Government Intervention and Trends in the Indian Oilseeds Sector: An Analysis of Alternative Policy Scenarios

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Center for Agricultural and Rural Development
Iowa State University
Ames, IA 50011-1070

Sudhir Chaudhary is an assistant scientist, FAPRI.

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Please address content questions to S. Chaudhary (sandych@iastate.edu).

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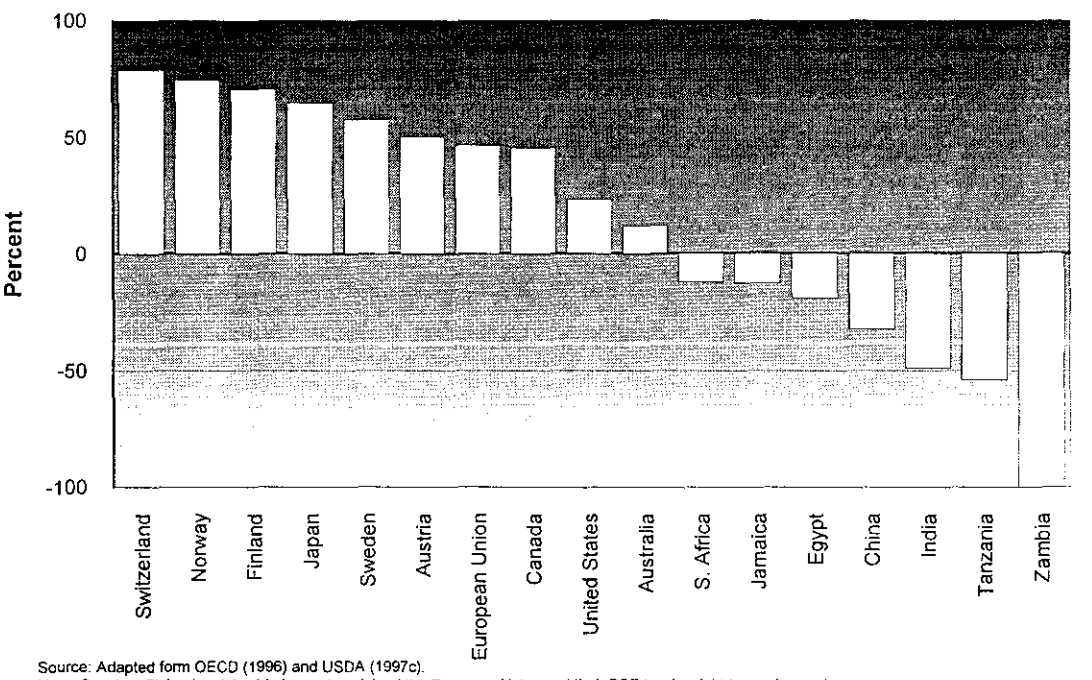
Introduction

The agricultural sector in almost all countries is characterized by substantial government intervention. An easily discernible pattern of this intervention is that while industrialized countries heavily subsidize their agricultural producers, developing countries often tax theirs (Figure 1). Broadly speaking, farm programs in both industrialized and developing countries originate from their concern for consumers' food security. Industrialized countries often ensure longer term food security by providing price and other production incentives to their agricultural producers, and thus ensure stable and surplus food supplies.

Figure 1
Producer Protection Levels in Selected Countries
Producer Subsidy Equivalents in 1990

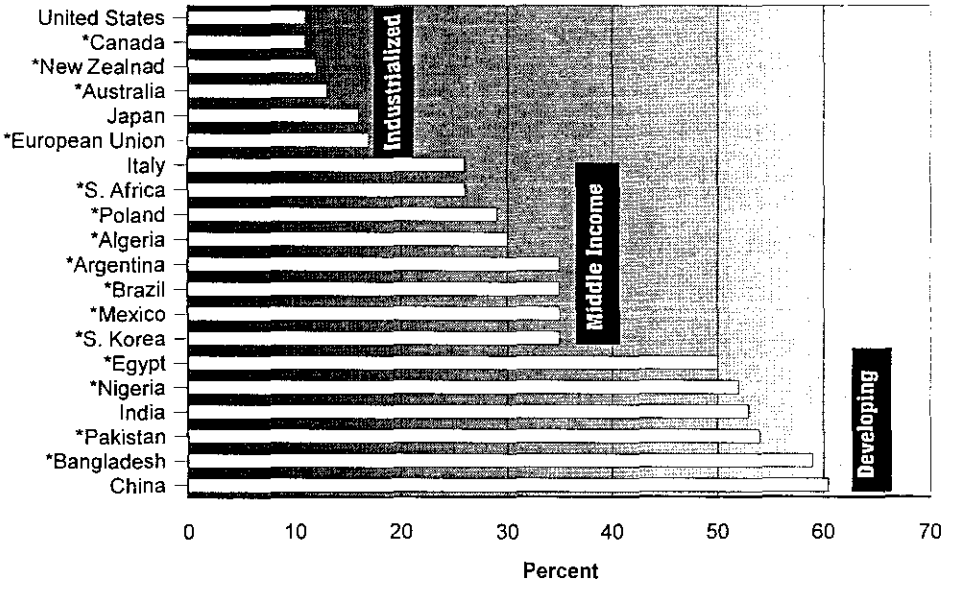


Source: Adapted form OECD (1996) and USDA (1997c).
Note: Sweden, Finland and Austria have since joined the European Union and their PSE levels might have changed.

While it is relatively easier for the small farmers' groups to organize their lobbying efforts for political protection, consumers in these countries accept government intervention in the agricultural sector because of the consumption benefits (Gautam, Chaudhary and Smith, 1997). Due to their higher per capita income levels, the share of

food in household expenditures is substantially low and food is easily affordable even at prices higher than the world prices (Figure 2).

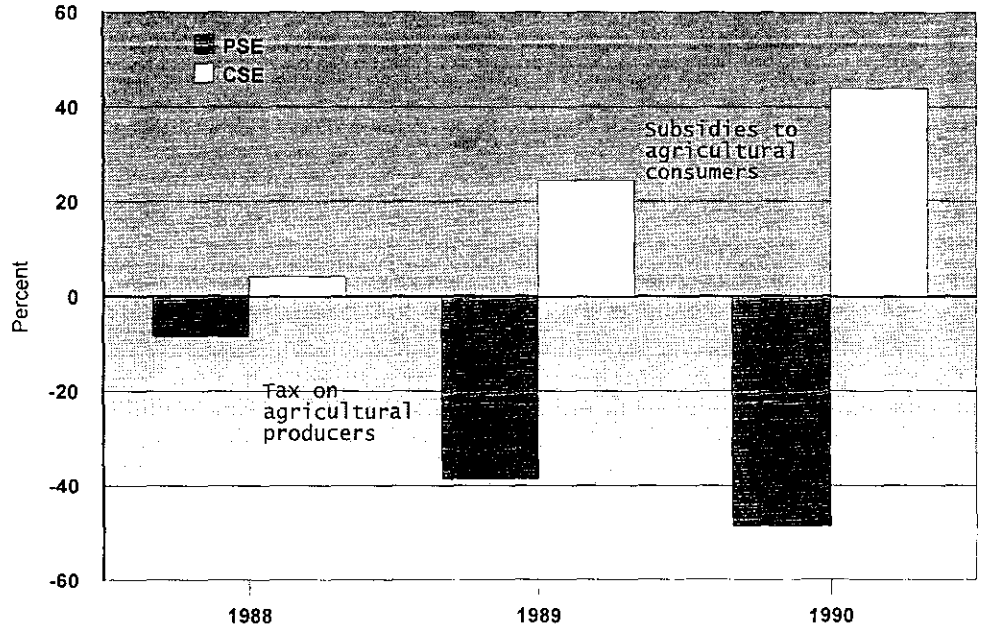
Figure 2
Share of Food in Household Expenditures



* Figures for these countries represent averages of 1984-86. Others are current year shares.
Source: Newsline, February 10, 1997; and FAO (1991).

Developing countries, on the other hand, tend to attain short-term food security by making food accessible at cheaper prices to their poor domestic consumers. Government policies affecting Indian agriculture, not unlike those in most other developing countries, are influenced significantly by an emphasis on achieving self-sufficiency in staples and other essential commodities, and by the desire to make food supplies available at affordable prices. Accordingly, while agricultural producers are generally taxed, consumers of agricultural products are subsidized by keeping food prices lower than world prices (Figure 3). The stark contrast in producer and consumer subsidy rates corroborates the group-size effects on public policy making. While the policy of subsidizing urban consumers reflects their better organizational and lobbying capabilities, the large size of the farming population hinders their organizational efforts. Moreover, while it makes fiscal sense to tax the larger proportion of the population–in this case, the farmers–it is also politically viable to give in to the demands for protection from the vocal consumer associations.

Figure 3
Government Intervention in Indian Agriculture
Producer and Consumer Subsidy Equivalents



Source: Adapted from USDA (1997c).

This paper analyzes some important trends in Indian oilseeds sector and the level of government intervention in oilseeds and oilseed products. The level of government intervention is measured by the concepts of Producer Subsidy Equivalents (PSE) and Consumer Subsidy Equivalents (CSE).

A Producer Subsidy Equivalent (PSE) is defined as the amount of compensation needed to keep farmers' incomes unchanged if all the farm programs are eliminated. It is calculated as

[{Output*(Domestic Price-World Price)
+ Direct Payments
+ Indirect Payments
- Producer Levies}
/ {(Output*Domestic Price)
+ Direct Payments
- Producer Levies}].

A Consumer Subsidy Equivalent (CSE) is defined along the similar lines, with wedges between the domestic consumer prices and the world price.

Farm Policies Affecting Oilseeds

After achieving self-sufficiency in food grains through the much-touted *green revolution* of the 1960s, the government of India is of late focusing on other agricultural commodities. Recent farm policies are designed more to combat nutritional scarcity rather than the food scarcity that was the case earlier. India's emphasis on production of oilseeds, therefore, is relatively new and still evolving.

In 1986, the government set up the *Technology Mission on Oilseeds*. The main goals of the mission were to improve oilseed cropping as well as post-harvest technologies, to strengthen the input services, and to improve the institutions connected with the oilseed industry and marketing. Within this mission, the Government of India has also sponsored a program to supplement the efforts of the state governments, known as the *Oilseeds Production Program* (OPP). The OPP has been instrumental in devising and implementing a strategy for increasing oilseed production and productivity in all regions of the country. The program covers soybean, rapeseed, mustard, sunflower, groundnut, sesame, castor, safflower, linseed and niger crops. The financial outlay for OPP activities is approved under the national Five Year Plans. In 1994/95, the Indian government spent nearly $3.4 million on research and development of post-harvest technology for oilseeds (GOI, 1995).

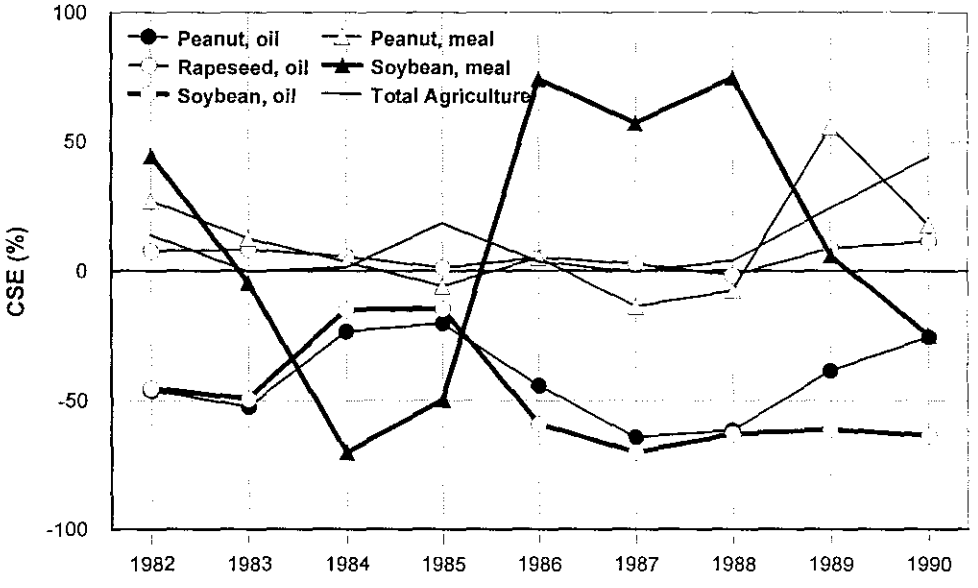
The targeted increase in oilseeds production under OPP is being approached in two ways: increase in area under oilseeds and increase in per unit yields of selected oilseed crops. Although the area expansion seems to have slowed, the program focuses on methods such as sequential cropping, inter cropping, replacement of low-economy crops and substitution of other crops in order to achieve the targeted area expansion. The productivity enhancement schemes include training and assisting farmers in the use of improved seed varieties, optimum cropping techniques, seed treatment, improved input usage including fertilizer and timely pesticide/ insecticide control measures, and improved irrigation facilities.

During the late 1980s, the strain on the country's foreign exchange reserves from increased imports was so profound that the government had no choice but to reevaluate its economic policy under pressure from the International Monetary Fund and the World Bank. The Indian government initiated its economic liberalization programs in 1991. The new economic policies have had significant impact upon all sectors of the Indian economy. The per capita gross national product has increased steadily as has the consumption of major food and nonfood commodities. The government has also eliminated the regulation on interstate movement of grains, thus indirectly raising the

prices of major food grains. Still, there is substantial amount of government intervention for most agricultural crops.

Government intervention in the Indian oilseed sector reflects not only the government's drive for achieving self-sufficiency in vegetable oils but also its efforts to ensure equitable distribution. An interesting pattern of oilseed policy is that while soybean and peanut farmers are generally taxed, rapeseed farmers enjoy substantial subsidies–upto 52 percent of rapeseed farmers' revenues came from farm programs in 1990. On the other hand, while there is no official control over prices and movements of oilseeds in retail markets, the government controls both the meal and the oil markets. Consumers of peanut oil and soybean oil are highly taxed while consumption of peanut meal and soybean meal is generally subsidized (Figure 4). In fact, the government effectively banned imports of vegetable oils for domestic vanaspati (hydrogenated vegetable oil) manufacturers in the late 1980s when oil imports reached nearly 2 million metric tons. Along with banning private and public oil imports, the government also raised the price of vegetable oil distributed through the Public Distribution System. These policies effectively curbed the increase in vegetable oil consumption by raising internal prices well above the world price levels.

Figure 4
Consumer Protection Levels in the Indian Oilseed Sector
Consumer Subsidy Equivalents



Source: Adapted from USDA (1997c).

However, despite the government's drive for achieving self-sufficiency in vegetable oils, recent trends indicate that production of such oils is increasing slower than the increase in demand (USDA, 1997b). The government has, accordingly, started to liberalize its vegetable oil import policy in recent years by reducing import duties and permitting private imports of oils. The current year budget proposes to reduce the import duty on edible oils from 30 percent to 20 percent. Contingent upon the continuity in the government's liberalization efforts, it can be expected that import duties on vegetable oils will further decrease as Indian oil imports continue to rise to meet the domestic oil demand. There are no regulations on exports of vegetable oils except that the exporter obtain a license from the government beforehand (GOI, 1997).

Indian Oilseed Sector Trends

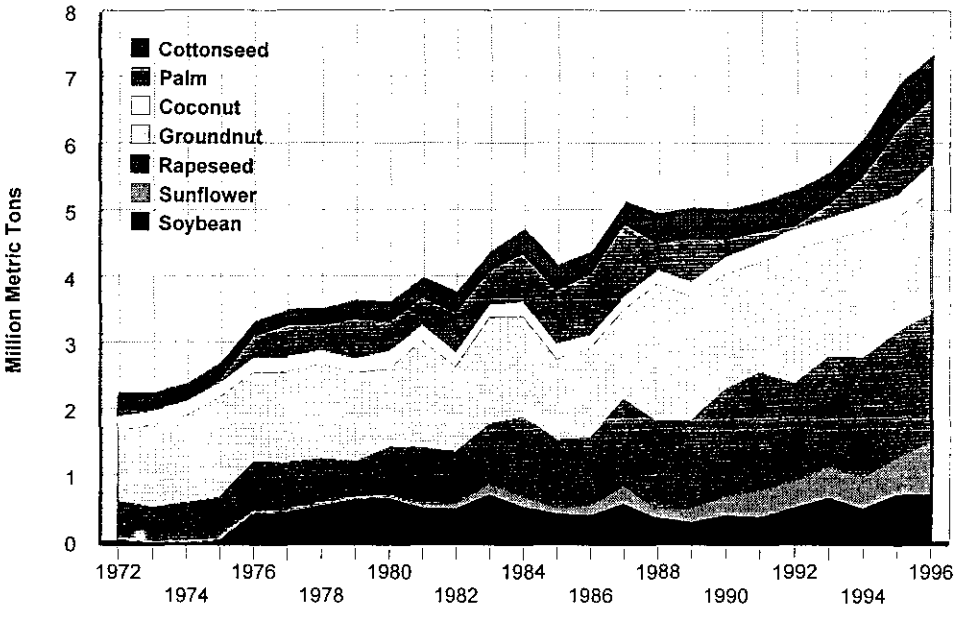
In the past few years, the Indian oilseed sector has shown substantial production growth as well as growth in exports of selected oilseed products. Total area harvested under various oilseeds has increased many times since 1980. The efforts by the *Technology Mission on Oilseeds* to introduce new types and varieties of oilseeds have led to an increase in the planted area of four major oilseed crops: soybean, rapeseed, groundnut and sunflower. The area registered an increase of more than 25 percent between 1988/89 and 1992/93 (USDA, 1997b).

Trends in consumption of different vegetable oils and oil meals have been sharp as well. Total vegetable oil consumption has doubled since 1980 while soybean meal consumption has more than tripled over the same period (Figure 5). The most dramatic rise has been in soybean production and consumption. Nonetheless, the per capita consumption of vegetable oils is still very low in India when compared with other countries. In 1995/96, for example, average annual consumption of oil was only 20 kg per capita while that in the U.S. was 47 kilograms, in China 26 kilograms and in European Union, 35 kilograms (Figure 6).

Soybean Cultivation in India

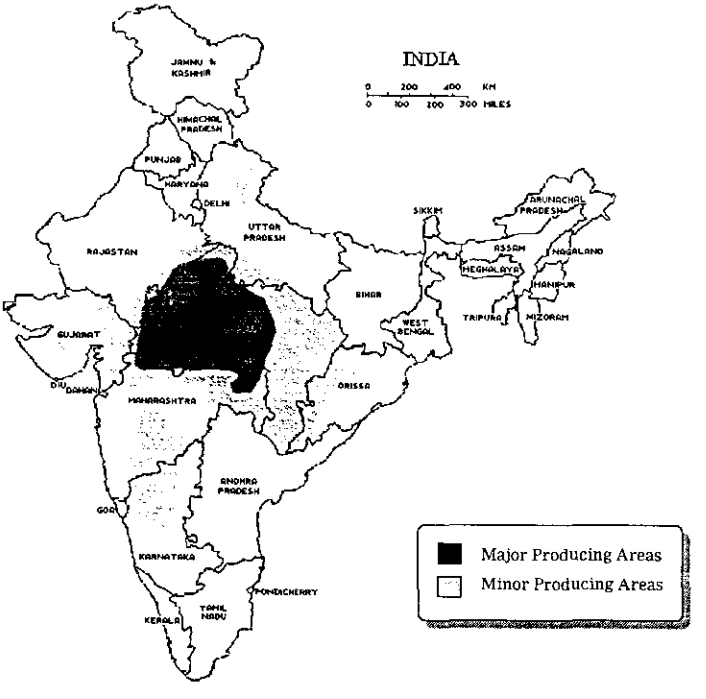
Soybean production in India is primarily concentrated in the central and southwestern states (Figure 6). More than 80 percent of total bean production comes from the State of Madhya Pradesh (MP) alone (Figure 7). MP farmers generally take three soybean crops every year, a practice discouraged by government agencies. Since multiple

Figure 5
Vegetable Oil Consumption Trends in India



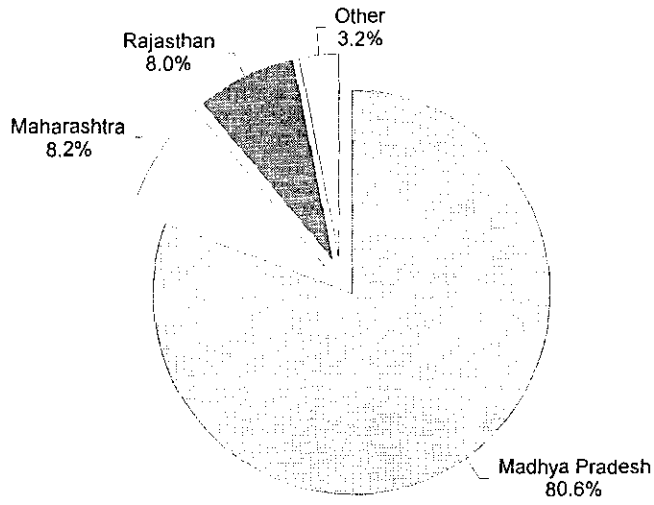
Source: Based on data from USDA (1997a).

Figure 6
Soybean Cultivation in India



Source: Adapted from USDA (1994)

Figure 7
State-wise Distribution of Soybean Production
1988/89 - 1992/93 average



Source: Adapted from USDA (1994).

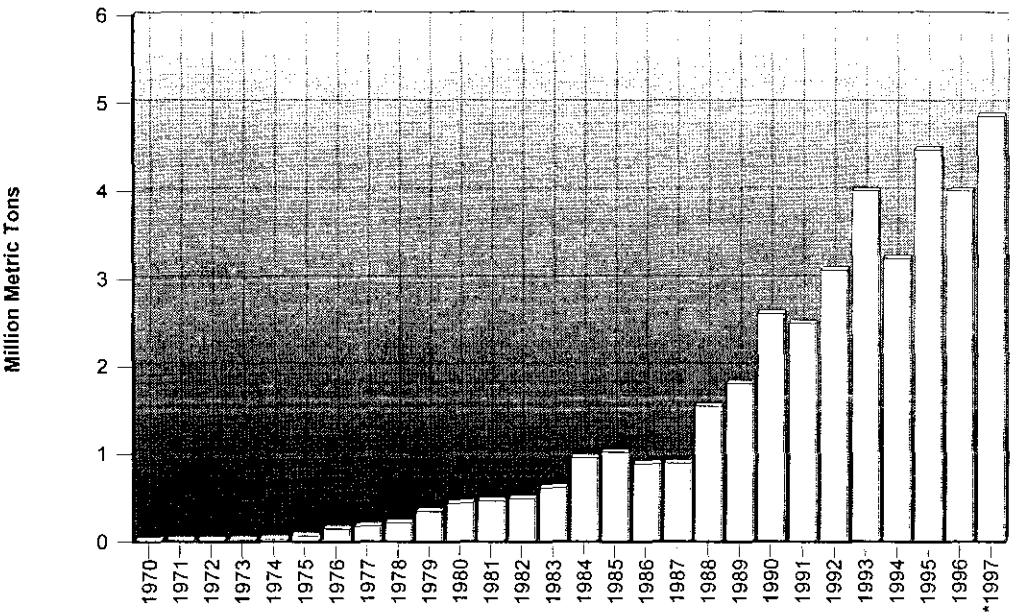
cropping of soybean has been found to result in the rust problem (yellowing of leaves) in these areas, the government agencies are encouraging farmers to try new crop rotations.

Efforts are also under way to introduce soybean cultivation to the irrigated areas of Haryana and Punjab States in Northern India and to other parts of the country. In the northern region, soybeans can be successfully planted in areas where irrigation facilities are inadequate for rice or other cereals. There is also a move to introduce soybean as a rotation crop to restore soil health in this region. Overall, the area planted under soybean has increased from about 600 thousand hectares in 1980 to more than 5 million hectares at present. The Indian Council for Agricultural Research (ICAR) estimates this area will top 8 million hectares by 2005.

Production of soybean has grown from a nearly negligible amount in 1970s to about 440 thousand metric tons in 1980 and to well over 4.8 million tons in 1997 (Figure 8). Associated with this remarkable growth in soybean production is the growth in soybean meal production and exports. Moreover, these trends are further accentuated if we consider the period after 1991 when the Indian government embarked upon its economic liberalization program.

Unlike in the developed countries such as the United States, soybean meal is not generally used as livestock feed in India. Although India contains the largest livestock

Figure 8
Growth in Soybean Production in India

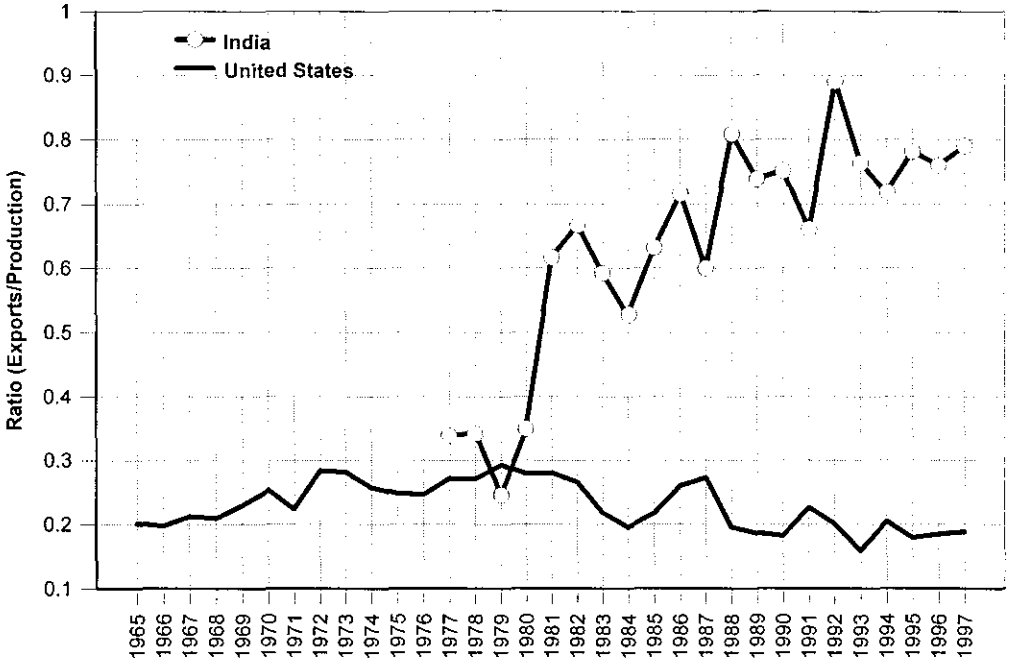


Source: USDA (1997a).
* Estimated.

population in the world, most livestock are reared in small backyard units for personal use by the rural population. This segment of livestock is not fed costly meals or other composite feed stuffs and is generally grazed on common lands. Household livestock units are generally fed green fodder (*jowar* or *barseem*) mixed with dry fodder consisting of hay or rice chaff. Milking animals (primarily cows and buffaloes) are also fed a mix of boiled cottonseed and *black gram* (a tropical pulse crop high in protein) for increasing the fat content of milk.

Consequently, as the amount of soybean crush increased in India to compensate for its domestic vegetable oil demand, the resulting output of meal was mostly destined for foreign markets. The government, therefore, encourages soybean production for two specific reasons: to meet the ever-growing domestic demand for vegetable oils, and to earn scarce foreign exchange through meal exports. This trend is more clear when observed in comparison with other countries. For example, while the United States exports less than 20 percent of its meal production (the domestic livestock industry accounting for the rest), India exports nearly 80 percent of its total soybean meal production (Figure 9).

Figure 9
Share of Exports in Total Soybean Meal Production



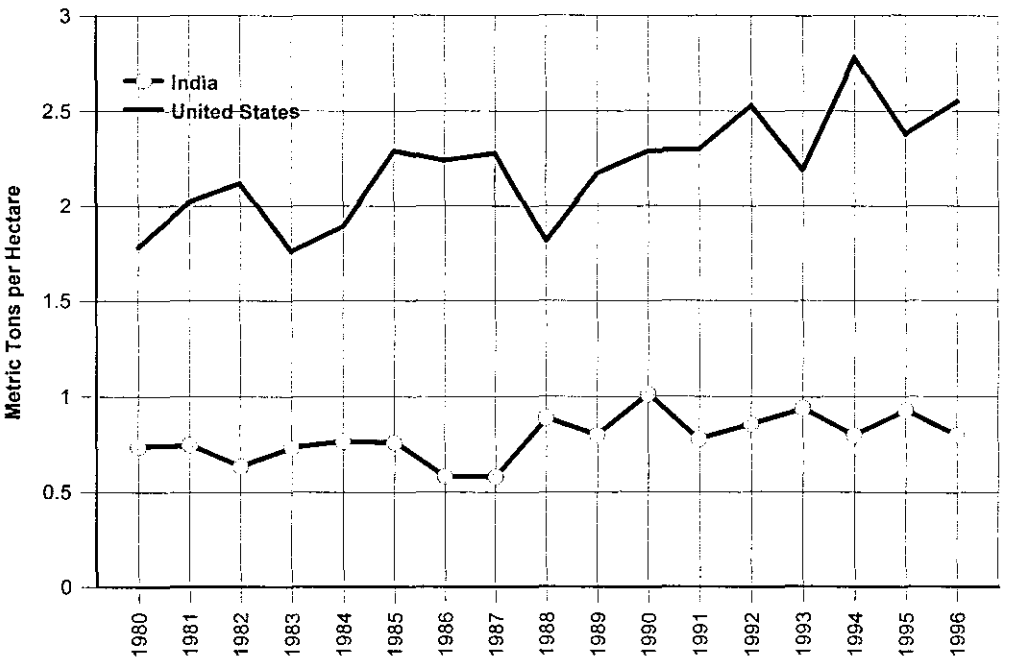
Source: Own calculations using data from USDA (1997a).

Future Growth Prospects and Policy Scenarios

Although there has been a large increase in soybean area harvested in recent years, further area expansion will likely be much slower. Most of the future growth in soybean production (or oilseed production, for that matter) will have to come from gains in productivity. Indian soybean yields are still among the lowest in the world (Figure 10). The government is placing added emphasis on research into increasing the productivity of all oilseed crops by popularizing improved crop production techniques and focusing on genetics research. Further, it may be expected that as soybean planting spreads to the assured-irrigation areas of the North, where modern agricultural input use is the highest in the country, soybean yields will also improve. ICAR estimates an increase of over 25 percent in soybean yields by the year 2005.

The present government import policies severely limit imports of any vegetable oils in general and soybean oil in particular. Although not as popular as groundnut oil or rapeseed oil, soybean oil is slowly gaining acceptance with domestic consumers. However, the cumulative effect of official regulations on the availability and distribution of soy oil transforms into prohibitive prices for consumers (Table 1). In 1990 (the latest

Figure 10
Comparison of Soybean Yields in India and United States



Source: Adapted from USDA (1997a).

figures available), the per metric ton domestic soy oil price was more than $650 above the world price (Figure 11).[1] On the other hand, soybean meal prices are generally kept somewhat below the international price levels. Although the meal exports form a lucrative source of scarce foreign exchange, the port handling capacity becomes a restrictive factor in further increases in exports. The Indian government prohibits importing oilseeds, including soybeans, into the country in order to provide a high enough price to domestic growers of soybean.

This policy has recently come under attack from domestic soybean processors who claim to have up to 35 percent excess capacity as a result of this policy. However, there are other groups of processors who want this policy to continue since it results in relatively higher domestic prices for their output, namely soybean meal and soybean oil. In case the government decides to allow the bean imports by private industry, it can be expected to have two offsetting effects on the United States' soybean industry. On the one hand, it can be expected to be the beneficiary of export contracts for beans from Indian

[1] The world price levels are approximated by the U.S. Decatur prices. The difference is calculated by converting domestic prices into dollar equivalents using the IFS exchange rates. These figures are not very different from the ones calculated using the USDA provided border prices in domestic currency.

Table 1: Government Intervention in the Soybean and Soybean Product Markets

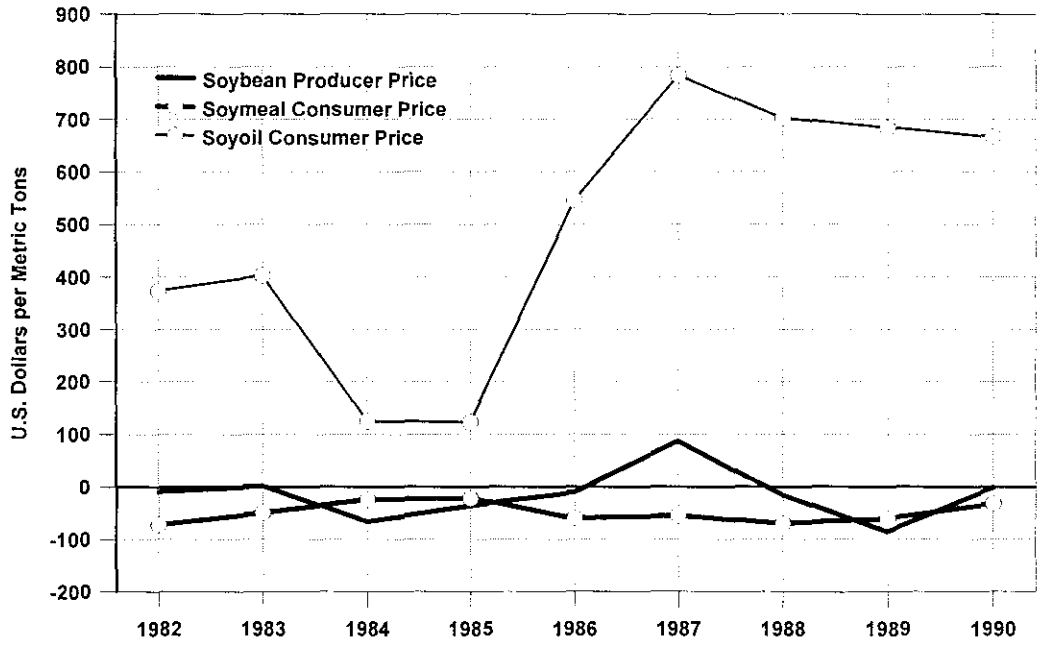
	Units	1982	1983	1984	1985	1986	1987	1988	1989	1990
Producer Taxes on Soybeans: /a										
Level of production	1000 tons	467	491	614	955	1,020	891	898	1,547	1,715
Producer price	Rs/ton	2,580	2,769	2,678	2,657	2,719	4,074	3,676	3,530	4,580
Reference price	Rs/ton	2,669	2,749	3,484	3,106	2,843	2,885	3,926	5,003	4,590
Value of production	Mil. Rs	1,205	1,360	1,644	2,537	2,773	3,630	3,301	5,461	7,855
Value to producers	Mil. Rs	1,205	1,360	1,644	2,537	2,773	3,630	3,301	5,461	7,855
Policy transfers to producers:										
State control of trade	Mil. Rs	(193)	(177)	(758)	(979)	(752)	372	(998)	(3,746)	(1,815)
Credit default, short-term	Mil. Rs	5	7	7	8	11	12	13	17	20
Credit interest, short-term	Mil. Rs	6	7	8	9	11	13	14	18	22
Fertilizer, imported	Mil. Rs	3	2	4	22	10	6	3	6	23
Fertilizer, state control	Mil. Rs	15	(3)	3	28	33	4	24	77	63
Total transfers to producers	Mil. Rs	(164)	(164)	(736)	(912)	(687)	406	(943)	(3,628)	(1,686)
PSE as ratio to producers' value	Percent	(13.6)	(12.1)	(44.7)	(35.9)	(24.8)	11.2	(28.6)	(66.4)	(21.5)
PSE per ton, in local currency	Rs/ton	(352)	(334)	(1,198)	(955)	(674)	456	(1,050)	(2,345)	(983)
PSE per ton, in US dollars	US$/ton	(38)	(34)	(110)	(77)	(54)	35	(78)	(149)	(57)
Commodity-specific exchange rate	Rs/US$	9.312	9.937	10.911	12.386	12.374	12.971	13.437	15.728	17.210
Consumer Support for Soybean Meal:										
Level of consumption	1,000 tons	124	112	172	313	262	178	240	210	262
Consumer price	Rs/ton	1,690	1,866	2,319	1,876	1,750	1,902	2,442	3,499	3,238
Reference price	Rs/ton	2,409	2,413	2,609	2,140	2,515	2,650	3,541	4,541	3,915
Cost to consumers	Mil. Rs	210	209	399	587	459	339	586	735	848
Total transfers to consumers /b	Mil. Rs	97	71	70	132	246	167	314	269	244
CSE as ratio to consumers' cost	Percent	46.1	33.9	17.5	22.6	53.6	49.3	53.7	36.5	28.8
CSE per ton, in local currency	Rs/ton	779	632	406	423	938	938	1,310	1,279	933
CSE per ton, in US dollars	US$/ton	84	64	37	34	76	72	98	81	54
Commodity-specific exchange rate	Rs/US$	9.312	9.937	10.911	12.386	12.374	12.971	13.437	15.728	17.210
Consumer Support for Soybean Oil:										
Level of consumption	1,000 tons	553	543	763	577	466	445	621	407	323
Consumer price	Rs/ton	8,071	8,923	9,632	9,987	11,775	15,150	17,300	19,000	22,275
Reference price	Rs/ton	4,358	4,472	8,118	8,447	4,752	4,436	6,315	7,251	7,985
Cost to consumers	Mil. Rs	4,463	4,845	7,349	5,762	5,487	6,742	10,743	7,733	7,195
Policy transfers to consumers:										
State control	Mil. Rs	(267)	(334)	(137)	(218)	(1,111)	(1,509)	(1,437)	(2,874)	(3,868)
Import price policy	Mil. Rs	(1,756)	(2,049)	(964)	(627)	(2,124)	(3,219)	(5,323)	(1,862)	(708)
Total transfers to consumers	Mil. Rs	(2,023)	(2,383)	(1,101)	(845)	(3,235)	(4,728)	(6,759)	(4,736)	(4,576)
CSE as ratio to consumers' cost	Percent	(45.3)	(49.2)	(15.0)	(14.7)	(59.0)	(70.1)	(62.9)	(61.2)	(63.6)
CSE per ton, in local currency	Rs/ton	(3,659)	(4,388)	(1,443)	(1,465)	(6,941)	(10,624)	(10,885)	(11,637)	(14,169)
CSE per ton, in US dollars	US$/ton	(393)	(442)	(132)	(118)	(561)	(819)	(810)	(740)	(823)
Commodity-specific exchange rate	Rs/US$	9.312	9.937	10.911	12.386	12.374	12.971	13.437	15.728	17.210

a. There are no Direct Payments to soybean producers.

b. Total transfers to consumers are by way of state controls on soybean meal marketing and distribution.

Source: Adapted from USDA (1997c)

Figure 11
Price Differentials in Indian Soybean Sector
(Domestic Price - World Price)



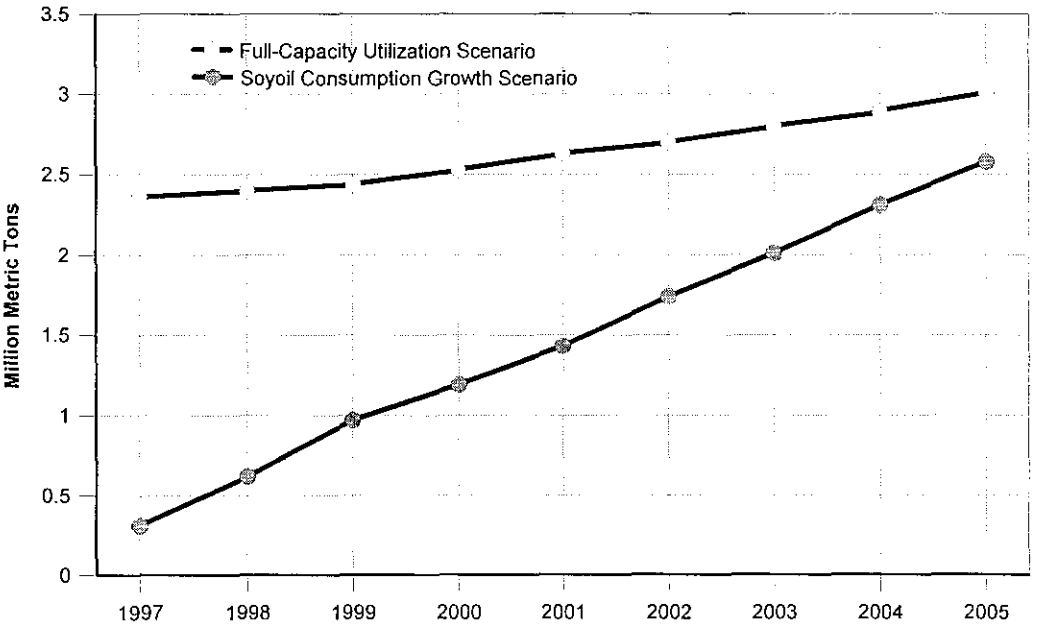
Source: Calculated using information from FAPRI (1997), USDA (1997), IMF (1997).
Note: World prices are measured by the U.S. Decatur price for the given years.

firms and thus increase its share of total world soybean exports. On the other hand, since domestic crush will increase in India, resulting in higher production of soy meal, Indian exports of soy meal will grow even faster than the recent trends.

In addition, the soy oil demand in India is increasing at a rapid rate. At the current rate, I estimate the aggregate demand for vegetable oil to be over eight million tons by the year 2005 (assuming same level of prices as projected in the FAPRI's 1997 Baseline). If the growth in the share of soy oil in the total vegetable oil demand continues at current rate, it will be close to 17 percent of the total demand for vegetable oils (from the current 12.4%). In terms of quantity, it is estimated that the total consumption of soy oil will be close to 1.4 million tons by the year 2005. This roughly translates into 7.8 million tons of soy crush by that year. Assuming current trends in area and yields to continue over the same period, domestic production of soybean will be close to 6.4 million tons, leaving about 5.6 million tons available for crush. In the case that further reforms in the policies regulating the oilseeds sector are carried out to allow imports of beans, it is estimated

that, in order to meet the consumption growth in soy oil, India will need to import about 2.6 million tons of soybeans by the year 2005 (Figure 12).[2]

Figure 12
Indian Soybean Import Requirements Under Projected Scenarios



Source: Own calculations. Prices are from FAPRI 1997 World Outlook.
Note: Prices for soybean and soybean products represent the reference prices in FAPRI projections and price dynamics have not been included in these scenarios.

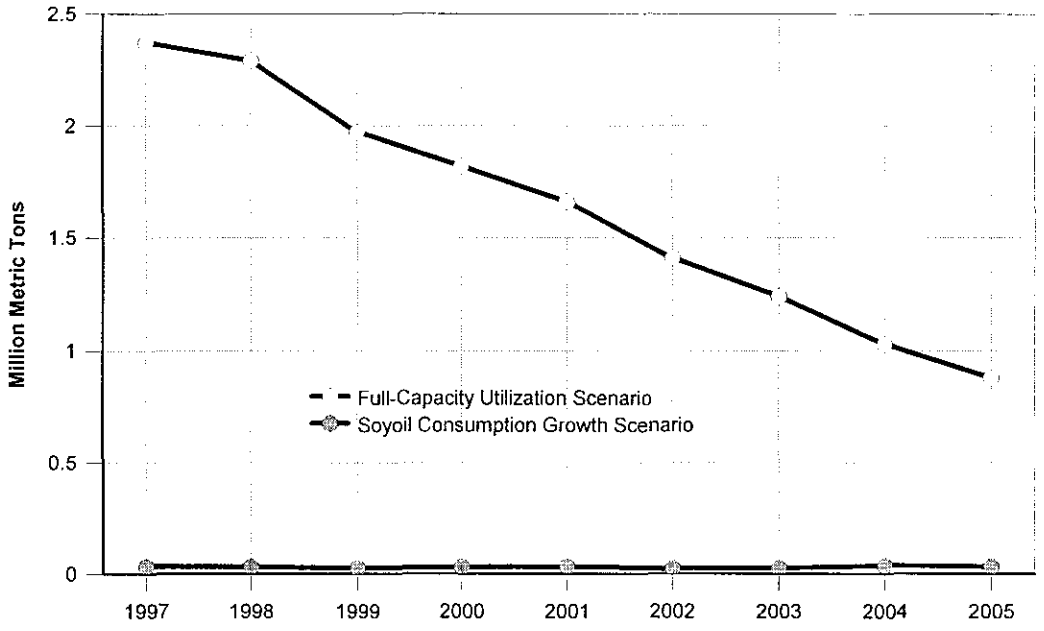
Figure 12 also shows the estimates of soybean imports in case the government succumbs to the pressure from the processing industry and allows the import of addition soybean so that the domestic processing units run at their full capacity. In this case, the total import requirement will grow rapidly and will be close to 3 million tons by the year 2005. Under these scenarios, India will be practically as crucial to the United States soybean industry as China is today.

Nonetheless, whereas these scenarios assume econometrically estimated trends in soybean area and yields, the final projections are somewhat smaller than the more pragmatic estimates referred to by the ICAR officials during my meetings with the Directorate of Oilseeds personnel in March/April, 1997. FAPRI projects Indian soybean area to be close to 6.075 million hectares by the year 2005 with yields of upto 1.046 tons per hectare. ICAR anticipates a much rapid growth in the area and estimates total area to be

[2] These projections are run from India country model only and do not reflect changes, if any, in the world price levels for soybeans and soybean products. Although, it may be assumed that as the greater demand for soybeans pushes up the price, total level of imports may be somewhat smaller than estimated here. Consequent changes in relative prices of soybean products may also be assumed to influence the total demand for these products.

close to eight million hectares by that year. Its estimates of achieving a 25 percent increase in yields in ten years translates into a projected soybean yield of 1.092 tons per hectare by 2005. Under this scenario, assuming our estimates of soy oil consumption, the total imports of soybean will be much lower (Figure 13).

Figure 13
Indian Soybean Import Requirements Under ICAR Scenarios



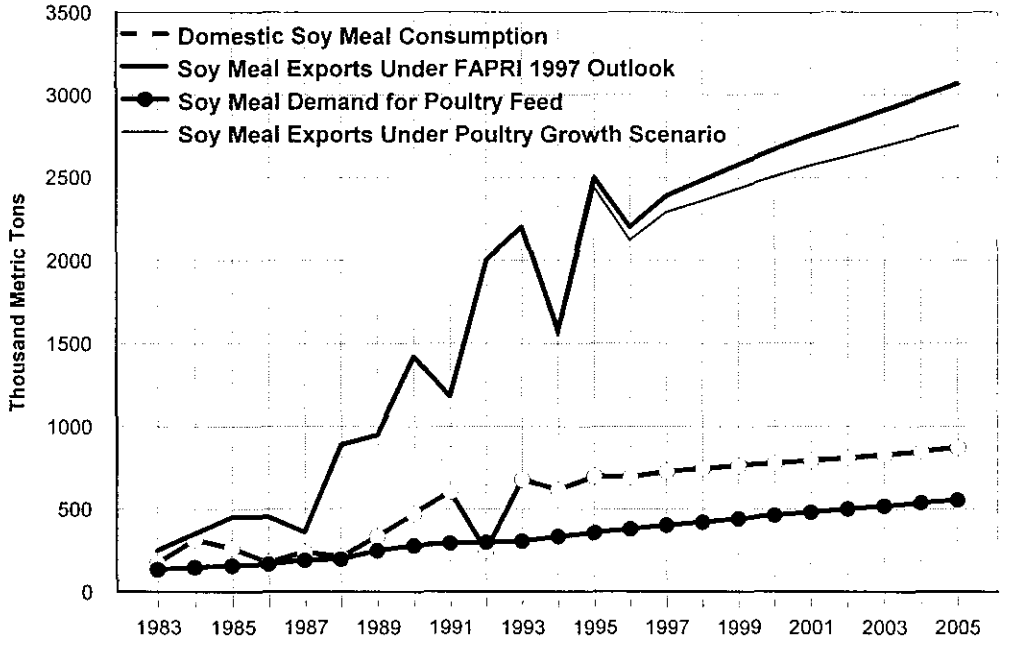
Source: Own calculations using area and yield assumptions from Indian Council for Agricultural Research (ICAR) scientists. Prices are from FAPRI (1997).
Note: Prices for soybean and soybean products represent the reference prices in FAPRI projections and price dynamics have not been included in these scenarios.

On the other hand, still assuming a 65 percent oilseeds processing capacity utilization at present and allowing soybean imports by processors under the ICAR scenario, total demand for soybean imports will decline from over 2.3 million metric tons at present to less than a million metric tons by the year 2005. This reflects the faster increase in domestic production and the same rate of growth in soy oil demand.

It must be noted, however, that these scenarios may yield somewhat different results if we take into account the growth in India's poultry sector. Although the meal usage by domestic poultry industry is still very low, large-scale commercial expansion of this sector, along with changes in feed composition favorable to meal use, may leave lesser soy meal surplus available for international markets. Consumption of poultry meat in India grew by more than 300 percent between 1983 and 1993. However, the total requirement for soy meal in poultry feed is not growing fast enough so as to affect the level of soy meal exports significantly (Figure 14). Indian poultry production as well

consumption has grown from 136 thousand metric tons in 1983 to over 400 thousand metric tons in 1993. Assuming a similar trend in the growth of poultry sector, Figure 14 shows the projected level of soy meal demand by the poultry feed industry. It is assumed that the poultry feed efficiency of Indian poultry sector ranged from 3.5 in 1983 to 2.5 in 1993. This efficiency coefficient is further assumed to decline to 2.25 by the end of the projection period. Moreover, it is assumed that the poultry feed contains 30 percent soy meal, a level which is consistent with the poultry ration specifications for the United States (OECD, 1994). Under these simplifying assumptions, it can be seen that even if the Indian poultry sector continues to grow at the current rate of growth, the domestic meal demand will not much impact the availability of soy meal for exports. Nonetheless, it does imply that taking into account the growth rates for the poultry sector may yield slightly different results under the scenarios analyzed above.

Figure 14
Impact of Poultry Sector Growth on India's Soy Meal Exports



Note: Soy meal domestic consumption and export figures are from FAPRI 1997 World Outlook.
Poultry feed figures are extrapolated using current rates of growth in the poultry sector and feed requirements based on U.S. poultry feed rations.

Although the scenarios formulated in the above discussion are not dynamically linked to FAPRI's price path, they do reflect a sense of how important the changes in Indian government's liberalization efforts can be for the rest of the world. In much of the news media and political circles, it is admitted that the reforms that began in 1991 can only become broader with time given the dismal performance of the economy in the pre-reform decades. Moreover, the response of industrial sector, as well as the general

public, has been very enthusiastic and there is a certain amount of pressure from these groups for the continuity of trade and economic reforms. India's general economy, particularly the industrial sector, has shown exemplary growth during the reform period. Also, the government's foreign exchange reserves have reached an all time high due mostly to its trade liberalization efforts. There is a constant inflow of investment from foreign companies

Summary and Policy Implications

Although the overall agricultural sector in India is characterized by significant taxes on producers and subsidies to consumers of agricultural products, the patterns in the case of oilseed crops and products are mixed. While there is negligible government intervention in the oilseed crop markets, consumption of vegetable oils is generally taxed in order to discourage costly imports and meal consumption is subsidized since it is generally not used as animal feed. Meal exports constitute a significant source of scarce foreign exchange for the government.

Soybean production in India has experienced rapid growth in the past decade or so as more area has been brought under cultivation. However, the magnitude of this growth has been concentrated in a few regions, particularly in the central states. Given the limited possibility of further area expansion, the future growth in production will have to come from productivity gains. Such gains are possible since Indian soybean yields are among the lowest in the world and the government is emphasizing productivity research.

The extent of future growth in Indian soybean production and its impact on the world oilseed markets will, therefore, be contingent upon a number of factors. First, the government's efforts to popularize soybean cultivation in the relatively more productive Northern region can potentially expand the soybean area and yield considerably, thereby increasing the production and exports of soy meal, and reducing the need for soy oil imports.

Second, any revision in the government's policy of no oilseed imports may have offsetting effects on the U.S. soybean industry by opening up a new market for soybeans and strengthening the competition in meal export markets. However, the handling capacity of Indian ports may become a restrictive factor in any further increase in meal exports.

Third, the rapid increase in the domestic poultry sector may also account for increased domestic consumption of soy meal. Since the economic reforms began in 1991, the per capita disposable incomes have increased, resulting in greater demand for

diversified food products, particularly meat. Whereas beef and pork consumption is restricted in India by religious and taste preferences, most of the increase has been in the demand for poultry meat. While there has been substantial increase in poultry production in the recent years, it is believed that poultry sector will be growing even more rapidly in the next few years. If the government promotes poultry production and, more importantly, the use of soy meal in poultry rations, it can be expected that Indian soy meal exports may be relatively lower than estimated in this paper.

The paper also analyzes the impacts on India's soybean import demand under several policy scenarios. It is apparent that given the current trends in soybean oil consumption and soybean production, India may emerge as strong a player in the international oilseeds markets as China. The continued growth in the soybean oil share in the total vegetable oil demand is expected to strain the current official policy of restricting soy oil imports. However, as pointed out in USDA attaché reports, despite the official stance on achieving self-sufficiency in the production of oilseeds, vegetable oil imports "are here to stay."

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