The US Domestic Support and its likely implications on Developing Countries

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Abstract

This paper goes beyond the orthodox considerations of border measure effects on trade distortions by highlighting how subsidies affect producer's ability to cover the fixed cost, and distort aggregate production and prices. The theoretical arguments on trade distortions often hold that border measures are the most trade distorting. A number of empirical studies also hold the same line of argument. The results of these studies reveal that tariff barriers in OECD countries actually inflict more damage than subsidies on developing countries. Therefore, major source of gains for developing countries would arise from removal of tariffs, rather than subsidies in OECD countries. The present paper would like to empirically verify the validity of this argument by highlighting the real nature and dimensions of domestic support provided by the major player in the world market; i.e. US and its impact on production, cost of production and prices. And the study would like to point out the detrimental effects of US agricultural policies on the trade prosperity of developing countries.

The US Domestic Support and its likely implications on Developing Countries

Introduction

Until the Uruguay Round Agreement (URAA) domestic support received less attention and it was URAA explicitly addressed the trade distortions arising out of domestic support policies in agriculture. The theories on trade distortions however claim the supremacy of border measures in distorting trade. A number of empirical studies also hold the same line of view. There are a number of reasons for this. The definitions used by the WTO for addressing domestic support issues have serious limitations. For instance some developed countries, mainly the United States have strategically used the *de minimis* exemption to deflate their support figures substantially in order to remain within Aggregate Measure of Support (AMS) limits, even though total support has exceeded these limits. In addition to this the WTO framework itself enabled the developed countries with enormity of domestic support, to restructure their support in a way that they require no reduction commitments. Therefore, the major reason for the strife between developed and developing countries are related to the nature and identification of domestic support into various boxes. The paper therefore, gives more emphasis on domestic support by analysing the impact of crop specific support provided by the US, the major player in the world market, in distorting domestic prices. The paper also tries to capture the extent of dumping into the world market by US and their likely implications on the trade prosperity of developing countries.

The paper is classified as follows; first section discusses the theoretical arguments of trade distortions, section 2 gives a brief survey of literature which empirically shows tariffs are more trade distorting, section 3 discusses the real nature domestic support in US. The 4th section brings out the impact of Producer Support Estimate (PSE) on the prices of major selected crops. Fifth section describes the extent of dumping into the world market by US and their likely implications on the trade prosperity of developing countries. Fifth section concludes.

Theoretical arguments

The distortions in the product market arise due to two reasons. First, is due to the presence of monopoly or oligopoly in the production of the commodity, which have effect of raising the price to consumers above the marginal cost of production. Second, is due to the presence of external economies or diseconomies which make the marginal cost to producers higher than marginal social cost. The former is policy induced distortions, while the later is due to the market imperfections. Therefore, an attempt to offset monopolistic distortions by protective interventions in trade may well be offset by increased distortions and the intervention creates consumption loss with out countervailing production gain. The same reason could render nugatory the attempt to employ optimal intervention in the form of production taxes or subsidies.

The distortions due to the market imperfections, however, can offset by a carefully adopted trade or domestic policies or the combination of the both. However, as per the theory the only valid argument for protection as a means of maximising economic welfare is 'optimum tariff argument' (Johnson, 2001). All other arguments for protection are in principle are arguments for some form of government intervention in the domestic economy. The argument is that the correction of domestic distortion requires a tax or subsidy on either production or consumption or on factor use and not on international trade.

According to Bhagawati (1971), trade policy is only a second best policy for those countries having less or insignificant influence on the world market (small countries). Therefore for such countries the domestic policies are the first best policy. On the other hand trade policies are the first best policy for the countries having a greater influence on the world market (large countries).

The Paretian equilibrium condition is met when the DRS=DRT=FRT.[1] If the country has a monopoly power in trade, a competitive free trade solution will be characterised by DRS=DRT≠FRT. A subsidy (tax) on the domestic production of importables (exportables) could equalise DRT and FRT but would destroy the quality of DRS with DRT. Hence it is clear that a tax-cum-subsidy on domestic production is necessarily inferior to an 'optimum tariff' for large countries

But in the case of countries with no monopoly power in world market, the case of domestic distortion can write as DRS=FRT≠DRT under free trade. A suitable tariff can equalise FRT and DRT but would destroy the equality between DRS and FRT. Therefore it shows that no tariff is superior to free trade. A suitable-tax –cum-subsidy on domestic production, however would enable the policy maker to secure DRS=FRT=DRT and hence is necessarily the optimum solution. Hence a tariff policy is also necessarily inferior to an optimum tax-cum-subsidy policy.

Therefore, the a tariff is not necessarily superior to free trade, a tariff is not necessarily superior to an export (import) subsidy and a policy pertaining to the attainment of maximum welfare involves a tax-cum-subsidy on domestic production. Briefly an 'optimum tariff policy' is suitable, when there is a divergence between foreign prices and FRT, and optimum subsidy (or tax-cum-subsidy), is suitable when there is a diveregence between domestic prices and DRT.

The theories, therefore implicitly points out that the tariffs are more trade distorting. This is obvious from the argument of "optimum tariff". Corden (1974) further elaborate the above point. Considering the elasticity between leisure and work as zero, a subsidy financed by income tax (an increase in income

[1] Domestic Rate of Substitution in Consumption is equal to Domestic rate of Transformation in Production is equal to Foreign rate of Transformation.

tax), is treated as non-distorting. On the other hand, a tariff is a tax on consumption, which finances a subsidy to producers as well as allowing some reduction in income tax and an income tax that finances the same level of subsidy in production. Therefore as per Corden's argument a tariff creates a by-product distortion (the consumption cost of protection) while the subsidy (that is finance through an increase in income tax) does not (Corden, 1985). He further argues if it is desired to achieve a target out put level of one particular product the optimal policy is to subsidise production and then to finance the subsidy by a minimum distortion tax. If the subsidy is financed by a minimum distortion tax (here it is assumed that an income tax is imposed on all kinds of income), a subsidy is still better than a tariff. Briefly, the crux of the argument is that a tariff is a tax on consumption of that particular product where the tariff is imposed and a subsidy for the production of a particular product is financed through a minimum distortion tax that involves all products and all levels of income. However, Bhagawati explicitly argue that the tariffs are the first kind of distortion in international trade (Bhagawti, 1971).

Empirical Arguments

According to a number of empirical studies the major source of gains for developing countries would arise from removal of tariffs, rather than subsidies in developed countries (Hoekman et al, 2002, 2004). Also the agricultural support policies hurt developed countries relatively more than they hurt developing countries. The second argument is that the subsidies provided by many developed countries actually benefit some poor, developing countries. The studies place high importance to market access as compared to other two pillars of the AoA. They argue that the potential income gains from abolishing domestic support and export subsidy are much smaller than those from eliminating tariffs (Anderson, et al, 2005). As per the World Bank research over 90 percent of the cost of global agricultural distortions is due to tariffs (World Bank, 2005). They cite six reasons for this. Firstly, they argue, the widely cited $280 billion of OECD agricultural support in 2004 is derived primarily from tariffs and export subsidies.

And therefore the resulting market price support accounts for $168 billion, or 60 percent of total. Another argument is that OECD estimates refer only to support to farmers, and there is a great deal of support to food processing covered under the AoA-virtually all of which is provided by tariffs. Third, trade measures are more costly and distorting both production and consumption and thereby potentially is double than the cost per dollar of support to producers. Fourth, almost all of the agricultural support outside the OECD is provided through border measures. Fifth, the rates of protection provided by tariffs tend to vary more than those provided by subsides. Sixth, the costs of domestic support are reduced to some degree by decoupling from production. Briefly, as per their argument market access distorts both production and consumption whereas domestic support distorts only the domestic production. Even though one can not undermine the role of tariffs, the significance of domestic support in distorting trade needs to be examined in detail.

The 'real' Magnitude of US Domestic support

As per the AoA, the WTO members had agreed to limit expenditures on domestic agricultural subsidies with certain exemptions[2]. In effect the framework itself gave considerable scope for developed countries to continue with their support. For instance, the US had shifted much of its support to green-box compliant Producer Flexibility Contract (PFC) Payments, which is exempted from the reduction commitments.

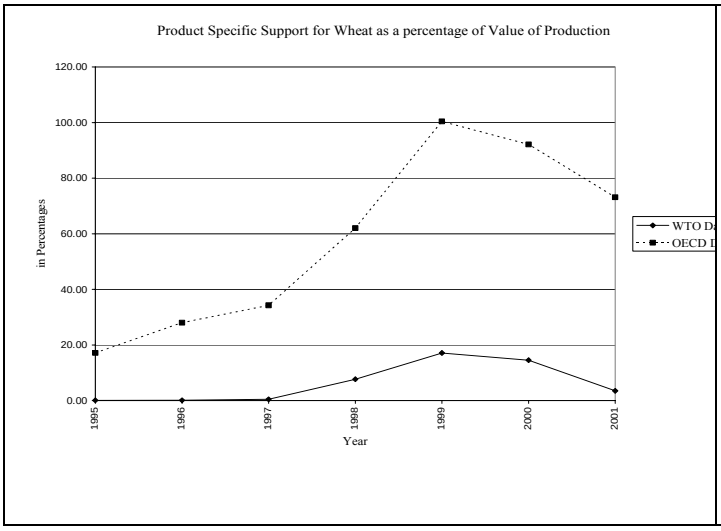
According to the data obtained from the notifications on domestic support to the WTO Committee on Agriculture, the US had increased its spending under green box support, quite considerably during the

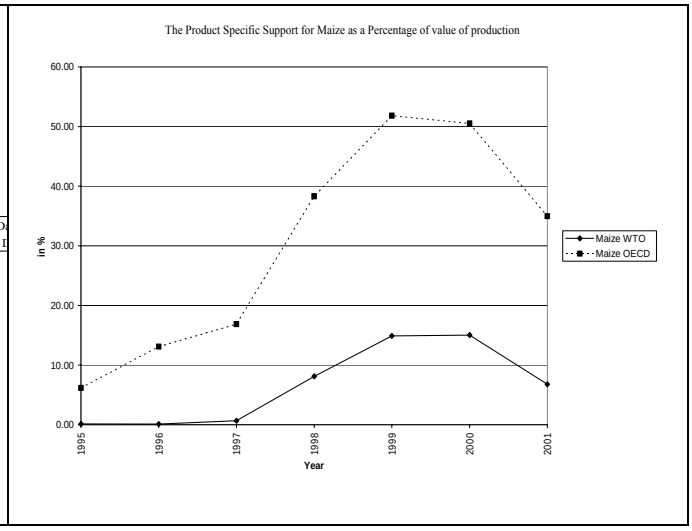
[2] The AOA exempted from disciplines those support polices that are supposed to have no or minimal impact on production and trade (Green box and Blue box). In addition the WTO agreement allowed exemptions for subsidies under *de minimis* provision when they were less than 5 per cent of the value of production of a specific commodity to which the subsidy applied (Commodity specific *de minimis*) or of the aggregated value of agricultural production (not commodity specific). The items that have direct impact on production or trade distorting were under the head called "Amber Box".

first two years of implementation, and as a result, green box spending accounted for around 88 per cent of its domestic support. In the subsequent years, however, the share of green box spending came down to about of third in the total domestic support. The absolute amount of green box support, however, increased from $ 46033 million to 450672 million during 1995 to 2001. The total Amber box subsidies granted by the government during the same period increased from $7697.2 million to $ 21455.8 million. Note that even the amber box, the market distorting support was increasing. As a result the total subsidies granted by the government have increased from $60760.60 million to $ 72127.80 million. The total domestic support for all other countries during the same period was declining. Nonetheless, the blue box support experienced a drastic fall and it remained to be as zero since 1995.

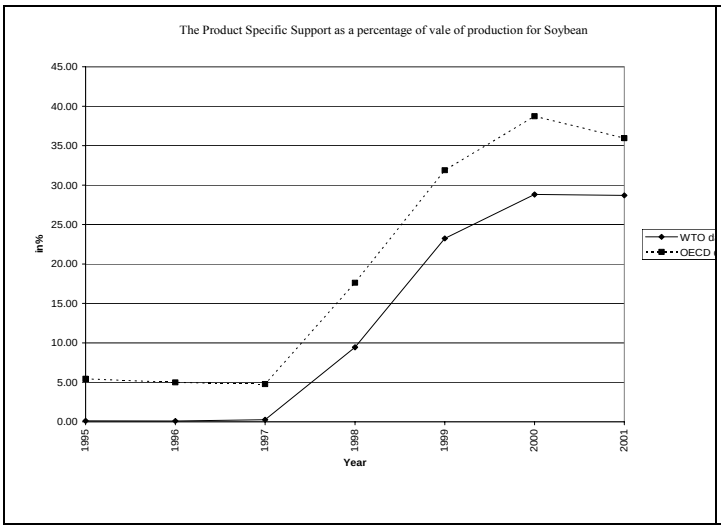
Both product specific (PSE) and non-product specific support leading to amber box support, given by US government increased from $ 6311.2 million to $ 14627.6 million and $1386 million to $ 6828.20 million during the period of 1995 to 2001. The product specific support reached the peak level in 1999 but since 1999 declined slightly. The non-product specific support also shows the same trend but compared to product specific support the increase in non-product specific support was sharp during 1995 to 1999. The largest proportionate increase in domestic support was witnessed in case of wheat, a commodity in which the United States is the second largest producer having a 25 per cent share of global trade. The domestic support for wheat however declined drastically in 2001. Support for wheat increased from just less than US$ 5 million in 1995 to nearly US$ 974 million in 1999 and further declined to 189. 4 million in 2001. The product specific support granted to rice, a commodity in which United States has started emerging as an exporter, went up from US $ 11.6 million in 1995 by a massive US $ 762 million in seven years.

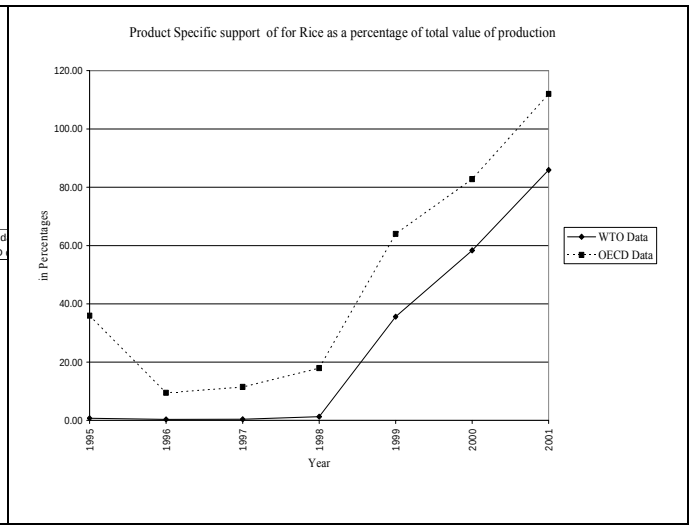
At this juncture it would be of interest to discuss the difference between the data on PSE provided by WTO and OECD. There is a huge difference between the PSE data given by WTO and OECD. The percentages calculated using OECD data of product specific support as a percentage of production is many times higher than WTO figures.[3] The difference is very high in the case of wheat. Also note that the difference is increasing towards the end of the period (see following figures). However, the difference in the data obtained from WTO and OECD is due to the different methods in calculating the market price support (Gopinath, etal 2004).The market price support is calculated by taking the gap between a fixed external price and the domestic price. The OECD use farm gate price as the domestic price and the WTO notifications use the applied administered price.





[3] As per the AoA the developed counties shall not provide a producer support of more than 5 per cent of the value of production.





Identification and Placement of Subsidies into various 'boxes'

The framework of AoA is imbalanced in its provisions on market access, tariffs, domestic subsidies and export competition. The real nature of the trade distortions is beyond the scope of the framework. The framework has been fashioned in such a way that the developed countries are able to continue their high levels of protection, whilst many developing countries have liberalized and their farmers are facing damaging competition due to the dumping of low priced commodities in the world market.

Therefore, the preeminence of domestic support in distorting the trade is able to explain with the help of a scenario where the "boxes" are redefined and re measured. The identification and placement of subsidies in various boxes has been the most contentious issue in the current pace of negotiations. The placement of subsides into trade distorting as well as non trade distorting categories gave enormous flexibility in restructuring the domestic support in developed countries. For instance, the AoA allowed the countries to continue to increase their subsidies by shifting their subsidies targets out of the trade-distorting category (Amber Box) to trade-neutral categories (Blue and Green Boxes). Note that the decoupled income support is placed in the Green Box claiming they are no or minimal trade distorting as

they are de linked from current production and prices. Similarly, the counter cyclical payment, which is partially coupled, [4] is placed under the Blue Box category.

On the other hand developing countries can not use or increase subsidies except in very limited ways. In addition to this, the developing countries do not have the resources to subsidise agriculture in any degree comparable to the developed countries.

The analytical framework

The crops selected for analysis are wheat, maize, soybean and rice. These are major crops cultivated in US and traded in the world market.[5] The principal forms of product market distortions are trade policies in the form of import protection and export subsidies (taxes), exchange rate policies, and price control, all of which affect relative product prices. Therefore, the end result of any type of distortion is seen through prices. The analysis therefore is intended to see how the PSE are affecting the relative prices of crops.

Regarding data, the data on PSE is taken from the website of OECD. There are two reasons for this; first, the data on PSE provided by OECD is more truthful method as the market price is calculated using the farm harvest price. Secondly, the data on PSE from WTO notifications is available only from 1995 onwards and this makes the time series analysis of the data meaningless. The data on cost of production and prices are available in the website of Economic Research Service/US Department of Agriculture (ERUSDA) since 1975 but taken since 1986. There is a discontinuity in the classification of data since 1996. For the earlier period the cost data is classified under two headings i.e operating cost and allocated overhead. However the total cost in the later period and the total economic cost in the former period are

[4] Partially coupled due to they are linked with price.
[5] Cotton is also one among the major five crops produced and exported but cotton is excluded from analysis as the OECD data on PSE is not available for cotton.

comparable. So the analysis is made use of both economic costs and total costs for the calculation of unit cost. Price provided by the USDA is harvest period price (or farm harvest price). The data on production, export and import are taken since 1986 from the website of Food and Agriculture Organisation (FAO).

Regarding methodology the time series analysis of price as a function of a set of variables viz; cost of production, production, PSE, export and import is undertaken to see how the domestic prices are getting affected by these variables. For measuring the methodology on dumping, the methodology developed by Dhar and Varma (2006) is taken into consideration.[6]

The model can be explained as follows;

$Lnp=\alpha+\beta_1 lnQ+ \beta_2 lnc+ \beta_3 lnx+ \beta_4 lnm$

$\beta_1=(\Delta P/P)/(\Delta Q/Q)$, $\beta_2= (\Delta P/P)/(\Delta C/C)$, $\beta_3= (\Delta P/P)/(\Delta X/X)$, $\beta_4= (\Delta P/P)/(\Delta M/M)$

The result of the analysis shows that prices of all the crops except wheat are affected by PSE. The relationship between the prices and the PSE were significant and negative. In the case of wheat, production, cost of production and export had a significant and positive impact on price. Contrary to our notion, production and cost of production had significant and positive impact on the prices of wheat. In

[6] The methodology of IATP is used for this purpose but with some differences in calculating the variables. For instance instead of taking specific market prices the US average marketing year price for the individual crops is taken for calculating the transportation cost. The unit PSE is calculated using the value of production. The data for average marketing year price for the individual crops is obtained from various issues of Agricultural Statistics published annually by the National Agricultural Statistics Service (NASS) of the US Department of Agriculture (USDA). The difference between the average marketing year price and the export price is taken as the proxy for transportation and handling cost of the crop. The full cost of production thus obtained by adding unit cost, unit PSE and transportation and handling cost. For measuring the dumping percentage we used the following formula;

(Full Cost of Production- Export Price)/(Full Cost of Production)=% of Export dumping

the case of rice there is an inverse relationship between the PSE and prices and the relationship between the two variables were significant. The only other variable which was significant but positive was cost of production. In the case of maize and soybean only the variable PSE was significant in affecting the prices and the relationship between the two was negative. The analysis therefore indicates the prices in the domestic market are distorted due to high levels of PSE. The high levels of PSE pushed down the prices for crops. Also note that the prices for almost all the crops in US were well below their cost of production (Dhar and Varma, 2006). Therefore the prices below the cost of production due to high levels of support can affect the world market in the form of dumping. The percentages calculated points out this fact. (see table 1).

Table: 1 Percentage of US Dumping into World Market

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Wheat	41	29	33	27	16	25	31	36	48	48	48	44
Maize	15	14	20	7	-11	3	15	30	38	38	25	12
Soybeans	6	0	6	-2	-6	-15	-10	14	28	28	30	17
Rice	15	20	14	16	13	6	9	15	27	20	27	29

The table shows that the dumping percentages were respectively 40 for wheat, 30 for maize, 25 for soybean and 25 for rice. Note that the percentage of dumping was all time high for wheat. The percentage of dumping of wheat increased from 41 to 44 during 1991 to 2002. The dumping of rice increased from 15 percentage to 29 percentage. Similarly the dumping of soybean also increased from 6 percentage to 17 percentage.

The US share of export of all the crops mentioned above was significant. As far as wheat, soybean, maize US is the largest exporter. In the case of rice Thailand is the largest exporter and followed by US. From this exercise it is obvious that the export of agricultural products at a cheaper price to the world market has a detrimental effect in pulling down the prices (Dhar and Varma 2006).

Concluding Observations

Though the theories and empirical studies place more importance to tariffs in distorting trade one can not underestimate the role that huge amount of domestic support play in distorting trade. The additional gain in market access therefore depends not only on the removal of tariffs but also from the substantial reduction in domestic subsidies. The argument that US administration has used to justify their agricultural policy shift is 'Decoupled Income support', .i.e. the support which is de linked from the current production and prices.[7] However, the decoupled income payment can also have an indirect impact on production and prices through a reduction in the level of cost of production. Note that the simple correlation between the cost of production and the decoupled payments are significant and negative for all the crops. Therefore, the huge amount of support provided by the US to their producers pushed down the prices well below the cost of production. Since US is a major exporter of agricultural products, especially the crops selected for study, products are dumped into the world market. The monopoly power of US in the world market in effecting the prices must have resulted in depressing the world market prices. The dumping therefore, create unfair trading advantage because they depress world prices and narrow or even eliminate the market opportunities for producers in the developing countries. Note that the cost of production is favorable for many developing countries owing to their low cost technological production. But their price competitiveness in the world market is adversely affected by the artificial depressing of the world prices.

[7] The US introduced decoupled payments into the system through Federal Agriculture Improvement Act (1996). From 1996-2002, the decoupled payments named as Production Flexibility Contract Payments (PFC) and since the Farm Security and Rural Investment Act of 2002 the PFC is modified and renamed as Direct Payments.

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Annex

1. Regression Tables

Wheat

Source	SS df	MS		Number of obs =	18
	F(7, 10)	= 8.91			
Model	.596110576	7 .085158654		Prob > F	= 0.0013
Residual	.095539353	10 .009553935		R-squared	= 0.8619
	Adj R-squared	= 0.7652			
Total	.691649929	17 .04068529		Root MSE	= .09774
lnprice	Coef.	Std. Err.	t	P>t [95% Conf.	Interval]
lnpse	-.0942062	.0635703	-1.48	0.169 -.2358497	.0474374
lncostofpdn	1.080224	.268403	4.02	0.002 .482185	1.678263
lnproduction	.5032323	.2386152	2.11	0.061 -.0284355	1.0349
lnexport	.5387542	.2281026	2.36	0.040 .0305099	1.046999
lnimport	.0235708	.0650918	0.36	0.725 -.1214627	.1686044
dumyyear	.0224487	.0105108	2.14	0.058 -.0009708	.0458682
year	-.0351328	.018522	-1.90	0.087 -.0764023	.0061366
_cons	51.23907	37.00747	1.38	0.196 -31.2187	133.6968

Dickey-Fuller test for unit root Number of obs = 17
---------- Interpolated Dickey-Fuller ---------
Test 1% Critical 5% Critical 10% Critical
Statistic Value Value Value
Z(t) -3.353 -3.750 -3.000 -2.630
* MacKinnon approximate p-value for Z(t) = 0.0127
D.res Coef. Std. Err. t P>t [95% Conf. Interval]
res
L1 -.9301524 .2774147 -3.35 0.004 -1.521448 -.3388569
_cons -.0009485 .0193424 -0.05 0.962 -.0421758 .0402789

Durbin-Watson	d-statistic(	2,	17)	=	1.870175

Rice

Source	SS	df MS		Number of obs	= 18	
		F(7, 10)		= 10.48		
Model	1.22022996	7 .174318566		Prob > F	= 0.0007	
Residual	.16626416	10 .016626416		R-squared	= 0.8801	
		Adj R-squared		= 0.7961		
Total	1.38649412	17 .081558478		Root MSE	= .12894	
lnprice	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
lnpse	-.3494543	.1187929	-2.94	0.015	-.6141415	-.0847672
lncostofpdn	.8543557	.431012	1.98	0.076	-.1059988	1.81471
lnproduction	.6248055	.7024198	0.89	0.395	-.9402833	2.189894
lnexport	.0709177	.3156818	0.22	0.827	-.6324651	.7743005
lnimport	-.2591687	.4688016	-0.55	0.593	-1.303724	.7853864
dummyyear	-.0197773	.0149819	-1.32	0.216	-.053159	.0136044
year	.0253792	.0526067	0.48	0.640	-.0918358	.1425942
_cons	-55.64097	98.84224	-0.56	0.586	-275.8752	164.5933

Dickey-Fuller test for unit root Number of obs = 17
---------- Interpolated Dickey-Fuller ---------
Test 1% Critical 5% Critical 10% Critical
Statistic Value Value Value
Z(t) -1.570 -3.750 -3.000 -2.630
* MacKinnon approximate p-value for Z(t) = 0.4970
D.res Coef. Std. Err. t P>t [95% Conf. Interval]
res
L1 -.2293376 .146113 -1.57 0.137 -.54077 .0820948
_cons 1.122392 .7098985 1.58 0.135 -.390721 2.635505

Maize

Source	SS df	MS		Number of obs =	18
	F(7, 10)	= 1.76			
Model	1.71804736	7 .245435338		Prob > F	= 0.2009
Residual	1.39306375	10 .139306375		R-squared	= 0.5522
				Adj R-squared	= 0.2388
Total	3.11111111	17 .183006536		Root MSE	= .37324
lnprice	Coef.	Std. Err.	t	P>t [95% Conf.	Interval]
lpse	-.3623096	.1760677	-2.06	0.067 -.7546128	.0299937
lncostofpr~n	.0923598	.236296	0.39	0.704 -.4341405	.6188601
lnproduction	-.28467	.5097028	-0.56	0.589 -1.420359	.8510187
lnimport	.1431222	.1880085	0.76	0.464 -.2757868	.5620312
lnexport	.2686407	.3274893	0.82	0.431 -.4610509	.9983322
dummy year	.0680052	.0369049	1.84	0.095 -.0142241	.1502344
year	-.1121462	.0556569	-2.01	0.072 -.2361574	.011865
_cons	228.9311	108.5028	2.11	0.061 -12.82818	470.6903

Dickey-Fuller test for unit root Number of obs = 17
---------- Interpolated Dickey-Fuller ---------
Test 1% Critical 5% Critical 10% Critical
Statistic Value Value Value
Z(t) -4.067 -3.750 -3.000 -2.630
* MacKinnon approximate p-value for Z(t) = 0.0011
D.res Coef. Std. Err. t P>t [95% Conf. Interval]
res
L1 -1.034565 .2543615 -4.07 0.001 -1.576724 -.4924067
_cons .0113523 .0728136 0.16 0.878 -.1438461 .1665508

Durbin-Watson	d-statistic(	2,	17)	=	2.055137

Soybean

Source	SS df	MS	Number of obs =	18
	F(7, 10)	= 9.72		
Model	.374379744	7 .053482821	Prob > F	= 0.0009
Residual	.054997904	10 .00549979	R-squared	= 0.8719
	Adj R-squared	= 0.7823		
Total	.429377649	17 .025257509	Root MSE	= .07416

lnprice	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
lnpse	-.2029472	.0481866	-4.21	0.002	-.3103136	-.0955809
lncost	.8957283	.4734664	1.89	0.088	-.1592207	1.950677
lnpdn	-.326521	.4126735	-0.79	0.447	-1.246015	.5929729
lnexp	.1202523	.2041189	0.59	0.569	-.3345529	.5750576
lnimp	.0719386	.0505117	1.42	0.185	-.0406085	.1844857
dyear	.0110333	.0087401	1.26	0.235	-.008441	.0305075
year	-.0096814	.0186703	-0.52	0.615	-.0512814	.0319186
_cons	24.17242	30.66548	0.79	0.449	-44.15453	92.49937

Dickey-Fuller test for unit root Number of obs = 17			
---------- Interpolated Dickey-Fuller ---------			
Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t) -2.565	-3.750	-3.000	-2.630
* MacKinnon approximate p-value for Z(t) = 0.1005			

D.res	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
res						
L1	-.5778521	.2253227	-2.56	0.022	-1.058116	-.0975882
_cons	3.069823	1.195012	2.57	0.021	.5227155	5.61693

Durbin-Watson	d-statistic(	2,	17)	=	2.021752

Percentage of Dumping Calculation

Annex Table: 1 Percentage of US Export Dumping: Wheat

	Unit cost	Unit PSE	Transportation Cost	Full Cost	Export Price	
year	$ per bushel		$ per bushel	$ per bushel	$ per bushel	% of Dumping
1991	4.7	0.7	0.5	6.0	3.5	41.3
1992	4.5	0.4	0.9	5.8	4.1	28.5
1993	4.6	0.6	0.6	5.8	3.8	33.4
1994	4.6	0.4	0.6	5.6	4.1	27.5
1995	5.3	0.2	0.3	5.8	4.8	16.4
1996	5.9	0.3	1.3	7.6	5.6	25.5
1997	5.0	0.3	1.0	6.3	4.4	31.3
1998	4.0	0.6	0.8	5.4	3.4	36.3
1999	4.3	1.0	0.6	5.9	3.0	48.2
2000	4.6	0.9	0.6	6.1	3.2	48.0
2001	5.3	0.7	0.7	6.8	3.5	48.3
2002	6.3	0.4	0.5	7.3	4.1	43.6

Annex Table: 2 Percentage of US Export Dumping: Maize

	Unit cost	Unit PSE	Transportation Cost	Full Cost	Export Price	
	$ per bushel		$ per bushel	$ per bushel	$ per bushel	% of Dumping
1991	2.7	0.2	0.4	3.2	2.8	14.7
1992	2.3	0.3	0.6	3.1	2.7	14.2
1993	2.9	0.2	0.1	3.3	2.6	19.7
1994	2.2	0.2	0.5	2.9	2.7	6.5
1995	2.9	0.1	-0.1	2.8	3.1	-10.6
1996	2.7	0.1	1.5	4.3	4.2	2.8
1997	2.8	0.2	0.6	3.5	3.0	14.6
1998	2.6	0.4	0.6	3.7	2.6	29.6
1999	2.7	0.5	0.5	3.7	2.3	37.5
2000	2.7	0.5	0.4	3.6	2.2	38.0
2001	2.4	0.3	0.3	3.0	2.3	25.2
2002	2.5	0.2	0.4	3.0	2.7	11.5

Annex Table: 3 Percentage of US Export Dumping: Soybeans

	Unit cost	Unit PSE	Transportation Cost	Full Cost	Export Price	
	$ per bushel	$ per bushel	$ per bushel	$ per bushel	$ per bushel	% of Dumping
1991	5.9	0.1	0.5	6.4	6.1	5.7
1992	5.5	0.1	0.5	6.0	6.0	0.1
1993	6.7	0.1	0.1	6.9	6.5	6.0
1994	5.3	0.1	1.0	6.4	6.5	-2.0
1995	6.3	0.1	-0.2	6.1	6.5	-6.0
1996	6.3	0.0	0.5	6.9	7.9	-14.5
1997	5.7	0.0	1.5	7.2	7.9	-9.7
1998	5.8	0.2	1.4	7.4	6.4	13.6
1999	6.2	0.3	0.4	6.9	5.0	27.6
2000	6.2	0.4	0.7	7.3	5.3	28.0
2001	6.1	0.4	0.6	7.0	4.9	30.0
2002	6.5	0.1	0.0	6.6	5.5	16.8

Annex Table: 4 Percentage of US Export Dumping: Rice

	Unit cost	Unit PSE	Transportation Cost	Full Cost	Export Price	
Year	$ per cwt	$ per cwt	$ per cwt	$ per cwt	$ per cwt	% of Dumping
1991	9.9	0.6	8.9	19.4	16.5	15.2
1992	9.2	1.0	10.9	21.0	16.8	20.2
1993	10.0	0.7	8.1	18.8	16.1	14.4
1994	9.9	0.6	12.4	22.9	19.1	16.2
1995	11.3	0.4	7.5	19.2	16.7	13.1
1996	11.1	0.1	9.7	20.8	19.6	5.7
1997	11.7	0.1	11.2	23.0	20.9	9.2
1998	12.0	0.2	10.1	22.3	19.0	14.9
1999	11.4	0.6	11.1	23.1	17.0	26.5
2000	8.6	0.8	9.2	18.6	14.8	20.3
2001	8.6	1.1	10.3	20.0	14.6	27.2
2002	8.3	1.1	7.3	16.7	11.8	29.3