# Effect of Amber Box Trade Policies on India and China: Supply & Demand Analysis

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**ABSTRACT**

*In July2017, India and China jointly appealed to the World Trade Organization (WTO) to reduce trade distortions between the developed and developing countries in trade of specific and non-specific commodities. According to Agreement of Agriculture (AoA) of WTO, Article 6, there are primarily three boxes under which commodities are placed. They are Green Box (no restriction). Amber Box (permitted but restricted I. slow down) and Red Box (forbidden). Also, there is Blue Box tied to programs that limit production. S & D Box is used for developing countries. This study firstly analyses the production of India &China and also taking USA, a developed country for the analysis of rice for a period of 30 years from 1986-2016. Rice comes under "Amber Box "which allows up to 5% and up to 10% subsidies for developed and developing countries respectively keeping in mind the de minimis level. It further explores the export volume and calculates the Aggregate Management of Support (AMS) and Price Support Estimate (PSE) of India and China countries for comparison for a period of five years. Further, a critical approach is taken to understand the reason behind the trade distortion during this time frame and recommendations to compute the trade imbalance.*

***Keywords:*** *Amber box; PSE; AMS; WTO; Green box; Rice.*

## 1.0 Introduction

Rice is one of the most essential commodities along with wheat, cotton and corn. Asia pacific has a production and consumption of rice up to around 90%. The demand of food supplies and to maintain food security is a primary concern for WTO members. However, developed nations tend to build trade policies favoring their exports. What followed then was the Uruguay Round in 1986-88, the Doha Round in 1995 and the Cancum Agreement which was later turned down. Rice consumption and production pattern of India and China are of global importance because these two countries and highest consumers as well as producers. The AMS calculation was a debatable as it favored the developed nations. If AMS is not feasible, then Equivalent Measurement of Support (EMS) which includes the equivalent figures of production.

### 1.1Objectives

- To understand the global agricultural trade policies impacting these two nations by understanding the opportunities and the limitations of the Amber Box support.
- Explore the impact on rice cultivation and export in the Asian countries.
  Analysis of WTO decisions to eliminate distortion in subsidies.

## 2.0 Review of Literature

### *Uruguay Round*

The 8th round of multilateral trade negotiations under the framework of General Agreement on Tariffs and Trade (GATT), from 1986 to 1993 had 123 countries as "contracting parties'' led to the birth of WTO.

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The main objectives of this round related to Agriculture was to reduce agricultural subsidies. In 1994, this round formally concluded by the Marrakech Declaration and Agreement on Agriculture (AoA) was developed. In 1995, upon the final agreement and establishment, WTO replaced GATT officially. In this round least developed countries (LDCs) having a GNP per capita less than US $1000 per annum are exempt from prohibition of export subsidy.

***Doha Round***

In 2000, WTO member countries began rigorous trade negotiations in Agriculture known as Doha Development Agenda. It addressed the liberation of trade keeping in mind the developing countries. The "three pillars" of agricultural trade negotiations during this round were progress on market access, domestic support and export subsidies. During this round, the concerns regarding developing nations honouring their side of bargain and USA and EU failing to do so was strongly expressed. The July Package then called for reduction of domestic prices which is the sum of Amber Box, Blue Box and the de minimis support by20

percent during the first year of implementation period. But this does not specify the achievable level of reduction. The situation became more confusing when a draft in 2003 was issued stating 60 percent reductions for developed countries for period of five years and 40 percent reductions for developing countries for a period of ten years. After the Cancum negotiation breakdown, supposed to happen in 2003, USA proposed an alternative to have bilateral trade agreements favoring the USA trade policies only in the July package.

***The Boxes relevant to Agriculture***

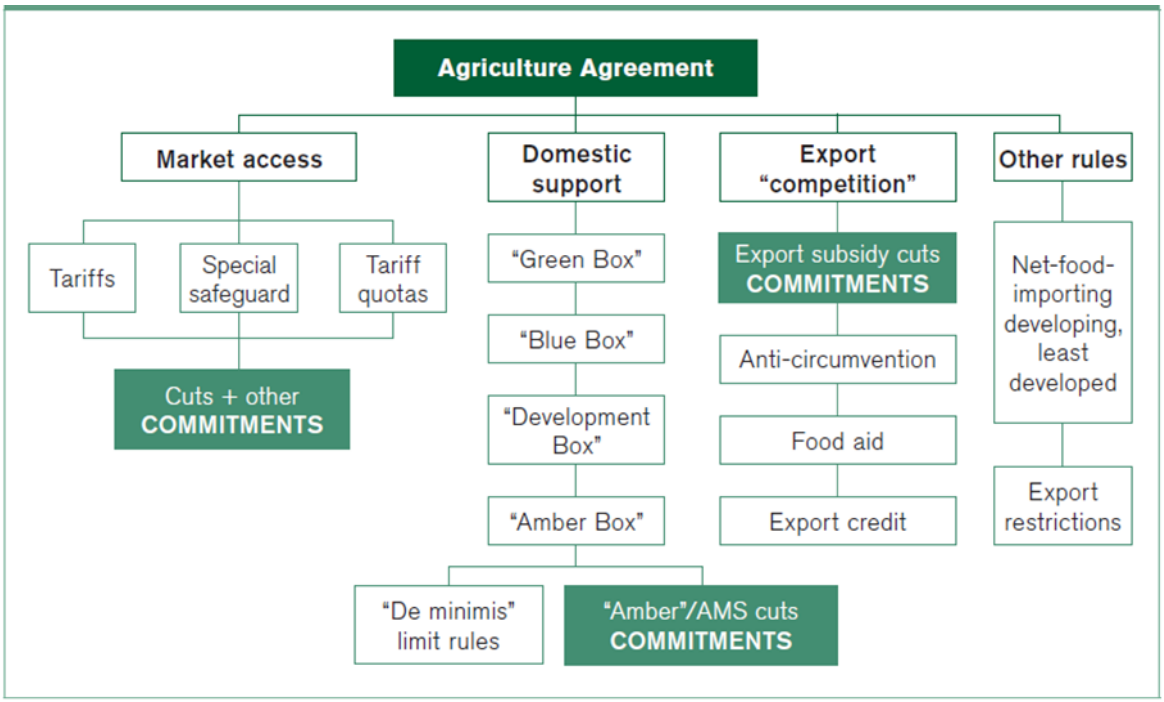
Green Box: For a commodity or service to qualify Green Box, the subsidies must not distort or at most cause minimal distortion, specifies the WTO in the Annexe2 of Article 6. They are required to be funded by the government and must not involve price support. They are not targeted to products and include direct income support to farmers which are decoupled from current level of prices. The subsidies include here are direct payments to producers which are decoupled income support and government financial support for insurance and safety net programs. AoAalso mentions a Development Box applicable to developing countries to provide additional flexibility for domestic support.

***Amber Box***

Under Article 6.3of AoA, Amber and Blue Box have been discussed in various subsections and it states as "A Member shall be considered to be in compliance with its domestic support reduction commitments in any year in which its domestic support in favor of agricultural producers expressed in terms of Current Total AMS does not exceed the corresponding annual or final bound commitment level specified in Part IV of the Member's Schedule." But the point of having an Amber Box is to reduce or eliminate trade distortions in commodities like rice, wheat, cotton etc which are produced and exported in large numbers by developed and developing countries. The ongoing debate of the paper published jointly by India and China to WTO is regarding the de minimis levels be raised for developing countries which is currently at 10 percent. The opening statement of the submission is as follows," Aggregate Measurement of Support (AMS) is the most trade distorting element in global trade in agriculture." It also gives facts of developed countries with respect to trade distortions of rice, USA (82%), EU and (66%). The Amber Box modalities include reduction halving the rate from 5% to 2.5% and also providing flexibility to developing countries by providing 10% and additional benefits including right to reduce negative support for specific products. There is still a debate on whether to continue with total AMS which allows subsidies to be shifted from products or have AMS limits for specified products.

The USA submitted a report in 2013-14 to WTO stating that India claimed giving 5.45% value of the crop while it gave 76.9% as subsidies. Minimum Support Price (MSP) is basically the price at which a farmer can sell to government and the USA assumed that India's MSP is for 100 % of crop. In US calculation, the budget for AMS came to Rs 2,74,515 cr for rice and wheat combined and the overall MSP of Rs 92,927 cr. This indicates that it is 16-17 % which was previously in the range of 65-77 % range. To suit the argument in favor of USA report, they took MSP as Rs 13,100 and reference price, which is the international market price to be Rs 2346.67. This was not the case, as Rs 2346.67 was not the current price of rice at that time. Instead, it was the price set in Uruguay Round in 1986. USA does it deliberately to arrive at a positive value of AMS while the AMS value for India is always negative for paddy as India can export larger quantities. While MSP remained for India, the developed nations converted the MSP to cash to be given away to farmers without growing the crop. The issue to be addressed is that, the developing economies do not want to change the reference price as it hurts their subsidies calculation.

**Figure 1: The Agriculture Agreement in a nutshell**



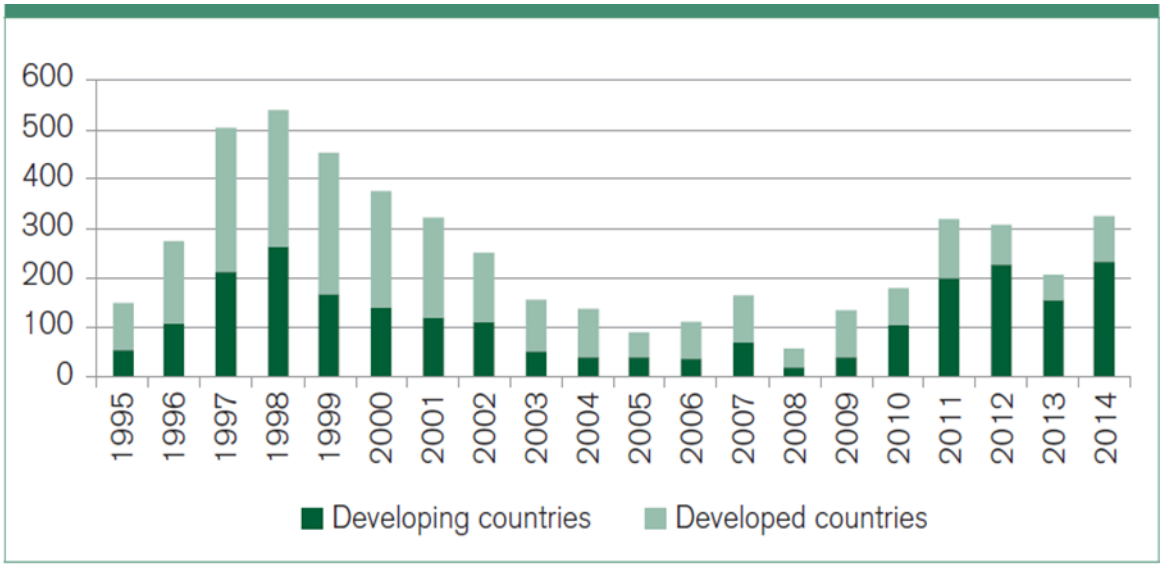

*Source: WTO- The WTO Agreements Series Agriculture*

Another interesting figure to note is that developing countries are asked far more questions than developed countries during the tenure 199-2014 on market access, domestic support and transparency.

**Trade policies**

**India**: India's trade policies have Measurement of Support (MSP), quoted in Article 18.4, which are well below the fixed external reference prices. The National Food Security Ordinance (NFSO) came up with the largest physical distribution of subsidized food grains to 67% of the population in 2013 under the 'Right to Food' ordinance grants. MSP has been beneficial for rice because meaningful purchases have been made by agencies which are not

**Figure 2: Developing countries facing more questions**




*Source:AG-IMS*

**Table 1: Who asks and who is asked the most question?**

| | Asking | Questions | | Answering | Questions |
|---|---|---|---|---|---|
| 1 | US | 1,275 | 1 | EU | 707 |
| 2 | Australia | 1,258 | 2 | US | 561 |
| 3 | Canada | 997 | 3 | Canada | 347 |
| 4 | New Zealand | 960 | 4 | Japan | 302 |
| 5 | EU | 612 | 5 | Switzerland | 257 |
| 6 | Japan | 325 | 6 | Norway | 229 |
| 7 | Argentina | 253 | 7 | India | 212 |
| 8 | Brazil | 147 | 8 | Thailand | 197 |
| 9 | Thailand | 81 | 9 | Korea | 195 |
| 10 | Korea | 65 | 10 | Brazil | 188 |

*Source:*

**Trade policies**

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**China**

China's 12th Five Year Plan from 2011-2015 saw reaffirmation to the commitments by increasing the grain production capacity by 50 million tonnes. The main features of trade policy are border measures and agriculture domestic programs. Under border measures, which is highly import driven, the VAT of essential commodities like cereals was 0-6 %. The state trading enterprises were allocated 50% of quota to rice during this period. Only these enterprises can export rice. Under agriculture domestic programs providing subsidies rather than taxing agriculture was a welcoming move. Since the payments are done at the provincial level, each province can regulate the subsidies. The average subsidy realised was around USD 7.3 per acre. The New Variety Extension Payment Scheme helped to improve the quality of seeds. Under this, the subsidy was anywhere between 10 to 15 Yuan depending upon the quality of rice. The National Development and Reform Commission sets the minimum prices for rice which is generally kept a little lesser than world market price. Agricultural insurance scheme was launched in 2007 which gave farmers subsidized insurance premiums wherein they paid 20-30 % of the balance amount after the central and local governments covered their insurance. During the birth of WTO, China had an AMS level of zero. But now, China has committed to paying de minimis of 8.5% and hence is not required to lower its subsidies. China decided to open trade in 2010 by forming China- ASEAN Free Trade Agreement also known as CAFTA. By being a member of APTA (Asia Pacific trade Agreement), it was able to have 1600 tariff lines below the MFN rates. MFN rate is the lowest possible tariff that can be imposed on another country. So, the APTA members had 8.9 % while the MFN rate was9.5%.

**3.0 Research Methodology**

**Aggregate Measurement of Support**: This includes product and non-product specific products like fertilizers, inputs and is defined in Article 1 and Annexes 3 and 4 in AoA.

Double Counting= MPS Official= (Pd Official-Pw base) * Qt AMS official= Double counting + Flashing Amber

Flashing Amber is the trade distorting domestic support not captured in gap between domestic and world market prices.

Flashing Amber: OPS+ IPS= AMS actual

OPS= output price subsidies, IPS= Input price subsidies Pure double counting occurs when MPS actual=MPS official

Over/under counting occurs when MPS actual diverges from MPS official So, the AMS final calculation is done as

AMS=[Qd(Pd-Pb)-Af]/Qd*Pd

Qd=quantity produced of a particular commodity

Pd= Domestic price of the same commodity for which market support / tax is being calculated

Pb= Market price of the same commodity for which market support / tax is being calculated Af= Associated fees or levies charged on that particular commodity

Producer Support Estimate (PSE) PSE = [Qd (Pd-Pb) +D+1]/(Qd*Pd) +D

D= Direct payments, I= Indirect transfers

The difference between PSE and AMS is that AMS includes the subsidy tax provided through price support and direct tax is taken only, whereas PSE takes direct and indirect taxes. Hence PSE is a measure of all transfers arising from agricultural policies. AMS includes payments that are production and trade distorting.

PSE is based on difference between domestic price and current external reference AMS is based on difference between domestic price and fixed external reference. So,

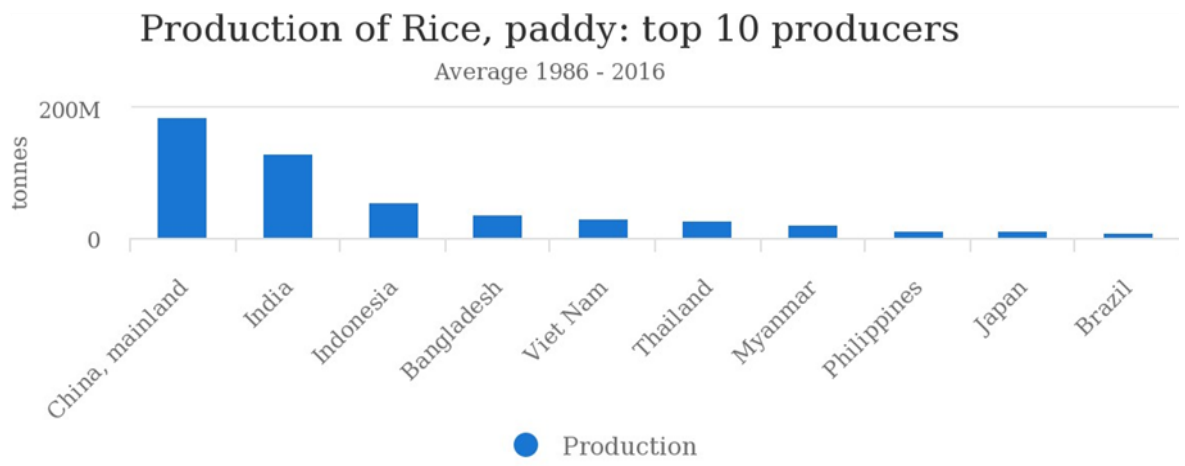
Total AMS=Product Specific AMS+ Non-Product Specific AMS+ Equivalent Measurement of Support

MPS= (Applied Administered- Fixed Reference Price) *(Qty eligible to receive support)- (Associated Fees/ Levies)

Reference price is the per unit price for the net exporting (FOB) and net importing (CIF) country as applicable. Applied Administered price is the actual floor price, while quantity eligible to receive support is the marketable surplus of that product.

## 4.0. Analysis and Discussion

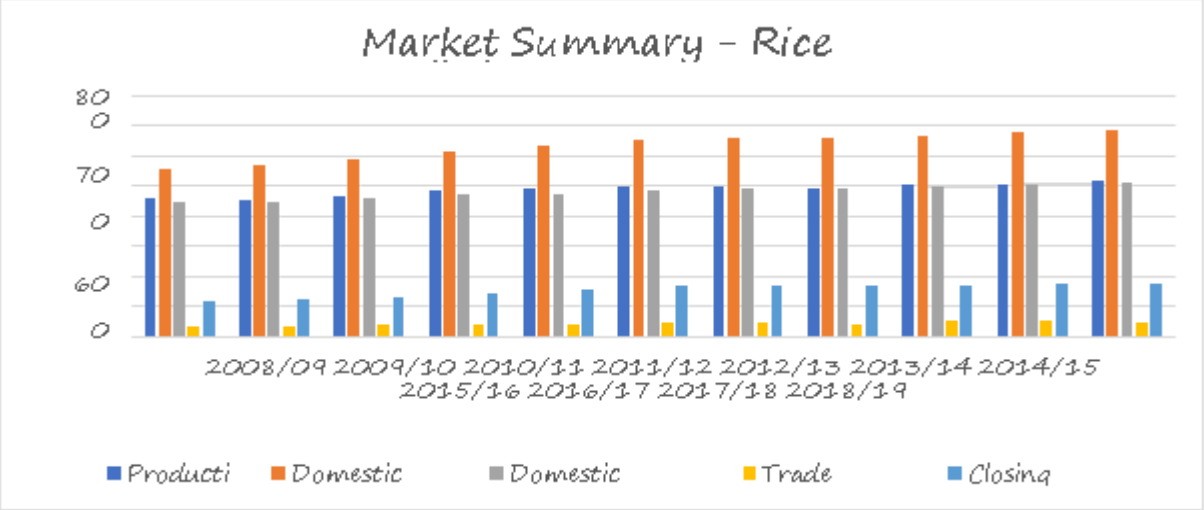
**Figure 3: Top 10 producers of Rice**




*Source: PAOSAT (Jan 21,2019)*

Among the top 10 producers of rice, China and India are the top two producers. Also, 9 out of 10 countries are Asian economies excluding Brazil. 9 out of 10 countries, excluding Japan are considered developing economies according to WTO guidelines. So, subsidy distortions are controlled by the developed countries although their productions are far lower than the top producing countries.

**Figure 4: Market Summary-Rice Milled**




*Source: FAO-AMIS*

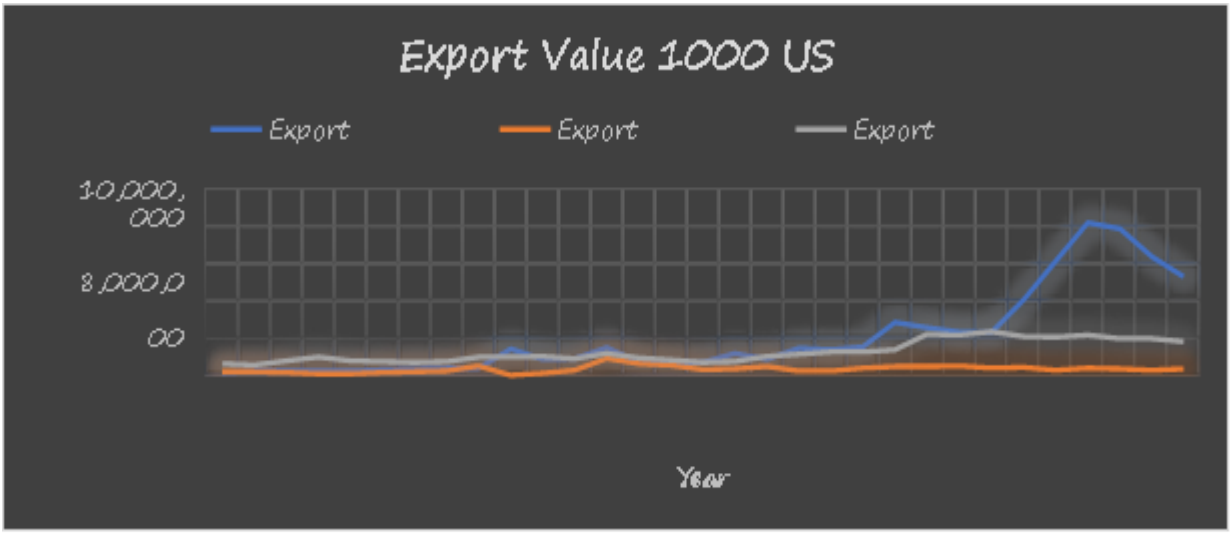
In a span from 2008 to 2018, a period of ten years, production, domestic supply and utilization has increased while trade (exports) and closing stocks have been consistent. This reflects the increase in population and the demand for rice in the world has not reduced the exports in the global markets.

**Figure 5: Export Quantity**


*Source: FAOSTAT*

The export quantity of rice saw a rapid increase post 1990 for India as India had become a liberalized economy. The US exports are higher than China because China imports are higher than exports. From the period of 2010 to 2015, the increased exports of India strongly indicate that Indian rice was high in demand in the international markets, but due to the AMS and the de minimis levels of 10%, the exports surged in 2016, as the farmers and exporters did not receive subsidies as per the levels of production. So, period from 1986-2016, a30 year period, gives the indicative export difference between the developing countries India and China and the developed country, USA.

**Figure 6: Export Value**




*Source: FAOSTAT*

The export value is the confirmation of the export quantity of rice India exports in the international markets. And a sharp rise and rise of value from 2010 to 2015, is also a confirmation to the fact that while the demand of rice had risen in the global markets, the supply was met by India.

**Figure 7: Share of US Agriculture Exported in 2016**

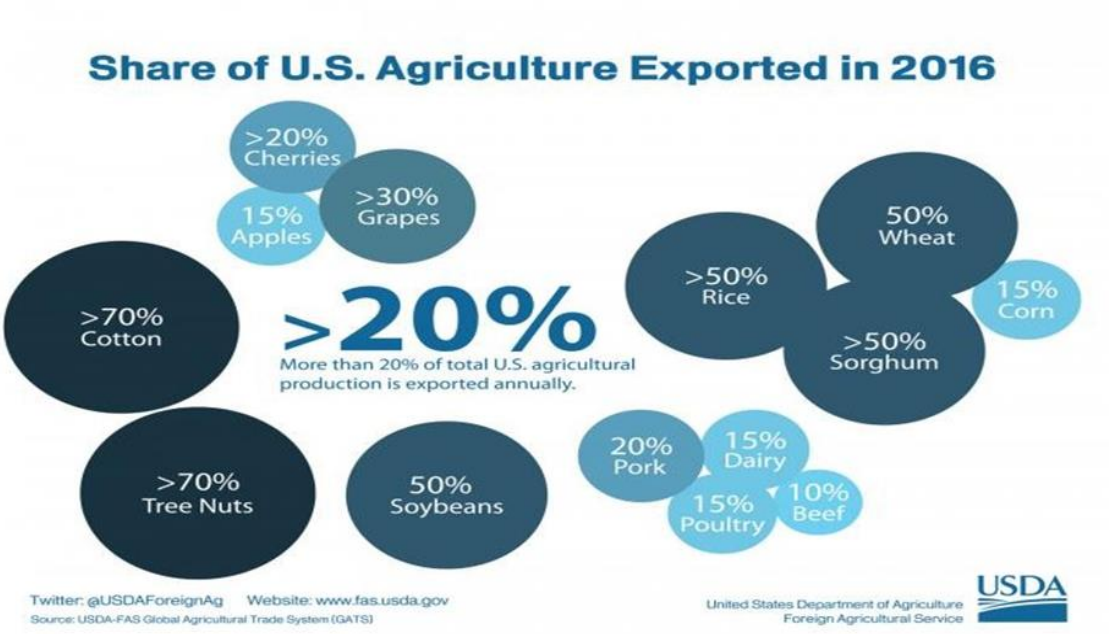
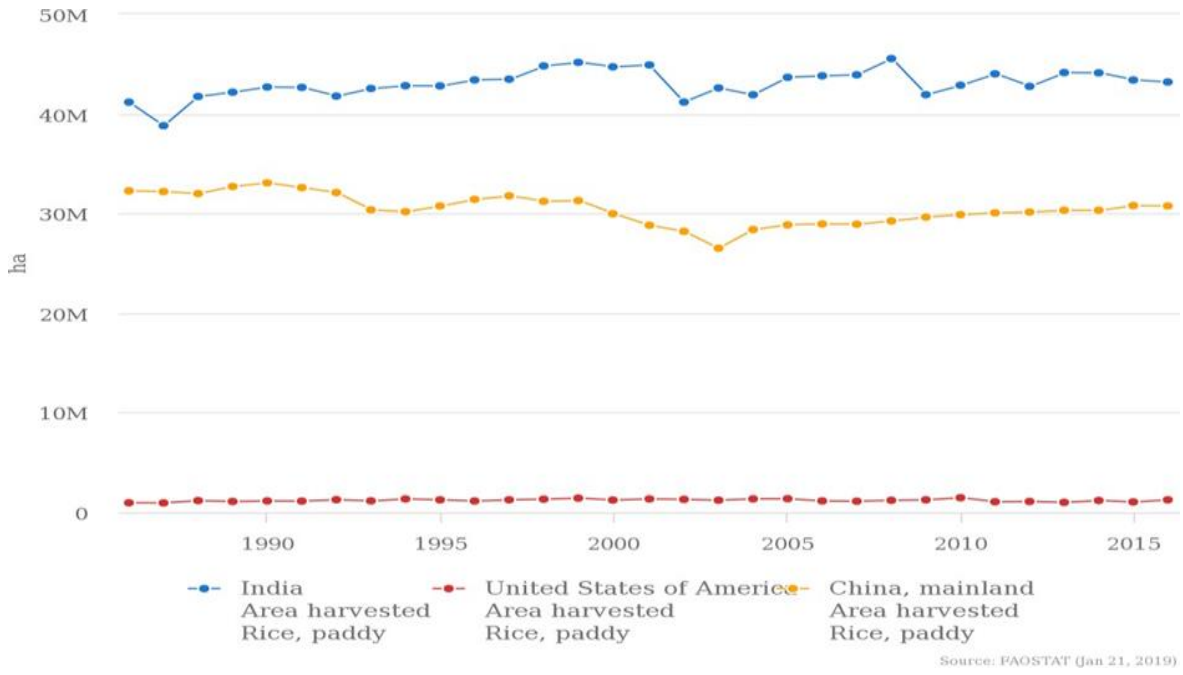
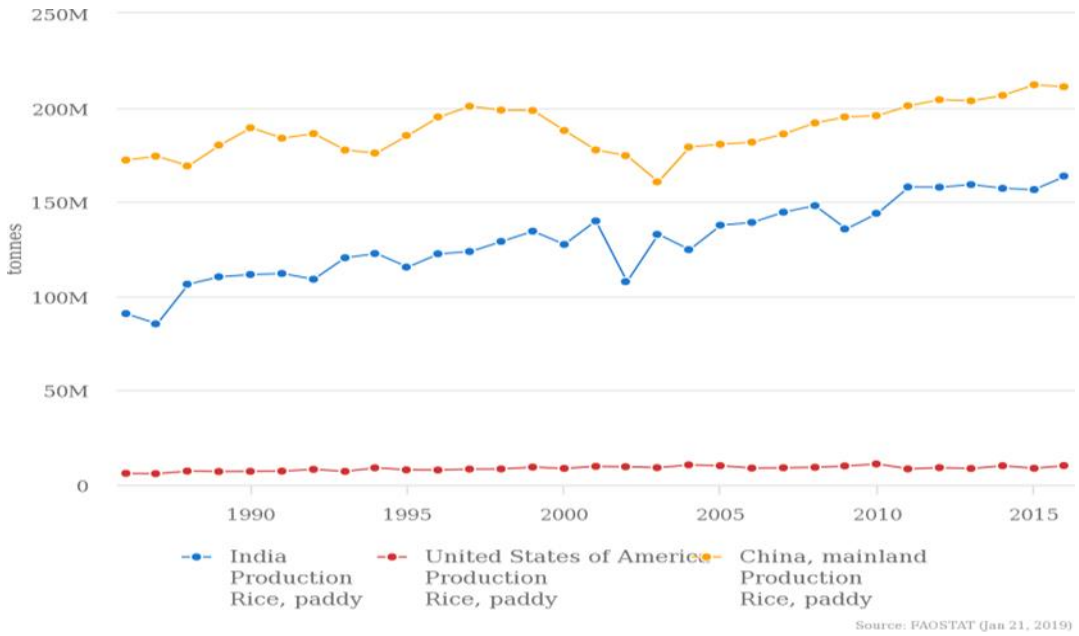



**Figure 8: Area harvested in hectare**



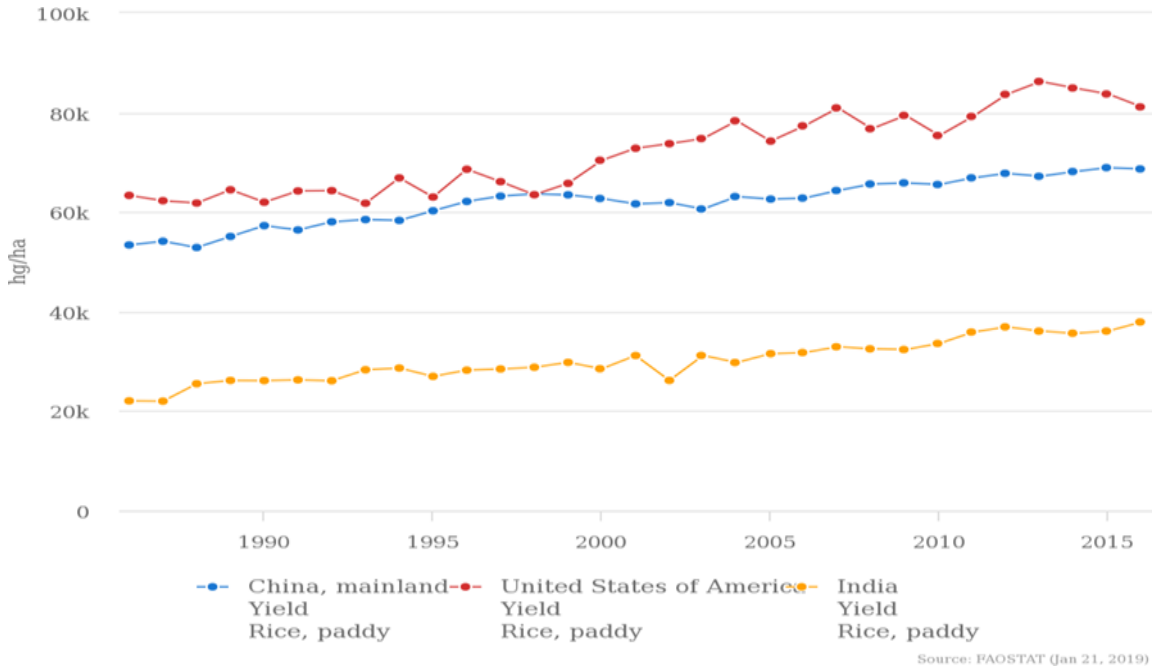

As per FAO data, 2019, the area harvested in hectare is largest for India followed by China. Interestingly, USA and China are larger than India in area. So, keeping a 5% subsidy on USA as per the AoA is considerably high for USA for rice.

**Figure 9: Production in tonnes**



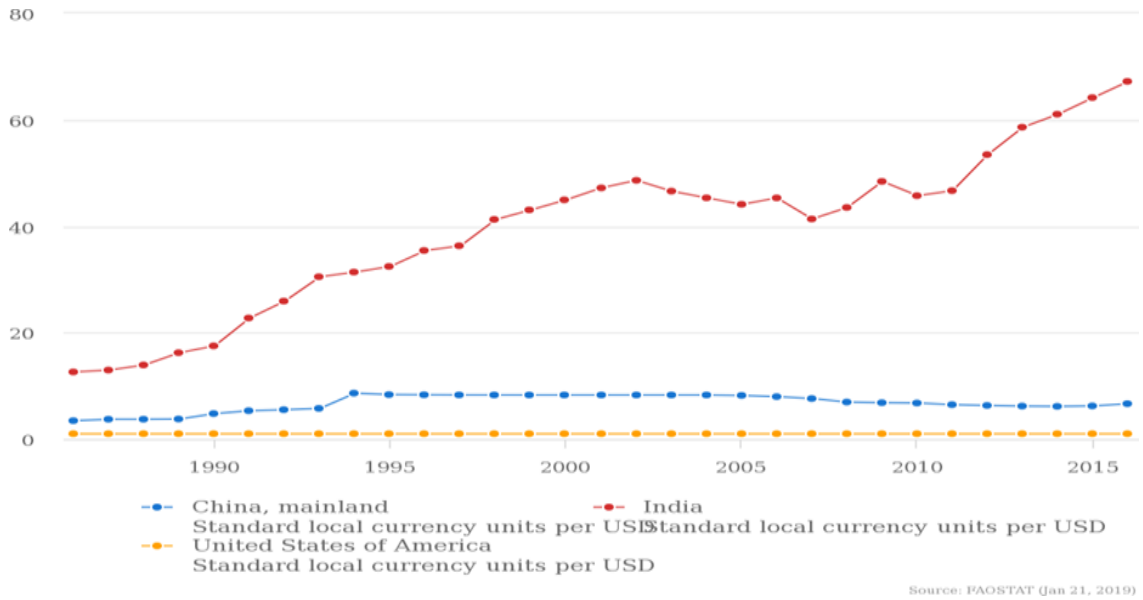

China has greater production in tonnes, although the area harvested per hectare is higher in India. By this graph, it is evident that although China produces more than India, its domestic consumption is so high that exports are lesser than India.

**Figure 10: Yield kg/ha comparison**




The yield in kg per hectare is in stark contrast to the production and the yield graphs seen above as USA is a strong competitor to India of 80,000 and 70,000 approximately and this where the international prices hurt because if the yield per hectare is greater, it indicates better farming practices which leads to longer storage and higher consumption.

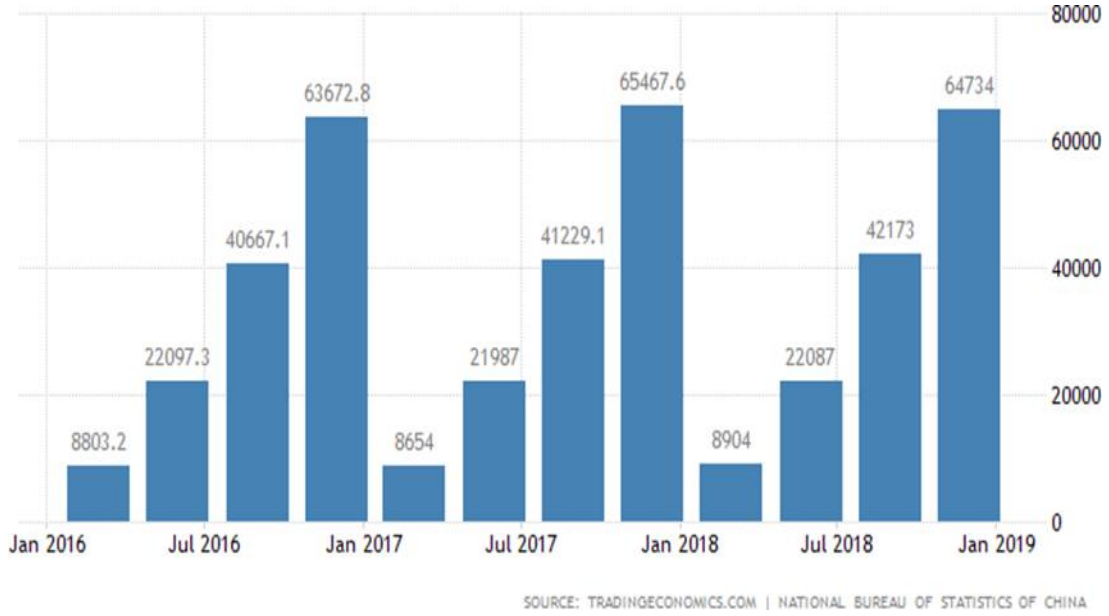
**Figure 11: Annual exchange rate -Local currency units per USD**




Analysing the annual exchange rates per USD, India is a big gainer in exporting rice. But it is not indicative of the actual subsidies provided to the exporters and farmers per se.

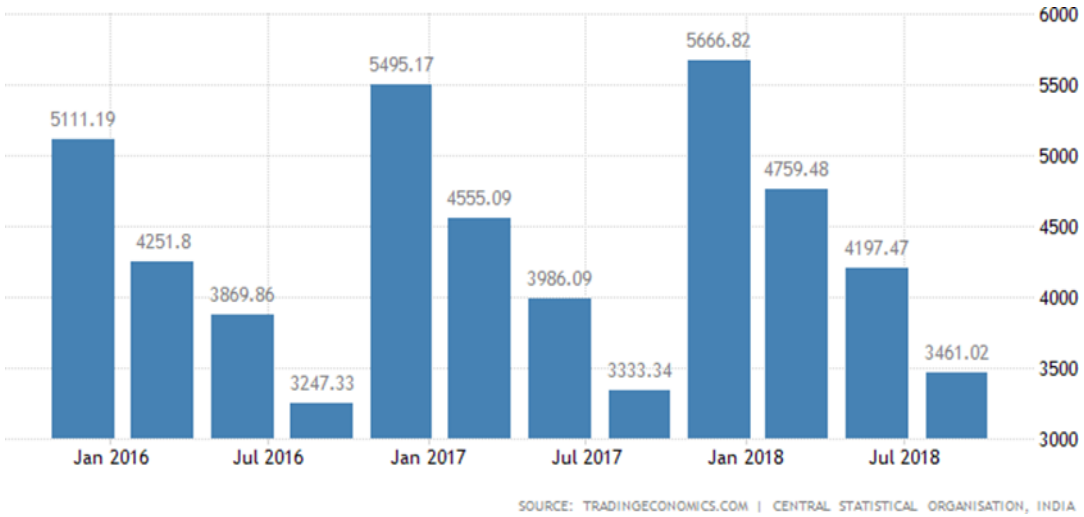
**Figure 12: The GDP from Agriculture comparison**

**China**




As per the National Bureau of Statistics of China, China had 63672.8 CNY HML (882.5 USD Billion). GDP from Agriculture in the fourth quarter in 2016. As of 2018, average GDP from agriculture is 15922.04 CNY HML (234.2 USD Billion) from 1992 to 2018.As per World Bank report, the GDP of China was 11190.9 Billion USD in 2016. And as of 2017, China's GDP is 19.4% of world's economy.

**India**



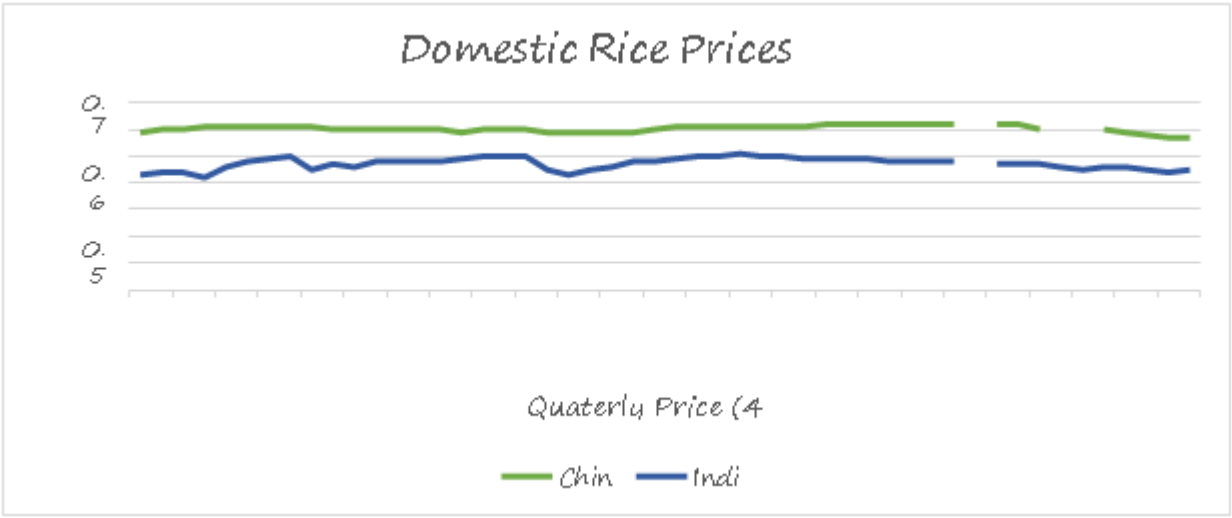

On the contrary, GDP from agriculture in the fourth quarter of 2016 for India was 3247.33 INR Billion (45 USD Billion). As of 2018, average GDP is 4037.84 INR Billion (56 USD Billion) from the period of 2011 to 2018. India's GDP was 2274.2 USD Billion in 2016. As of 2017, India's GDP valuates to 4.19 % of the world economy.

Comparing the two countries' GDP from agriculture as of fourth quarter of 2016 as per current USD conversion rates, China contributes 20 times more to its GDP than India. This confirms that the production and trade policies of China favor the Chinese agriculture than Indian policies made for India. The ratio of GDP from agriculture to GDP for India was 1.42 while that of China was 0.079 in 2016 which indicates that revenues from agriculture are higher in India than China as a country.

***AMS calculations***

Domestic Food Prices: These are prices of the commodity in the particular country.

**Figure 13: Depiction of domestic rice prices in USD/kg in China and India**.




*Source: Food Security Portal-IFPRI*

The figures here are taken from period of Jan 12- to Feb 16, roughly 3 years' time frame. The breaks in the graph are due to unavailability of the prices during that period. To normalize the data, they are expressed USD /kg. For AMS calculation, an average of this is taken and it turns out to be 0.6032 USD /kg for China and 0. 4727 USD/kg for India.

Fixed External Reference Price (FERP): According to WTO and the DS511 Report submitted by USA in September 2017 after India and China jointly proposed to WTO, FERP is taken as the priced calculated in 1986-1988, which is fundamentally absurd way of calculating as the market rates have changed drastically since then. However, for the AMS comparison of India and China, 0.069 (USD/kg) has been taken. The report claims that China has an FERP of

470.83 (RMB/MT). So, the final FERP figure is arrived accordingly as per current conversion rates. Associated Fees and levies include MSP rate of 2.25% average on the domestic production and the remunerative price of average Rs 31.6 /quintal which is USD 4.4 /ton in case of India as per Food Corporation of India.

According to Ministry of Agriculture and rural affairs, PRC, the Minimum Producer Price (MPP) offered for early indica rice, mid & late rice and japonica rice is 102 Yuan, 107 Yuan, 128 Yuan per 50 kg respectively as per 2011.So, the average MPP is 112.34 Yuan/50 kg.

For ease of calculations, all the figures are expressed in USD / million tonnes. Average production is taken for a period of 5 years, from 2012 to 2016. Also, the exchange rates are calculated as per current conversion rates.

**Figure 14: Exchange rates & conversion Rates**

**India**

| Particulars | Figures | Units |
|---|---|---|
| Average Production (qd) | 158888000 | Tonnes |
| | | |
| Average Pd | 473 | USD/tonnes |
| Average Pb | 69 | USD/tonnes |
| Remuneration Rate | 4.4 | USD/tonnes |
| Average MSP | 0.0225 | Of the average production |
| Average Af | 699107210.6 | USD/tonnes |
| | | |
| Average AMS | 64,19,07,49,918.80 | USD/tonnes |

*Source: As calculated by author*

The average AMS of India is 64190749.91 USD/ million tonnes after conversion for ease of comparison.

**Figure 15: Exchange rates & conversion Rates**

**China**

| Particulars | Value | Units |
|---|---|---|
| Average Production Quantity (Qd) | 209156.5886 | million tonnes |
| | | |
| Average Pd | 0.674 | USD/ milliontonnes |
| Pb | 0.069 | USD/ million tonnes |
| Minimum Produce Price (MPP) | 0.33702 | USD/ million tonnes |
| Af | 70.48995349 | USD/ million tonnes |
| Average AMS | 126539.7356 | USD/ million tonnes |

*Source: As calculated by author*

The average AMS for China from the period of 2012-2016 is 126539.7356 USD/ million tonnes. There is a huge gap between the subsidy given by India and China on rice. The Amber Box

suggests giving de minimis levels of 10%, whereas the requirement is more than 10% to obtain sustainable production levels in both the countries.

## 5.0 Conclusion

By the results and analysis, if the USA calculations are to be taken to consideration, then it is utterly baseless as there needs to be a more relevant and recent FERP to be used for calculations. The time frame taken is 1986-88, whereas the current rates are far higher than this time frame. While the average AMS is taken, an effort has been made to evaluate the two nations with respect to Amber box subsidies and the calculations are not accurate as per exchange rates during 2016. Annual AMS is a more accurate methodology to evaluate the AMS. But due to insufficient information regarding the levies and taxes given by the respective nations, an estimate value has been calculated. PSE is another method to arrive at the subsidies to be given, but indirect transfers and tax are beyond the scope of this paper and hence could not be computed.

While both countries have claimed that MSP is way below FERP, due to exchange rates as of 2019, it turns out that China has higher MSP than their FERP. But still, China has managed the 8.5% limit which states that its farmers and producers are compensated better than India.

Interesting conclusions that are noteworthy are that of the ratios of the GDP from agriculture to GDPs of the countries. While production is highest in China and yield is highest in India, yield per hectare turned out to be highest for USA over a span of 30 years.

Analysing the annual FOREX rates, with respect to USA, India generates higher revenues as it is a larger exporter of rice than China.

As new regulations are in discussion in WTO, the calculation of AMS should be based on a single commodity and not on aggregate basis as it distorts the subsidy disbursement.

A production-based calculation on AMS rather than export based would help the stakeholders viz. farmers, exporters and producers which is incidentally working positively in China as it is able to maintain the AMS level to 8.5%

Since support prices cannot be same in all nations, like India has MSP and China has MPP, and many tariff rates, WTO must ensure to remove these support prices and reduce for developed nations to carry forward a positive outcome in obtaining trade balance. The Amber box subsidies are the most fluctuating commodity subsidies in international commodity markets.

The observation regarding the countries answering and asking questions in WTO committee meetings is of importance as the nation producing and exporting highest in a particular commodity must have a higher control over the market prices rather than developed nations such as EU and USA. In this case, rice being high for India and China.

## 6.0 Limitations of this Study

Data available is insufficient to calculate accurate AMS. The literature quotes different claims by different countries on the same figures and WTO has not released the exact figures.

Since AMS was calculated on an average basis, the further scope of this study can be to calculate on an annual basis with exchange rates during that particular year.

The time frame formulated for 30 years had to be concise to five years due to time constraints and data unavailability.

All the data available on China is mostly by the US government and hence it is subjective in nature.

**Appendix**

AMIS-Agriculture Management Information System Statistics
AMS- Aggregate Measurement of Support
AoA-Agreement on Agriculture EU- European Union
FCO- Food Corporation of India
MPS: Minimum Price Support
PRC- People's Republic of China PSE – Price Support Estimate USA- United States of America USD- US Dollars
WTO- World trade Organization

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