to this level. In effect developed countries are allowed to maintain substantially higher amount of trade distorting subsidies. Further The AOA text implies calculation of nominal AMS, which does not give any consideration for inflation.

But the rules have been biased for most of the developed countries. For example, the Green Box Subsidy is exempted from both the current and base (1986-87) AMS, but Blue Box subsidies are only exempted from the current AMS. As stated before majority of the subsidies in EU and US are in Green Box category and EU is using up the loophole of the Blue Box Subsidy. As a result, for most of the developed countries, base AMS is very high and current AMS are low. Therefore, the AMS reduction commitments are nearly met for most of the developed countries. This implies that there will be insignificant reductions in the domestic support given by the developed countries. Major subsidies are removed from the AMS measurement. This is against the spirit of WTO as, due to lack of proper measurement developed countries are being able to subsidize more and hinder the world market for the developing nations like India. Interestingly Indians have a negative AMS as during the base year the net subsidy was low, so they can claim a credit for that. With MSP pressure always rising, India will easily reach its de-minimis level within Amber Box of 10%. This makes the demand for credit for low AMS even more valid

Market Access : From section 2.2 we know that the aim is twofold, 1. Convert nontariff barriers to tariff and 2. Reduce the tariff to create a free market. A number of commodities especially pulses and cereals are exported to West and low tariffs in west will benefit Indian suppliers. There is a bound tariff above which no one can charge. Most of the developed nations have all the motives to keep a high tariff and non-tariff barriers.
Market accessibility is highly restricted by putting qualitative restrictions on Indian products through Sanitary and Phytosanitary measures (SPS) and Technical Barriers on Trade (TBT). However the Codex standards, which do not have any backing by international laws yet put forward by WTO as mandatory, are discriminatory and needs amendments. Individual food products are not homogeneous across countries; different countries and firms adopt different performance standards and safety and quality norms; making the generalized standard tough to calculate creating controversy in the SPS and TBT measures. The very first issue is as put by Satish Deodar, "SPS and TBT agreements have not received the kind of attention they should have from industry and researchers alike." CAC guideline follows a Hazard Analysis and Critical Control Points (HACCP) which is bothering India severely. EU and US have incorporated this HACCP inside their food processing system but not by India thoroughly. There is a need for improvement in the quality of Indian food products but the story is not simple. Article 3.1, 3.2, and 3.3 of WTO states:

"Members may introduce or maintain sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by measures based on the relevant international standards, guidelines or recommendations, if there is a scientific justification".

This article is seriously undermining the scientific CAC standard and giving power to individual nations to follow an even stringent qualitative restriction which gives the chance to induce political strategy for the developed nations who have already incorporated the CAC standards. For example, "the requirement for aflatoxin content in groundnut is decided at 15 parts per billion (ppb) by CAC. Indian laws permit 30 ppb. Thus, there is room for improvement in the Indian standard. However, despite the CAC guideline of
15 ppb, EC has a stricter aflatoxin standard of only 4 ppb."

We will draw attention to one of the heavily debated topics regarding Monsanto seeds and cotton cultivation in India. As mentioned before the BT cotton seeds were priced higher than local seeds and were unsuitable for rain fed regions (CRRI Report). Bollworm infestation and related problems of low cotton productivity have reflected in farmer distress and possible suicides in rain fed areas (Andrew Paul Gutierrez et al, 2015)

EXPORT SUBSIDY: These subsidies are also aligned to 1986-1990 levels, when export subsidies by developed countries was substantially higher and Developing countries almost had no export subsidies that time. But USA is dodging this provision by its Export credit guarantee programme. Through this programme US is giving long term loans in agricultural production which does not fall in the ambit of WTO-AOA. This programme is used mainly for the food aid programme but it has its own limitation of creating dependency on food grains, which can be discussed at its right time.

4.2. The role of World trade Organization: A necessary evil

With respect to current literature available on the working of WTO, Ravi Kanth provides a detailed analysis of how there was a shift of interest from the developing countries to those of US and Europe as part of the trans-atlantic treaty from the Doha round to the Nairobi package. He points out reasons such as disputes regarding the special safeguard mechanism, failure of acknowledging the demands of the G33 at increasing support to domestic agriculture et al have contributed to weakening of the organization. Within the green box measures (that require no commitments of the state in its intervention), there are constraints imposed on procurement which could be problematic considering the National Food Security Act's requirement of keeping food grains for PDS, support prices and strategic reserves. With no basic guideline to obtain procurement prices, there is no clarity on whether procurement prices are mediated through subsidies (in which case the international reference price and acquisition price difference need to be accounted for) in which case it should fall under the Amber Box measures that distort markets. Issues of calculation of the AMS and the elibigilibity criterion pertaining to 10% of total agricultural produce are constraint imposed on Indian agricultural markets. We have spoken extensively about these in our analysis of WTO's supports.

Studies from across Deardoff (1996) and Schropp (2007) point out at the efficacy of WTO in resolving disputes through a game theoretical framework. Although the emergence of a global negotiating body is important in dispute settlement the case in point is if there could be settlement in distribution of powers which countries already possess via their economic and political position. Dispute settlement only becomes important when countries are sufficiently abled to create their own policy space without having facing their own security dilemma. In this regard, Staigler and Bagewell (2002) argue about how, even though elements of reciprocity and enforcement rules in WTO are in place, raise doubts about the ability of WTO to reach cooperative trade policy outcomes. Moreover a Keynesian perspective of trade where price rigidities might not lead liberalization into affecting terms of trade but volume of imports and exports is yet to be discussed

In this aspect, the Hobbes Hume Waltz theory of the state not coercing but aiding citizens in making markets freer although imposing certain restrictions is visible. Studies even argue to the point that by keeping agricultural subsidies high in advanced economies and denying protection of industries in low income countries, these policies stifle the growth of diversification and manufacturing. Because of lack of adequate capital and poor workforce, basic access to products in foreign markets could be a hindrance. For example, the Cancun round talks in 2003 ended on a deadlock because the US, Japan and EU continued to subsidize their agriculture, while arguing for liberalization in developing economies. Even legal expertise on such matters might be skewed in favor of the developed economies. A Waltz theorist would thus argue that it is nothing but anarchy that rules the state of affairs under the veil of an egalitarian rule.

The bigger question thus lies in whether governments would in fact pursue the kind of rules based approach over power based approach in international institutions like WTO. Power based negotiations could not just have distributive bias towards the wealthier economies but also lead to inefficient outcomes, even if we follow a modelling criterion to derive it. This has been shown in Mclaren (1997) and Bagwell and Staigler(1999) where weaker economies might be held up with negotiations and thus not participate efficiently. Moreover government might dissipate rents by employing resources in signaling activities to appear stronger in world markets. The impasse between countries which would use a more normative analysis of trade and believe in the multifunctional nature of agriculture and those countries which believe in markets to lead to efficiency in agriculture have been in the core of WTO : “The Article 20: approach and the “market only approach”.

However a more pragmatic approach to understanding WTO would be to acknowledge its requirement as a dispute settlement body in the absence of which there might be no enforceable set of trade rules for even the developed economies. For example, the need to address say concerns about trans-boundary pollution require a governing system which accounts for such international disturbances. Now the more important point of question in this regard is to how much importance is being given to environmental action groups in WTO. Esty (2002) states, “*a series of government officials, representing other issue areas (for example, Environment*

Ministers) were pushed to the fringes of the Seattle convocation". Moreover, this might lead to a rise in supports provided in developed economies which could further stifle the access of markets for growing countries. Thus the need of the hour is to understand the significance of a global organisation in setting standards while still arguing that such standards might not be explicitly followed since non-economic objectives could be very well pursued in negotiations. Thus, dismissing WTO as an obsolete organisation might not be possible in the current context even for a country like India, since a large growing middle income group's interest might not be adequately reflected in a self-sufficiency model. However at the same time, discriminating policies must be addressed.

In a legal aspect, Daniel C Esty (2002), brings out important points questioning the legitimacy of WTO. This explains the inability of WTO in adapting to a changing global dynamics and supports this by citing the mass movements and protests at Seattle, Doha etc. While the WTO might express an organised economic thinking, it uncannily displays obsolete norms with regards to good public decision making. Moreover, its legitimacy as a governing body is questioned, Blackhurst (2001),"*the exclusion in Seattle of most developing country representatives from the 'green rooms', where an inner circle of key countries did the real negotiating, raised hackles among many delegates (Blackhurst, 2001)* and its "*long standing exclusion of nongovernmental organizations (NGOs) from its decision processes has become a bone of contention" (Esty,2002).*

4.3. A brief overview of WTO ministerial conferences:

From the economic literature review we know that the idea of propagation of free trade will reap benefits and a win-win situation only when the markets are perfectly competitive and price signal is optimum. It can be concluded that trade will reap benefits only when there is lessiez faire with no or minimum government interference, mainly confined to the job of ensuring property rights, and a tough law to secure the private properties. On the other hand the reality is filled with absence of market, market power like oligopoly and monopoly and inefficient market structure were price gives false signals. So how much the idea of free trade in theory applicable to the reality is a big question. But the gainer of free market and lessiez faire were clear about the presence of market failure and from the very beginning were focused to remove the possibility of creation of market power through multinational institutions like WTO.

In the very first ministerial conference in Singapore, 1996, the agenda was about 1.Trade and Competitive Policy; 2. Trade and Investment and 3. Transparency in government activities. Developed countries wanted to include all these areas in negotiations. It was imminent that accepting terms and conditions regarding investment and competition will be a serious blow to the national sovereignty. With investment it is seen as an area in which ceding sovereign rights would leave governments, particularly developing country governments, with too little room for maneuver in directing investments into areas of national priority. Even after accepting competition policy to avoid creation of market power, it did not clear the stance of the export cartels like OPEC. A question can also be raised regarding what can be the universal procedure for government activities. The rising of the very issue explicitly reveals that the developed

nations are with the aim to make the government activities confined to the typical “Regalian activities” ignoring that government is not only for the support of market transactions, it also have to address extra economic issues like reserving local and domestic culture, dignity and uniqueness, and also social relation associated with it; ensuring not only economic security but also social security. This issues are, by the very definition, not possible to be generalized until a successful conversion of homo-sapiens to homo-economicus is possible.

Further, The USA and Norway were behind the push for bringing in labour standards in the WTO, but developing countries were able to get the meeting to agree that the International Labor Organization is the competent body to do such work. So from the very first ministerial conference contradictions of interests of both developed and developing world came to surface, which continues till date.

Apart from the introduction of the much debatable TRIPS in 2001 Doha conference for the pharmaceutical companies of the developed nations like Phizer, the Doha conference also was the witness of a tariff cut war between USA in one hand and India, Brazil and EU on the other hand. The commodities which are beneficial, in terms of trade, for USA are not the same for India so the tariff war was on different commodities. USA was pressurizing India to reduce import tariff on primary products. But the subsidies are for food security than for competition purpose. The motive for US to prevent the tariff protection is to ensure, 1.The competitive disadvantage in the world market of primary goods are not lost. It should be remembered that US crops are more for commercial purpose and trade but the Indian agriculture is for meeting the food security and subsistence living. 2. If free trade can bring a dependency on developed nation by the developing nations in the course for industrialization, free trade in its purest for will create a dependency for primary goods for the developed nations on the developing nations. This is strategically avoided by the US by heavily subsidizing the domestic output production like cotton. Free trade is a primary target for WTO but unfortunately it is colliding with the interest of the developed nations in the primary sector. Even after the promise of easing the market accessibility of textiles and apparels in the Uruguay round it was not met. This makes the political aspect in the analysis more relevant.

In June 2007, negotiations within the Doha round broke down at a conference in Potsdam, as a major impasse occurred between the USA, the EU, India and Brazil. The main disagreement was over opening up agricultural and industrial markets in various countries and how to cut rich nation farm subsidies. Time and again USA have managed to maintain their subsidy bill. Putting skewed conditionality on developing nations like acceptance of TRIPS and TRIMS, or further liberalization of the developing nations in response to their domestic subsidy reduction brings into doubt the innate nature of “neutrality” of WTO.

The Bali round of 2014 was a blatant exhibition of exclusion of India. In this meet the four years “peace treaty” between India and US on adjusting with the subsidy limit was ratified and India was forced to accept the Trade Facilitation infrastructural requirements. Trade Facilitation requires member countries to invest in Infrastructure that facilitates Imports and exports, simplify custom procedures and remove other non-tariff barriers. Clearly Bali round added fuel to the fire fir India and its agrarian trade.

The latest Nairobi conference was a complete disappointment for India. West is desperately trying to set aside development aspect of negotiations, to which it had agreed in Doha. Its focus is now on Trade Facilitation Agreement which was agreed to in Bali meet. Further, they are

trying to introduce new issues (including some Singapore issues) such as Government Procurement, E-commerce, Investment, Competition policy.
Two proposals on permanent solution for public stockholding programme and special safeguard programme has been vehemently opposed by USA leading to a “under negotiation” situation in this respect.

The upside of the conference is that developed members have committed to remove export subsidies immediately, except for a handful of agriculture products, and developing countries will do so by 2018. Developing members will keep the flexibility to cover marketing and transport costs for agriculture exports until the end of 2023, and the poorest and food-importing countries would enjoy additional time to cut export subsidies. As mentioned earlier this acceptance of subsidy reduction is at the expense of accepting further costs on infrastructural development. It is a fact that Indian infrastructure is weak and needs considerable support, but putting it under a stringent conditionality might be too much. It is to be remembered that Indian agriculture is not market based or commercial. Of course were the infrastructure will develop also remains a question, especially the current government is focusing on financial inclusion instead of real capital generation. A solution to the symptom rather than the problem itself.

We have already seen that Agreement on Agriculture which was hatched in Uruguay round negotiations is heavily tilted in favor of developed world. For balancing this India as part of Group of developing and least developed nations (G-33) proposed amendment to AOA in 2008. Current quest of G-33, toward achieving permanent solution is follow up story of this proposal only. As of now, Peace Clause agreed to in 2013, allows us perpetually to continue our food stocking program at administered prices, without being dragged into WTO for violation of AOA. But the latest Nairobi meet and strategic removal of Doha agenda stating from Bali round is for sure a dark sign for the future. An obvious question comes up, is WTO and AOA at all creating any special benefits to Indian agriculture which the beyond the government support, in whatever way it may be?

4.4. Why the Need for Liberalization?

It is very well understood by now that WTO have been prescribing for creation of a competitive market situation in the world. It is believed that competition will lead to economic efficiency by ensuring that only those firms exists in the market who are equipped with the best cost effective knowledge and technique of production. Besides, situations like arbitrage will be also taken care by completion as it will ensure convergence of prices across the globe. Following mainstream argument towards trade liberalization WTO has come up with a counter argument to “infant industry argument”. Following this ideology, which is very convincing in paper but, as shown before, the practical complexities are to be addressed. But without cleaning the foundation there is already a great pressure on developing countries by the developed world, and the international development policy establishment that it controls, “to adopt a set of 'good policies' and 'good institutions' to foster their economic development! According to this agenda, 'good policies' are broadly those prescribed by the so-called Washington Consensus.”(Ha Joon Chang) Good policies liberalization of international trade and investment, privatization and deregulation. The 'good institutions' “are essentially those that are to be found in developed countries, especially

the Anglo-American ones" (Ha Joon Chang): These are referring to institutions like democracy; 'good' bureaucracy; an independent judiciary; strongly protected private property rights (including intellectual property rights); and transparent and market-oriented corporate governance and financial institutions (including a politically independent central bank).

But there is an irony here. The history tells us that not Adam Smith but Fredrik List was more influencing the past policies of the developed countries. As the intellectual fountain of the modern laissez-faire doctrines, and as the only country that can claim to have practiced a total free trade at one stage in its history, Britain is widely regarded as having developed without significant state intervention. However, this could not be further from the truth. Before 1600, it was an importer of technology from the Continent. It relied on exports of raw wool and, to a lesser extent, of low-value-added wool cloth. The British monarchs taxed these products mainly for revenue reasons, but since cloth was taxed more lightly than raw wool, this encouraged import substitution in wool cloth and a certain amount of export success. Besides, the policies of Henry VII on cotton industry also reveals there fond towards trade restrictive policies. This trade wall was maintained by Britain till Queen Elizabeth 1. This for sure created the base for the future industrialization which happened keeping the cotton sector as the fulcrum. Other nations like France, Germany etc. have all in the past have followed todays "Neheruvian Policy". This is putting into the question, why WTO is so crazy about liberalization.

5. A Model

5.1. Empirical Analysis of a few factors:

A simple general linear model has been attempted to check the effect of trade openness and investment on output. We do not contend that such a model would be able to capture all of the factors that affect agricultural yields, however the empirical analysis here backs our argument regarding the impact of liberalization and the role of public investment. We wish to find out if there is a significant impact of trade liberalization in agricultural markets (owing to opening up of the economy) and public investment as a proportion of private investment on agricultural output. In order to scale our variables, we divide them by the Gross domestic product at market prices for the years (1990-2007).

5.2. Data and Methodology

Data regarding agricultural exports, GDP, capital formation have been collected from the Central Statistics Office datasets computed annually.

A simple multivariate GLM is performed with dependent Variable being Agricultural GDP/Total GDP (G) Independent Variables are Trade openness Index and Capital Formation Index. Agricultural Trade Openness Index (T) is (Agrarian Export + Agrarian Imports)/Agrarian GDP and Capital Formation Index is Public Investment/Private investment (I)

Since the Trade openness index in terms of the ratio depicted neglible values, the exponential form is taken to depict their magnitude clearly. Having established our regressors, we perform the regression according to the equation:

$$(G) = a + b \text{ exponential } (T) + c\ (I) + e$$

The results have been mentioned below (Table 6):

Regressand: Agricultural output as a share of total GDP

Variables	**Coefficient Value**	**Remarks**
Capital formation Index	**-84.432**	**Significant**
Exponential (Trade openness)	**1.355**	**Insignificant**
Constant	**116.944**	**Significant**

Table 6

5.3. Interpretation

The agricultural trade openness index (T), is found to be significant at 95% confidence interval and shows a negative coefficient. This would imply that the trade openness has in fact had a negative impact on agricultural output. While, this may seem odd at first, but we must understand that in the Indian scenario, the effects of liberalizing trade in agriculture might not reflect directly on output or even employment generation. For the period we have taken into account, firstly agricultural output remained almost stagnant. Working under a given technology, rising trade liberalization would have an effect on prices more than output and might work towards disincentivising output production. Nilabja Ghosh, in Impact of Trade Liberalization on Returns from Land: A Regional Study of Indian Agriculture, explicates based on empirical results that in the Indian case,

"The tradable and technology-based input fertilizer is not only more expensive to the farmer under free trade, also, its significance in changing the quality of the immobile resource, land takes its toll"

It also states that while output might increase in a few products, but when farmers are exposed to free market in inputs, this effect diminishes. Moreover our earlier propositions that trade openness might not directly impact output has also been empirically tested in Binswanger *et al*. (1987) where the price elasticity of supply response has been found to be 0.20 for India. Similarly, Chibber (1989) place it at 0.30. This shows that agricultural supply is highly inelastic to changing terms of trade prices. Farmers might substitute agricultural products to gain, however the effect on their income mediated through prices will lead to ambiguous outcome of terms of trade changes and openness index. Besides, the lack of market accessibility through trade unions and customs unions also influences the result.

The public investment / private investment bears an insignificant coefficient. This could arise either due to a limitation of the number of datasets in the sample or if further analysis proved the same, it was possible that public investment in agriculture has mostly been capital intensive and does not encourage employment to generate output in that sector (in a Keynesian framework) (Deepak Kumar Behera, 2016).

Extensive models on showing how gains from trade will boost agricultural output have been unable to explain the Indian problem, probably because the assumptions of perfect competition do not occur in

world agriculture markets. Deodhar, 2006 reports the rise in power of 3-6 multinational mostly operating in Europe and Japan which might not let the developing nations reap benefits of trade.

Table 7: Multinational Market Share in Agricultural Export Markets*

Commodity	World Exports ($ million)	Market Share of 3-6 multinationals
Wheat	17, 851	85-90
Sugar	10, 636	60
Coffee	9, 636	85-90
Rice	3, 613	70
Tea	1, 844	80
Bananas	1, 324	70-75
Cotton	6, 567	85-90
Jute	135	85-90

* Adapted from Gill and Brar (1996).

After considerable efforts being put on finding and explaining the missing links between theory and practice, we are presenting some suitable solutions. This solutions are twofold, policy and institutional.

6. Possible Solutions

6.1.Policy

1) In domestic agricultural policy, as is often argued, the need to strengthen public investment is vital in Indian context. Liberalization and privatization might provide competitive gains, however in the face of an incomplete information world, distributional consequences of such gains might be questionable. Water management, in particular needs attention from the public domain in seeing to how much irrigation is adequate. The need to invest in technology for those crops which are cultivated in rain fed regions are required. Such consideration cannot be expected to reap huge profits and involve large initial user cost, and thus might not be well entertained by private investors. Attempts made at increasing such investment which pay attention to rain fed areas and institutional intervention to prevent informal credits are likely to reduce the burden of subsidies on India's balance of payments and likely to reduce the excess dependence on fertilizers which have adverse effects on soil.
2) The fixing of bound rates on certain commodities above the price wedge need to be relaxed to allow a more substantive bound rate on commodities such as soyabean and sugar which require domestic protection. In this regard it is important that even international organizations' realize that the "one fits all" model might be too club centric in its approach.

3) Concerns regarding health standards and environmental standards in trade negotiations and also in the domestic market is likely to raise demand for supply chains and retail such as Reliance Fresh or Big Basket. The shift to such avenues are in fact mediated through policies such as demonetization which makes us behaviorally inclined towards using less cash purchases, something most farmers not tagged to retail supply chains work with. Moreover, to reap the benefits of liberalization, there needs to be in place the capital required to purchase stylized inputs such as fertilizers and even connect to large markets. Thus monopolies such as the Food Corporation of India, might reap gains at the cost of marginal farmers (as eventually happened in the aftermath of Green revolution. The need for government regulation of such monopolies, hoarding and even establishment of supply chains through public enterprises is thus imperative.
4) With regard to organizations' like WTO, there are many levels at which a restructuring of objectives and tools is necessary. The problems with the methodology used to measure prices and assistance provided are a serious allegation. However, more important is the accusation that the WTO is indeed a platform for power based negotiations and not economic negotiations. In this regard, a more active participation of "views" are to be in place. It is impossible to have autocratic party or democratically elected governing bodies to be able to project 100% of the problems concerning the general mass. Thus representation of such views from NGOs and other bodies could provide a stepping stone to link information across the working class and governing bodies. (The possibility of having WTO elected politicians however a bigger question is). Such civic and community groups could work well in pushing the information up to the ladder and even raising intellectual "competition" in the strictest neoclassical sense. A more engaging participatory mechanism would enhance the reliability of WTO, along with a shift from a technocratic to a more subjective valuation paradigm. Along such lines, the inclusion of global environmental group and labor organization groups should lead to a horizontal widening of the goals of WTO.
5) National extension services as fragmented, poorly trained, responsible to more than one authority, having little contact with research services and tending to work more with wealthier than with low-income farmers. In some cases, they were made to undertake duties such as tax collection which are anathema to good working relations with farmers. In India, for instance, some 20% of village extensions posts are vacant at any one time, mostly in the more remote areas where it is difficult to keep government staff in post. Financial pressures have, in turn, led to the search for ways of reducing public sector costs by e.g. privatizing parts of the extension service, having farmers pay government for some services, and cost-sharing arrangements between government and NGOs or farmers' organizations'. Private might prefer to propagate commercial crops more and hence AES through private can shift the focus to sugar, soybeans than rice or wheat. Institutional pluralism is needed. An important implication is that the view that 'government must provide' through blanket extension services reaching directly to farmers is outmoded: the most efficient extension services of the future must focus on spheres (geographical; thematic) inadequately serviced by the private commercial sector, which are likely to include soil and water conservation, other environmental, health and safety issues, and the provision of advice (and

inputs) to food crop production especially in remote areas. Nor should extension services of the future restrict the direct interaction of farmers. Their experience and ancestral knowledge can go a long way to serve, in different ways and at different levels, in the productivity of the primary sector. Use of modern communication like television, computer and apps in phone has been used quite extensively to provide extension services making the service quasi-private in nature. The essential service have become expensive and excludable to many. Thoughts must be put on this too. Alternative ideas like state-community co-operation in AES can be nurtured.

6.2. Institution

Perpetual negligence from WTO, blatant biased mechanism and policy by WTO encourages us to think of an institutional transformation. Thus the solutions are both from policy point of view as well as institutional. Agricultural issues are local and region specific even though the repercussions can cover a vast area. In finding a solution to this issue strongly propose to think about how to bring in voices of locals in decision making by the global body. May be some serious thoughts should be given on institutional transformation towards a bottom to top system.

Our structure of law elevates corporate decision-making over community decision-making. Corporations have court-conferred constitutional "rights." They wield these "rights" against communities to eliminate local efforts that may interfere with industry plans to expand their operations, regardless of the impact to communities and nature. Agencies such as the Environmental Protection Agency, the National Labor Relations Board, and the Minerals Management Agency – do not actually protect community and their knowledge. Rather, they *regulate* the amount of harm that is inflicted on our communities. Our legal system grants landowners the right to damage the environment, even though the impact is carried by the entire community. Access to common property resources, safeguarding of sacred groves, establishing sustainable methods to circumvent problems need to be at forefront of agricultural policies. A community-based approach to the management of agricultural biodiversity, including supporting community seedbanks, can empower and benefit smallholder farmers and farming communities economically, environmentally and socially. This approach makes implementing farmers' rights at national level both practical and effective contributing to food and seed security, sustainable livelihoods and resilience (Vernoy, R. 2016). Regarding cultivation and transport, without resorting to extravagant capital deepening (to support agricultural labour), local community level solution can be more effective. Stark examples from India, such as the root bridge of Nongriat and Sohra in the Meghalaya are examples of how indigenous habits and knowledge can provide a simpler and sustainable local solution to problems. Again, Smallholder farmers –with key roles played by women− have been selecting, exchanging and improving seeds and crop varieties for millennia. This is how varieties have adapted to changing agro-ecological systems as well as suiting cultural and personal preferences (Gruber et al. 2013; Fadda 2016). In this regard, adequate property rights and land acquisition amendments are necessary to reduce the skewed nature of land ownership in rural areas. Community property rights can give benefits

in terms of Protection of traditional Knowledge, benefit sharing and democratic participation of farmers in decision making.

- Protection of Traditional Knowledge: Smallholder farmers have been the custodians, stewards and guardians of agricultural biodiversity, landraces and related traditional knowledge and cultural use of food for millennia (Halewood 2016). Yet crops, crop varieties and traditional knowledge are lost at an alarming rate. In farmers' fields, in home gardens and through community seedbanks, the promotion, innovation and conservation of local and traditional farmers' varieties and related knowledge must be documented and supported.
- Benefit Sharing: Participatory plant breeding with farming communities; ecological agriculture which leads to more nutritious crops, a healthy environment and food safety; improving access to and availability of diverse seed of good quality; seed and agricultural product development and marketing; and strengthening smallholder farmers' capacity to interact with the formal research and extension sector all create and promote benefit-sharing thus addresses the issue of agency principal problem (Ruiz and Vernooy 2012). Community farming destroys the feudal relationship between tenants and landowners and brings in place community ownership of the lands. Thus the returns are also shared by all creating an equitable distribution.
- Participation in decision making: Community biodiversity management empowers farmers and farming communities to participate in policy dialogues. National associations and systems which recognize and support the safeguarding of traditional crops and crop varieties give smallholder farmers a direct say in the implementation of national conservation strategies. Farmers as 'citizen scientists' provide valuable scientific information and their preferences are detected through crowdsourcing of variety testing, which feeds back into gene banks, research organizations and breeding programmes. Linkages between community seedbanks and national gene banks and strategic partnerships between farming communities and the private sector and other value chain actors are strengthened. Governments should recognize and award outstanding custodians. Incentives and rewards can promote agricultural biodiversity as a public good.

A much stricter reality, is that, the very basics of production relations that govern our society today are unequal. Property rights and information acquisition are major detriments to any model of general equilibrium analysis. In this context, power games could lead to problems and class struggles will be important in determining how far organizations' could move to planned global development instead of the kind of fake Aristotelian egalitarianism established by WTO. Our assessment have concluded that the idea of trade openness and policies in accordance with it along with the institutional arrangement should not be blindly followed. The prescribed path of growth by the "developed nations" are to be seen critically and analyzed considering the background, contemporary situation and need of the developing nations like India. One must not also forget the history of how the developed nations have become developed in the first place.

Since liberalization is beneficial only with acceptance of substantial cost one must venture other alternatives beyond the mainstream settlement mechanism of the market. If economic efficiency is coming by tremendous social inequality or ecological imbalance this will jeopardize the very sustainability of the economy. A solution to this problem can be addressed by creating personalized relation, social institution of trust and accountability backed by strong social views and values. This is what a community based production relation assures. Instead of competition an institutional transformation towards co-operation can create new horizons in the journey towards a sustainable, equitable and inclusive development.

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