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The economic rationale of public and private sector roles in the provision of animal health services

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Summary

In the changing market environment of livestock products, the delivery of animal health services is emerging as an important priority area for enhancing the competitiveness of poor livestock producers. At the same time, governments are continuing to face serious budgetary difficulties and are finding it difficult to expand the reach of these services or improve service quality. In this context of a changing environment and dwindling public resources, this paper revisits the economic framework that has thus far guided thinking about public and private sector roles in the provision of animal health services and examines the ongoing debate on livestock service delivery for the poor. The paper highlights the importance of strong institutions and appropriate legislation for regulating behaviour and enforcing contracts and re-emphasises the idea, which is supported by economic theory, that there is a need for task sharing between the public and private sectors. The paper further emphasizes the need for: *a*) integrating the debate on livestock service delivery with the larger debate on political economy and institutional development, and *b*) ensuring service access in poor marginal areas by working through membership organisations, self-help groups and civil society organisations, and by promoting the use of para-professionals and community-based animal health delivery systems.

Keywords

Animal health – Livestock – Poor – Poverty – Privatisation.

Introduction

There is increasing recognition of the role of livestock in contributing towards poverty reduction, enhancing nutritional security, and supporting the livelihoods of poor people in developing countries. It is also being recognised that globalisation and increased trade openness are putting additional pressures on poor small farmers in developing countries to enhance the efficiency of livestock production at farm level. The delivery of animal health services is emerging as an important priority area given the crucial role of animal health in enhancing the competitiveness of livestock production. At the same time, governments are continuing to face serious budgetary difficulties. The result is reduced government budgetary allocations, deteriorating salary/operation cost ratios and deteriorating professional skills. In this context of reduced resources and expanded demand for these services, this paper revisits the economic framework that has guided the thinking about the public and private sector roles in the provision of animal health services and reviews the debate on livestock service delivery for the poor.

There are a great many tasks that can be classified as being the responsibility of the people and organisations involved in animal health care. Clearly, treating sick animals and protecting animal welfare form part of their remit, but animal health care professionals also indirectly participate in protecting human health by their involvement in quarantine procedures, export certification, export/import regulation and food safety tasks, such as food hygiene and laboratory analyses, labelling and food quality control. A review of the available literature suggests that the debate on public and private sector roles in delivering these services has been guided by two main considerations:

a) the inherent characteristics of the services

b) the manner in which their provision affects livestock producers.

Both these are legitimate considerations and need to be understood to appreciate the public-private roles in service delivery. In this context, the authors first revisit the conceptual framework that has formed the basis of livestock service delivery literature and then examine some experiences with service delivery models in a diversity of contexts.

The conceptual framework

The economic rationale for public-private roles in livestock service delivery derives from the first fundamental theorem of welfare economics, which states that in the absence of externalities, public goods, informational failures or economies of scale, private markets are the most efficient way of organising service delivery (see Appendix 1 for a description of commonly used economic terms in the literature on service delivery). Applied to animal health services, this idea implies that the effectiveness of service delivery can be significantly enhanced by divesting the 'private good' services. The role of governments, on the other hand, should be limited to correcting various forms of 'market failures'. Based on this logic, Umali, Feder and de Haan (22), were the first to prescribe sectoral delivery channels for various livestock services. These are presented in Table I. As can be seen in this table, clinical veterinary services and the distribution and production of drugs and vaccines are classified as pure private goods because the user captures all benefits. Theoretically, therefore, these services are best provided by the private sector. On the other hand, due to associated externalities, the private free market will not provide services such as disease diagnosis, vaccination against contagious diseases, vector control, etc., at the optimal level. The State, therefore, has an important role in putting measures in place to ensure their optimum supply. Finally, services such as disease surveillance and prevention, food hygiene and inspection, and overall market regulation fall into the category of 'pure public goods' and private markets are unlikely to deliver them due to their non-excludability characteristic. Hence, it becomes the responsibility of the State to find a collective mechanism to undertake the delivery of these services.

The public good nature of some of the services, however, does not necessarily imply that the government must take direct responsibility for their delivery. There are many examples (foot and mouth disease vaccination) where public authorities can contract with private agents to deliver selected services. Private agents, competent non-governmental organisations (NGOs) and other agencies can be contracted and paid by the government to deliver selected services. This helps create

Table I
Suggested channels for livestock service delivery

Animal health function	Appropriate delivery channel		Economic characteristic
	Public	Private	
Disease surveillance, prevention, control and eradication of:			
Highly contagious diseases with serious socio-economic, trade and public health consequences	✓	✓	Public good
Diseases of low contagion	✓		Private good with externalities
Quarantine and movement control	✓		Measures to correct for externalities
Emergency response	✓		Public good
Veterinary inspection	✓		Measures to correct for 'moral hazard'
Wildlife disease monitoring	✓		Public good
Zoonosis control	✓		Measures to correct for externalities
Disease investigation and diagnosis	✓	✓	Private good with externalities
Drug/vaccine quality control	✓		Require measures to correct for 'moral hazard'
Production and distribution of drugs and vaccines		✓	Private good
Vaccination and vector control	✓	✓	Private good with externalities
Research, extension and training	✓	✓	Public and private
Clinical diagnosis and treatment		✓	Private good
Food hygiene and inspection	✓		Measures to correct for 'moral hazard'
Residue testing	✓		
Food safety tasks	✓		Public good
Compliance monitoring	✓		Public good

Source: adapted from Umali, Feder and de Haan (26) and Holden, Ashley and Bazeley (11)

further space for the private sector to enhance the profitability of their operations. The OIE (World organisation for animal health) *Ad hoc* Group on the role of veterinarians and para-veterinarians has also recently observed that strengthening animal health delivery in developing countries requires building official links between veterinary administrations and individual veterinarians and para-veterinarians in the form of contracts for provision of specific services, such as disease monitoring and surveillance, disease control, vaccination, and food inspection. However, it must be understood that ensuring public accountability in the delivery of these services must remain the responsibility of the public sector and that sub-contracting may not always lead to a reduction in the costs of government as it will entail the additional (transaction) costs of public rule-making and monitoring of contractors.

Public contracting differs from private contracting in the sense that the need for transparent accountability necessitated by the expenditure of public money means that bidding and monitoring rules are more stringent and complex. Also, contractors and other interested parties have the incentive to try to influence the rules of the game in their favour. It is therefore important to understand the social, political and legal institutions in which these public-private contractual relationships are to be embedded. Whether the government chooses to supply the public good service itself or to sub-contract certain functions would therefore depend on the strengths of these institutions in designing and enforcing public contracts and their independence from the overall politics of the country.

There is widespread agreement in the literature on the principles presented above. But, a number of countries continue to follow the model of subsidised public provision even for clinical veterinary services. For example, Umali *et al.* (22) and Holden *et al.* (9) report that in over 85% of the countries they have studied, these services were provided by the public sector. Similarly, in services such as vaccination, vector control and diagnostic support, there was excessive public sector dominance in the majority of countries.

Such heavy public sector dominance in livestock service delivery appears to derive from the premise that poor small livestock producers will not be able to pay for commercially orientated private services and will be excluded from the market. Given the role of these services in supporting the livelihoods of poor people and contributing towards poverty reduction, and given that poverty reduction is a public good, governments consider it their responsibility to provide these services. Recent evidence, however, suggests that free or subsidised public provision may not be an effective mechanism to achieve equity objectives. Evidence made available by Ahuja *et al.* (1) from different states in India showed very clearly that subsidised services were not benefiting the poor. The study systematically documented that government veterinarians were already charging fees that were not significantly lower than those charged by private veterinarians. The study also estimated the willingness to pay for curative veterinary services and found that farmers, including poor farmers, were willing to pay for assured and good quality services. (There already exist cases of successful private delivery in some very poor areas of India; see Appendix 2.) Similar results have been reported by Heffernan and Misturelli (8) from Kenya; Koma (11) from Uganda; and Leonard (13) from various parts of sub-Saharan Africa. Thus, the evidence seems to suggest that commercialised private practice may actually deliver a greater quantity of clinical veterinary care more equitably than a highly subsidised public service does (12). That further strengthens the case for private delivery of services such as clinical veterinary care.

On the other hand, studies that have analysed the impact of privatisation in countries which have already experimented with commercialisation/privatisation of these services have produced mixed results. This appears to have started a debate on whether the theory presented above is a sufficient guide for policy reform. Gauthier *et al.* (5) and de Haan and Bekure (4), for example, report a generally favourable impact of privatisation of clinical veterinary service delivery as part of the overall structural adjustment programmes in Africa. Turkson and Brownie (21), on the other hand, argue that in Jamaica privatisation did not result in any appreciable improvement in the financing of the delivery of public-sector animal health services in the short-term. Similarly, Gros (7) argues that service privatisation in Cameroon – under pressure from donors – ignored the possible consequences of a fully privatised delivery system and the structural barriers to its implementation. As a result, the privatisation programme had an adverse effect on service delivery.

In order to put the debate in proper perspective, it is important to understand the sources of 'market failure' and examine the context in which livestock service markets function. The key sources of 'market failure' relate to:

a) information asymmetry

b) economies of scale

c) competition.

Informational failures, economies of scale, and lack of adequate competition are likely to impair market efficiency which, in turn, has important implications for private-public roles. These roles are further shaped by the context of livestock production and economic and institutional development of the country. In what follows, the authors take a closer look at these issues and examine some further implications for private-public roles in service delivery.

Market failure and the role of the State

Information asymmetry

One aspect of information-related market failure that has been widely recognised in the literature on livestock service delivery relates to moral hazard (see Appendix 1 for an explanation of information asymmetry and information-related market failure, including 'moral hazard'). For example, Umali *et al.* (22) point out that such a problem could arise in areas, such as food inspection and drug quality control, where it is difficult to observe quality (a recent study of drug supply in Kenya reported that nine out of twenty-one anthelmintics, obtained from local pharmacies and merchants, did not contain any active ingredient [21, 24]). However, it appears that the possibilities of such failures in the case of livestock service markets are more significant than the core literature has suggested. Indeed, given the specialised nature of livestock services, information-related market failures are possible even in the case of clinical diagnosis and treatment. Since the service provider usually has more information and the service user has no mechanism to monitor whether the provider is acting in the best interest of the user, a moral hazard problem can arise if the service provider exploits the informational advantage for his own benefit. Given the generally low education and awareness levels of poor livestock producers in developing countries, the public veterinary authorities often make the point that private veterinarians are likely to resort to exploitative practices. Although this does not justify public provision of clinical veterinary services, it does signify the importance of strong institutions, including professional veterinary associations, for regulating behaviour, enforcing ethics, disseminating information and providing an effective regulatory and legal framework.

Similar implications emerge when we examine the case of adverse selection. As explained in Appendix 1, the inability of service users to distinguish low and high quality providers can significantly impair market efficiency. Some evidence in this respect has recently become available. For example, Ly (15) has observed that, 'If left alone, the market for veterinary services in Senegal would evolve toward a typical lemons market where only low quality services would be demanded' (the term 'lemon market' was introduced by Akerlof in the context of the used car market. He made the point that since the sellers of used cars have significantly more information and since the average buyer cannot readily distinguish between good and bad cars [or the lemons], poor quality cars are likely to drive good cars out of the market) (2). 'This would create a sub-optimal situation for herders, providers and society' (p. 229). He further notes, 'the challenge faced by the privatisation of veterinary services delivery systems in Senegal is in the urgency of strengthening the transformation process in the sub-sector so that livestock production and productivity is higher and veterinary inputs marketing systems are more efficient. Among the prerequisites are the creation of more suitable and workable organisational arrangements, leading to a new shape of veterinary input and service delivery with respect to structure, form, quality, and prices' (p. 259). Once again, this highlights the importance of organisational and institutional structures and procedures. A number of different options have been discussed in the literature to mitigate the problems arising out of information asymmetry. Some of these are discussed in the next paper in this volume by D.K. Leonard.

Competition and profitability

The market efficiency result is also contingent on there being adequate competition in the market which, in turn, derives from the assumption that there are multiple service providers and users in the market. In the case of livestock service markets in developing countries, where livestock farming is a subsistence activity, it is not clear whether aggregate demand for these services can support enough multiple service providers to generate adequate competition. Private services have been shown to generally work well in high potential high-density areas where farmers are relatively wealthier and more educated. But, in a large number of poor marginal areas, aggregate demand often falls short of the level required to sustain profitable private veterinary practice; this is due to the subsistence nature of production systems, resulting in the unwillingness of farmers to pay for the services, and due to the high transaction costs of service delivery in these areas. This implies that the conventional model of private service delivery may not be a feasible option in poor areas and that alternative models may need to be identified and promoted for enhancing and sustaining access to livestock services in these areas. This issue is further explored a little later in the section entitled 'Focus on poor areas'.

Economies of scale

Some animal health services, such as veterinary research and extension, diagnostic services and the delivery of clinical services in remote areas, require high fixed costs. This can deter the private sector from delivering these services until they can achieve significant scale to make the delivery of these services profitable.

One implication of the preceding discussion is that while the conceptual framework for delineating public-private roles is appealing, it is perhaps not very useful to simply suggest to governments that they privatise the services that are of a private good nature. It is critical to focus thinking on promoting market-supporting institutions that facilitate information flow and healthy competition. However, the rules of the game must be compatible with country conditions. Whether a particular institution is appropriate in a country often depends on the supporting institutions, the available

technology and skills, and the politico-economic context, including the level of corruption and transparency in organisational procedures. It is therefore necessary that the process of service privatisation is approached pragmatically, and not from a narrow ideological perspective. Furthermore, the reform process must be guided by hard field-based evidence on the distributional impacts of policy and institutional changes. As noted by Holden *et al.* (9), in the absence of such evidence, policy-makers are often left with conflicting ideologies and poorly understood economic theories. Given the diversity of contexts, there will inevitably be a plurality of methods, models and institutional structures, but the real challenge is to manage the reform process in a way that empowers poor communities.

Another important consideration in this context pertains to the pace of commercialisation and private sector involvement. There is often a tendency to push for rapid privatisation while relegating the issue of competition and regulation to later stages. This can be dangerous. Successful policy reform generally requires a relatively long process of stakeholder consultation and consensus building. Stakeholder participation has been shown to be one of the most effective strategies for rallying people behind public policy. Privatisation of clinical veterinary services in a number of countries has been driven almost exclusively by international development and donor agencies, sometimes with adverse and unintended consequences. Gros (7), for example, notes that privatisation of veterinary services in Cameroon was driven and pushed by the World Bank and not Cameroon policy-makers. Many of them did not even fully understand the logic behind privatisation or the structural barriers to its implementation. In the process, even some of the public sector functions were delegated to the private sector, which had an adverse consequence on the delivery of these services. In Indonesia, on the other hand, privatisation of animal health posts in Java followed a stepwise approach that minimised disruptions during the transition phase and generated local support for the process (Appendix 3). Furthermore, given the political economy in many developing countries, there is much scope for the privatisation processes being mismanaged if pursued rapidly and once a vested interest is created, it will have all the incentives and the resources to bend rules in its favour.

Focus on poor areas

There is widespread agreement in the literature that conventional models of private service delivery may not be suited to marginalized and resource-poor areas. These areas require approaches that can overcome the structural constraints of high transaction costs and low demand for services resulting from poor awareness and subsistence-orientated production systems. A number of alternative models have emerged that are effective in addressing the issue of service delivery in poor areas. These include community-based animal health workers (CAHWs), para-professionals, membership organisations, self-help groups and so on.

Community-based animal health workers and para-professionals

Community-based models have attracted increasing support over the last couple of decades. Service provision is usually organised by NGOs (either alone or in partnership with the government) in relatively remote areas where neither government nor private services are available. The NGOs train village men and women in basic veterinary skills, who then offer their services to fellow villagers for a nominal fee. This system has several advantages – it organises and mobilises the latent market demand for animal health services, facilitates the development of further markets for these services, promotes the flow of information to key stakeholders and lowers the overall transaction costs of service delivery.

Networking of private veterinarians and para-professionals is another approach that has the potential to drastically lower transaction costs and improve the availability of animal health services in remote marginal areas. In a number of rural areas with smallholder production systems, these professionals and para-professionals are already providing a wide range of routine services. In fact, some observers have argued that over 90% of the services required by poor households can be delivered by para-professionals. A number of research studies have also indicated that the performance of para-veterinarians in diagnosis and drug administration compares favourably with that of professional field veterinarians. There are also good reports of para-veterinarians continuing to provide necessary services in difficult conditions where government services were unavailable (16). Due to their generally positive role, a number of livestock development projects now recognise para-professionals as useful allies in achieving project objectives.

Professional veterinarians have historically seen CAHWs and para-professionals as competitors who could take away some of their business by offering services at a lower price. However, working together with para-veterinarians and CAHWs can have benefits for private veterinarians: co-operation would allow professional veterinarians to cover a much larger area and to generate additional revenue through the increased sale of drugs; para-professionals and CAHWs can also be a vital part of an effective disease early warning system. There are examples already available where private veterinarians in small towns are linked with para-professionals and community health workers. These kinds of models can be very useful for improving access to animal health services in poor areas and the government can play a significant role in promoting and facilitating them. However, most countries have yet to develop the supportive institutional and legislative frameworks that are necessary for these models to be successful. Also, significant

attitudinal shifts – at both policy and professional level – will be required if para-veterinarians and community health workers are to become viable models of service delivery in the long run.

It is important to emphasise that the sustainability of such systems requires that basic economic principles are respected; if service delivery systems are to be sustained, costs must be recovered from the users. Cost recovery through direct charges has several advantages. It provides the right incentives for the agents to deliver the services that the farmers want, makes them accountable to the farmers, and builds in a genuine quality control mechanism. Cost recovery also alleviates budgetary constraints and encourages private provision of services by creating a level playing field. It has been observed that the cases where cost recovery mechanisms are built in perform better than externally supported projects that function on the principle of free or subsidised services. Free provision has the effect of crowding out alternative providers and suppressing the development of the market. It is a myth to say that poor households in remote areas are not willing to pay for services at all: in a number of such areas, some of the NGOs are already charging a fee. In southern Sudan, for example, community health workers have been providing treatments and vaccinations on a cost recovery basis (14). Similarly, based on their field research in Africa, Hooton and Moran (10) conclude that there is great potential for full cost recovery from community-based animal health systems and that farmers, including the poor, are willing to pay market price for the services provided by community health workers. On the other hand, questions of sustainability have been raised in the case of the Integrated Livestock Development Project in the Koraput district of Orissa, India, which focused on community organisation and avoided charging for services (19). In some poor areas, it may be possible to introduce commercial elements into public service provision through public-private and public-civil society partnerships. In areas where there are genuine problems in paying, the government has the additional responsibility of nurturing the development process in a way that empowers the farmers to demand quality services. This implies building partnerships with local NGOs and channelling some of the public funds through them. The Indo-Swiss Natural Resource Management Programme in Orissa, India, for example, has proposed a model that aims at community empowerment and awareness building to generate demand for these services by building on the strengths of government, village communities and the NGOs (Appendix 4).

Membership organisations and self-help groups

A plethora of examples are now available in the literature in which producer associations, self-help groups, dairy-cooperatives, etc. have successfully demonstrated their capacity to overcome the market failures resulting from free rider problems and economies of scale so as to provide a viable alternative to public sector delivery of veterinary services. The 'Anand model' in India is perhaps the best known example, where, in addition to collecting, processing and marketing milk, dairy-cooperatives provide services such as clinical veterinary care, artificial insemination, vaccination, diagnostic support and training and extension for member farmers (3, 9). Similarly in Indonesia, the dairy cooperatives provide animal health, breeding, and extension services to their members (23).

Nearly all the membership organisations finance services through membership fees, levies and other service charges. This enhances farmer ownership and the financial sustainability of their operations and has the effect of making the services more demand driven. Furthermore, these organisations and self-help groups can establish relatively long-term links with policy makers and the State veterinary system and can therefore help influence the overall animal health policy of the country. At the same time, these organisations are likely to be far more successful if they are commercially orientated, and combine output marketing with input and service delivery.

Conclusions

This paper has reviewed the conceptual framework for livestock service delivery with the objective of understanding the public-private roles. The analysis concludes that the role of the State derives from the need to correct market failures resulting from externalities, informational failures and the economies of scale. This would suggest that there is a need for task sharing between the private and public sectors, with the State assuming responsibility for policy development, regulation and enforcement, and for the financing of public good services, such as disease surveillance, disease control and quarantine. Other functions, such as clinical services and drug distribution and production would be performed by the private sector.

Privatisation is, however, a complex process and goes beyond simply transferring certain functions and assets from public to private agents. The debate on private-public roles in economic development is now swinging back to emphasise that private markets do not function in a vacuum but require strong institutions and appropriate legislation to regulate behaviour and enforce contracts. In other words, an accountable state is a necessary condition for the efficient functioning of private markets. It is therefore important to integrate the debate on livestock service delivery with the larger debate on political economy and institutional development which, in turn, depends on available technology and skills, and the politico-economic context, including the level of corruption and transparency in organisational procedures. This means there

cannot be a blueprint for reform and each country will have to discover its own path depending upon the economic, social and political context. Nonetheless, a large body of experiences is now available to guide decision-makers, and international development institutions and donor agencies would be well advised to help facilitate the dissemination of these experiences to various stakeholder groups in developing countries.

Finally, given the livelihood intensive nature of livestock production in developing countries, particular effort is required to ensure that necessary services reach poor marginal areas. While in some cases it may be necessary for the public sector to undertake such delivery, there are numerous opportunities to provide these services in alternative ways, e.g. by working through membership organisations, self-help groups and civil society organisations and by promoting the use of para-professionals and community-based animal health delivery systems, which are much more effective at ensuring equality of service access for all clients. The services delivered by these organisations and groups tend to be far more client orientated and responsive to local requirements and need to be supported with appropriate legislative and policy frameworks.

Appendix 1

Commonly used economic terms in the literature on livestock service delivery

Public and private goods

The distinction between public and private goods is based on the characteristics of excludability and rivalry. Pure public goods are those goods from which it is not possible to exclude one consumer without excluding all (non-excludability) and of which the consumption by one person does not reduce its availability for consumption by others (non-rivalry). Pure private goods, on the other hand, are fully excludable and rival. Classic examples of pure public goods include clean air and national defence. Food and clothing are examples of pure private goods. Whether a good or service has the characteristics of a public or private good also depends on the technology and costs of exclusion as well as the configuration of property rights and the effectiveness of formal and informal enforcement mechanisms.

The inability of the providers of goods or services to exclude those who do not pay for it implies that many of the consumers will act as free riders and choose not to pay for it. Due to this problem, it may not be profitable for private agents to provide the goods and services and it becomes necessary to find a collective mechanism for that purpose. Between the two extremes of pure public and private goods lies a whole continuum based on the degree of excludability and rivalry.

Externality

An externality occurs whenever the action of one individual affects the well-being of another individual in a way that is not reflected in the market. A negative externality occurs when the actions of an individual adversely affect other individuals (for example, if river water is polluted by industrial affluent discharge this may cause diseases in productive animals and this imposes additional costs on their owners). A

positive externality occurs when part of the benefit of the actions of an individual benefits other individuals who have not paid for it (for example, reduced risk of infection for the animals of a household due to the vaccination of the animals of a neighbouring household). Externality also provides a rationale for intervention in the market. Measures to internalise externalities include taxes, subsidies, legal regulations, and so on.

Economic efficiency

Pareto-efficiency (or Pareto-optimality) is the most widely used notion of economic efficiency in an exchange economy. According to this criterion, an economic state is Pareto-efficient if there is no feasible alternative to it in which at least one individual is better off and no individual is worse off. In other words, the state of an economy is such that it is not possible to improve the welfare of anyone without reducing the welfare of someone else. Note that there is no connection between Pareto-efficiency and equity. It is quite possible for Pareto efficient outcomes to be very inequitable.

Economies of scale

Economies of scale exist when the average cost of production decreases with output. This is usually observed in enterprises which have large fixed costs. In such cases, the presence of a large market is necessary for the private agents to invest in such fixed costs and provide the service. Some livestock services fall into this category and therefore the private agents may not provide the service in areas with low aggregate demand for these services.

Asymmetric information

Asymmetric information is the term used to describe a situation in which one of the parties in a transaction has informational advantage. This usually means one of the following two situations:

a) one side of the transaction has more information about the 'quality' of the product or service

b) the outcome of the transaction depends on certain actions of one party that are not observable to the other.

In the first case, usually referred to as adverse selection, the poor quality providers drive out the better quality providers and the market achieves the equilibrium in which there is a predominance of low quality service providers. In the second case, known as moral hazard, the party with informational advantage can exploit the situation to his/her advantage. In the case of health insurance, for example, a person's age, preferences and current health status are usually known, but how careful he/she is with his/her health is not known. The informational disadvantage translates into some risk to the insurance company. The solution to this problem is to structure the transaction in a way that the party with informational advantage will take actions desired by the other party. For example, private health insurance companies only offer partial insurance so that the insured has an incentive to be careful with his/her health.

Transaction costs

Although there is no precise definition of transaction costs, these, at a general level consist of costs associated with running an economic system or the costs associated with making an exchange (transaction). More specifically, the term transaction costs is used to encompass costs such as transportation and storage costs, costs of looking for a buyer or seller, costs associated with negotiation, enforcement, quality assurance and so on.

Appendix 2

The business of service delivery: two success stories

a) Bihar, the second most populous state in India (comprising a little more than 10% of the country's population), fares worst among all the states of India on indicators of social and economic development. Bihar has the highest poverty head count ratio, the lowest per capita income, the lowest literacy rate, and a very high child mortality rate. Over 80% of the population lives in rural areas and depends on agriculture for its livelihood. Overall, the agriculture sector is characterised by poor development of irrigation and power infrastructure, non-availability of modern inputs, low value of credit and poor extension services.

In 1991-1992, in Patna, the state capital, a company was established that has since emerged as a large scale provider of artificial insemination (AI) services, and which also provides frozen semen straw and liquid nitrogen to self-employed AI practitioners. Since 1994, the company has started provided training in AI for 1000 Indian rupees (INR) (US$22.00) per trainee for a four-month training course.

The AI network is spread over 48 districts in the state through 405 outlets. 63% of the practitioners have set-up their practice in urban areas and 37% in rural areas. In 1992-1993, a total of 10,948 doses were sold, which rose to 159,281 doses in 1997-1998 – an annual growth rate of over 70%. The price charged per dose is 10 INR (US$0.22). The delivered price of liquid nitrogen is 45 INR (US$1.00) per litre.

The most established AI practitioners perform between 1,500-2,000 inseminations per year. The charge is 50 INR (US$1.10) per AI, but it can go up to 100 INR (US$2.20) depending upon the distance. All practitioners use bicycles/mopeds for mobility and cover an area within a radius of 5 km-6 km.

b) In the district of Pune, one doctor who provides veterinary clinical services to the communities of Indapur Taluka, along with eight technicians who work with him, charges 50 INR for the treatment of non-operative clinical cases. In addition, the farmer bears the entire cost of the drugs and medicines. His primary clients are landless livestock keepers and small and marginal farmers. He attributes his success to the regularity and continuity of his service (17).

Appendix 3

Gradual but systematic transition to private health delivery can help avoid disruptions

Under the third National Agricultural Extension Project in Indonesia, animal health posts in Java were identified as potential candidates for privatisation. Approximately 40% of these posts were found to be non-functional due to poor maintenance and inadequate staff. As a first step towards privatisation, a cost recovery scheme was introduced under which the veterinarians were allowed to charge for drugs and services and take over government vaccination programmes. As the incomes of veterinarians grew, government salaries were gradually withdrawn. Finally, they were allowed to purchase government buildings and equipment under long-term mortgage

arrangements. Some subsidies to provide services to low income producers continued but these were targeted through the private veterinarians. It is reported that the system has worked well without causing disruptions in service delivery during the transition period (6).

Appendix 4

The service delivery model proposed by the Indo-Swiss Natural Resource Management Programme of Orissa, India

The Indo-Swiss Natural Resource Management Programme in Orissa works with extremely poor households in the tribal districts of Orissa, one of the poorest states in India. Having developed a good understanding of what hinders the effective delivery of animal health services, the project has proposed an approach that attempts to bring various groups together with the aim of empowering poor communities to demand the necessary livestock services.

The districts are very poor and the education levels abysmally low. As a result, outright private delivery is not an option. Keeping in view the specific characteristics of the area, the proposed model suggests using local NGOs as active links between the community link workers and the public animal health system. The main emphasis is on teaching poor communities the importance of assuming the responsibility for demanding these services. Educating the communities in this way would be the role of community health workers, who would be trained at government veterinary centres. In addition, it is proposed that the veterinary centres should function as medicine dispensaries and, on demand, provide relatively complicated services such as surgery.

It is envisaged that a larger national or international NGO will act as a catalyst to the implementation of this model. However, this model is dynamic in the sense that it allows for NGOs to become less involved as community awareness levels increase and strong links are established between CAHWs and the public animal health system (J. Morrenhof, personal communication).

Arguments économiques concernant le rôle des secteurs public et privé dans la prestation de services de santé animale

V. Ahuja

Résumé

Dans le contexte actuel de transformation des marchés des produits de l'élevage, la prestation des services zoosanitaires apparaît comme un facteur prioritaire d'amélioration de la compétitivité pour les éleveurs à faibles revenus. Parallèlement, les gouvernements restent confrontés à de sérieuses difficultés budgétaires qui sont autant d'obstacles à l'élargissement de l'accès à ces services ou à l'amélioration de leur qualité. En ayant cette évolution à l'esprit, l'auteur examine le cadre économique qui a guidé jusqu'à présent la réflexion sur les rôles respectifs joués par les secteurs public et privé dans la prestation de services zoosanitaires, et analyse les discussions actuelles sur la prestation des services dispensés aux plus démunis. L'auteur met en avant la nécessité de disposer d'institutions solides et d'une réglementation appropriée pour normaliser les comportements et faire respecter les contrats, et défend particulièrement l'idée, par ailleurs confirmée par les théories économiques, d'une répartition des tâches entre les secteurs public et privé. L'auteur plaide pour que : *a*) le débat sur la prestation de services aux éleveurs soit intégré dans le cadre plus large de l'économie politique et du développement institutionnel ; *b*) l'accès aux services soit assuré dans les zones marginales défavorisées en travaillant avec les associations, les groupes d'auto-assistance et les organisations de la société civile, et en favorisant le recours aux paraprofessionnels ainsi qu'aux systèmes de prestation de services gérés par les communautés locales.

Mots-clés

Animal de rente – Pauvreté – Population à faibles ressources – Privatisation – Santé animale.

Lógica económica de los respectivos papeles del sector público y el privado en la prestación de servicios de sanidad animal

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Resumen

En el lábil contexto del mercado de productos pecuarios, la prestación de servicios zoosanitarios se está revelando un área prioritaria con vistas a mejorar la competitividad de los ganaderos pobres. Al mismo tiempo, los gobiernos siguen haciendo frente a graves problemas presupuestarios y teniendo dificultades para ampliar la cobertura de dichos servicios o mejorar su calidad. Teniendo presente esta situación, el autor se refiere al contexto económico que hasta ahora ha determinado la reflexión sobre los respectivos papeles del sector público y el privado a la hora de prestar servicios zoosanitarios, y examina el actual debate acerca de la prestación de esos servicios en beneficio de los ganaderos pobres. Tras recalcar la importancia de que existan

instituciones fuertes y legislación adecuada para regular la conducta profesional y hacer cumplir los contratos, insiste en la idea, avalada por la teoría económica, de que es necesario que el sector público y el privado se repartan la realización de determinadas tareas. El autor postula además que es necesario: *a*) encuadrar el debate sobre la prestación de servicios a los ganaderos en el contexto más amplio de la reflexión sobre economía política y desarrollo institucional; *b*) garantizar el acceso a los servicios en zonas pobres y marginales, interviniendo a través de asociaciones profesionales, agrupaciones de ayuda mutua y entidades de la sociedad civil, y fomentando el uso de paraprofesionales y la implantación de sistemas de prestación de servicios zoosanitarios de ámbito comunitario.

Palabras clave
Ganado – Pobres – Pobreza – Privatización – Sanidad animal.

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