

AN EMPIRICAL STUDY OF SOME LIVESTOCK INDUSTRIES OF PAKISTAN

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ABSTRACT: *The Livestock sector is considered one of the most vibrant sector of Pakistan which is contributing exponentially towards the economy of Pakistan. Though this sector includes many industries but this manuscript discusses only major industries like Poultry, Dairy and feed industries of Pakistan. The data has been collected from secondary sources like Economic Survey of Pakistan, Pakistan Statistical year book and some other reports. The current production level, previous and future trends of these industries have been given. The time series data has been given on yearly basis and some trends have been given. This manuscript fills the gap by providing consolidated empirical data which can be used by future researchers.*

Key words: Poultry industry, Dairy industry, Feed industry, future trends. Potential of Livestock industries.

POULTRY SECTOR

The poultry farming has now become one of the most dynamic associated parts of agriculture in Pakistan as it is throughout the world since commencement of the poultry production in 1963 the sector has progressed rapidly and has established itself as an effective substitute of mutton. The sector generates employment and income for about 1.5 million people. Poultry meat contributed 23.8 percent of the total meat production in 2010[1]. Its share in the total meat production has surpassed the share of mutton. The growth of commercial layer and broiler (meat producing) farms is phenomenal and is great step forward towards meeting the ever increasing demand of meat. It is cheaper and easily available for the low income strata of the society. The contributions of the sector toward the economy, in terms of employment generation, stimulating the allied industries and supply of cheap food, are enormous[2].

The achievement of this phenomenal growth was facilitated by governmental incentives in terms of liberal financing and credit, income tax exemption, duty free import of grandparent and parent flocks, machinery and poultry farm equipment, such as hatcheries, cages, brooders, feed ingredients such as soybean meal, sunflower and maize for use in poultry feeds[3]. The infrastructure, comprising of 252 hatcheries with capacity to produce 346 million day- old chicks per annum, 141 feed mills with the capacity to produce 2540 thousand tons of compounds feed per annum and 13154 poultry farms with the capacity to produce 98 million broilers, speak a lot of the magnitude of capital invested in the sector up till now and the keenness of the investors for its magnificent growth through[4].

The Poultry in Pakistan is being developed through two management systems i.e. commercial farming and rural poultry farming. The commercial poultry farming sector is a classic example of private sector enterprise with a phenomenal growth of 20 to 25 percent per annum[1]. The production of commercial and rural poultry is given in Table below.

Table-1 Production of Commercial Poultry and Poultry Products

Years	Day old Chick	Layers	Broilers	Breeding Stock	Eggs	Poultry Meat
Units			(mls no.)			000 (tonnes)
1996	295.0	13.0	240.0	4.3	2600.0	263.0
1997	320.0	13.5	264.0	4.5	2750.0	288.0
1998	366.0	13.5	300.0	5.0	2852.0	324.0
1999	213.7	13.6	175.3	5.1	3182.0	174.3
2000	222.3	13.9	184.7	5.2	3261.0	183.1
2001	319.7	18.1	253.3	6.2	4348.0	256.1
2002	334.3	18.4	264.4	6.2	4423.0	266.8
2003	350.5	19.3	227.2	6.5	4632.0	279.5
2004	356.0	22.1	280.1	6.5	4850.0	303.0
2005	372.0	22.7	290.1	6.8	4992.0	315.0
2006	386.5	23.2	303.9	6.9	5107.0	463.0
2007	387.2	24.8	370.7	7.3	6682.0	457.0
2008	425.9	26.6	407.8	7.6	7136.0	501.3
2009	468.5	28.4	448.6	8.0	7620.0	550.0
2010	515.4	30.4	493.4	8.9	8137.0	603.5

Sources: [1]

Poultry Sector Production

- Production of layers grew at an average rate of 1.7 percent in second half of 1990s and 10 percent per annum in first half of 2000s. It decreased to 6.0 percent in the second half of 2000s. On an average layers production grew at a rate of 6.5 percent per annum since 1996[1].

Table-2: Rural Poultry

Years	Day old Chick	Cock	Layers	eggs	Poultry Meat
Units		(mls no.)			000 (tones)
1996	120.0	48.0	45.0	3157	92.0
1997	126.0	51.0	50.0	3315	100.0
1998	130.0	52.0	52.0	3432	104.0
1999	21.2	6.5	69.6	5079	135.7
2000	21.7	6.7	71.2	4060	138.9
2001	31.0	7.0	31.0	3157	82.9
2002	32.0	9.0	32.0	3256	88.2
2003	33.5	9.4	33.6	3228	90.5
2004	33.9	9.9	34.0	3252	75.0
2005	36.5	12.1	36.5	3537	69.0
2006	38.0	13.1	37.8	3950	53.0
2007	30.3	8.8	34.8	3484	96.5
2008	30.6	9.1	35.5	3547	98.5
2009	30.8	9.3	36.1	3611	100.4
2010	31.0	9.6	36.8	3676	102.4

Source: [1]

Table-3: Growth rate of Commercial Poultry

Decades	Day old Chick	Layers	Broilers	Breeding Stock	Eggs	Poultry Meat
1990-I						
1990-II	-3.7	1.7	-3.1	5.2	5.9	-4.8
2000-I	11.9	10.8	10.9	5.7	9.5	12.2
2000-II	6.8	6.0	11.3	5.6	10.7	15.0
Average	5.62	6.50	7.03	5.54	8.89	8.35

Source: Self Estimated

Table-4: Growth rate of Rural Poultry

Decades	Day old Chick	Cock	Layers	Eggs	Poultry Meat
1990-I					
1990-II	-18.3	-19.1	12.8	9.1	11.4
2000-I	11.9	13.0	-7.9	-2.1	-11.3
2000-II	-2.8	-3.2	0.2	1.1	13.0
Average	-1.95	-1.95	0.91	2.24	3.86

Source: Self estimated

- The growth of broiler production was negative i.e. -3.1 percent during second half of 1990s. While it grew at an average rate of 11 percent per annum during the first and second half of 2000s. On an average broiler production grew at a rate of 7.03 percent per annum since 1996.
- The growth of breed stock production remained stable during the decade of 2000s. On an average breeding production grew at a rate of 5.5 percent per annum since 1996.

- Growth rate of layer in rural poultry was 12.8 percent in the second half of 1990s. It turned negative i.e. -7.9 in first half of 2000s. It turned positive in second half of 2000s with growth rate of 0.2 percent. On an average it grew at a rate of 0.91 percent per annum during this **Poultry Sector Eggs Production**

The Contribution of the poultry sector in terms of supply of eggs, besides meat production, is enormous. Certainly the eggs make a very vital component of the ordinary human being's food being one of the complete diets besides milk. A laying bird produces an average of 250 eggs per year. The Analysis of the data in the table given below reveals that

- The egg production in commercial poultry grew at a rate of 6 percent in second half of 1990s. During the decade of 2000s the growth of egg production remains more or less same i.e. 10.1 percent per annum. On an average the egg production grew at a rate of 8.89 percent during the period under study period.
- The growth rate of egg production was in rural poultry was 9.1 percent in second half of 1990s. It turned negative in first half of 2000s. During second half of 2000s it grew at a negligible rate of 1.1 percent. The growth rate of egg production remained 2.2 per annum on average during the period under study. The data indicate the diminishing rate of egg growth in rural poultry in 2000s

DAIRY SECTOR

Milk is the largest commodity, accounting for 51 percent of the total value of the livestock sector¹ and it has the potential to become Pakistan's 'White Oil' (Tetra Pak CSR Report). The potential of milk, for becoming instrumental in economic uplift of Pakistan, can be adjudged from the fact that Pakistan is the fifth largest producer of milk in the world with 34 billion liter of milk produced annually through an animal base of 50 million, as estimated in 2009. If we draw a comparison between Pakistan and USA astonishing potential of our livestock is revealed that USA produces 94.5 billion liters of milk annually through an animal base of a mere 3.4 million animals i.e. 27800 liters milk per head per annum where as it is 680 liters per head per annum[5]. The underutilization of our potential and resources is quite apparent. A few billions liters of milk can be added quite comfortably in the coming few years[5].

The annual milk production of 34 billion liters in Pakistan is shared between a 71 percent share for the rural economy and a much smaller urban share of 29 percent. Only 3 percent of the milk production is processed and marketed through formal channels[6].

Pakistan is one of the emerging markets with leading growth rate among the global dairy industry like India and China [7]. We are enjoying fast growth in the consumption of milk and other liquid dairy products on account of growing populations, rising household incomes, new dietary trends and increased awareness and availability of dairy products. The immense potential of our national herd, consisting of cattle, buffaloes, goats

¹ SMEDA estimates

and camels, has to be improved not only for meeting the rising national requirements but also for making meaningful contribution towards national exports[7].

consumption of milk are increasing approximately at the same pa

Table-5: Production and Consumption Fresh Milk (000 tons)

Year	Production	Consumption
1991	15481	15481
1992	16280	16279
1993	17120	17120
1994	18006	18006
1995	19006	19006
1996	22970	22970
1997	23580	23580
1998	24215	24215
1999	24876	24876
2000	25566	25566
2001	26284	26284
2002	27032	27031
2003	27811	27808
2004	28624	28615
2005	29438	29426
2006	31214	31187
2007	32219	32189
2008	33256	33230
2009	34362	34337

Source: FAOSTAT2010

Table-6: Growth Rates

Decades	Production	Consumption
1991s-I	5.262	5.262
1990s	9.186	9.188
2000s-I	8.560	8.560
2000s-II	7.940	7.940
Average	4.603	4.599

Production and Consumption of milk / Interpretation

- The production of milk was 25566 thousand tones in year 2000. It increased to 29438 thousand tones in 2005 and reaches to 34362 tones in year 2009. On the other hand the milk consumption was 25566 tons in 2000 and increased to 29426 tons in 2005. Its production increased to 34337 tons in 2009. Excess production over total domestic consumption remained 12 thousand tons, 7182 tons and 26 tons in years 2005, and 2009 respectively[8].
- On the average the production and consumption grew at the same average rate of 4.60 per annum during the study period since 1990.
- The graph of the production and consumption reveals a positive upward trend. Both the production and

Table-7: Shares Fresh milk in World Milk

Year	Buffalo	Cow milk	Goat	Sheep	Milk Total
1991	25.35	0.78	5.41	0.51	2.90
1992	25.78	0.82	5.46	0.54	3.10
1993	26.03	0.85	5.54	0.57	3.24
1994	26.21	0.88	5.57	0.59	3.38
1995	25.59	0.92	5.77	0.61	3.52
1996	25.91	1.60	4.31	0.36	4.20
1997	25.75	1.62	4.35	0.37	4.28
1998	25.54	1.63	4.38	0.37	4.33
1999	25.33	1.63	4.49	0.37	4.36
2000	25.42	1.64	4.63	0.38	4.42
2001	25.19	1.65	4.70	0.38	4.46
2002	25.43	1.64	4.71	0.37	4.47
2003	25.33	1.64	4.70	0.36	4.52
2004	25.03	1.64	4.79	0.36	4.55
2005	25.24	1.63	4.63	0.35	4.54
2006	24.53	1.92	4.59	0.37	4.69
2007	24.36	1.95	4.57	0.38	4.73
2008	23.47	1.99	4.54	0.38	4.78
2009	20.00	2.05	4.64	0.39	4.89

Source: FAOSTAT, 2010

Table-8: Year wise Trade

Years	Trade (tonnes)		Growth rates in %	
	Import	Export	Import	Export
2000	171	144	1.62	929
2001	0	312	-1.71	117
2002	0	1011	0	224
2003	11	3031	0.11	200
2004	62	9114	0.51	201
2005	45	11749	-0.17	29
2006	17	26864	-0.28	129
2007	13	29551	-0.04	10
2008	70	25969	0.57	-12
2009	77	25470	0.07	-2
Average			0.07	182.33

Source: FAOSTAT, 2010

The share of our buffalo milk remained around 25 percent of the world buffalo milk production. It showed an upward trend in the last four years. The cow milk production, however, showed a gradual increase since 1991 and its share in the world cow milk production rose from 0.78 percent in 1991 to 2.05 percent in 2009. As a

whole the share of our milk since 1996 remained between 4 to 5 percent of the total milk production of the world.

Export and Import of Milk

- The export of milk in the dairy sector was 312 tons in year 2001. It increased to maximum 29551 tons in 2007. Since then it has declined and was 25470 tons. As a whole the growth rate of export of milk remained in consistent i.e. gigantic growth rate of 200 percent, 201 percent and 129 percent in 2003, 2004 and 2006 but tuned in years 2008 and 2009[1].
- The Imports on the other hand showed decline throughout since 2000 but showed upward trend in 2008 and 2009.negative. Overall share of the import in trade remained insignificant

FEED INDUSTRY

Role of feed and nutrition for livestock production is as essential as management or animal itself but its fiscal implications are huge in terms of productivity and profitability of the livestock products. The nutrition of animals can play a key role in optimizing the meat production[9]. The cost of the feed is an important function for determining the profitability[10]. The essential constituents of poultry feed include **Protein feedstuffs (residues of oil seeds like Canola seed, rape & mustard seed, sun flower and soybean), Carbohydrate (like Molasses, rice polish, corn by products such as corn glutens, corn seed liquid), Mineral supplements (salt, bone meal Calcium phosphate), Fats and oils (meat processing industry, refining of vegetable oils or vegetable oils itself), vitamins and water[11].**

Table-9: Poultry Feed Production (000Tonnes)

Item/Year s	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Broiler	465	531	568	421	535	946	1144	1336	1473	1620	1985	2185	2475
Layers	496	507	553	350	420	297	266	296	396	436	680	750	850
Breeder	161	207	226	161	200	186	215	257	258	285	435	475	650
Total	1122	1245	1347	932	1155	1429	1625	1889	2127	2341	3100	3410	3975

Source: [10]

Table-10: Pakistan feed mills Production by Provinces(000 tonnes)

Provinces	Feed Capacity	2000	2001	2002	2003	2004	2005	2006
Punjab	3600	1100	1251	1420	2180	2250	2600	3000
Sindh	1500	370	456	510	420	620	680	875
NWFP	250	90	100	100	120	130	80	50
Baluchistan	120	66	84	97	97	100	50	50
Total	5470	1625	1891	2127	2817	3100	3410	3975

Estimated

Table-11 Growth rate of the poultry Feed

Decades	Broiler	Layers	Breeder
1990s-II	19.8	-6.9	5.2
2001s-I	16.1	20.1	19.7
2000S-II	11.7	11.8	23.0
Average	16.9	7.5	14.2

Source: Self

Poultry Feed Industry

- The broiler feed produced increase from 531 thousand tons in 1995 to 1144 thousand tons in 2000 and to 2475 thousand tons by 2006. It grew by an average rate of 19.8 in second half of 1990s and 16.1 percent in first half of 2000s while it grew at an average rate of 11.7 percent in second half of 2000s. On an average it grew at a rate of **16.9** percent during the period of study i.e. from 1995-2006 [4].
- The production of layers feed was 507 thousand tons in 1995. It decreased to 266 thousand tons in 2000 while it

increased to 850 thousand tons in 2006. In the second of 1990s it grew with negative growth rate of 6.9 percent on average per annum. It grew with positive growth rate of 20 percent in first half of 2000s while its growth rate was 11.8 percent during the second half of 2000s. The layer feed grew at an average rate of **7.5** percent per annum[8].

- The production of breeder feed increased negligibly from 207 thousands of tons in 1995 to 215 thousand tons in 2000 while it increased to 650 thousand tons in 2006. It grew at a rate of 5 percent in second half of 1990s. During the first half of 2000s its growth was 19.7 percent per annum while it grew at an excellent rate of 23 percent in the second half of 2000s. During the whole period it grew at an average rate of **14.2** percent per annum.

It is apparent from the table that sunflower and soybean seed production are increasing at a decent rate since 1990. The average growth rate is 11 percent and 23.1 percent respectively. The growth of maize is continuing at an

Table-12: Production of feed Ingredients (000 tons)

Year	Maize	Broke rice	Wheat	Rapeseed	Soybean	Sunflower seed
1991	1203.	521.76	14565.	228.30	0.93	34.65
1992	1183.	518.88	15684.	219.70	1.33	61.14
1993	1213.	498.56	16156.	206.90	2.37	61.73
1994	1318.	639.20	15213.	197.40	5.30	50.02
1995	1504.	551.52	17002.	229.40	7.23	85.70
1996	1491.	634.56	16907.	254.50	2.69	109.52
1997	1517.	688.80	16650.	311.00	7.31	128.57
1998	1665.	693.28	18694.	333.00	8.23	129.69
1999	1652.	747.84	17857.	363.50	10.00	149.44
2000	1643.	824.96	21078.	297.30	10.00	149.87
2001	1664.	768.48	19023.	262.00	1.40	108.00
2002	1737.	621.12	18226.	244.00	1.27	184.00
2003	1897.	716.48	19183.	353.00	0.35	128.53
2004	2797.	775.68	19499.	401.00	0.37	358.53
2005	3109.	804.00	21612.	347.00	0.26	327.65
2006	3088.	887.52	21276.	350.00	0.42	348.28
2007	3605.	870.08	23294.	368.00	0.03	407.22
2008	3593.	890.08	20958.	185.04	0.03	603.89
2009	3261.	1112.3	24033.	198.98	0.03	420.49

Sources: [8]

Table-13: Growth Rates of the feed ingredients

Years	Maize	Broken rice	Wheat	Rapeseed	Soybeans	Sunflower seed
1991						
1992	-1.6	-0.6	7.7	-3.8	42.7	76.4
1993	2.5	-3.9	3.0	-5.8	78.8	1.0
1994	8.7	28.2	-5.8	-4.6	123.3	-19.0
1995	14.1	-13.7	11.8	16.2	36.4	71.3
1996	-0.9	15.1	-0.6	10.9	-62.7	27.8
1997	1.7	8.5	-1.5	22.2	171.4	17.4
1998	9.8	0.7	12.3	7.1	12.6	0.9
1999	-0.8	7.9	-4.5	9.2	21.5	15.2
2000	-0.5	10.3	18.0	-18.2	0.0	0.3
2001	1.3	-6.8	-9.7	-11.9	-86.0	-27.9
2002	4.4	-19.2	-4.2	-6.9	-9.8	70.4
2003	9.2	15.4	5.2	44.7	-72.3	-30.1
2004	47.4	8.3	1.6	13.6	5.7	178.9
2005	11.2	3.7	10.8	-13.5	-28.8	-8.6
2006	-0.7	10.4	-1.6	0.9	59.5	6.3
2007	16.7	-2.0	9.5	5.1	-92.4	16.9
2008	-0.3	2.3	-10.0	-49.7	-9.4	48.3
2009	-9.2	25.0	14.7	7.5	6.9	-30.4
Average	6.3	5.0	3.2	1.3	11.0	23.1

Source: self-Estimated

average per annum rate of 6.3 percent. Food components like Canola seed sunflower and soybean are also imported for complementing the domestic production.

SUGGESTIONS

- The number of live animals (cattle, goat and sheep) has to be increased for enhancing the meat production in order to capture the significant share of the world market. In the existing scenario we are not producing much and as such no big quantity of meat are available for exports. If we enhance our exports of meat the domestic demand would be compromised resulting in price hike. The existing growth rate of animal, which is almost equal to population growth rate, is to be increased many folds. Corporate farming is the only alternative available with us for accelerating the livestock production and exploiting our full potential.
- The quality of our meat has to be in accordance with the international standard. Therefore modern abattoirs are basic requisite.
- Establishment of disease free production areas is also essential for fulfilling the international requirement. Disease free zones and traceability could only been ensured through corporate farming.
- Animal breeds having high meat yield are to be introduced.
- Government should incentivize the sector through provision of loan, tax exemptions and provision of land for the farming.
- The problems of the smallholding farms like low animal productivity, poor animal hygiene, lack of water availability, old dairy farming practices and also lack of new animal breeding methodologies in smallholding farms have to be countered. There formulization into corporate farms and provision of high milk yield breed of dairy animals would make a solution of these problem. Of course provision of balanced feed would be helpful in improving the yield of the animals. Concerted efforts therefore should also be made for improving and up grading the feed industry on scientific basis.
- Besides enhancing production of meat and milk policy makers should also focus on forward linkages i.e. international markets of milk and meat for creating space for the Pakistani products.
- Livestock sector should be given the pivotal role and be focused in perspective of the poverty alleviation programs

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