The new institutional economics of privatising veterinary services in Africa


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Summary
The authors review a number of critical issues in the structural reform of animal health services for both small and non-commercial livestock producers in Africa and highlight several problems that others concerned with the privatisation of this service area have tended to neglect. Most notably, attention is called to the following:

a) the need to retain a central role for paraprofessionals in the new delivery system
b) the important and problematic relationship between the veterinary and paraveterinary professions
c) the importance of developing state contracting procedures for assisting the private delivery of animal health services that will avoid the problems of local monopoly
d) the central role that professionalism will have to play in this area, if collective goods and the public interest are to be served.

Keywords

Introduction
Since 1980, a profound change has overtaken veterinary medicine in Africa. The state was already the primary provider of veterinary services for African animals in the colonial period. With the rapid expansion of the role of the state in the first two decades of independence, private veterinarians (save for a small number dealing with urban companion animals) all but disappeared from the countries north of Zimbabwe and south of the Sahara. In this era, considerably more physicians than veterinarians practised outside of government. However, the ‘Great African Depression’ and the fiscal crisis of the state changed this state of affairs. At present, the vast majority of animal health practitioners in this region are engaged, either formally or informally, in private practice. Within a decade, African veterinary care moved from being more state-controlled than its human health care counterpart to being considerably more privatised. The theories that drove this profound change were largely simple neo-liberal ones, derived from neo-classical economics. International experts did make a valiant effort to protect state provision of veterinary regulation and the prevention of the most virulent epidemic diseases (7, 44, 46). In general, however, curative animal health care was thrown into a laissez-faire market. Policy-makers were implicitly (and perhaps unintentionally) over-estimating the quality of information that buyers and sellers of veterinary services had about one another and under-estimating the importance of the large number of institutional structures that make animal health markets function well in the capitalist economies of the northern hemisphere. Not surprisingly then, African veterinary markets have not operated as well as expected and further attention to the institutions that frame the transactions of these markets is needed. Institutions are important. As this reality comes to be accepted, we are driven beyond neo-classical economics into
the insights of organisation theory and sociology that have nurtured the exciting recent advances of New Institutional Economics (NIE).

What, then, can be learned from the NIE that might help to restructure animal health services in Africa? This question set the agenda for a five year, seven country, research project which was recently completed and in which the four authors have participated. The answers given in this article draw heavily on that research (25).

**Colonial provision and collective goods**

According to Williamson, one of the founders of the NIE, it helps to first explain why colonial African States originally undertook to provide veterinary services (49). Under the purest assumptions of neo-classical economics, the market works so well that individual private entrepreneurs should have undertaken to provide veterinary services themselves, and intervention by either the state or large corporations should have been unnecessary.

Veterinary Services were first introduced in Africa in order to deal with epidemic diseases, initially through stringent movement controls (quarantines) and then later through mass vaccination campaigns. For a long period of time these were the only veterinary services to indigenous African livestock for which economic benefits exceeded total costs, and this is still true in some parts of Africa (42).

From a market point of view, the problem with movement controls and, to a lesser extent, vaccinations is that they are public goods. The economics literature has long made a distinction between public and private goods. Services are private goods when the individual who consumes them captures the full benefit of these services. Public goods exist when the benefits of a service 'spill over' to other members of the community. Economists hold that goods are 'public' whenever the 'exclusion' and the 'rival' principles are not operative: exclusion applies when access can be denied relatively easily to those who have not paid for a service; the rival principle operates when two consumers cannot both enjoy a specific benefit at the same time. A pure private good exists when both the exclusion and rival principles are true. A perfect example is a clinical farm visit by a veterinarian. The livestock owner captures the full benefit of the service while the veterinarian is present on the farm and no one else can benefit from the veterinarian during that time. Pure public goods are those to which neither principle applies. A classic example of such a public good is a radio broadcast on improved methods of keeping livestock. An additional listener subtracts nothing from the benefit of those already listening and preventing people from hearing the broadcast who have not paid is very difficult (37).

When exclusion is not possible, a 'collective' good exists (as opposed to a 'pure' public good). Without exclusion, economists consider that market failure is probable, because a 'free rider' problem exists. This simply means that those who have paid for the service cannot prevent those who have not paid from benefiting from the service as well (33). In such a situation, persuading someone to take the initiative and pay for the service is often difficult, as everyone wants to wait and be a 'free rider'. The state then frequently and appropriately intervenes to provide the service, and may use powers of taxation to force all beneficiaries to pay for this service.

Thus, collective goods tend to be provided by the state. But public, collective or private goods can all be provided by either the state or the private sector – there is no necessary relationship. Many services with private goods attributes are provided by the state, as curative veterinary services have been in many African countries. Stating that something is a private good signifies only that delivery by the private sector would result in an economically optimal provision. Similarly, collective and public goods can be provided by private actors; the terms signify only that economically optimal provision of these goods is not straight forward under market conditions (6).

Movement control is very much a public good; the animals that benefit are any and all that are outside the quarantine and thereby spared exposure to an epidemic, irrespective of whether or not the owners have paid for the service. The fact that movement control brings no benefit to the owner whose herd is quarantined and instead denies access to markets with better prices means that enforcement generally requires coercion. This combination of public good and coercion means that any collectivity other than the state would have difficulty executing movement control. The state holds a monopoly on the legitimate exercise of force in society (47) and the transaction costs in gaining access to this coercive force would be lower if the executing agent were the state itself.

Vaccinations to prevent epidemics also possess a collective goods aspect (44). Under the epidemiological principle of 'herd immunity', if a certain percentage of a population is immunised against a disease, an epidemic will be unable to spread in it and even the unimmunised members, providing they are few, will be relatively safe. Since immunisation presents potential negative side effects in addition to the costs of administering the vaccine, there is a 'free rider' problem; the individual herder does not need to immunise much of his stock as long as others are immunising their animals. However, if a sufficient number of herders reason in this way a serious epidemic can occur fairly easily. Some method of assuring collective action is always needed – or so it would seem.

The categorical reasoning dictated by the classical public/private goods distinction proves too blunt an instrument for the fine art of making veterinary policy, although it is useful for grasping the issues involved. An
alternative method of analysing public goods is to speak of ‘externalities’ (44). An externalities approach contrasts the costs and benefits incurred by the immediate parties to a transaction with those who are affected by the transaction only indirectly and therefore are ‘external’ to it. The ‘internal’ and ‘external’ benefits each can be either positive or negative. Research by Koma with herders from Uganda (18) strongly suggests several advantages to this method of conceptualising these issues, as compared to the classical public/private goods formulation. Firstly, this method lends itself more readily to degrees of difference; the public versus private goods language is categorical and handles mixed types awkwardly. Secondly, the externality method leads to a better evaluation of the adequacy of private demand as both internal and external benefits for a service are quantified (rather than categorised). Where the unit of consumption is ‘bulky’ so that the private purchaser decides not how much, but whether to buy, it is perfectly possible for private consumption decisions to also be socially optimal. Koma found that herders from Uganda considered immunisations against prevalent diseases to be so valuable at the market price that no public subsidies were needed. On the other hand, the private ‘benefits’ of quarantine are so negative that no amount of public subsidy, short of purchase of the animal at its healthy price, would induce herders to comply voluntarily. Koma found that collective purchase by a co-operative would not have changed the shape of demand for either immunisations or quarantines, contrary to the implication one would derive at first from the public/private goods method of analysis (18).

In addition to the externalities aspect of disease prevention, in the colonial period, African herders discounted the future heavily (i.e. paid more attention to present benefit than to future risk) and lacked the knowledge that would enable an appreciation of the scientific basis of the measures that were being proposed. This violation of the rationality assumptions of economic action together with the fact that the veterinary profession discounted the future to a smaller degree, thus also argued for the state as the agent of service delivery at that time. This historical argument has less force today: where the threat of killer diseases, such as rinderpest, is acute, livestock producers as different as those of Uganda and the Central African Republic have been eager to buy immunisations (18, 43). On the other hand, Ly found that in locations such as Senegal where no outbreak has occurred for some time, veterinarians still give much higher priority to the immunisations than herders do (27).

Finally, given the modest demand for veterinary services when they were first introduced and the tremendous distances that were involved, any private animal health practitioners would have had a local, geographically based, monopoly in any given area. This would have distorted incentives to provide services at a marginal cost price, creating yet another argument for replacing the market with a hierarchy, in this case the state. Veterinary medicine in Africa continues to have high transaction costs associated with distance, despite the great improvements in transportation that have taken place. Woods finds a clear distance gradient in the use of animal health services in Zimbabwe that affected both the demand for and supply of various veterinary services (51). Animals, especially large ones, do not have access to the buses and taxis that carry human patients over considerable distances to reach appropriate medical care. Thus, local monopoly remains a distinguishing characteristic of most African veterinary medicine. On the other hand, it does not affect every aspect of veterinary services in the same way. Ly points out that regional price differentials for veterinary pharmaceutical products, which are easy to transport, are competed away in Senegal (28).

### Transaction costs and the current decline

Many animal health departments now seek to provide more than just preventive services, and herder knowledge of veterinary medicine has improved dramatically since the colonial era. However, as noted earlier, many of the other factors that initially favoured the state as a veterinary provider remain. Furthermore, governments were judged to be fairly effective at this function in the first years after independence (23). Why then should animal health departments have become a major focus for privatisation initiatives?

The answer is that there has been a significant increase in the transaction costs involved in state activity in Africa since independence, with corresponding diminishment and distortions to incentives. As States have become overextended – assuming increased responsibilities despite stagnant economies – budgetary provisions and access to foreign exchange have become less adequate and more unpredictable. Veterinarians often are lacking supplies that are critical to their work and even when these supplies are obtainable, veterinarians have to devote considerably more time and energy to their acquisition. As financial crisis became widespread in Africa in the early 1980s, budgets failed to keep pace with costs and most States found it easier to make cuts in operating expenses than in numbers of staff. It is generally accepted that a veterinary service in Africa will be ineffective if staff salaries represent more than 60% of the total budget, leaving less than 40% for veterinary supplies and transport (17). In some African States, the personnel item in the budget reached 90% and beyond, and in most it exceeded the target maximum during the 1980s (2). In similar vein, the hiring and promotion of staff along patronage or ethnic lines diminishes the performance incentives for staff at every level and makes the supervision of subordinates more difficult for senior officials who are committed to their work. Finally, corruption and the decline in real income of civil servants, separately and in combination, diminish the relative force of official incentives and increase the power of those that subvert formal duties. The transaction costs of government activity have increased, the incentives supporting formal organisational purposes have diminished, and African governments simply cannot do as much as effectively as they did a quarter of a century ago. In the worst cases, state
provided veterinary services effectively ceased to exist and in most they were far below the level needed and expected by producers. The widespread reappearance of the deadly rinderpest in Africa in the 1980s was merely the most visible sign of the crisis (35). This is not to say that all African States experienced these kinds of changes in transaction costs relative to animal health care. For example, the veterinary departments of Zimbabwe and Botswana appear to function relatively well, although the former has adopted policies which threaten to eventually overextend its finances. The picture presented in this article, however, is a modal one.

Making privatisation effective

A strong consensus has emerged that certain animal health functions could be privatised relatively easily, especially clinical diagnosis and treatment and the production and distribution of drugs (15, 34, 35, 41, 44, 46). Indeed, there are times when the majority of producers would be right to seek the privatisation of a service that the state is willing to continue to provide on a subsidised basis. Government provision of goods and services at subsidised rates is effective policy in only two cases, as follows:

a) the government provides a sufficient volume to satisfy the demands of all animal owners

b) the government effectively directs the subsidised programmes to those who genuinely cannot afford the service otherwise, and the needs of more wealthy owners are met by private suppliers.

In fact, in most of Africa neither of these cases occurs at present and the existence of subsidised programmes actually reduces the potential for both wealthy and poor livestock owners to be served to the extent they desire and can afford. There are three reasons for this, as follows:

a) for political and social reasons, subsidised services tend to go to wealthy rather than poor farmers

b) government regulations prohibit private entry or make private provision sufficiently unprofitable that it is not offered

c) by reducing the volume of remaining demand, a subsidised government service may cause private service to be much more expensive, due to losses of economies of scale (15, 19, 22, 26).

Nonetheless, because both small and non-commercial herders underestimate distant but catastrophic risks and because of the tendency of livestock producers to underprovide for goods with externalities, a completely privatised, fee-for-service system would lead to the neglect of certain other functions of veterinary medicine which have great social importance. If groups of herders were to purchase veterinary services collectively, the externality problem between herders would surely be solved. However, the work conducted in Uganda by Koma (discussed earlier) casts doubt on this proposition (18). Even if local collective action would work for some services, certain society-wide and professional issues in animal health, such as food inspection and disease quarantines, would receive inadequate attention. Thus, although many animal health functions could be turned over to a free market, it seems inevitable and desirable that the state will retain an interest in other aspects. There may even be functions which in principle could be privatised but in which the state will remain involved in order to assure that needy groups are able to retain access to them. However, the retention of an interest in a matter by the state and the direct provision of the service by the government are not necessarily the same; the state could contract the delivery of selected services to private parties. Furthermore, due to economies of transport, government contracting for services in which the state has an interest could positively affect the distribution and price of other services purchased privately from the same contractors (46).

Efficiencies

Establishing that particular inputs and services should be candidates for full privatisation and others for public sector contracting under certain conditions is only the first step in specifying the appropriate shape of services. Issues of structure, quality and price remain. To simplify the matter, these issues will be discussed with particular reference to preventive and curative inputs and services for both small and non-commercial livestock producers.

The extent to which privatised preventive and curative services are actually used by producers will depend on the price and availability of these services (both in time and in space). Woods found a definite decrease in the demand for curative services in Zimbabwe as the distance, and hence the cost in terms of time and effort to reach the veterinary supply, increased. In addition, Woods showed that the supply of curative services to the more distant farmers increased greatly when the veterinary service providers had access to motorbikes (51). Thus, the development of economies in service provision is absolutely central, an issue to which donors have given little attention in the privatisation debate. Making services available on market days, at gazetted dipping times, and along pre-set routes which animal health providers travel at regular, established intervals are all ways of reducing the time and money involved in travel, and thereby the unit cost of service.

The professional level of animal health providers is another important component of the cost issue. The more highly trained the provider, the larger the income he (or she) will demand and the greater the cost of transport (for increased professionalisation tends to imply reduced numbers, urban residence, and greater comfort in travel). From an economic point of view, one would argue that the appropriate level of training for providers would be determined by making the following calculation for the alternative levels, and choosing the result with the highest total: (the average value of the
animals served) × (the reduction in the probability of death resulting from service at a particular level of training) – (the average unit cost of providing that service). The animals served would include those that benefit indirectly through the provision to other animals of services with significant externalities (i.e. collective goods).

The foregoing calculation is almost certain to demonstrate that on-call service by full veterinary doctors (in the European/American mode) is not economic in Africa except for commercial herds of high value animals (20, 42, 44). New veterinary graduates are finding their way into viable private practice in central Kenya, where smallholders with genetically improved animals are a part of a strong dairy industry (34, 45). The more general pattern, however, is reflected in the work of Koma and Ly in Uganda and Senegal, which demonstrates that such veterinarians are under great competitive pressure at present (18, 27). A more economical structure of practice will be necessary if these veterinarians are to prosper. At the start of this research project, Leonard argued that a private sector role for veterinarians was likely to be found only if substantial economies were achieved both by operating on a ‘route system’ and by supervising paraprofessionals to do the majority of the actual work (24).

Employing a ‘route system’, the veterinarians travel set routes at regular established intervals. The veterinarians either treat animals gathered at roadside crushes or at dips, go to the farms of those who have left messages in roadside boxes, or meet auxiliaries to discuss and/or treat difficult cases and to provide them with pharmaceuticals (i.e. drugs, sera, vaccines, etc., which in this text, will be referred to simply as drugs). However, in research undertaken by the authors and others, such patterns of service have not been observed. If full veterinarians employ assistants they tend to be untrained ones and they do not use route systems as described above (18, 28, 34).

In most of rural Africa, where exotic dairy animals are rare, smallholder practices by full veterinarians would have to be a supplement to other sources of income, usually the sale of pharmaceuticals (41). This was effectively recognised by the regulations that controlled the work of government veterinarians in the colonial period in many countries (and in a very few, such as Zimbabwe and Botswana, still do). These veterinarians have their basic living costs covered by a government salary in compensation for the provision of a range of public services. The veterinarian is then permitted to engage in private, fee-for-service practice to the extent that it does not interfere with his or her public duties. The price that the producer has to offer such veterinarians to induce them to provide a service then has to be sufficient only to cover the marginal value of the leisure time of the veterinarian and does not have to cover the average cost of their standard of living. This system provides an incentive to veterinarians to work longer hours and to remain in the rural areas, while still keeping the prices charged within the reach of less-commercialised producers. Sandford reports that this system is so successful in India that veterinarians actually refuse promotions to headquarters in order to retain supplemental private rural practices (38). An alternative mechanism for achieving much the same effect is for the state to contract private veterinarians to provide certain public functions within an area, again leaving the veterinarian free to provide private care in addition. This system is used effectively in Sweden and Morocco (13, 41).

Both of the preceding systems effectively provide a state subsidy for the existence of a private curative practice in a community. On paper this would appear to be no different than the provision of these services by a government itself, for a set fee. The operational superiority of the former alternatives over the latter, government alternative derives from the quite different sets of incentives at work. Under the quasi-private systems, the veterinarian has a direct, personal incentive to increase the volume of his (or her) work and consequently works both longer hours and requires less supervision. Since the pharmaceutical supplies being handled are also then private, the state is spared the substantial problems of management of these supplies, including the prevention of corruption (see below). Thus, because the transaction costs are lower, the quasi-private systems are likely to be much more efficient than the public alternatives, and to be able to offer a much larger volume of service for the same combined level of private fees and public subsidies.

The major fear that directors of veterinary services express about these mixed government/market systems of care is that the personal commercial incentives to provide private goods are going to be so great that the various collective goods the state is paying for will receive scant attention. Such a trade-off is not inevitable. If the increase in commercial incentives simply leads the veterinarian to work longer hours to meet the demand for private goods and there is no change in the time devoted to collective goods, the same amount of collective goods will still be provided. Indeed, because the transaction costs from travel are so large in veterinary medicine in Africa, there is likely to be considerable synergy between the two types of service, with veterinarians using the travel required for private functions to provide public services, such as management advice, to producers who otherwise would not be reached, and similarly to provide curative services to clients encountered on immunisation campaigns. George Njiru reports that as much as half of the requests for curative care received by veterinarians in central Kenya come after the veterinarian is already in the locality on other business (personal communication).

The authors would expect that the degree to which provision of public goods was protected in these mixed systems would be a function of both of the following:

a) the extent of professionalisation
b) the volume of private demand.
The deeper the commitment of the veterinarian to the core values of veterinary medicine and state service, the more they will resist incursions on the time spent on public goods functions and the greater the degree to which their response to private incentives will be only an increase in the total amount of time worked. The extent of the steps taken by the veterinary professional association to encourage and regulate adherence to these values thus becomes an important variable, as will be argued later.

On the demand side, as the clamour for private services increases, veterinarians will reach a point at which they no longer have any leisure that they are willing to surrender, for the marginal value of their time will have grown, and they will begin to increase the prices they charge for their care. This dynamic will cause the prices of these mixed-duty veterinarians to come closer and closer to those of a purely private veterinarian would charge. This gradually lays the groundwork for an independent private practice to come into existence. But if for some artificial reason (such as state regulations) private veterinarians fail to appear, or if the commitment of the mixed veterinarian to the public function is weak, the incentives to allow private practice to eat into the government-sponsored, collective goods portion of their work day will become irresistible. However, the problem of public commitment is nearly identical for veterinarians who work for government alone and for veterinarians who work solely for the private sector: various pressures and inducements to provide private services may similarly tempt government veterinarians to give inadequate attention to collective goods (34). These problems are well illustrated by the dynamics of government-provided care for smallholders in Zimbabwe. Veterinary paraprofessionals who are provided with motorbikes increase attention to curative care and reduce the amount of time devoted to preventive duties at the dips (51). The authors do not know if the amount of preventive care provided is thereby deficient. However, the fact that the government stipulates the same fixed fee for the slow response of a paraprofessional on bus or bike and the more rapid response of a motorised one, clearly stimulates increased demand for the latter. If the price charged could be increased in response to the increased demand for the more valuable service, the pressure to move away from prevention would be reduced or the increased revenues for a full private system would be created. It is interesting that the same trade-offs exist in both public and private service delivery systems.

**Pharmaceutical supply**

The economic survival of veterinarians would also be enhanced if they were vendors of drugs (themselves and through auxiliaries) and used the greater capital and transport available to them to supply drugs that need to be controlled or require a cold chain. Lyon did observe such a pattern in Senegal, as did Leonard in Kenya and Charancle in Mali (27, 41). The profitability of these sales are based on the legal right of veterinarians to sell pharmaceutical products, a right not granted in these countries to non-professionals. How should the distribution of drugs be approached?

The first issue is the one posed by current practice – should the state control supply of pharmaceuticals? The very high transaction costs associated with the operations of the contemporary African State make it highly likely that other bodies will handle this function more efficiently (41). Goods such as drugs that have a high value-to-size ratio, require refrigeration and have expiry dates are difficult to manage and are particularly susceptible to corrupt exchanges. When service providers own and sell these drugs themselves, they have a stronger incentive to manage them well and the possibilities for corruption are reduced. As most of the cost of drugs is in development, marginal costs of production are low, leading manufacturers to be particularly willing to pay kick-backs to purchasing agents who make wholesale orders for the state. Thus, privatisation can reduce the transaction costs by trying to reduce corruption and/or, through competition, and assure that wholesaler discounts are passed on to consumers, not retained by purchasing agents. Even where the state has the capacity to control corruption, the necessary bureaucratic structures may prevent the optimal distribution of drugs. Woods has found in Zimbabwe that the regulated quantities in which government-supplied drugs have to be sold leads to a reduction in demand by farmers, and that the paperwork requirements for receipts and stock control discourage paraprofessionals from making sales, since they derive no compensating financial benefit.

If veterinary pharmaceuticals are to be handled on the private market, however, does there need to be any control over distribution? The following two issues are at stake here:

- permission for a product to be distributed in a country at all
- control over when the product may be sold and to whom it may be sold.

The first is highly technical and quite susceptible to improper influence by the drug companies. Most African States lack the necessary combination of institutionalised competence and assured integrity to perform it well. To undertake the task of drug evaluation properly is extremely expensive. Thus, there is every reason for countries that are similar in their economies and ecologies to pool the costs of this task. Delegation of the function to an international body that has the resources to sustain the integrity of the technical skills needed, as well as to evaluate appropriateness to African conditions would be both effective and efficient (a possible candidate would be the International Livestock Research Institute [ILRI] in Nairobi, Kenya). Ideally, the evaluative function would include an assessment of the levels of technical training needed to employ the drug properly, and of the cost effectiveness of the treatments in African production conditions (so that certain drugs were labelled as 'essential' and others as 'esoteric').
As far as retail sales are concerned, retention of some control over consumer access to pharmaceuticals would seem appropriate in the following circumstances:

a) improper dosage could create drug resistance (which is an externality issue)
b) misuse is dangerous
c) a cold chain needs to be maintained
d) there is a risk of confusing clinical signs of mild and serious afflictions, so that the advice of those competent to tell the difference needs to be assured.

The first of these conditions is an externality issue and is a problem but appears to be less serious in Africa than usually believed. Burrows et al. found less disease resistance to antibiotics in Zimbabwe than in the United States of America (USA) or Australia (4). The latter three conditions involve bounded rationality (i.e. decision-making with incomplete information). The large number of other veterinary pharmaceuticals, which fall outside these four conditions, should be uncontrolled and available widely. The benefits to livestock production which accompany the lowered transaction costs of easy accessibility would outweigh the costs of misuse for this category of drugs.

Should pharmaceuticals then be sold by rural shops (as is now the case in Madagascar) or by veterinary practitioners? Shops give wider, quicker distribution but break the link with advice on use of the products, putting them in the hands of those who have little incentive to maintain quality and appropriate use. As veterinary drugs are a small percentage of the inventory of the shops concerned, the consumer is less likely to engage in a patronage boycott if a drug were to fail. Unification of diagnosis, prescription and sale in the hands of the practitioners heightens their incentives, for they are then responsible for a larger portion of the possible causes of failed treatment and therefore more likely to be subject to client sanctions. The implications of these considerations are that for non-controlled drugs the advantages of wide distribution offered by shops probably outweigh those of advice, but that for controlled drugs the linking of advice to sale most likely outweighs the benefits of distribution. Sale of even non-controlled drugs exclusively by trained personnel would be feasible and attractive if, but only if, an extensive network of animal health practitioners existed, so that country-wide sales could be combined with advice (given that some regular mechanism for assuring competence of these personnel were provided).

There are two further advantages to keeping at least controlled drugs in the hands of animal health practitioners. One is that there is then no need to regulate shopkeepers in this domain – a notoriously difficult undertaking for a weak state – while the practitioners are already regulated. The other is that a monopoly on controlled pharmaceuticals helps practitioners in their quest for financial survival (28, 41). If, as has been argued, veterinary advice is useful and in the public interest, even if the bounded rationality of herders devalues it, then measures such as these which keep their services available are appropriate. Even in the industrialised countries, where competing pharmacies exist, veterinarians make a substantial portion of their income from drug sales. All these arguments depend, however, on the maintenance of professional standards in sales by veterinary professionals. This cannot be taken for granted. It is reasonable to assume that veterinarians are more responsible in their management of drugs than generalist shopkeepers are, for their retail income depends more on their reputations in this specific area. But we have observed veterinarians employing untrained and unsupervised sales clerks in pharmacies in Kenya and Senegal. This observation reinforces the importance of professional regulation, which will be considered later.

**Paraprofessionals**

Earlier in this text, it was implicitly assumed that only veterinarians are engaged in the private market, and this is true of southern African countries such as Zimbabwe. But paraprofessionals often unofficially engage in subsidised private practice, as employees of the state, elsewhere in Africa (11, 22) and are legally in full private practice in places such as Senegal. The question of how the issues posed by paraprofessional involvement can be evaluated should be asked.

By far the largest number of practitioners in Africa are not veterinarians but paraprofessionals with non-degree training ranging from a few months to three years. In a majority of countries, veterinarians in state employ have served more as supervisors of these paraprofessional cadres than as direct practitioners (11). In one way or another, privatisation radically alters this structure of service. Several questions need to be asked, as follows:

- Are only the professional veterinarians to be allowed private practice?
- Are paraprofessionals going to be privatised as auxiliaries operating under the control of full veterinarians?
- Are the professionals and paraprofessionals to compete against one another in the open market?

The industrialised West has suppressed paraprofessionals and given full veterinarians a monopoly on animal health care. However, this 'solution' raises the cost of care to the level necessary to compensate a university graduate and tends to make it financially accessible only to fully commercialised producers, leaving the majority of herders outside the net of protection. This is a 'solution' of professional purity at the expense of social and economic benefit and hardly seems acceptable.

If paraprofessionals were to concentrate on preventive and promotive functions and were allowed to perform curative functions only in the presence of a professional, this would capture many of the economies offered by the lesser cost of...
the paraprofessional, while minimising the areas in which lesser skill and weaker professional commitment might lead to harm (paraprofessionals could be prevented from illegally practising curative medicine without supervision of the full veterinarian, if, but probably only if, the veterinarians retained physical charge of the supply of controlled drugs). Even greater economies would be captured if all paraprofessional work could be supervised at a distance, but this would raise more acutely the supervisory problem that the public sector has failed to solve—personnel who are responsible to both their clients and their hierarchical superiors while out of sight of the latter and therefore tempted to quackery and actions that endanger the public interest. However, there is evidence that small, simple, informal hierarchies are more effective at some tasks than their larger, formal counterparts (30). Thus, this alternative is worthy of experimentation in those countries such as Zimbabwe that have been successful in restricting private practice (formal and informal) to full veterinarians. In most of Africa, however, paraveterinarians are already operating privately outside the supervision of veterinarians (e.g. the Central African Republic, Kenya, Senegal and Uganda).

Alternatively, paraprofessionals could be kept in the public sector and effectively turned into 'extension agents' rather than direct service providers. These agents could train livestock producers to make simple diagnoses and treatments themselves. Where the most important diseases do not involve drugs that have to be controlled or refrigerated, this extension type of system provides an attractive benefit/cost ratio in most pastoralist production systems (such a system is already in place in the Central African Republic and is being encouraged in the 'communal' areas of Zimbabwe (43)). Full veterinarians then play a supervisory and training role and only provide care themselves when exceptionally challenging animal health problems are confronted. Pastoralists are particularly appropriate for herder-provided care because the travel costs in reaching the animals are so great and these herdiers handle a large enough number of animals to make short courses on animal health worth their time. Self-treatment probably will be appropriate for sedentary, mixed-farm producers only for common, simple maladies, such as intestinal parasitism. Particularly if these farmers are densely settled, the costs of reaching them are lower, and the smaller number of animals kept makes it less likely that the relevant skills will be remembered when the need to treat an infrequent problem arises.

All of the preceding alternatives leave the full veterinarians in monopoly control over most aspects of animal health care, a position that these professionals might exploit by restricting their numbers and forcing up the prices for their services. The free market solution to the paraprofessional issue calls for unrestricted competition of the various cadres against one another. Research by Leonard in Kenya and by Koma and Ly in Uganda and Senegal indicates that at the moment, herdiers have difficulty distinguishing the relative qualifications of the various cadres of practitioners who are serving them (18, 34). Most livestock owners are therefore unwilling to pay a premium for the diagnostic services of a full professional, although they are willing to pay extra for procedures that only the latter can provide. Full veterinarians, therefore, are under considerable competitive pressure at the present time, although they do appear to be surviving in Kenya, Senegal and Uganda (6, 27, 45). A response within the logic of the market would be for the veterinary professional association of the country to educate the public as to the value of the full veterinarian, whom it would certify and differentiate. This response is insufficient, however, for it fails to acknowledge certain extra benefits the professional veterinarian is supposed to provide to society which are unlikely to be adequately compensated by a free market. When professionals are granted a monopoly they can charge for the attention to goods with externalities which they are socialised to provide. In a fully free market, however, the ability of the veterinarian to charge for these externalities would be competed away.

Full veterinarians not only possess additional skills but also are intended to be a link to the future and to the collective good through membership of a professional association. The role of professional associations will be discussed further in the next section, but two attributes of the functions of these associations must be remarked here. Firstly, the formal and informal socialisation and regulation provided by the association offer a greater assurance of attention to externalities in animal health practice, aspects which will not be fully compensated by the market precisely because they do address collective rather than private goods. Indeed, if only veterinarians and those they supervise imposed quarantines on animals, herdiers might even avoid their services. Woods finds that this creates barriers to communication in Zimbabwe. Secondly, the professional association provides a way for veterinarians to be integrated into the on-going and international developments of the field of veterinary medicine, giving some assurance against the danger that their knowledge will become completely outdated within a decade. Without a connection to these two aspects of the profession, paraprofessionals will rapidly become isolated from the collective good and changing aspects of their field. No matter how appropriate the training and intentions are at the point that the paraprofessional sets up in practice, it seems inevitable that in time they would become a quack.

The foregoing considerations suggest that four steps should be taken if the market is to be allowed to freely determine the demand for various types of animal health personnel, as follows:

a) It is necessary to decide which levels of animal health personnel have sufficient training to be able, in principle, to operate outside the supervision of full veterinarians, to provide for the externalities that attend the services they sell, and to be capable of the periodic updating that will be necessary for the fulfilment of these particular functions
adequately far into the future. Cadres who lack these qualifications should be prohibited from working independently and could be employed for animal health work only by the government or private veterinarians. It is already clear that countries will not make the same decisions on this matter, in most cases because of the differences in the character of livestock systems in different countries. It also is clear that the informal reality in some countries lies outside these parameters.

b) Those cadres who function privately and independent of full veterinarians should have a separate professional association (comparable to that of nurses). This association needs to be responsible for regulating its membership, assuring attention to externalities, providing the required regular training that is necessary to keep up with latest international practice, and representing the interests of the members in dealings with veterinarians and the state. As far as the authors are aware, only Senegal has such an association of paraprofessionals and to date it is performing only the last of these functions (27).

c) The tasks that these cadres are permitted to perform and the drugs they are able to sell have to be clearly specified and differentiated from those that presumably are reserved to full veterinarians. For restricted functions and controlled drugs the paraprofessional would have to arrange a link with a full veterinarian. This step seems much less problematic than steps a) and b), above, and in practice may be the vehicle for achieving these first two steps. In Kenya and Senegal (but not in Uganda) paraveterinarians seem to rely largely on veterinarians for their drug supplies, partly because of legal restrictions (which are easier to enforce for wholesale than retail transactions) and partly because of lack of capital. Even in Uganda there are clear functions (such as surgery) that paraveterinarians do not attempt. These links between professionals and paraprofessionals could be encouraged and used as a means for guiding and regulating the activities of the latter. This point will be further discussed below.

d) Private paraprofessionals need to be subject to the supervision of the local veterinarian who has been appointed by the state (either by hire or contract) to assure attention to the essential animal health collective goods. Such a contract would offset the failure of the market to fully compensate those who provide goods with large externalities. Presumably, this regulation would be more stringent than the norm, as the paraprofessionals would be in competition with the veterinarians.

Such a set of institutions should assure the minimum necessary professionalism while providing veterinarians with competition for most of the animal health functions that herders regularly use. It would stimulate private veterinarians to hire paraprofessionals and auxiliaries into their practices and to economise in their service delivery systems – the second alternative discussed above. It would also permit the market to determine just what mix of skills is economic at this stage of development.

Monopoly

The structure of an animal health care delivery system – the level of training of the provider and the extent to which economical structures are achieved – is a critical determinant of the price that these services will cost the producer, but it is not the only one. Another determinant is competition, which offers the most effective mechanism for assuring the lowest economic price for a good or service. Unfortunately, however, competition is often imperfect in the animal health sector. The low density of producers and hence of effective demand (especially in the pastoralist areas), combined with the importance of distance in determining timely access, often creates effective local monopolies for animal health service providers. In other words, although many comparable providers may be in existence, only one is in reasonable reach of a particular livestock owner. Of the 768 farmers Woods interviewed in Zimbabwe, only two went to an alternative government paraprofessional, even though the distances were not large (51). In these circumstances, the market cannot work properly and monopoly profits may be extracted from the livestock producer.

The dangers of local monopoly are likely to be exacerbated if, as was argued above, private veterinarians are contracted to provide selected collective-good services in each locality, as is the case in Sweden and as is planned for Uganda. The capture of this part of the market would provide a veterinarian with a sound financial base which would make it very difficult for other veterinarians to find a profitable niche in competition with them in the less commercialised markets.

As difficult as these problems are, they do seem resolvable if the lessons of the NIE are applied. Many neo-classical economists believe that if several firms competed for the right to a monopoly, they would bid away their monopoly advantages and yield an economically optimal outcome. Williamson (50) has shown that this reasoning is defective in several respects – some mechanism has to be found to arbitrate the differences over the contract that will inevitably arise because of unforeseen circumstances and to enforce the terms of both the original contract and any amendments. Except in special circumstances, such arrangements are tantamount to regulation, which is exactly what competitive bidding is supposed to avert. Nonetheless, these special circumstances can be created for veterinary practices.

Williamson suggests that competitive bidding will avert the local monopoly problem if the following conditions apply:

a) the contract is subject to rebidding at relatively short intervals

b) neither party has significant sunk assets invested in the agreement at the time of rebidding.
To these points a third might be added, which Williamson takes for granted, as follows:

c) the party making the contract with the bidder to provide the services is genuinely acting on behalf of the clients who are going to be served.

With regard to the first point, Williamson (50) suggests that 'A leading advantage of recurrent short-term contracting over long-term contracting is that short-term contracts facilitate adaptive, sequential decision-making. The requirements that contingencies be comprehensively described and appropriate adaptations to each worked out in advance are thereby avoided... Additionally, under the assumption that competition at the contract renewal interval is efficacious, the hazards of contractual incompleteness that beset incomplete long-term contracts are avoided. Failure to define contractual terms appropriately gives rise, at most, to malperformance during the duration of the current short-term contract. Indeed, recognising that a bidding competition will be held in the near future, winning bidders may be more inclined to co-operate with the franchising authority, if specific contractual deficiencies are noted, rather than use such occasions to realise temporary bargaining advantages. Opportunism is thereby curbed as well'.

This short-term contract condition seems feasible in veterinary medicine. Every two to five years, for example, there could be open competitive bidding among veterinarians for the various geographically defined practices. The bids could specify the range of services the practice would contract to offer, the prices at which the services would be offered, and the level of government subsidy required. The request for tenders could indicate a minimum range of services to be offered, maximum prices to be charged for particular services, and the maximum subsidies that government would be willing to provide, with a trade-off function specified between prices and subsidies. One advantage to such an arrangement is that for the poorer areas, marginal cost consideration would incline the bidding towards the minimum prices and maximal subsidies, while for the wealthier regions, prices would be bid closer to the upper limit and the subsidy element could be eventually competed away. A proposal much like this was actually made by the Kenya Ministry of Livestock Development to an official Working Party on Government Expenditure in 1982 (21).

Nonetheless, Williamson cautions that 'The efficacy of recurrent short-term contracting depends crucially... on the assumption that parity among bidders at the contract renewal interval is realised' (50). This in turn requires that there be, what Williamson refers to as, no specificity in the assets that are up for bidding. This means that there should be no sunk investments in human or physical capital that have been developed specifically for this transaction and that could not be used to trade with another partner if the first transaction relationship were discontinued. Williamson argues that asset specificity is fairly common and is the explanation for both the frequent replacement of free-trading market relationships by hierarchical firms and the difficulty in operating without regulatory institutions.

Still, Williamson concedes that 'This is not... to suggest that franchise bidding for goods or services supplied under decreasing cost conditions is never feasible or to imply that extant regulation or public ownership can never be supplanted by franchise bidding with net gains... [Where] physical assets can be redeployed [easily],... deregulation would appear to have merit. Franchise bidding might also be warranted for... [situations in which] the winning bidder... can be displaced without posing serious asset valuation problems, since the base plant... can be owned by the government, and other assets... will have an active second-hand market' (50).

In general, precisely these conditions apply to veterinary practices. The medical instruments, pharmaceutical supplies, laboratory equipment, refrigerators and vehicles all would have a ready second-hand market. The surgery and staff houses for the practice might well be difficult to relet for other purposes in rural markets, but they could easily be owned by the government and made available to whichever group won the contract. The problem lies with the human capital that the owner has invested in learning how to operate the practice, building up a reputation with clients, and finding and training assistants in whom he or she has confidence. Most of these could be carried to a bid on the contract for another practice or, alternatively, access to them sold to a successor. Veterinarians who were unable to win another contract could seek employment as an assistant to another veterinarian in order to recoup the investment they had made in their own training.

In fact, the biggest barrier to competitive entry in most of Africa is simply access to capital on the part of veterinarians who would like to bid for contracts. In the initial stages this might be overcome by generous, guaranteed loan schemes – such as the veterinary association itself is providing in Mali and a donor is financing in at least Burkina Faso, Kenya, Senegal and Zimbabwe. In the long term, veterinarians would probably accumulate start-up capital by working as assistants in other practices for a number of years or start with low investment practices and accumulate capital from earnings, as seen in Kenya (34). None of these problems seems insurmountable.

The most troublesome issue seems to be the one not explicitly stated by Williamson, that is, the extent to which the party negotiating the contract for the prospective practice with the various competing veterinarians is in fact acting in the interests of the clients (Moe [31] begins to deal with this type of issue). Given the conditions that prevail in many parts of Africa, agents of the state may be bribed or influenced to give...
or renew a contract for a practice to someone who will exploit its monopoly position. In other words, the agents may bid away the interests of the client in favour of their own interests. This problem is best averted by some sort of client involvement in the selection process. A decision by a local authority or co-operative with a de facto local monopoly over animal health services would not be satisfactory, for the process then simply would be political at another level, with all the problems associated with the state itself.

Three mechanisms for client involvement in the award of the contract seem possible. The first two would emphasise what Hirschman (14) referred to as the 'exit' option of the consumer but lose some economies of contiguity. The third mechanism relies upon what Hirschman called 'voice', and preserves the advantages of geographical compactness. All three alternatives would require that local participation in the bidding took place only after the state, the veterinary association, or a similar body, had certified a list of candidates who met minimum standards of technical proficiency and would serve the collective interests of society in animal health. Of course, this judgement is a regulatory one. It seems less likely to be fatally tainted by corruption since it only permits competition and does not assure success. Nonetheless, for reasons that will be explored in the next section, it is proposed that a professional veterinary body is more likely to fulfil this function effectively than a government ministry.

In the first alternative, livestock producers would choose between competing veterinary practices which had contracted with the state to provide services to self-selecting clients at a pre-negotiated range of prices and per herder subsidies. This option preserves the freedom of choice of the producer at all times and permits a continuous transmission of the larger part of the relevant market signals. The authors favour a subsidy per herder rather than per animal, although this may seem counter-intuitive. Firstly, this method averts the common reluctance of herders to report the number of livestock owned and the even greater difficulty that the state would have in auditing these numbers. Secondly, the mechanism would bias service toward the smaller herders, a useful counter to the other pressures that bias service in the opposite direction.

In the second option, livestock producers would join animal health or dairy co-operatives with which veterinarians would contract to provide services. The state subsidy would be based on the number of members; the fees negotiated by the co-operative might either be for discrete services or an insurance premium for treatment of all problems. The latter method would increase the incentives to veterinarians to stress preventive and promotive health practices (although the incentives would incline lightly in the opposite direction for the producer). The payments could be deducted from the pay-outs the co-operative makes to the livestock producers if it is engaged in marketing on their behalf. Under this alternative, the consumer also would retain the option to 'exit' an unsatisfactory service, although probably at less frequent intervals than the first alternative. Added to the power of 'exit' would be that of the 'voice' of the co-operative leadership, who would be able to negotiate the particular parts of the service package that was to be offered and monitor delivery of the services (this alternative would be unacceptable if the co-operative had an effective monopoly for some service that the producer needed and the contract were negotiated by the co-operative leadership, for then the 'exit' option would be removed and the herder could easily be exploited by the leaders). A number of successful examples of such co-operatives exist, although where membership of the co-operative is voluntary, the entire population is rarely covered, and if membership is compulsory, the co-operative can be seriously inefficient (15, 34, 35, 41).

As both of the first two options preserve the ability of individual producers to use an alternative veterinarian if dissatisfied with the services offered, these options lose the advantages of geographical contiguity. In order for the right of choice to be meaningful there have to be at least two veterinary practices or animal health co-operatives operating in the area. The overlap in service areas means that travel to clients will not be as efficient, and in sparsely populated areas these economic costs could be considerable. Furthermore, in the case of a disease outbreak or contaminated meat incident in an area, ascertaining which particular practice is responsible will be more difficult.

The third alternative captures all the advantages of geographical compactness, but in order to do so has to substitute 'voice' for 'exit'. Under this mechanism, all producers would periodically vote to determine who among the approved bidders would receive the contract.

Each of these potential arrangements have pros and cons which might make them more attractive for some production conditions than others. The third alternative is more likely to be appropriate to pastoral areas and the first feasible only for areas where demand for veterinary services has a dense distribution. The second generally would depend on the strength of the traditions of co-operative action in an area. However, all three are mechanisms whereby the economic disadvantages of local monopoly can probably be countered and the interests of both livestock producers and society in general can be protected.

Principal-agent theory and the veterinary profession

Patients and physicians are frequently cited as a quintessential principal-agent (3, 36). Thus, if human patients are principals and physicians their agents in caring for them, then animal owners are principals too and veterinarians their agents. This,
The agency literature suggests there would be some redistributive effects in moving from one, already established, set of monitoring relationships to another (36). However, all parties are suffering from the agency losses that are being created by the weak and distorted incentives governing animal health practice in Africa today, and the market would distribute benefits to all concerned from the increase in economic efficiency that would result from reform.

In addition, long-term associations increase the value to agents of their relationships with principals. This makes limited monitoring by the principal more effective, for it increases the value of the threat to sever future connections if something is found to be wrong. Thus, the development of extended, personal relationships with animal health personnel, will be helpful to herders as it will enable a more discriminating judgement of the quality of service over a long period and allow the herder to bestow custom accordingly.

Furthermore, a 'large stock of value that could be lost through bad behaviour, such as reputation or assets subject to suit, is a strong incentive for good behaviour' (36). If the penalty is a large fine and is paid by the faulty veterinarian to the aggrieved herder, as in a malpractice suit, the herder has considerable incentive to collect the money and the transaction is economically conservative (in the sense that little value is lost in the transfer). However if, as is more common, the penalty is a revocation of the right to practice, the transaction is 'non-conservative', since the veterinarian loses value but the herder gains nothing, and the penalty therefore is an economic dead loss. The fact that, because of its size, the penalty rarely has to be invoked makes it economically more efficient, since it is 'non-conservative' when used (36).

Both types of penalties for agent misperformance have institutional implications. Malpractice suits depend on the existence of courts that are both effective and accessible. The ability of an African smallholder to use a court successfully against a member of the educated elite is uncertain and therefore a weak protection. Revocation, since it is 'non-conservative', carries weak incentives for the aggrieved herder and generally would involve action by state institutions that in Africa are even more likely to be corrupt or ineffective than the courts. As North remarks, 'one cannot take enforcement for granted. It is (and always has been) the critical obstacle to increasing specialisation and division of labor' (32).

This leads to the importance of enforcement by a third party, a party beyond the client and the state who has an interest in the quality of service. Who or what might this be? It was noted earlier that the professionals (and especially the better ones), as agents, lose when a hidden information problem leads to ineffective monitoring by principals (clients). It is precisely this dynamic which frequently leads professional groups,
which tend to be dominated by the better practitioners, to try
to regulate themselves, differentiate themselves from lesser
competitors, and improve the market in which they participate (3, 36).

Nonetheless, say Pratt and Zeckhauser (36), 'It is worth
observing that policing or self-policing can only work
(assuming that the major penalty is banishment) if there is
some prize to be lost. The competitive market system does not
generate prizes, however. The ability to enforce good behavior
on the part of agents thus may require that there be some
element of monopoly profit.'

Hence, self-policing by a professional association is likely to
be most effective when the state has delegated its licensing
authority to it. This is not a matter of 'making criminals
responsible for policing crime', as long as there is a market
element in the setting of prices for professional services and as
long as the professional association is dominated by the better
practitioners. For the association will then have an incentive
for enforcing higher standards and gaining a greater market
differentiation from those offering competing services. In fact,
a greater danger lies in the opposite direction, that the
professional association may use the licensing powers it holds
to force out of the market lesser quality and lower priced
services which consumers legitimately desire. Both types of
problems become severe when a professional association
gains a complete monopoly over a particular type of service
and has no effective competition. If one were concerned with
veterinary professionals only as agents of individual
principals, the herders, one would wish to confine licensing to
the function of labelling (or product differentiating), not to
limiting access to the market.

However, simple agency theory fails to capture one element to
the function of the veterinarian, the claims of some of its
protagonists to the contrary notwithstanding. This other set of
functions is also directly relevant to the role of the professional
association. When introducing agency theory it was noted
that this theory is based on the assumption that the function
of the agent is to do what the principal would want if the
principal knew everything the agent does. In fact this
frequently is not the case for professionals, who are assigned
certain responsibilities by society, in addition to those they
have to the individual client (5, 52). The dual nature of this
responsibility is captured by the classic remark that: 'The
quack is the man who continues through time to please his
customers but not his colleagues' (16, 48).

Partly what is involved here is the responsibility of
veterinarians to take risk more seriously and to discount the
future less heavily than most herders do. Generally, societal
welfare and economic growth are better served by longer term
horizons than those on which most of the poor act. Thus,
veterinarians should urge various disease prevention and
health promotion measures that clients would generally
neglect if they knew the associated probabilities. Veterinarians
also are expected to decline to administer certain cures which
have doubtful scientific status, even when the client requests
the cure 'just in case'. These differences in perception and the
dissimilarity in incentives that follow from them are
important to the way the herder and the veterinarian relate.
However, all of this can properly be said to be a part of an
agency relationship in which the agent possesses superior
knowledge to the principal.

Much more important, and outside of a simple understanding
of the agency relationship, is the obligation of the veterinarian
to pursue selected collective goods on behalf of the larger
community even when the collective goods have a negative
benefit-cost ratio for the herder. Thus, the veterinarian is
obliged to impose a quarantine on cattle diagnosed with foot
and mouth disease and to prevent public consumption of
diseased meat, despite the fact that these acts cause a great loss
to the herder who has requested the presence of the
veterinarian. Similarly, the veterinarian must strive to bring
vaccinations against epidemic diseases to the 'herd immunity'
level for the whole community even when individual herders
feel their livestock are not worth the product of the cost
multiplied by the probability of disease, or want to 'free ride'
on the vaccinations of their neighbours. This issue is
particularly important in certain pastoral areas of Africa where
epidemic diseases have a secular pattern. One could, and
most agency analysts probably would, argue that these
responsibilities demonstrate that the veterinarian as agent is
serving two principals - the individual herder and society.
The authors believe this is true, and thus argue for the
necessity of a body to represent this societal principal and
administer incentives on the behalf of society. This body will
be some combination of the professional association and the
government.

The public standing and licensing authority which society and
the state grant to a professional association are one side of a
bargain in which the profession promises to maintain
standards and protect the public interest in return. The terms
of this bargain can be, and frequently are, contested,
particularly once the profession has gained monopoly powers.
The professional association then may be tempted to extract
much benefit and to provide little regulatory service in return
(9). The formal and informal organisational attributes of the
profession are thus of great importance, particularly in African
societies where the government has difficulty effectively
representing the public interest.

The interests of society in a profession are not served solely by
its regulating the technical standards of its members and
differentiating its product from other service providers. The
professional... adheres to a set of professional norms' (48).
These involve 'a collectivity or service orientation' (10) and are
what Merton terms 'institutionalised altruism' (29). The
Professionals in the ethical sense are not produced and certainly are not sustained simply through the exposure of individuals to professional training. The mastery of technique as a professional in the face of strong contrary pressures in the environment. Only when the potential professional has other professionals as an important reference group in his or her work life will he or she be transformed into a true professional. The group of peers provide the social structure that permits the professional to resist the otherwise powerful pressures to fall short of professional norms. In the extreme case the professional association formally sanctions or bars someone who violates professional standards. But even short of formal sanctions, the existence of informal criticism from a group of people whom one respects and identifies with is a powerful social sanction. Furthermore, it is that professional community and its norms that provides the strength to bar the deviant member when the public interest is betrayed (on norms in economic behaviour, see Elster [8]).

Is there any reason to expect a profession to be able to protect a societal collective good when most national interests in Africa are subordinated to ethnic and local ones? The authors think that the answer is 'yes', but only with nurturing. At the beginning of the research, Leonard thought that the professional associations would emerge to perform the role of self-regulation in Africa. Research by Ly in Senegal suggests that Leonard probably was mistaken; the Ordre vétérinaire has not been aggressive in taking on the regulatory functions in the way the principal-agent literature would lead us to expect, and the organisation of paraprofessionals has done nothing along these lines (27). Firstly, the reasons why Leonard thought that professional associations would begin meaningful self-regulation, will be indicated below, then secondly, why it appears self-regulation is not occurring, and finally, another way of thinking about professional self-regulation that may prove more promising.

First of all, Leonard expected meaningful self-regulation by veterinary associations because a profession has certain advantages over most other non-ethnic African groups in organising for its collective interest. Members of the group are highly educated with a clear occupational identity and self-consciousness. In addition, the African professions are small, and Olson has suggested that organisations that are small and have face to face relationships and/or control critical services for their members are most likely to be successful at producing collective goods or at organising their provision by the state (33). Hardin has demonstrated that the logic of collective action is actually slightly different from this (12). A collective good will be provided once an individual or a cohesive subgroup finds that the benefits to itself of the good are greater than the costs to itself of creating the collective good for the whole group by itself. The likelihood of the existence of such a subgroup (what the literature calls a k subgroup) increases with the inequality of the benefit that will be derived from the collective good (i.e. the asymmetry in demand). The more unequally distributed the potential benefits, the smaller the subgroup that will be needed to reach the critical point at which benefits outweigh costs, and the smaller the subgroup, the more likely it will achieve the cohesion necessary for collective action.

As the professions in most African countries not only are relatively small but also have members with unequal skills, Leonard thought the probability was high that at least some members would find it in their interests to organise so as to promote standards and product differentiation and capture a better price on the market when professional services are privatised. Leonard found evidence for this proposition both in Kenya, where the Kenya Veterinary Association lobbied vigorously and successfully for experimental privatisation, and in Mali, where the employed veterinarians agreed to tax themselves to provide the loan capital to set up other veterinarians in private practice.

However, as shown by the research of Ly (27), the preceding line of reasoning was overly optimistic. The return that the principal-agent literature posits for professional self-regulation is still valid. To gain these returns through formal regulatory procedures, however, the profession must overcome the collective action problem – a small group of individuals have to be willing to organise so as to overcome the collective action problem – a small group of individuals have to be willing to organise so as to ensure their collective interest. The existence of associational self-regulation in many societies must be seen much more as the result of a hard bargain driven by the state in return for professional privileges, rather than an internally motivated strategy to capture benefits from overcoming the 'market for lemons' problem.

Self-regulation by professions in the northern hemisphere appears to be created in a much more informal and decentralised way. Professionals tend to monitor and steer one another to higher standards of performance through networks of day-to-day interactions as they work together, what Savage calls 'professional co-production' (39, 40). Better professionals gain higher incomes than the inferior ones because other good professionals recognise their skills and both are willing to work with them and refer patients to them (9).
The problems, therefore, with self-regulation among health professionals in Africa are as follows:

a) Most professionals are working in isolation. Only rarely does 'professional co-production' arise. This is especially true for animal health but also applies to human health, as multi-physician hospitals are not as common in Africa as they are in the northern hemisphere.

b) When 'co-production' does take place, it tends to involve paraprofessionals under the supervision of a professional and the hierarchical nature of the relationship interferes with mutual regulation.

c) Referrals are rare in these systems.

This line of theoretical reasoning would suggest that, rather than mutual exclusion, co-operative relationships between professionals and paraprofessionals as peers, and the development of referral networks between them are the best ways for quality differentiation to emerge in the conditions of African veterinary markets. The evidence from Uganda is that full veterinarians cannot collect a price premium for the performance of procedures that paraveterinarians usually provide. Paraveterinarians do recognise, however, that they cannot perform certain advanced procedures without sacrificing their reputations with their clients, hence these procedures must be performed by full veterinarians. Koma did not find referral networks in existence in Uganda yet, but these recognitions lay the groundwork for referrals (18). In this context, the reliance of paraveterinarians on full veterinarians for the pharmaceutical products they resell to herder clients (which has currently broken down in Uganda) creates a very important context for professional-paraprofessional interaction and the development of networks and informal regulation of quality. In Senegal, Ly did observe such a network between a full veterinarian and paraveterinarians created by a mission in the Ferlo region. The result of the assurance of quality that comes from a well-functioning referral network was at least a doubling in herder purchase of preventive treatments from paraveterinarians (28). This work thus leads the authors to see referral networks as central to the maintenance of quality in African veterinary medicine. Non-governmental organisations, such as missions, may have a special role to play in nurturing such networks, because the values held by such organisations tend to reinforce professional values (15, 25).

Conclusion

In this paper, several problems have been highlighted that others concerned with the privatisation of veterinary services have tended to neglect. Most notably, attention has been called to the following four items:

a) the need to retain a central role for paraprofessionals in the new delivery system

b) the centrality of the relationship between the veterinary and paraveterinary professions

c) the importance of the development of state contracting procedures for assisting the private delivery of veterinary services with externalities in ways that will avoid the problems of local monopoly

d) the central role that strengthened professionalism has to play in this area if collective goods and the public interest are to be served.

These issues point to the vital importance of the institutional context in which emerging markets function. The lesson of the New Institutional Economics is that 'the miracle of the market' requires much more than *laissez-faire*.

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Nouvelle économie institutionnelle de la privatisation des services vétérinaires en Afrique


Résumé
Les auteurs étudient les grands enjeux liés à la réforme structurelle des prestations de services en santé animale pour les petits producteurs ainsi que les producteurs non commerciaux, et mettent en évidence plusieurs problèmes généralement négligés quand il s'agit de la privatisation de telles prestations. Les éléments suivants sont plus particulièrement pris en compte :

a) la nécessité de réserver un rôle central aux paraprofessionnels dans le nouveau système mis en place ;
b) les relations importantes et problématiques entre les professions vétérinaires et paravétérinaires ;
c) l'importance du développement de procédures contractuelles par l'État afin de promouvoir des prestations privées pour les services zoosanitaires tout en évitant les problèmes de monopole local ;
d) le rôle majeur que la déontologie devra jouer dans ce domaine pour préserver les biens collectifs et servir l'intérêt général.

Mots-clés
Afrique — Concurrence — Économie — Paraprofessionnels — Privatisation — Professionnalisme — Services vétérinaires.

La nueva economía institucional de privatización de los servicios veterinarios en África


Resumen
Tras repasar una serie de aspectos fundamentales de la reforma estructural de los servicios zoosanitarios en África para los pequeños productores y los productores no comerciales, los autores inciden en ciertos problemas que otras instancias implicadas en la privatización de esos servicios han tendido a obviar, haciendo hincapié sobre todo en los siguientes aspectos:

a) la necesidad de reservar un papel central a los profesionales paraveterinarios dentro de los nuevos servicios de atención zoosanitaria ;
b) las importantes y problemáticas relaciones entre la profesión veterinaria y las profesiones paraveterinarias ;
c) la importancia de instituir mecanismos de contratación pública de apoyo a los servicios de atención veterinaria privados que sirvan para evitar los problemas derivados de la existencia de monopolios locales ; y

d) la gran importancia del profesionalismo en este ámbito para salvaguardar los bienes públicos y los intereses colectivos.

Palabras clave
References


