

GLOBAL COMPETITIVENESS OF DAIRY FARMING IN KARNATAKA

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Abstract: The analysis of Global competitiveness has been carried out to identify the overall impact on production and consumption in the state. Dairy production policy should have two clear focuses, private incentives to motivate farmers and other intermediaries to achieve their objectives. In addition, the social incentive, which influences the entries society, is primarily concerned with economic growth and equity. Whether the dairy industry imposes a drain or gain to the economy? Will a drop in world dairy prices affect the trade position? What are the types of support needed for the industry in terms of infrastructure, extension and research? What are the merit subsidies that can be provided to the dairy industry?

These and related issues are addressed in this analysis. The private and social concepts are distinct and important from a policy perspective. The difference can provide valuable insights how policy can improve economic performance. It can provide ways of comparing and ranking commodity system in terms of profitability and comparative advantage. This paper deals private and social perspective in the context of analyzing performance of agricultural commodity system, which employs a simple analytical tool called the **Policy Analysis Matrix (PAM)**.

Keywords: Global competitiveness, Dairy production policy, Policy Analysis Matrix (PAM).

I. INTRODUCTION

The current scenario warrants commodities like dairy products to take a global view, in line with the adage “**Think Global Act Local** “. Global Prospects of dairy farming in Karnataka has been analyzed keeping in view the potential of the state’s dairy products to enter the global market in the walk of WTO. The analysis is concerned with measuring the consequences of such a strategy on the national development objectives and prescribing ways for improving policies to achieve these objectives. Since efficient production and marketing of dairy products are a high priority in the planning and investment process, the question raised in the analysis are important like choice of production and marketing surplus, projecting scenarios accompanying various policy changes and the measures needed to sustain economic efficiency and sustained growth. Above all, the impact on the welfare of the multitude of dairy farmers is of prime concern.

Dairy production policy should focus on, private incentives to motivate farmers and other intermediaries to achieve their objectives. In addition, the social incentive, which influences the entries society, is primarily concerned with economic growth and equity.

The private and social concepts are distinct and important from a policy perspective. The difference can provide valuable insights how policy can improve economic performance. It can provide ways of comparing and ranking commodity system in terms of profitability and comparative advantage.

II. METHODOLOGY

The Policy Analysis Matrix (PAM) matrix is used to determine the level of comparative advantage of milk production in the various zones has been analysed. The non-tradable inputs considered are labour, dry fodder, and green fodder, as these are not traded internationally. The tradable inputs are the concentrates (Feed) and the veterinary expenses. The social costs have been calculated using Value Marginal Product approach which uses factor shares (S_i) of various inputs (X_i) together with the mean values of inputs and output (Y) and price(P_y). The computation of the social cost of input is as follows.

$$P_{xi} = ((S_i / X_i) * Y) * P_y$$

PAM is essentially a double accounting technique that summarizes budgetary information for farm and post farm activities. While simple to use, it is theoretically rigorous and derived from social cost – benefit analysis and international trade theory in economics. The basic step in using the PAM method are identifying the commodity system, assembling representative budgets for each activity in the system, calculating social values, aggregating the budgetary data into a matrix, analysing the matrix, and simulating policy changes.

This method rests upon a familiar identity: **profit = revenue - costs**. Costs are divided into those inputs that are traded on international markets (concentrates, veterinary services) and those domestic factors (Labour, dry and green fodder), which are not traded internationally. This gives us the following profit identity:

$$\text{Revenue} - \text{Cost of tradable inputs} - \text{Cost of domestic factors} = \text{Profit}$$

PAM is measured in two types of prices: private and social, which are defined clearly in the context of working with a PAM.

Private values are prices at which we observe goods and services actually being exchanged and those which we have used in our budgets – the price of milk, the cost of dry, green and concentrates, cost of veterinary services and the going wage rate. These are also called market or financial prices. Social values are the prices, which would prevail in the absence of any policy distortions (such are taxes or subsidies) or market failures (such as monopolies). They reflect the value to society as a whole rather than to private individuals, and are the values used in economic analysis when the objective is to maximize national income. These are sometimes called shadow prices, efficiency values, or opportunity costs.

The determination of social values is one of the main tasks of economists, since these values offer the best indication of optimizing income and social welfare. For internationally traded goods, we use world prices (fob for exports and cif for imports) and in case of domestic factors, which are not traded on international markets, figuring out social prices is difficult and one way to do so involves mentally subtracting the effects of a policy.

Once all private values have been matched with their social equivalents, we arrive at two identities:

$$\text{Private revenue} - \text{private cost of tradable inputs} - \text{Private cost of domestic factors} = \text{Private Profit}$$

$$\text{Social revenue} - \text{Social cost of tradable inputs} - \text{Social cost of domestic factors} = \text{Social Profit}$$

The Policy Analysis Matrix				
	Revenues	Cost of tradable inputs	Cost of domestic factors	Profits
Private values	A	B	C	D
Social values	E	F	G	H
Divergences	I	J	K	L

From the table, $A - B - C = D$, $E - F - G = H$, $A - E = I$, and so on. An important thing to keep in mind is that, for a given commodity system, the costs and profits represent an aggregate for all activities from farm to wholesale. For revenues, A is the wholesale price, and E is the world price of the comparable product in the comparable location.

From this table, several useful values appear. Private profit (D) is the aggregate measure of net returns for all activities in the system, and a high value would suggest a system that is competitive from a financial point of view. In other words, profit is being generated for the participants in that system. A negative value would be a strong indication that the system is unsustainable, since there are no incentives for individual firms or farmers to participate, and they would leave the industry.

In contrast, social profit (H) represents the foreign exchange saved by reducing imports or earned by expanding exports of a unit of this commodity. A positive value means that production is adding to national income, while a negative value suggests that the country as a whole would be better off in terms of national growth by not producing this commodity. As such, it is an indication of international comparative advantage. The zones have been formulated around the 13 milk unions that are distributed across the state.

III. RESULTS AND DISCUSSION

Bangalore Milk Zone: The results of the analysis for Bangalore zone have been presented in table 1.1 and 1.1a. Perusal of table reveals that the shadow prices are lower than the market prices, which implies that the productivity of these resources have to be enhanced and brought in line with their market prices. Otherwise, the market prices will distort the production process. This phenomenon can be illustrated thus; the market wage of labour to the output the margin is only Rs. 7.15. This implies that labour is over used or alternatively the productivity of resources including labour should be increased.

The PAM presented in table 1.1a shows that the dairy farmers in this zone are deriving private profits and therefore it is a viable enterprise. A positive social profit of Rs.8.50 per liter indicates that the dairy industry will benefit through exports. The negative divergence of profits of Rs.5.39 shows that there is a revers flow of resources for the dairy industry to the economy in this zone. The effective protection coefficient of 0.71 and Domestic Resource Coefficient (DRC) of 0.07 indicates dairy production in this zone has a comparative advantage. The DRC of 0.07 indicate that to earn one rupee of foreign exchange only Rs.0.07 of domestic resources have to be expended provided resource productivities are enhanced. The Nominal Protection Coefficient (NPC) of 0.84 indicates that the zone has price competitiveness. This therefore constitutes the potential.

Kolar milk Zone: The results of PAM presented in table 1.2 and 1.2a shows a similar picture to that of Bangalore zone. Resource productivity has to be enhanced. The dairy industry is economically viable, receives no transfer from the economy in the form of support, and will benefit from exports. This is corroborated by the favorable domestic resource cost and effective protection Coefficient. The Nominal Protection Coefficient (NPC) of 0.99 indicates that the zone does not enjoy price competitiveness.

Mysore Zone: The results reveal that the dairy on an average is profitable in the zone and could achieve global competitiveness with suitable infrastructure and policy support. The Nominal Protection Coefficient (NPC) of 0.83 indicates fairly good price competitiveness prevails in this zone. Technical support is also essential to derive the full advantage of the support (Table 1.3 and 1.3a).

Mandya Zone: The productivity of the resources especially that of the labour needs to be increased (Table 1.4). The negative differential between social and private profits indicates that dairy farming has no opportunity cost. The EPC and DRC indicate that the farming is fairly well protected and have a comparative advantage in global market. The Nominal Protection Coefficient (NPC) of 0.82 indicates that the zone has price competitiveness (Table 1.4a).

Tumkur Zone: The resource productivity needs to be enhanced for all the resources in the zone. The DRC is 0.10 indicating that the unit production of one unit of milk costs only 10 per cent of the costs at international level. The EPC of 0.79 indicates that the dairy sector is favorably positioned to meet the international market. The NPC of 0.85 indicates that the zone has price competitiveness (Table 1.5 and 1.5a).

Hassan Zone: The marginal contribution of labour is very low at Rs.4.68 as against market price of Rs. 30.00. This indicates the dire need for increasing the productivity of labour as well as the other factors (Table 1.6); the DRC is 0.08, which shows that the dairy farming has comparative advantage. The NPC of 0.85 indicates that the zone enjoys price competitiveness. The EPC indicates that the sector is fairly well protected through appropriate policies (Table 1.6a).

Dharwad Zone: In this zone also, the productivity of resources need to be enhanced. The contribution of concentrates is Rs.1.12 as against the market rate of Rs. 6.81 (Table 1.7). The differential of private and social profit Rs.6.91 indicates the reversed flow of resources to the sector. The NPC of 0.80 indicates that the zone has higher price competitiveness than any other zones. The DRC and EPC indicate that the zone has comparative advantage for exports (Table 1.7a).

Belgaum Zone: The marginal productivity of all the resources directs for the increase in the productivity of dairy resources. The DRC is 0.09 indicating that the resource needed is only 9 per cent that of the international level. This zone also has the comparative advantage for exports. The Nominal Production Coefficient (NPC) of 0.93 indicates that the zone is less competitive in terms of price. (Table 1.8 and Table 1.8a)

Bijapur Zone: The marginal contribution of labour is very low at Rs.4.36 indicating the need for increasing the productivity of labour as well as the other factors (Table 1.9). The DRC is 0.09, which shows that the dairy farming has comparative advantage. The NPC of 0.98 indicates that the zone has very low price competitiveness. The EPC indicates that the sector is fairly well protected through appropriate policies (Table 1.9a).

Gulbarga Zone: In this zone also, the productivity of resources need to be enhanced. The differential of private and social profit Rs. 5.99 indicates reverse flow of resources to the sector. The nominal protection coefficient (NPC) of 1.02 indicates that the zone does not have any price competitiveness. However the DRC and EPC indicate that the zone has comparative advantage for exports (Table 1.10 and Table 1.10a).

Dakshina Kannada Zone: The marginal productivity of resources directs for an increased in the productivity of dairy resource needed is only 8 per cent that of the international level. The Nominal Protection Coefficient (NPC) of Rs.0.85 indicates that this zone has price advantage. This zone also has the comparative advantage for exports. (Table 1.11 and Table 1.11a).

Shimoga Zone: The result of PAM presented in table 1.12 and 1.12a shows that resource productivity has to be enhanced. The dairy industry is economically viable, receives no transfer from the economy in the form of support, and will benefit from exports. The Nominal Protection Coefficient (NPC) of 0.87 indicates that the zone has fairly good comparative advantage in terms of price. This is corroborated by the favorable domestic resources costs and effective protection coefficient.

Raichur Zone: The results reveal that the dairy on an average is profitable in the zone and could achieve global competitiveness with suitable infrastructure and policy support. The Nominal Protection Coefficient (NPC) of 1.02 indicates that the zone has no price advantage technical support is also essential to derive the full advantage of the support (Table 1.13 and Table 1.13a).

Karnataka Zone: On considering the state as a whole, the resource productivity of all the dairy resources needs to be increased, especially that of the labour. The marginal contribution of the labour to the output is Rs. 5.53 while the prevailing market rate is around Rs. 31.50. The EPC and DRC indicate that the dairy sector is fairly well protected and the unit production cost is only 8 per cent of the international level. The Nominal Protection Coefficient (NPC) of 0.80 indicates that the state has comparative advantage in terms of price (Table 1.14 and Table 1.14a).

TABLE 1.1
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN BANGALORE MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2437.14	0.79	1937.05	0.19	0.16	0.79
Green Fodder (kgs/animal /year)	4640.82	0.17	781.31	0.08	0.03	0.17
Concentrates (kgs/animal /year)	398.49	7.25	2891.03	0.29	1.48	7.25
Veterinary expenses (No. of visits /animal /year)	12.00	50.62	607.46	0.06	10.34	0.30
Labour (Man days /animal /year)	109.57	35.00	3834.90	0.38	7.15	35.00

TABLE 1.1A
POLICY ANALYSIS MATRIX OF BANGALORE MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	8.00	1.70	3.19	3.11
Social	9.50	0.35	0.65	8.50
Differential	-1.50	1.36	2.54	-5.39
Effective Protection Coefficient (EPC)				0.69
Domestic Resources Coefficient (DRC)				0.07
Nominal Protection Coefficient (NPC)				0.84

TABLE 1.2
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN KOLAR MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2053.94	0.84	1719.58	0.16	0.20	417.01
Green Fodder (kgs/animal /year)	2965.61	0.49	1457.64	0.14	0.12	353.49
Concentrates (kgs/animal /year)	506.31	4.49	2274.10	0.22	1.09	551.49
Veterinary expenses (No. of visits /animal /year)	12.00	49.74	596.92	0.06	12.06	144.76
Labour (Man days /animal /year)	126.47	35.00	4426.39	0.42	8.49	1073.44

TABLE 1.2A
POLICY ANALYSIS MATRIX OF KOLAR MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	9.43	1.13	2.99	5.31
Social	9.50	0.27	0.73	8.50
Differential	-0.07	0.86	2.27	-3.19
Effective Protection Coefficient (EPC)				0.90
Domestic Resources Coefficient (DRC)				0.08
Nominal Protection Coefficient (NPC)				0.89

TABLE 1.3
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN MYSORE MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	1653.96	0.82	1352.96	0.21	0.16	265.14
Green Fodder (kgs/animal /year)	522.00	0.11	57.68	0.01	0.02	11.30
Concentrates (kgs/animal /year)	114.80	11.99	1376.88	0.21	2.35	269.83
Veterinary expenses (No. of visits /animal /year)	12.00	23.76	285.08	0.04	4.66	55.87
Labour (Man days /animal /year)	99.42	35.00	3479.77	0.53	6.86	681.93

TABLE 1.3A
POLICY ANALYSIS MATRIX OF MYSORE MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	7.90	1.29	3.81	2.80
Social	9.50	0.25	0.75	8.50
Differential	-1.60	1.04	3.06	-5.70
Effective Protection Coefficient (EPC)			0.71	
Domestic Resources Coefficient (DRC)			0.08	
Nominal Protection Coefficient (NPC)			0.83	

TABLE 1.4
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN MANDYA MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2919.38	0.89	2592.66	0.32	0.17	505.98
Green Fodder (kgs/animal /year)	1399.19	0.36	499.05	0.06	0.07	97.39
Concentrates(kgs/animal /year)	189.78	3.75	712.10	0.09	0.73	138.97
Veterinary expenses (No. of visits /animal /year)	12.00	62.33	747.93	0.09	12.16	145.97
Labour (Man days /animal /year)	99.69	35.00	3489.12	0.43	6.83	680.93

TABLE 1.4A
POLICY ANALYSIS MATRIX OF MANDYA MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	7.80	0.93	4.19	2.68
Social	9.50	0.18	0.82	8.50
Differential	-1.70	0.75	3.38	-5.82
Effective Protection Coefficient (EPC)			0.74	
Domestic Resources Coefficient (DRC)			0.09	
Nominal Protection Coefficient (NPC)			0.82	

TABLE 1.5
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN TUMKUR MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2659.13	1.01	2698.88	0.35	0.16	432.18
Green Fodder (kgs/animal /year)	330.25	3.46	1142.74	0.15	0.55	182.99
Concentrates (kgs/animal /year)	17.74	26.61	472.25	0.06	4.26	75.62
Veterinary expenses (No. of visits /animal /year)	12.00	29.29	351.46	0.05	4.69	56.28
Labour (Man days /animal /year)	112.52	26.97	3030.48	0.39	4.32	485.92

TABLE 1.5A
POLICY ANALYSIS MATRIX OF TUMKUR MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	8.10	0.67	5.58	1.86
Social	9.50	0.11	0.89	8.50
Differential	-1.40	0.56	4.68	-6.64
Effective Protection Coefficient (EPC)			0.79	
Domestic Resources Coefficient (DRC)			0.10	
Nominal Protection Coefficient (NPC)			0.85	

TABLE 1.6
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN HASSAN MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2102.47	0.84	1775.80	0.20	0.13	0.84
Green Fodder (kgs/animal /year)	1512.69	0.24	366.15	0.04	0.04	0.24
Concentrates (kgs/animal /year)	206.21	5.98	1233.40	0.14	0.93	5.98
Veterinary expenses (No. of visits /animal /year)	12.00	68.51	822.13	0.09	10.70	0.60
Labour (Man days /animal /year)	154.59	30.00	4637.77	0.52	4.68	30.00

TABLE 1.6A
POLICY ANALYSIS MATRIX OF HASSAN MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	8.04	1.49	4.92	1.64
Social	9.50	0.23	0.77	8.50
Differential	-1.46	1.26	4.15	-6.86
Effective Protection Coefficient (EPC)			0.71	
Domestic Resources Coefficient (DRC)			0.08	
Nominal Protection Coefficient (NPC)			0.85	

TABLE 1.7
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN DHARWAD MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2069.24	0.90	1852.63	0.26	0.15	304.74
Green Fodder (kgs/animal /year)	674.02	0.50	337.67	0.05	0.08	55.54
Concentrates (kgs/animal /year)	82.12	6.81	558.92	0.08	1.12	91.94
Veterinary expenses (No. of visits /animal /year)	12.00	40.93	491.11	0.07	6.73	80.78
Labour (Man days /animal /year)	125.60	30.00	3768.10	0.54	4.93	619.82

TABLE 1.7A
POLICY ANALYSIS MATRIX OF DHARWAD MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	7.67	0.91	5.17	1.59
Social	9.50	0.15	0.85	8.50
Differential	-1.83	0.76	4.32	-6.91
Effective Protection Coefficient (EPC)			0.72	
Domestic Resources Coefficient (DRC)			0.09	
Nominal Protection Coefficient (NPC)			0.81	

TABLE 1.8
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN BELGAUM MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	1413.06	1.19	1684.74	0.29	0.21	297.88
Green Fodder (kgs/animal /year)	885.56	0.50	442.38	0.08	0.09	78.22
Concentrates (kgs/animal /year)	80.15	9.64	772.96	0.13	1.71	136.67
Veterinary expenses (No. of visits /animal /year)	12.00	28.93	347.17	0.06	5.12	61.38
Labour (Man days /animal /year)	83.50	30.00	2504.97	0.44	5.30	442.90

TABLE 1.8A
POLICY ANALYSIS MATRIX OF BELGAUM MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	8.85	1.10	4.55	3.19
Social	9.50	0.19	0.81	8.50
Differential	-0.65	0.91	3.75	-5.31
Effective Protection Coefficient (EPC)			0.83	
Domestic Resources Coefficient (DRC)			0.09	
Nominal Protection Coefficient (NPC)			0.93	

TABLE 1.9
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN BIJAPUR MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	1812.36	1.53	2774.33	0.32	0.23	423.21
Green Fodder (kgs/animal /year)	1352.56	0.79	1069.23	0.12	0.12	163.11
Concentrates (kgs/animal /year)	150.20	5.45	818.35	0.10	0.83	124.83
Veterinary expenses (No. of visits /animal /year)	12.00	41.81	501.74	0.06	6.38	76.54
Labour (Man days /animal /year)	120.64	28.60	3450.23	0.40	4.36	526.31

TABLE 1.9A
POLICY ANALYSIS MATRIX OF BIJAPUR MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	9.27	1.00	5.55	2.71
Social	9.50	0.15	0.85	8.50
Differential	-0.23	0.85	4.70	-5.79
Effective Protection Coefficient (EPC)			0.88	
Domestic Resources Coefficient (DRC)			0.09	
Nominal Protection Coefficient (NPC)			0.98	

TABLE 1.10
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN GULBARGA MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2866.59	0.55	1565.44	0.19	0.08	217.85
Green Fodder (kgs/animal /year)	1327.71	0.50	663.85	0.08	0.07	92.38
Concentrates (kgs/animal /year)	215.99	6.82	1473.57	0.18	0.95	205.06
Veterinary expenses (No. of visits /animal /year)	12.00	29.83	358.00	0.04	4.15	49.82
Labour (Man days /animal /year)	144.40	30.00	4332.10	0.52	4.17	602.86

TABLE 1.10A
POLICY ANALYSIS MATRIX OF GULBARGA MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	9.70	1.57	5.62	2.51
Social	9.50	0.22	0.78	8.50
Differential	0.20	1.35	4.84	-5.99
Effective Protection Coefficient (EPC)			0.88	
Domestic Resources Coefficient (DRC)			0.08	
Nominal Protection Coefficient (NPC)			1.02	

TABLE 1.11
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN DAKSHINA KANNADA MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2102.47	0.84	1775.80	0.20	0.13	0.84
Green Fodder (kgs/animal /year)	1512.69	0.24	366.15	0.04	0.04	0.24
Concentrates (kgs/animal /year)	206.21	5.98	1233.40	0.14	0.93	5.98
Veterinary expenses (No. of visits /animal /year)	12.00	68.51	822.13	0.09	10.70	0.60
Labour (Man days /animal /year)	154.59	30.00	4637.77	0.52	4.68	30.00

TABLE 1.11A
POLICY ANALYSIS MATRIX OF DAKSHINA KANNADA MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	8.04	1.49	4.92	1.64
Social	9.50	0.23	0.77	8.50
Differential	-1.46	1.26	4.15	-6.86
Effective Protection Coefficient (EPC)	0.71			
Domestic Resources Coefficient (DRC)	0.08			
Nominal Protection Coefficient (NPC)	0.85			

TABLE 1.12
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN SHIMOGA MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	1833.36	1.34	2464.51	0.28	0.21	376.65
Green Fodder (kgs/animal /year)	317.63	4.36	1385.70	0.16	0.67	211.78
Concentrates (kgs/animal /year)	60.76	15.97	970.43	0.11	2.44	148.31
Veterinary expenses (No. of visits /animal /year)	12.00	28.93	347.18	0.04	4.42	53.06
Labour (Man days /animal /year)	111.00	32.29	3584.53	0.41	4.94	547.82

TABLE 1.12A
POLICY ANALYSIS MATRIX OF SHIMOGA MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	8.32	0.99	5.56	1.77
Social	9.50	0.15	0.85	8.50
Differential	-1.18	0.83	4.71	-6.73
Effective Protection Coefficient (EPC)	0.78			
Domestic Resources Coefficient (DRC)	0.09			
Nominal Protection Coefficient (NPC)	0.88			

TABLE 1.13
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN RAICHUR MILK ZONE

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2866.59	0.55	1565.44	0.19	0.08	217.85
Green Fodder (kgs/animal /year)	1327.71	0.50	663.85	0.08	0.07	92.38
Concentrates (kgs/animal /year)	215.99	6.82	1473.57	0.18	0.95	205.06
Veterinary expenses (No. of visits /animal /year)	12.00	29.83	358.00	0.04	4.15	49.82
Labour (Man days /animal /year)	144.40	30.00	4332.10	0.52	4.17	602.86

TABLE 1.13A
POLICY ANALYSIS MATRIX OF RAICHUR MILK ZONE

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	9.70	1.57	5.62	2.51
Social	9.50	0.22	0.78	8.50
Differential	0.20	1.35	4.84	-5.99
Effective Protection Coefficient (EPC)			0.88	
Domestic Resources Coefficient (DRC)			0.08	
Nominal Protection Coefficient (NPC)			1.02	

TABLE 1.14
PRIVATE AND SOCIAL COSTS INVOLVED IN MILK PRODUCTION IN KARNATAKA

Particulars	Input use	Market prices (Rs)	Private cost (Rs)	Factor share	Shadow prices	Social costs
Dry Fodder (kgs/animal /year)	2056.17	0.74	1524.87	0.19	0.13	267.79
Green Fodder (kgs/animal /year)	1301.53	0.50	644.96	0.08	0.09	113.26
Concentrates (kgs/animal /year)	151.03	7.39	1116.10	0.14	1.30	196.00
Veterinary expenses (No. of visits /animal /year)	12.00	47.96	575.51	0.07	8.42	101.07
Labour (Man days /animal /year)	130.40	31.49	4105.74	0.52	5.53	721.02

TABLE 1.14A
POLICY ANALYSIS MATRIX OF KARNATAKA

Particulars	Revenue	Cost of		Profits
		Tradable inputs	Domestic resources	
Private	7.57	1.21	4.49	1.88
Social	9.50	0.21	0.79	8.50
Differential	-1.93	1.00	3.70	-6.62
Effective Protection Coefficient (EPC)			0.68	
Domestic Resources Coefficient (DRC)			0.08	
Nominal Protection Coefficient (NPC)			0.80	

IV. CONCLUSION

Measures of global competitiveness like Effective Protection Coefficient (EPC), Domestic Resources Coefficient (DRC) and Nominal Protection Coefficient (NPC) show that even though global competitiveness of milk production is marginal at presents at 0.80 the State dairy sector can withstand competition from imports at present. However prima facie the state does not enjoys comparative advantage in dairy exports but it has the potential to emerge as a major player provided quality improves. The surplus production of milk due to globalization as well as modernization will pose a serious marketing challenge to the industry. The sector will have to leverage on the economies of scale and modernization, which should aid in the reduction of the cost of production and improve quality of milk and milk products. This will also require desirable changes in the macro environment by way of infrastructure development for supporting the milk production as well as by devising an enabling policy environment, which is vibrant, responsive and encourage high levels of production and efficiency. A total revamp of the system to plug all leakage in the system has to be created.

The overall effect of Globalization has been studied to assess the gains and losses to the producers as well as the consumer. The net effect has been estimated as a transfer of income from urban areas to rural areas, which is a desirable phenomenon. This will lead to investment in the Dairy sector, which will augur well for sustained growth and modernization. It will result in a huge increase production that will have to be effectively marketed for which market development has to be pursued vigorously.

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