Import and Export of Pulses

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1. Introduction

India is largest producer and consumer of Pulses. Pulses are a major source of protein for an overwhelming number of Indians. Thus the availability and prices of pulses have an important bearing on the health and well-being of the people. As the incomes rise, people will demand more and more of non-cereal food and hence the demand for pulses is also expected to rise in future. With the rise in demand, prices rise; Government of India allows import of pulses from time to time to neutralise prices. With respect to pulses, apparently no major research work has been undertaken to study the causes of import. This paper attempts to analyse import of various category of pulses after the onset of economic reforms since 1991 and also determinants of import of pulses. Section II reviews literature on issues of production, consumption and import. Section III discusses issues on data. Section IV analyses data and Section V concludes.

2. Various issues relating to import of Pulses

Theories on Agricultural Trade

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Trade can bring benefits by allowing countries to exploit their comparative advantage, reap the benefits of scale economies and ensure competition, greater variety and, potentially, more stable markets and prices. However, there are arguments for protection, which can be either economic or non-economic including food security. The political decision is rarely taken to trade or not to trade, but it is taken whether to impose barriers to trade or not. Export-biased growth permits a decrease in the cost of exported goods relative to imported goods and hence results in a fall in the terms of trade. The opposite is the case with import-biased growth. The above effects only take place, however, if the participation in world trade of the country in question is sufficiently large for a reduction in the domestic production cost to influence the international price of the commodity. Nonetheless, as the markets and prices for primary products exports are often unstable, dependence on these exports carries with it a degree of risk and uncertainly, (Jose et al, 1998).

The principle of comparative advantage is built on the basis of the inter-country differences in costs and returns between different commodities, abstracting from taxes and subsidies influencing these costs and returns; but in theory there is no mention of taxes or subsidies determining the relative costs of production or prices of commodities. If some rich countries because of their ability to subsidize agriculture can sell their produce at artificially lower prices and thus undercut the market for the genuinely efficient or low-cost producers, then the playing field is highly uneven as the principle of comparative advantage is not followed. Similarly, if some countries are taxing or discriminating against agriculture by heavily protecting their industry and through overvalued exchange rates, as most developing countries have been doing till recently, then their competitiveness is eroded vis-à-vis countries which do not tax agriculture. In both the cases, the principle of comparative advantage is denied free play, (Johns, 1985, Hanumantha, 2000, Chand, 2002).

Theoretically, international trade of agricultural commodities has many problems. First, due to low price elasticity of demand, prices flair up with a

sudden small rise in demand, however demand does not rise with fall in prices. Second, due to low income elasticity of demand, demand of agricultural commodities does not rise with rise in personal income of the consumers. Third, developing countries wish to export agricultural products and prospective importers are either least developed countries (who do not have capacity to pay) and developed countries (who wish to import but are under compulsions of local farmers' lobbies to restrict the import of trade). Farmers' lobbies of developed countries compel their governments to subsidize their products either by direct or indirect assistance. Fourth, in international trade, importers usually pay freight charges, hence they prefer to import commodities from the countries which are very near to them. Fifth, due to food security reasons, prices of agricultural commodities get distorted as Governments fix and buy at higher prices and sell at lower subsidized prices. Sixth, agricultural commodities are perishable in nature which need special infrastructure to preserve them till they are consumed. Seventh, bio-technology techniques of productions have created lot of health problems to consumers and welfare governments want to protect them, (Sachdeva, 2006).

Consumption of Pulses and Import with Tariff Restrictions

In India, most of the discussion regarding agricultural liberalisation has focused on increasing the exports. For a long time, the idea was to export whatever was surplus in the economy. In recent years, the idea is gaining ground that in order to be internationally competitive we may have to produce for export. Similarly, the idea was to allow imports when domestic production fell short of demand. It is also argued that if liberalisation of exports helps producers, the liberalisation of imports will hurt them. Thus import

liberalisation is resisted by agricultural interests on grounds very similar to those of industrial liberalisation from industrial interests, (Ahluwalia 1996).

Before 1991, importables were categorised into five heads: prohibited list, special import licence list, restricted list, canalised list and free list. Almost all agricultural imports were strictly controlled through quantitative restrictions and licences. Since 1991, the number of lists has come down to three, namely, prohibited list, special list and free list. Canalisation has been abandoned except for a few commodities. Pulses, like most agro-products, fall under the special list, that is, imports are permitted subject to licensing. In 1999-2000, quantitative restrictions were withdrawn and imports began to be regulated through tariff rates subject to bound rates. Import duty on pulses has varied depending on domestic availability, price movements and farmers' interests. Thus, from 1988 to 1995-96, import duty was around 10 per cent, except in 1989-90, when it was increased to 35 per cent. In 1996-97 duty was decreased to 5 per cent, and in November 1998, pulses imports were made duty free. In March 2001, import duty of 5 per cent was once again imposed, and withdrawn after some time. However, in February 2002, an import duty of 5 per cent was again imposed. Budget 2002-03 raised duty from 5 per cent to 10 per cent, which has not been changed since, (Sathe et al, 2004). Though the bound rate taken by the government is 100 per cent, the actual rate has always been quite low, (Sachdeva, 2006), (*Agricultural Statistics at a Glance*, various years). In year 2006, Government of India allowed import 15 lakh tonnes of pulses duty free through canalised agencies.

Sathe et al, 2004 analysed the import of total pulses and production. They found that the correlation coefficient between domestic production and imports is positive and weak, on a year-to-year basis during the period 1985 to 2000. However, when imports were lagged by one year, they found that the relationship was fairly strong and negative at –0.577, which means if domestic production of pulses falls in one year, the next year we can expect imports to rise. They further found that domestic production and price index for pulses

were positively related for both year-to-year and one-year lag during the same period, but the relationship was weak. However, increase in imports seemed to be pushing down the prices only with a lag and that too quite weakly at –0.058. According to them the percentage share of pulses imports in domestic production has been at times quite high. However, the share has apparently not been so high as to have a negative effect on prices. Thus, pulses imports have not augmented supply to such an extent that there would be a strong, negative relationship between prices and imports of pulses.

Hanumantha Rao (2000) and Chand et al (2002) observe that per capita cereal consumption in India is following a declining trend, which is quite sharp in the case of cereals and moderate in the case of rice and wheat. Other things remaining same, increase in income shows adverse effect on the intake of total cereals. Temporal comparison reveals that positive effect of rise in income is offset by consumption diversification resulting in net decline in cereal consumption with passage of time. The recent round of National Sample Survey shows that the monthly per capita expenditure on pulses has fallen. This is to be expected as the per capita net availability of pulses has decreased from 13.9 kg in 1985 to 9.6 kg in 2001. The decreasing intake of pulses is bound to have a negative impact on the health of Indians. Surprisingly, availability and prices of pulses have never become a political issue. Earlier, sugar and edible oils and more recently onions have become politically live issues. In the 1960s and 1970s, non-availability and prices of foodgrains had become very important political and economic issues. Pulses have never been as important either from the availability or price perspective. However, this does not mean that this nutritionally important crop should be neglected, (Sathe et al, 2004).

According to Neena, (2006), agricultural imports have been assumed to depend upon domestic production, relative prices, income variable, foreign reserves and policy variable as

AI = f(DP^n, RP, GDPFC, FR, Dum), where AI = Agricultural imports, DP^n = Domestic production,

She calculated and found that total agricultural imports are positively related with respect to income and negatively with respect to price variable (1% level of significant) and are also responsive with respect to foreign reserves (5% level of significant). It was also observed by her that there was a positive impact of liberalization policies on total agricultural imports.

Working on Engels' law and expenditure elasticities of specific food items, Prasad, (2006) examined the responsiveness of consumption expenditure on specific food items to the changes in total food consumption expenditure during 1950-51 through 1999-2000 for the Indian economy. According to him, pulses are inferior items of consumption as the proportion of food expenditure on this declined as total food consumption expenditure increased. Fruits and Vegetables, Potato and Other Tubers, Milk and Milk Products, Meat, Egg and Fish, Coffee, Tea and Cocoa, Spices, and Other Food are ultra-superior (luxury) items of food whereas Cereals and Bread, Sugar and Gur, Oil and Oilseeds are necessary items of consumption.

According to Agricultural Pricing Commission (2006), the overall domestic production of pulses seems to match the demand, but there has been a surge in the import of pulses in recent years. In order to encourage the farmers to produce more pulses through expansion of area as well as yield improvement, there may be a need to hike the minimum support prices of pulses and edible oilseeds, especially when the relative net returns from the cultivation of pulses and oilseeds continue to be lower than wheat and paddy. However, price factor in isolation cannot help improve the situation, unless this is accompanied by substantial breakthrough in technology and an appropriate exim policy. In fact, hike in the prices of such commodities, may be counter productive if it is not sustained in the market and fails to augment the domestic production significantly.

Imports of agricultural commodities

India's import of agricultural commodities, that are shown as bulk consumptions items by the data agencies, are growing at the compounded rate of 11.36%. This needs a little contemplation by government planners, social groups and farmers. Major items of imports are cereals, edible oils, pulses and sugar. The import of cereals and sugar are highly volatile, hence calculation of growth would be meaningless as it would not be statistically significant. But imports of edible oil and pulses are growing at the rate of 14.28% and 16.60% (table 1). Among cereals, import of wheat, every alternate year, has been criticised by economist. India exports wheat to developing countries and next year imports wheat just under the fear that its stock may not diminish, (Chand, 2002, Sachdeva, 2006). India's import of pulses have grown three times during the last ten years, (Sachdeva, 2007).

Table 1 Import of agricultural Commodities (in rupee term)

Commodity	Total Agricultural and allied	Cereals and cereal preparations	Edible oils	Pulses	Sugar
1996-97	**4309.7**	486.9	2929.2	890.3	3.2
1997-98	**5513.0**	1083.4	2764.7	1194.6	470.3
1998-99	**10619.4**	1210.5	7588.9	708.8	1111.2
1999-00	**10473.1**	961.5	8046.1	354.7	1110.8
2000-01	**6593.2**	87.1	5976.5	498.5	31.1
2001-02	**9744.6**	86.8	6465.0	3160.2	32.6
2002-03	**11668.1**	118.6	8779.6	2737.1	32.8
2003-04	**14120.1**	89.2	11683.2	2284.9	62.7
2004-05	**13949.5**	118.7	11076.9	1777.6	976.2
2005-06 P	**11869.5**	154.5	8716.3	2346.9	651.8

CGR	11.36*	NC	14.28*	16.60***	NC

Raw data source RBI hand book of Indian economy

* statistically significant at 1% level, ** at 5% level, *** at 10% level

Section III

Category of Pulses

Pulses are Rabi crops and some of them can be termed as cash crops. Pulses are of various categories and consumption may depend upon level of consumer's income. Pulses are also termed as Cash crops. Some Main Uses of Pulses in India are as follows (table 2):

Table 2 Uses of pulses

Peas/Pulses	Main forms of consumption
Green Gram (Moong Beans)	- used as a vegetable and for making

	snacks
Chick Peas (Desi type)	- used for making besan (fine flour) which is used for making sweets, snacks, and mixed with wheat flour to make chapattis (flat bread)
Pigeon Peas (Arhar)	- used as a vegetable with meals
Black Gram (Urad)	- used as vegetable with meals and for making pappadam
Chick Pea (Kabuli type)	- used as vegetable with meals
Red Lentils (Masoor)	- used as vegetable with meals (consumed mainly in East Indian states)
White Peas (Matar)	- used as vegetable with meals. Also used for making snack food
Cow Peas (Lobhia)	- used as vegetable with meals
Kidney Beans (Rajmah)	- used as vegetable with meals
Green Peas (Matar)	- used as vegetable with meals and for making snacks.

Nevertheless, under HSN (Harmonised System of Nomenclature), pulses have been categorised under chapter 07 which has items like 'Edible vegetables and certain roots and tubers'. Subheading 0713 has items like 'Vegetables, leguminous dried, shelled'. Sub –sub- heading of 0713 has items mentioned in Table 3. For the purpose of category wise import analysis, only first eight items have been taken into consideration and category 071390 has

not been taken as they fall under dry vegetables. As the import of individual category of beans was found to be very small, all categories of beans (071332, 33, 39, 50) have been clubbed. Agencies which show import data collected from DGCI&S, Kolkatta do not show categories of pulses separately. Category wise import data has been taken from United Nations' COMTRADE database for the period 1991-92 to 2005-06 (in short 1991 to 2005).

Table 3 classification of pulses under HSN system

HSN Code	Description
071310	Peas dried, shelled
071320	Chickpeas, dried, shelled
071331	Urd, mung, black or green gram beans dried shelled
071332	Beans, small red (Adzuki) dried, shelled
071333	Kidney beans and white pea beans dried shelled
071339	Beans dried, shelled, nes
071340	Lentils dried, shelled
071350	Broad beans and horse beans dried, shelled
071390	Leguminous vegetables dried, shelled

Section IV

Category Wise Imports

Table 4 shows the import of various types of pulses during the period 1991 to 2005 along with CGR (Compounded Rate of Growth)[2] and INS (Volatility Index)[3]. Import of dried peas is growing at the compounded growth

[2] CGR has been calculated as $\text{Ln}(Y_t) = \alpha + \beta_0 t + ut$

So that $\text{CGR} = (\exp(\beta_0)-1)*100$, where Y_t is the value of import for year t

[3] INS has been calculated as Standard Deviation of $\text{Ln}(Y_t/Y_{t-1})*100$

rate of 12.70% which is statistically significant at 1% level. Further import is least volatile as compared to other categories of pulses. India imports dried peas from Canada, France and Australia. India imports Kabuli Chana (Chick Peas) from Turkey, Australia and Iran. The import is volatile. During the period under consideration, import was least in 1999 while it was highest during the year 2005. Imports of Urad, Moong etc and beans is growing at the compounded growth rate of more than 15% which are statistically significant at 1% level. There is consistency in imports with volatility index at approximately 80%. India imports Urad, Moong, black gram and beans from Mayanmar, China, Australia, Canada etc. Import of lentils is very volatile, but it is in favour of India as it exports lentils to Bangladesh, Sri Lanka and Pakistan. Terms of Trade of Lentils are positive as shown in the table 5. When imports of lentils are growing at the rate of 15.98%, exports are growing at the rate of 24.17%, as instability index is low, there is consistency in exports. Though separate figures are not maintained, yet India appears to be in the business of re-export of lentils. Table 6 shows imports of various categories of pulses in rupee term. It is seen imports' growth rates have increased by approximately 4.31%. This is due to falling rate of rupee during the period 1991-2005. Rupee fell during this period at the compounded growth rate of 4.31%.

Table 4. Import of Pulses of various category in dollar term (million dollars)

HSN Code	71310	71320	71331	071332/33/ 39/50	71340
Broad Category	Peas dried	Chick Peas	Urad/Moong	Beans	Lentils
Year					
1991	40.3	32.3	3.6	21.2	1.74
1992	34.9	27.4	3.9	5.19	2.2
1993	54.5	50.9	5.4	10.4	1.07
1994	39	27.1	16.87	23.4	20.57
1995	55.3	12.34	24.35	13.36	13.09
1996	50.3	41.36	5.1	22.26	34.11

1997		86.3	125.2	7.78	29.07	1.82
1998		64.8	34.2	4.37	27.2	9.4
1999		36.5	5.1	5.14	10.18	15.34
2000		30.5	20.64	11.16	7.11	9.03
2001		196.8	182.6	12.23	40.97	29.88
2002		198	70.64	12.9	61.64	22.92
2003		162	87.14	71.53	82.69	16.07
2004		155.32	51.21	28.09	58.37	12.16
2005		183.8	121.44	39.22	96.06	15.53
CGR		**12.70***	**8.57**	**15.15***	**15.10***	**15.98****
INS		**59.35**	**117.60**	**81.57**	**80.35**	**134.92**

* statistically significant at 1% level ** statistically significant at 5% level

Table 5 Export of Lentils in Dollar terms

Year	Export of Lentils	Net of lentils
1991	4.3	2.56
1992	6.1	3.9
1993	7.3	6.23
1994	8.5	-12.07
1995	14.11	1.02
1996	15.7	-18.41
1997	75.54	73.72
1998	37.57	28.17
1999	74.435	59.095

2000	90.68	81.65
2001	48.92	19.04
2002	40.1	17.18
2003	37.51	21.44
2004	65.7	53.54
2005	147.6	132.07
CGR	**24.17***	**NC**
INS	**58.24**	**NC[4]**

Domestic and International Prices

Raw data for production, producer's prices has been taken from FAOSTAT. Import unit prices have been calculated from the import data from UNCOMTRADE. The data has been counter-checked with CMIE various issues. Growth rates of production, producer prices and import unit prices (CIF) have been calculated and shown in table 7 for the period 1991-2005. It can be seen that production of chickpea, urad, moong etc are stagnant while production growth of beans is negative. Growth rate of dry peas is positive and is statistically significant at 1% level. Despite growth in production demand supersedes production, hence import of dry peas. Producer prices of all pulses are growing at the rate ranging 5 to 7% in rupee term. But the international prices at which pulses are imported are growing at lesser rate. As Indian domestic prices are rising at rapid rate, decision regarding import of pulses are taken by Government of India to neutralize prices from time to time.

Table 6 Import of various category of pulses in rupee term

HSN Code	**71310**	**71320**	**71331**	**071332/33/39/50**	**71340**

[4] Cannot be calculated due to negative figures in between.

Broad Category/ Year	Peas Dried	Chick Peas	Urad/Moong	Beans	Lentils
1991	986.29	790.5	88.11	518.84	42.58
1992	1069.64	839.78	119.53	159.07	67.43
1993	1709.42	1596.5	169.37	326.2	33.56
1994	1224.55	850.9	529.69	734.73	645.87
1995	1849.77	412.77	814.5	446.89	437.86
1996	1785.64	1468.28	181.05	790.23	1210.9
1997	3207.32	4653.03	289.14	1080.38	67.64
1998	2726.17	1438.81	183.85	1144.32	395.46
1999	1581.64	221	222.73	441.13	664.72
2000	1393.37	942.93	509.84	324.82	412.53
2001	9385.77	8708.54	583.27	1953.94	1425.03
2002	9582.27	3418.64	624.3	2983.09	1109.22
2003	7444.16	4004.22	3286.92	3799.74	738.44
2004	6978.76	2300.94	1262.13	2622.65	546.37
2005	8137.47	5376.57	1736.41	4252.91	687.57
CGR	17.55*	13.25**	20.11*	20.05*	20.98*

* statistically significant at 1% level ** statistically significant at 5% level, *** significant at 10% level

Table 7 Compounded Growth Rate of Production qty, Producer Price and Import Unit Price (US D CIF) during the period 1991-2005

	Production	Producer Price	Import Unit Price
Dry pea	2.58*	7.22*	4.15*
Chick Pea	0.36	7.03*	3.71**
Urad, Moong, Black gram	0.75	8.24*	5.59*

Beans	-1.15	8.24*	4.47*
Lentils	1.97*	5.91*	2.78**

* statistically significant at 1% level ** statistically significant at 5% level

Availability of Pulses

Table 8 shows per capita availability of various categories of pulses. It is seen that even after imports, availability of chick peas, beans lentils and other pulses is falling. Only availability of dry peas is increasing at 5.06%. It means that demand of pulses is going to rise further. Rise in demand may be due to rising income of the people and also rising population.

Table 8 Per Capita Availability of pulses grams/per day/per person

	Dry peas	Chick peas	Beans	Others	Lentils
1991	1.89	11.83	9.97	9.06	2.13
1992	1.86	10.6	9.39	8.66	2.11
1993	1.88	10.81	8.88	8.94	2.06
1994	1.94	11.92	8.46	9.47	1.99
1995	2.04	13.12	8.05	9.8	1.93
1996	2.13	12.3	7.57	9.29	1.87
1997	2.17	12.96	7.01	8.58	1.84
1998	2.14	13.53	6.43	8.01	1.83
1999	2.18	13.41	5.97	8.38	1.87
2000	2.44	11.53	5.72	8.86	1.93
2001	2.88	9.48	5.72	9.2	1.97
2002	3.25	9.79	5.88	9.03	1.98

2003	3.4	10.13	6.11	8.91	1.94
2004	3.38	10.69	6.36	8.97	1.9
2005	3.3	10.08	6.58	9.18	1.84
CGR	5.06*	-1.15	-3.62	-0.08	-0.65

Determinants of Imports of Pulses

It is assumed that import of Pulses depend upon higher domestic prices than international prices, lesser production, rising income of the public and time factor which pushes the year on year demand. Hence a following model has been adopted[5] .

[5] Mehta et al (2002) suggest a following model for short term forecast of exports in simultaneous equation form. Supply of exports by any country depends upon its production, its domestic prices and prices it can realize from exports, export promotion policies of the governments. Similarly demand of a commodity depends upon total demand of the commodity by importing country, price difference from the competitors, it can give and international factors or relations it has with importing country.

Model is as follows

$\ln X = B_0 + B_1 \ln (PX/PW) + B_2 \ln.Ym + B_3 Z$ ……(1)

and

$\ln X = a0 + a1 \ln PX/PD + a2 \ln PX(-L)/PD(-L) + a3 \ln YP + a4 D + a5t$ ……..(2)

Where,

X = the quantity of exports (in volume),

PX = the price of the exports

PW = the international price (or the domestic price of importing country)

Ym = the real income (sectoral income or production) of the importing countries,

Z = other factors of demand, like level of protection in the importing countries,

PD = the domestic price in international currency

YP = overall productive capacity of the exporting countries

D = other factors reflecting supply, like export incentives, oil shock, etc.

t = time trend, which may reflect the long-term changes to capture the supply of exports

L = time lag

The above equations can capture most of the important factors of demand and supply.

Import = f (difference in domestic and border prices, production, per capita income and time)

Dry Peas

The model shows that for the import of dry peas production plays a significant role. There is negative relationship that is when production increases import decreases and vice versa. In import of dry peas, rising income of the public also plays significant role. With rise in per capita income, import of peas rises also. Production and rising income are statistically significant at 10% level.

Ln Y_M [6]= -16.1506 – 0.5491 Ln (DP/WP) – 3.929 Ln(Prod) +5.107 Ln (PCI) – 0.33t

(-0.3843) (-2.0947*) (2.1738***) (-1.3742)**

n= 15, R^2= .57

However equation (1) has been changed to
ln XIdit = B_0 + B_1 ln Mdit + B_2 ln (PXit/PXCCit) + B_3 Z + ºit

wherein P_w has been changed to PXCC (competitor's price) and time variable has also been added to remove the trend. Importing country's production has been changed to import demand, (M). For the purpose of our analysis, we have used dummy variable (Z) for establishment of WTO in 1995 in equation 1 , while Dummy variable D for economic reforms in Indian from 1992 in equation 2. I have adopted the model from equation -1 but added variable as per capita income.

[6] where Y_M is import, DP is domestic prices, WP is world or border prices[6], Prod is production, PCI is Per Capita Income with 1993-94 prices, t is the time. Figures in brackets are T-stat. * statistically significant at 1% level ** statistically significant at 5% level, *** significant at 10% level

Chick Peas

In case of import of chick peas rising income is insignificant but difference in domestic and border prices plays significant role which is statistically significant at 5% level. Negative production also plays an important role which is statistically significant at 10% level.

Ln Y_M = -32.018 + 1.7519 Ln (DP/WP) – 2.9097Ln(Prod) – 0.3017Ln (PCI) + 0.733t

(2.3526) (-2.02067***) (-0.0779) (0.1892)**

n= 15, R^2= .69

Urad, Moong Black gram

In case of Urad, moong and black gram, no factor in the model appears to be significant. Some other factor beyond my assumption appears to be the cause of import which needs further study.

Ln Y_M = 13. 47+ 1.562 Ln (DP/WP) + 1.5678 Ln(Prod) – 2.7287 Ln (PCI) + 0.394t

(1.422) (1.017) (-0.859) (1.064)

n= 15, R^2= .63

Beans

In case of beans difference in prices are statistically significant at 1% level for import.

Ln Y_M = -15.30 + 4.42 Ln (DP/WP) + 0.001 Ln(Prod) +2.0601Ln (PCI) - 0.202t

(3.533*) (0.0004) (0.4666) (-0.443)

n= 15, R^2= .72

Lentils

In case of lentils negative production plays import role which is statistically significant at 5% level.

Ln Y_M = 22.70 + 1.26 Ln (DP/WP) -5.431 Ln(Prod) +1.813 Ln (PCI) +0.04t

(1.049) (-2.2129) (0.429) (0.116)**

n= 15, R^2= .67

An attempt was made to use dummy variables in case of government policies since 1995 but results did not improve.

Section V

Conclusions

For vegetarians, pulses are important source of protein. Pulses are used for various purposes like vegetables with meals, pappad, snacks etc.

Harmonized system of Nomenclature puts pulses under dried leguminous vegetables. Demand of pulses is increasing year on year, but production of pulses is stagnant or negative. Per capita availability is falling or stagnant. With rise in demand, prices rise and Government of India imports pulses through its canalized agencies to neutralize prices. World prices are rising but at lesser rate than Indian domestic prices, hence difference in prices play a determining factor in imports.

This paper attempted to study the imports of dry peas, chick peas, beans and lentils and an attempt was made to find the determinants of imports. It has been seen that imports of various categories are rising at the compounded growth rate of 8 to 15%. There is a consistency in imports and instability index is very low except in case of lentils. Dried peas, chick peas, Urad, Moong and beans are imported only but lentils are exported also. India's export of lentils is at growing faster rate than imports. No other category is exported. Though there is no separate record of re-export, it appears Indian traders are in the business of re-export in case of lentils as export value is more than import. Indian domestic prices of dried peas, chick peas, Urad, beans and lentils are rising at higher rate than international prices in rupee term. In case of dry peas it has been seen that lesser production and rising per capita income are the major causes of imports. In case of chick peas, difference in domestic and internationals prices is the major determinant of import. Lesser production is also significant cause of import. In case of Urad, Moong etc, production, price difference, per capita income were not found to be the major cause of import. Further study is required in this category. In case of beans, price difference is important but in case of lentils lesser production is important factor of import.

India needs to take special care for pulses. Since economic reforms were initiated, per capita income is growing. With rise in income, demand of cash crops rises as people get more health conscious. India is a traditional agricultural economy. Pulses form important Rabi crop and continuous rotation can also increase soil fertility. Farmers are encouraged by Government of

India by fixing Minimum support price but there is no provision like procurement as in case of wheat and rice. If MSP is supported with procurement, farmers can be protected and supply can be ensured which can help curb import. Under GATT and WTO provisions, Government of India should spend on research and development under Green Box subsidy which is freely allowed without restrictions. Yield per hectare is very low. With R&D, production can be increased and India can be exporter of pulses than importer, otherwise Market access conditions of WTO will not allow you to stop import.

References:

Ahluwalia, M S (1996): 'New Economic Policy and Agriculture: Some Reflections', I*ndian Journal of Agricultural Economics*, Vol 51, No 5.

Bhalla, G S (1995): 'Globalisation and Agricultural Policy in India', presidential address, *Indian Journal of Agricultural Economics*, Vol 50, No 1, January-March

Chand, Ramesh (*2002):* Minimum Support Price in Agriculture Changing Requirements" *EPW Commentary July 19, 2002*

Chand, Ramesh; Philip, Linu Mathew (2001): "Subsidies and Support in Agriculture-Is WTO Providing Level Playing Field" in Economic and Political Weekly, 11th August, 2001

Gulati Ashok, Sharma, Anil and others (1994): "Export competitiveness of selected agricultural commodities" Natural Council of Applied Economic Research, New Delhi. (Sponsored by APEDA)

Hanumantha Rao, C.H. (2000), Declining Demand for Foodgrains in Rural Indian Causes and Implications in EPW, 22nd Jan, 2000

Hanumantha Rao, C.H. (2001): " WTO and Viability of India Agriculture", EPW Vol XXXVI No 34 (September 8, 2001)

Hanumantha Rao, C.H. (2003): "Reform agenda for agriculture" in EPW XXXVIII no. 7 Feb 15 -21, 2003.

Johns, R.A. (1985): "International Trade Theories and the Evolving International Economy" London, Frances Printer Publishers.

José María Caballero, Maria Grazia Quieti and Materne Maetz(1998): "International Trade: Some Basic Theories and Concepts Policy Assistance Division, "www.fao.org"

Joshi, P.K; Gulati Ashok; Birthal Pratap S and Tewari Laxmi (2004): "Agriculture Diversification in South Asia –Patterns, Determinants and Policy Implications" In Economic and Political Weekly, Vol XXXIX No. 24 June 12-18, 2004

Neena Malhotra (2006): "Growth, Structure and Determinant of India's Import 1980-81 to 2000-01", in Journal of Global Economy, Mumbai, Jan-March, 2006

Prasad A R (2005): "Engel's Law And Expenditure Elasticities Of Specific Food Items In India: 1950-51 to 1999-2000", in Journal of Global Economy, Mumbai, 2005

Rajesh Mehta, S Bhat and P Mathur (2002): 'Modeling of Export Sector for short term Forecast' presented to Research and Information System for the Non-Aligned and Other Developing Countries New Delhi – 110 003, , October, 2002.

Sachdeva J K (2006): " Export of Agricultural Commodities in the context of WTO and Economic Reforms" in Journal of Global Economy, April-July, 2006.

Sachdeva J K (2007): "Diversification and Export of Agricultural Commodities – Prospects to revamp Drought Prone Areas" , Paper presented at UGC sponsored National Seminar on Geo Eco Interventions to revamp DPA, Walchand College, Solapur, 2007.

Sachdeva, J K (2005): "Customs clearance of Agricultural commodities, trade facilitation- a Singapore Issue", in Journal of Global Economy, April-July, 2005.

Sachdeva, J.K. (2005): "Exports of Live Stock and Allied Products", RCSS-Journal Of Global Economy, Vol 1 Number 1, 2005

Sathe Dhanmanjirir and Sunil Agarwal (2004): Liberalisation of Pulses Sector production, Prices and Imports" in Economic and Political Weekly, Mumbai July, 24, 2004

Sekhar C S C (2003): "Volatility Of Agricultural Prices – An Analysis Of Major International And Domestic Markets" Indian Council For Research On International Economic Relations, Core-6A, 4th Floor, India Habitat Centre, Lodi Road, New Delhi-110 003, June 2003

Vyas, V. S. (!999): "Agriculture Trade Policy and Export Strategy" in Economic and Political Weekly, Vol XXXIV No. 12 (March 27-April 2, 1999)
Vyas, V.S. (2002): "Our agrarian future – a medium term perspective on Asian agriculture" in EPW vol. XXXVII no.50 Dec 14-20, 2002.

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