

## Time, costs and farmers' perceptions: The case of livestock service delivery in tamilnadu

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### Abstract

A study was undertaken in southern peninsular State of India, the Tamil Nadu State, (i) to ascertain the time costs of animal health care and bovine breeding services, and (ii) to comprehend the perceptions of farmers on the livestock services rendered by different service providers. The districts of the state were categorized as 'Livestock Developed' (LD) and 'Livestock Under Developed' (LUD) based on initial base line developed. Travel, waiting and service time were among the primary non-price factors that affected service quality. Average travel time was highest for visiting the public veterinary centre in both LUD (23.05 min.) and LD (21.32 min.) districts. Waiting time with regard to veterinarians providing home services in LUD districts was highest (23.01 min.), followed by public veterinary centre services at LUD districts (22.35 min.), home services by para-veterinarians (22.01 min.) and public veterinary centre services at LD districts (20.10 min.). Both travel and waiting time were much higher in case of breeding services compared to curative services, which could be due to the fact that the farmers preferred Artificial Insemination (AI) over its close substitute, the natural service. However, the service time was relatively less in case of insemination services vis-à-vis curative services both in LUD and LD districts. The quality perceptions of farmers on livestock services revealed that the home services rendered by veterinarians as the best one (0.83), followed by private veterinary clinics (0.75), home services by para-veterinarians (0.74), public veterinary centres (0.64) and co-operative veterinary centres (0.48).

Key words: Livestock services; Travel time; Waiting time; Service time; Service quality; India

### Introduction

Livestock sector plays a significant role in the Indian economy, particularly for the welfare of rural population of India. Of the total households in the rural area, about 73 per cent own some form of livestock. There is also an inverse relationship between land and livestock holdings, excluding landless category (Ravishankar and Birthal, 1999), indicating better equity of farmers with respect to livestock holding. More importantly, small and marginal farmers account for three quarters of these households. The economic liberalization has widened the market opportunities for the livestock sector. There are expectations of faster growth in demand for livestock products due to expected increase in income combined with the high-income elasticity of demand for livestock products. However, the sector's ability to capitalize on new market opportunity is constrained by the availability and quality of support services.

Effective and efficient delivery of animal health and production services is considered as vital for gainful livestock development and hence, efficient

delivery of livestock services has become a subject of rising concern to many national and international organisations including FAO (Kleeman, 1999).

Livestock services are critical for enhancing productivity and competitiveness. In India, the Government maintains a large public infrastructure on livestock services, but there are questions about the service utility and reach to the livestock producers (Planning Commission, 2007).

Although co-operative and private operators are in the field, the extent of their share in the sector is very meagre. The present structure of livestock services delivery in India is based on fixed model of a Veterinary Hospital/Dispensary/Sub-centre being the key nodal structure at the ground level from where services and goods are currently distributed.

The extent to which growth in livestock production can be accelerated would depend on how technology, institutions and policies address constraints facing the livestock sector. In the past, growth in livestock production was largely number-driven, while the future would be from improvements in productivity. This will require overcoming feed and

Table-1. Average time costs associated with animal health care services

Service provider type	District type	Travel time	Waiting time	Service time	Total time	"t" Value (minutes)
Public veterinary centre	LUD	23.05(5.00 – 60.00)	22.35(15.00 – 45.00)	12.11(5.00 – 20.00)	57.51(30.00 – 75.00)	0.129 <sup>N</sup>
	LD	21.32(5.00 – 35.00)	20.10(15.00 – 30.00)	14.50(5.00 – 30.00)	56.32(25.00 – 60.00)	
Home service by veterinarian	LUD	0.00	23.01(15.00 – 60.00)	23.59(15.00 – 35.00)	47.00(35.00 – 70.00)	0.189 <sup>NS</sup>
	LD	0.00	15.38(10.00 – 25.00)	25.18(10.00 – 45.00)	40.56(25.00 – 70.00)	
Home service by para-veterinarian	LUD	0.00	22.01(10.00 – 30.00)	21.07(10.00 – 25.00)	43.08(25.00 – 50.00)	0.262 <sup>NS</sup>
	LD	0.00	11.22(5.00 – 30.00)	24.00(15.00 – 45.00)	35.22(25.00 – 50.00)	
Ethnic/ traditional healer	LUD	9.07(5.00 – 15.00)	12.00(5.00 – 20.00)	11.00(10.00 – 30.00)	32.07(25.00 – 40.00)	0.360 <sup>NS</sup>
	LD	10.29(8.00 – 30.00)	12.35(5.00 – 25.00)	10.59(5.00 – 40.00)	33.23(20.00 – 45.00)	
Private veterinary clinic	LUD	14.00(5.00 – 20.00)	15.00(10.00 – 25.00)	5.00(3.00 – 10.00)	34.00(20.00 – 45.00)	0.380 <sup>NS</sup>
	LD	20.05(10.00 – 25.00)	15.00(10.00 – 25.00)	5.00(3.00 – 10.00)	40.05(20.00 – 50.00)	
Pharmacy	LUD	12.07(5.00 – 60.00)	2.07(2.00 – 3.00)	4.44(2.00 – 6.00)	18.58(10.00 – 70.00)	0.414 <sup>NS</sup>
	LD	15.00(10.00 – 30.00)	4.28(2.00 – 5.00)	5.00(3.00 – 10.00)	24.28(15.00 – 40.00)	

Figures in parentheses indicate range of time; <sup>NS</sup> Not-significant (P 0.05).

fodder scarcity and improvements in delivery of animal health and breeding services. The quality service means ensuring timely availability with adequate infrastructure and medicaments.

In the light of above context, this study was undertaken in Tamil Nadu, (i) to ascertain the time costs of animal health care and bovine breeding services, and (ii) to comprehend the perceptions of farmers on the livestock services rendered by different service providers. The study will provide an insight into the existing quality of livestock services and ultimately aiding in any plan for quality improvement.

#### Material and Methods

Following Selvakumar et al. (2002), the districts of Tamil Nadu State were categorized as 'Livestock Developed' (LD) and 'Livestock Under Developed' (LUD) based on initial base line data gathered using the value of livestock output, rural human population and common property resources available for livestock farming. Four districts, two each from livestock 'Developed' (Coimbatore and Villupuram districts) and 'Under Developed' (Thanjavur and Sivagangai districts) areas were selected randomly. From the districts so selected, a total number of 320 farmers (80 from each district) were chosen by adopting multistage random sampling technique. Information on the accessibility of veterinary services, transport time, waiting and service time involved to get their animals treated or bred; the farmers' observation on the quality parameters of the services, etc., were collected by personal interview through the structured and pilot-tested interview schedule. The data collected were subjected to descriptive and Student's t statistical analyses.

#### Results and Discussion

Average time costs of animal health care services: Travel, waiting and service time are among the primary non-price factors that affect service quality (Ahuja et al., 2000). Table 1 displays the average time

costs associated with animal health care services in the study area. Although average travel time was highest for visiting the public veterinary centre in both LUD (23.05 min.) and LD (21.32 min.) districts, the magnitude was much higher in LUD districts. This could be explained by the fact that the LD districts had a dense network of veterinary institutions over LUD districts. Travel time for visiting private veterinary clinics in LUD districts was 14.00 minutes, while the same was 20.05 minutes in case of LD districts, which could be due to the fact that the number of cases attended to at private veterinary clinics in LUD districts was more than that of LD districts. Besides, the private clinics in LD districts were located in the townships alone, concentrating mainly on pet animals.

The waiting time in Table 1 refers to the time lag between the first contact with the service provider and the receipt of service. Waiting time with regard to veterinarians providing home services in LUD districts was highest (23.01 min.), followed by public veterinary centre services at LUD districts (22.35 min.), home services by para-veterinarians (22.01 min.) and public veterinary centre services at LD districts (20.10 min.). The least waiting time was for pharmacy dispensed medication in both categories of districts. Longer waiting time in case of home services could be attributed to the travel time needed for the service providers to reach the farmers' home, after the call.

Interpretation of service time is relatively more difficult since it depends on a number of factors such as complexity of disease, ability of service provider to diagnose and provide treatment quickly, attention paid by service provider, including the time taken to explain the level of sickness to the farmers, provide advice on after care, etc., (Ahuja et al., 2000). Thus, while high service time could be due to the complexity of the case, with the service provider paying a great deal of attention in treating the animal, it could also be a reflection of the ability of service provider to provide quick diagnosis and treatment. Notably, the average

Table-2. Average time costs associated with bovine breeding services

Service provider type	District type	Travel time	Waiting time	Service time	Total time	"t" Value (minutes)
Public veterinary centre	LUD	40.30(10.00 – 60.00)	27.28(15.00 – 45.00)	5.34(3.00 – 8.00)	73.32(30.00 – 90.00)	0.023NS
	LD	37.55(10.00 – 45.00)	29.27(20.00 – 35.00)	5.13(3.00 – 8.00)	72.35(30.00 – 80.00)	
Home service by veterinarian	LUD	0.00	15.33(5.00 – 20.00)	6.03(5.00 – 10.00)	21.36(10.00 – 30.00)	0.378NS
	LD	0.00	27.07(20.00 – 35.00)	5.00(3.00 – 7.00)	32.07(25.00 – 70.00)	
Home service by para-veterinarian	LUD	0.00	12.32(5.00 – 20.00)	5.00(3.00 – 7.00)	17.32(10.00 – 45.00)	0.432NS
	LD	0.00	22.18(15.00 – 40.00)	5.00(3.00 – 8.00)	27.18(20.00 – 40.00)	
Private veterinary clinic	LUD	10.11(5.00 – 20.00)	6.47(5.00 – 15.00)	5.00(3.00 – 7.00)	21.58(15.00 – 30.00)	0.131NS
	LD	10.38(5.00 – 20.00)	7.06(5.00 – 15.00)	5.00(3.00 – 8.00)	22.44(10.00 – 40.00)	
Natural breeding	LUD	6.31(5.00 – 15.00)	5.24(5.00 – 10.00)	4.52(3.00 – 7.00)	16.07(10.00 – 25.00)	2.582*
	LD	8.31(5.00 – 20.00)	6.39(5.00 – 15.00)	7.22(4.00 – 10.00)	22.32(10.00 – 40.00)	

Figures in parentheses indicate range of time; <sup>NS</sup> Not-significant (P 0.05).

service time was highest for both home services by veterinarians and para-veterinarians in both LUD and LD districts. Further, there was an appreciable time difference between the public veterinary centre services and private home visits in both LUD and LD districts. The average service time for public veterinary centre service was 12.11 minutes in LUD districts and 14.50 minutes in LD districts.

Average time costs of bovine breeding services: Average travel, waiting and service time for bovine breeding services are presented in Table 2. Once again, the travel time was highest for availing services from public veterinary centres in LUD districts (40.30 min.), followed by LD districts (37.53 min.). The travel time to reach private veterinary clinics in LD districts was 10.38 minutes, while the same in LUD districts was 10.11 minutes. In contrary to Ahuja et al. (2000)'s view, an important point to be noted here is that both travel and waiting time were much higher in case of breeding services compared to curative services, which could be due to the fact that the farmers preferred artificial insemination over its close substitute, the natural service. However, the service time was relatively less in case of insemination services vis-à-vis curative services both in LUD and LD districts.

General perceptions of sample farmers on the livestock services: General perceptions of the sample farmers on the quality of livestock services they received from different types of service providers are presented in Table 3. The picture reveals that the farmers had troubles in availing services from pharmacy shop, private veterinary clinics, and home services by the veterinarians and even by para-veterinarians in the study area. The farmers informed that they had waited for a long time to receive the services both from public veterinary centres (0.93) and private veterinary clinics (0.83), while it was not so in case of ethnic/traditional healers and pharmacy shop. Further, the farmers were able to receive services during emergency from veterinarians extending home services (0.98), from ethnic/traditional healers (1.00) and from para-veterinarians (1.00), while it was

difficult to get the service from co-operative and public veterinary centres. The farmers considered the service providers of public veterinary centres, private veterinary clinics, co-operative veterinary centres and veterinarians extending home services were adequately trained and they treated the farmers kindly, taking adequate care of livestock which was not so in case of traditional practitioners. The infrastructural facilities available with public veterinary centres, private veterinary clinics and co-operative veterinary centres were considered to be moderate. The farmers expressed that working hours at public veterinary centres and co-operative veterinary centres were inconvenient with their score being only 0.30 and 0.25, respectively.

However, working hours of private veterinary clinics, and veterinarians and para-veterinarians serving at door step were considered to be convenient. Inconvenience in the working hours of public veterinary centres could be probably not due to official hours stipulated, but due to low promptness of service provider there. The farmers considered services of pharmacy shop and home services by veterinarian and para-veterinarian as expensive, while the services of public veterinary centres and co-operative veterinary centres were affordable. The overall satisfaction level with the service provider was highest for home services by veterinarian, followed by public veterinary centres and was lowest for pharmacy dispensed 'over the counter' medication. The average perception for the quality of livestock service revealed that the farmers considered the home services rendered by veterinarians as the best one (0.83) followed by private veterinary clinic (0.75), home services by para-veterinarian (0.74), public veterinary centre (0.64) and co-operative veterinary centre (0.48). The overall picture revealed that the quality of livestock services offered by ethnic practitioners was not effective.

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Table-3. General perceptions of farmers on quality of livestock services (scores)

Quality attribute	Ethnic/ Traditional	Pharmacy shop	Public veterinary Centre	Private veterinary clinic	Co-op. Veterinary centre	Home services by veterinarian	Home services by para-veterinarian
If you need vet. aid you can access service provider without any trouble	0.80	1.00	0.93	1.00	0.71	1.00	1.00
You wait for long time before you see the service provider	0	0	0.93	0.83	0.14	0.69	0.18
It is easy for you to receive veterinary aid during emergency	1.00	0.71	0.13	0.06	0	0.98	1.00
If you have a question, you can reach service provider for help without any problem	0.14	0	0.99	1.00	1.00	1.00	0.83
Do you think the staff members are adequately trained?	0	NA	1.00	1.00	1.00	0.98	0.64
The provider treats you kindly and takes adequate care on your livestock	0.75	1.00	0.93	1.00	1.00	1.00	1.00
Does the provider spend enough time for diagnosis and treatment?	0.90	NA	0.93	1.00	1.00	1.00	1.00
Is the examination and treatment space sufficient?	0	NA	0.86	0.67	0.40	NA	NA
Is the waiting area clean and sufficient?	NA	NA	0.56	0.82	0.36	NA	NA
Are the equipment adequate?	NA	NA	0.76	0.34	0.18	NA	NA
Are the working hours convenient for you?	NA	NA	0.30	1.00	0.25	0.93	0.88
Is the location of provider convenient to you?	1.00	0.80	0.30	1.00	0.50	NA	NA
Sometimes you go without livestock services you needed, because it is too expensive	0	0.71	0.01	0.44	0	0.55	0.59
All things are considered, you are satisfied with the livestock services you receive	0.64	0.57	0.96	0.89	0.71	0.97	0.95
You think there is a serious problem with the provision of livestock services	0	0	0.04	0.14	0	0.08	0.10
<b>Average score</b>	<b>0.44</b>	<b>0.53</b>	<b>0.64</b>	<b>0.75</b>	<b>0.48</b>	<b>0.83</b>	<b>0.74</b>

NA – Not applicable for the specific service provider

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