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AZERBAIJAN BEEF AND DAIRY VALUE CHAINS

CASE STUDY

microREPORT #75

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EXECUTIVE SUMMARY

The theme of this case study is the critical role that supporting markets can play in value chain growth. The case examines how small-scale livestock farmers in Azerbaijan benefited from greater access to supporting markets for veterinary products and services.

Constrained by the remoteness of their farms and low incomes, small-scale farmers had difficulty accessing veterinary services, which were a critical gap to competitiveness. Because small-scale farmers are the principal production unit for the beef and dairy value chains in Azerbaijan, closing this gap was viewed as a prerequisite for value chain growth.

Other constraints to value chain competitiveness included lack of veterinary supplies, limited access to markets and inadequate market information for dairy and beef. To address these obstacles, market actors invested in improvements resulting in the delivery of higher quality veterinary services. These investments included: 1) farmers forming groups to facilitate access to veterinarians; 2) private veterinarians modifying their service delivery to adapt to this new clientele; and 3) private veterinary medical suppliers offering credit incentives to veterinarians and training them on new product applications.

In making these investments, market actors wrestled with certain risks. For example, many small-scale farmers had little money to invest in better veterinary products and services, and were dubious of the quality of medicines most often found in the market. Veterinarians, with such cash-poor clients, were not sure they could cost-effectively purchase supplies and deliver services to small-scale farmers.

Ultimately, investments resulted in lower production costs for small-scale farmers whose annual revenues consequently increased by 40 percent. Farmers had no difficulty finding a ready market for the increased beef and dairy production. In fact, domestic market preferences favor locally-produced meat and therefore domestic beef products earned more than imported ones. Similarly, increased dairy production found ready buyers among the numerous small-scale dairy processors.

Veterinarians were also able to realize greater sales volumes, although their profit margins were low. In addition, the supporting market for veterinary products showed signs of growth. Small-scale farmers were buying more medicines with increasing frequency, and some suppliers responded by investing in new retail opportunities.

There are a number of lessons that can be learned from this case with significance for development practitioners. These include the importance of organizing farmers and consolidating demand for veterinary products and services and practical techniques for facilitating this process.

INTRODUCTION

This case study discusses how small-scale livestock farmers in Azerbaijan’s beef and dairy value chains, struggling to grow as the country transitions from a planned to a market economy, benefited from the growth in supporting markets for veterinary services and artificial insemination (AI) products. The critical role supporting markets can play in value chain growth is the central theme of this case.

This case also examines several important considerations for development practitioners stemming from the inter-play of supporting markets and actors in the core value chain. These include:

- Organizing farmers and consolidating demand for veterinary products and services created viable opportunities for veterinarians—who previously questioned the profitability of serving small-scale clients. Moreover, as veterinarians acted on these opportunities, livestock farmers’ production costs dropped and productivity grew.
- Greater cooperation between veterinarians and their suppliers resulted in growth in sales of veterinary services and AI products. The case illustrates how supporting markets have multiple levels of actors whose inter-firm relations are critical to success.
- The increased delivery and use of veterinary products and services resulted in improved livestock production and spurred further growth in the supporting markets. As small-scale farmers benefited from using these products and services, they procured a greater variety of medicines, opted for more expensive and higher quality medicines, and purchased products and services with more frequency.

VALUE CHAIN CONTEXT

To understand the context in which this case took place, this section describes the market actors in the beef and dairy value chains. A map of these value chains and supporting markets can be found as Figure 1 on the following page.

CORE VALUE CHAIN FUNCTIONS AND ACTORS

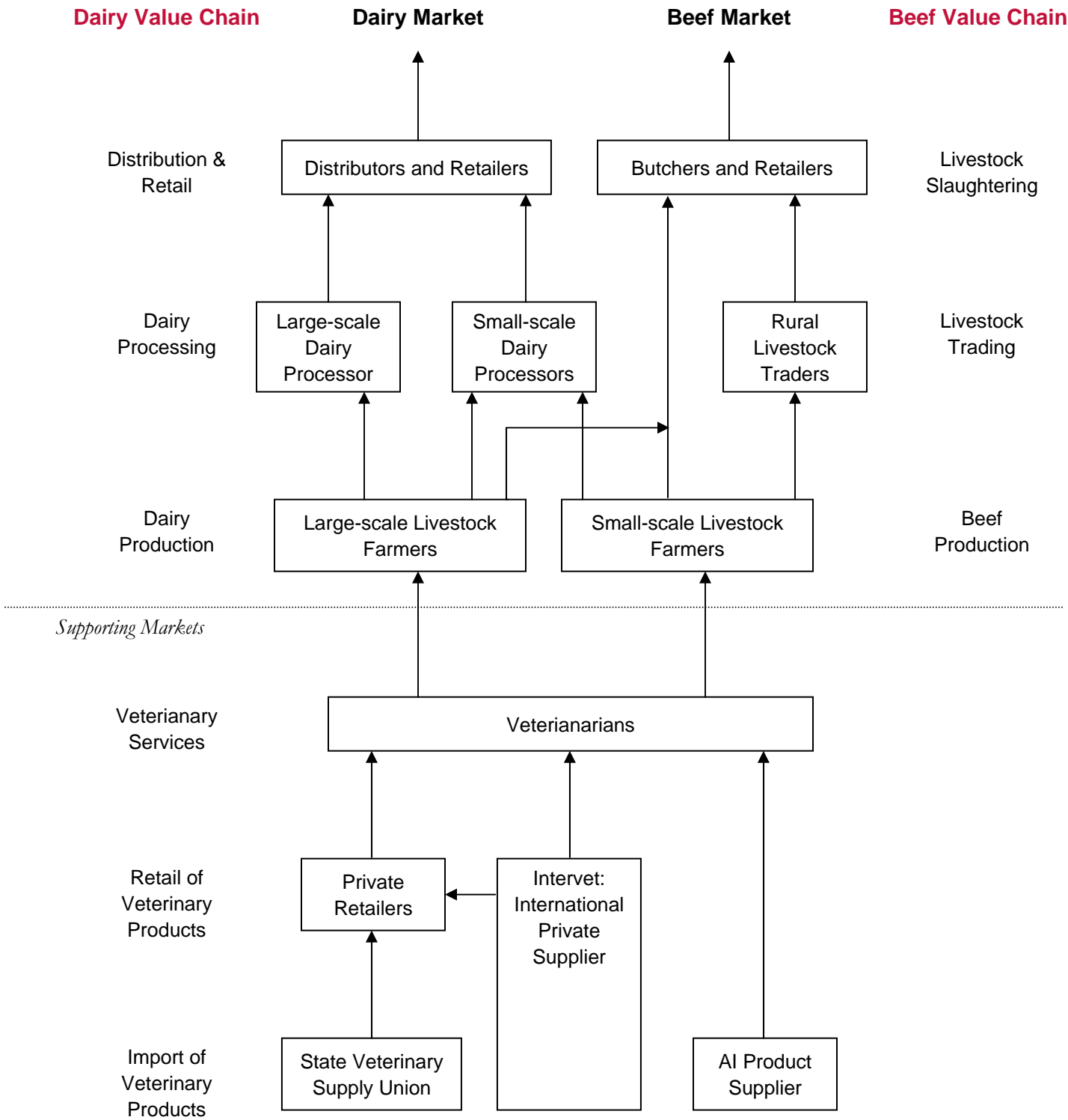
Production

Small-scale livestock farmers with few cattle are the principal source of domestic meat and raw milk in Azerbaijan, although there are a handful of **large-scale livestock farmers**. In the previous planned economy, livestock were raised, milked and slaughtered in collective operations. Small-scale farmers now own between three and ten head of cattle and are individually responsible for milking operations and the overall performance of their livestock (taking care of animal health, nutrition and reproduction).

Total raw milk production in Azerbaijan is roughly one million tons per year, which includes production from the handful of large-scale dairy farms. Nearly 70 percent of the raw milk is consumed non-pasteurized, whether at the household level or through products sold at local bazaars. The remaining milk is pasteurized and processed by other enterprises. In all, local production satisfies only 45 percent of the national demand for dairy products; the rest is imported, mostly in powdered milk form.

Local meat production cannot satisfy the entire national demand of Azerbaijan, which imports finished and semi-finished meat products—the latter as an input for sausages and other meat products. Livestock from small-scale farmers sold for meat are transported and slaughtered in central markets or bazaars. There is strong local preference for fresh local meat over imported products.

Figure 1: Azerbaijan Dairy and Beef Value Chain Maps



Dairy Collection and Processing

There is one **large-scale dairy processor** and over 50 **small-scale dairy processors** in Azerbaijan that produce and distribute pasteurized milk and other dairy products. The large-scale firm primarily transforms imported powdered milk into milk, cheese and other consumable goods. The majority of the small-scale firms purchase and collect raw milk from the country's farmers and then pasteurize and transform it into similar goods. The market share of these small-scale firms is fairly even: only one has a market share above 5 percent.

SUPPORTING MARKET FUNCTIONS AND ACTORS

Veterinary Services

Veterinarians, state employees in the planned economy, now charge farmers directly for their medical interventions and medications, although they often accept in-kind payment from their more cash-poor customers. Veterinarians participate in state-sponsored vaccination campaigns and management of disease outbreaks. They also provide farmers with advice on animal breeding, feeding and quality control. In many cases, veterinarians are also a source of market information on potential buyers and prices for meat. There are approximately 12 veterinarians to every 1,000 small-scale livestock farmers.

Veterinary Medicine and Equipment Supply

There are two principal suppliers of veterinary medicines and equipment in Azerbaijan. One, the **State Veterinary Supply Union (SVSU)**, is part of the Ministry of Agriculture; and the other, **Intervet**, is an international private supplier. The SVSU imports supplies mainly from Russia and distributes them to **private retailers**. Intervet, a German-Dutch veterinary pharmaceutical producer, brings in its products from Western Europe and sells them through its representative company in Azerbaijan.

Artificial Insemination Supply

There is only one **AI product supplier** in Azerbaijan, a joint Azeri and Dutch government venture that imports Holstein breed semen from abroad. AI products are then distributed to local AI service providers.

VALUE CHAIN COMPETITIVENESS

Locally produced beef and dairy products satisfy less than half the national demand even though they are competitively priced. Due primarily to higher production costs, local beef costs slightly more than imported beef (selling for \$4 per kilogram compared with \$3 for imported beef) but it is favored by local consumers. Dairy products, however, enjoy a price advantage over imports. For example, local cheeses are 20-30 percent less than imported brands and local pasteurized milk costs 12-15 percent less than imports.

GAPS IN COMPETITIVENESS

Despite the local preferences and price advantages for Azeri beef and milk products, respectively, local production faces critical gaps in competing with imported products. The principal gaps concern low volumes and small profit margins as a result of relatively high costs of local production.

The small-scale of operations and low incomes of most livestock farmers complicate their access to veterinary assistance and animal health products and services. It is estimated that small-scale farmers are producing at only 40 percent of their efficiency due to poor animal health and subsequent poor yields of milk and low rates of animal growth.

Weak supporting markets for veterinary products and services represent another important gap in competitiveness. This reduces livestock farmers' access to the products and services that could improve productivity and bring down

production costs. This supporting market is weak as a result of the difficulties veterinarians have in cost-effectively providing fee-based services to small-scale farmers. In addition, veterinarians have limited access to good quality veterinary medicines and other products. Although similar products are readily available through retail outlets (supplied by the SVSU), farmers are dubious of their quality and, not convinced of their cost-effectiveness, often choose to forego treatment of their livestock with these products.

There are a variety of other competitiveness gaps facing the industries. Dairy processors, through their collectors, have difficulties obtaining sufficient quantities of raw milk. Collection is complicated by the disaggregated supply from small-scale farmers who often live in remote, hard to access locations. The existing number of collection points is also insufficient to capture this supply. In addition, small-scale livestock farmers often lack adequate market information about where and at what prices they might sell their livestock to be slaughtered for beef. Organizing transportation to these locations is a further challenge, again because of the remoteness of many farmers in relation to their markets.

PRIORITY COMPETITIVENESS GAPS

An analysis of the beef and dairy value chains in Azerbaijan indicated that closing the gap in the high costs and low volumes of production would have the most immediate impact on the growth of the value chains, especially in terms of benefits to small-scale farmers. Interestingly, as this case shows, increases in farmers' production volumes enhanced their access to markets as these increases made them more attractive to buyers (especially dairy). Overall, the strong demand for locally-produced beef and dairy easily absorbed the growth in production from small-scale farmers.

The remainder of this case looks at the joint actions of veterinarians, veterinary input suppliers and farmers (with facilitation assistance from a development project) as they strove to overcome their respective risks and realize the benefits of investing in improved livestock and dairy production. Veterinarians were identified as the key value chain actors whose services could best close the targeted gap. The role and activities of veterinary input suppliers were also important, as seen below, to strengthening the capacity of veterinarians to provide their services.

MARKET ACTORS' INCENTIVES AND RISKS FOR IMPROVING LIVESTOCK AND DAIRY PRODUCTION

Small farmers

Small farmers had incentives to invest in the health and performance of their livestock. Healthier and more productive livestock would boost production volumes and reduce unit costs, which would translate into higher revenues. However, farmers were uncertain of the cost-benefit of investing in veterinary services such as vaccinations, treatments for ailing livestock, higher-value feeds and other measures that might improve livestock performance. Part of this skepticism was due to the lack of satisfaction with medical treatments and vaccinations they had received or used in the past (mainly through the SVSU). Farmers also viewed these as sizeable investments given their cash-poor reality and limited access to credit.

Veterinarians

Although many veterinarians remain nominal employees of the state, they have to generate revenues through services to survive, giving them significant incentives to expand their businesses and market share. They faced constraints in doing this, however, due to the high costs of reaching small farmers living in areas difficult to access. They also risked lowering their profitability by focusing on a cash-poor client base that has difficulties making payments. Their lack of experience in a market economy also left the veterinarians poorly equipped to market themselves and with little experience in developing new business strategies. As such, expanding their markets was risky.

Suppliers of veterinary products and services

The suppliers of veterinary medicines, equipment and AI products had strong incentives to increase their sales volumes, especially as the two major firms (Intervet and the AI product supplier) were recent entrants to the Azeri market and were looking to establish their businesses. Their chief risks were that the users of their products would not apply them correctly. Incorrect application would reduce their effectiveness and potentially tarnish the brand name of products, which would undermine the companies' growth prospects.

MARKET ACTORS' INVESTMENTS IN IMPROVING LIVESTOCK AND DAIRY PRODUCTION

These incentives led to investments by market actors to improve their businesses. Many of these investments were facilitated in a participatory manner by Mercy Corps, Azerbaijan (MCA).

Formation of farmers' groups to agglomerate the demand for veterinary products and services

Drawn by their shared incentives to resolve difficulties in accessing services that could raise production volumes and lower costs, small livestock farmers formed groups in order to facilitate access to veterinarians, who also participated in the process, establishing a connection and familiarity with farmers. The formation process was deliberate. Farmers identified their most common and pressing concerns and tackled readily achievable results first, building success and momentum for tighter group adherence and viability.

Investments in new and higher quality veterinary products

Veterinarians, for their part, sought out higher quality products compared with those procured by the government and found in local stores. Intervet was identified as a supplier of such products. To attract veterinarians, Intervet offered buyer-credit of 50 percent of the cost of supplies, which addressed the cash-flow concerns of veterinarians. By offering buyer-credit, Intervet also hoped to increase its own sales volumes and develop customer loyalty.

The AI supply company invested in relations with veterinarians and provided information that would help them to introduce their product to farmers. The AI supplier also invested in training veterinarians to deliver AI services to farmers so that their product was applied correctly and so that farmers would be satisfied with the results. Veterinarians, in turn, bought the product and marketed it to farmers.

Investments in new management strategies for veterinary businesses

Veterinarians invested in a range of improvements to the operations of their businesses. They invested in training in marketing and business management skills. They invested time and money in developing new models for marketing and delivering their services to small farmers. These included promoting and educating farmers on the benefits of animal health care and disease prevention programs. Veterinarians also provided additional services at no extra charge (animal production advice and beef and dairy market information) in efforts to develop their client base and loyalty.

RESULTS OF INVESTMENTS

Growth in the supporting markets for veterinary products and services

Within three years, veterinarians making these investments achieved 46 percent higher annual sales compared to other veterinarians. Their services became more in demand by a larger client base that purchased increasing quantities of their products and services. These veterinarians also successfully differentiated themselves from their competitors; providing the higher quality medicines preferred by farmers, offering new services like AI and becoming an important source of market information.

Preliminary indications, however, show that the profit margins on these new investments are low.. As some veterinarians noted, they are busier than before but they do not perceive that they are making more money. The question arises

as to whether this is a temporary situation considering the fact that most investments were made fairly recently. Arguably, the potential long-term benefits of having an expanded, loyal client base favor those veterinarians who made the investments. Those who did not make the investments could be seen as outside the flows of innovation and less able to seize new market opportunities or withstand market downturns.

Finally, there are signs that the supporting markets are stronger as a result of all actors' investments. This can be seen by the increased levels of specialization and the continued business investments of the actors. For example, two veterinarians have decided to specialize in the distribution of Intervet's products, investing in their own supply operations that should further increase veterinarians' access to these products. In another case, a veterinarian, persuaded of the market potential for AI products, will soon import AI products direct from Europe, thereby increasing the competition and availability of these products in Azerbaijan.

Increased learning and benefits to small livestock farmers

Farmers that regularly engaged veterinary services and procured the higher quality products had 40 percent higher annual profits than other farmers. These results can be directly attributed to the reductions in animal disease and increases in beef and dairy yields achieved through using better animal medications and adhering to the production advice and disease prevention programs espoused by the veterinarians.

Participation in groups allowed large numbers of farmers to access veterinary services at prices that were not available to them as individuals. Veterinarians were able to schedule group appointments to deliver most of their services. This reduced their transaction costs and allowed them to deliver services to small-scale farmers in a commercially viable manner, despite the high costs of traveling long distances.

Farmers participating in groups also shared disease prevention information, which arguably helped them to better prevent and manage outbreaks of disease. In addition, group members received market information provided by veterinarians, which had previously been difficult to obtain.

Finally, women (who had been isolated from such information and services because of cultural restrictions regarding engaging in one-on-one conversations with men) were able to learn from and engage with veterinarians as members of the groups. This was especially useful as the women derived more of their household income from livestock production than men.

Impacts on the beef and dairy value chains

Overall, the value chains appear more dynamic as a result of the investments of market actors and the growth of the supporting markets. The recentness of investment activity and lack of other data, however, make conclusions premature. There are, nonetheless, some promising trends. In 2004, for example, beef production at the national level increased by 3.1 percent and continues to find a ready demand in urban and regional markets. The results for dairy production and its marketability are similar. Perhaps the most telling sign of greater value chain dynamism is that there are more new first-time livestock farmers. Some farmers have even begun specializing in livestock fattening and breeding operations.

LESSONS LEARNED

CONSOLIDATING DEMAND

The principal lessons of this case for development practitioners are the benefits of consolidating demand for supporting market products and services, and approaches to facilitating this process. Examples of these benefits included:

- Veterinarians achieved economies of scale, reduced transaction costs and expanded their client base. Although their increased sales volumes do not yet correlate to higher profits, it is likely that having loyal, more productive clients strongly favors the long-term prospects of these veterinarians.
- Participating in groups increased farmers' access to inputs and services and it arguably increased the rate at which they adopted them. By sharing among themselves positive experiences about the new products and services, the group members' perceived risks were lowered. This helped them to justify the added expense of the inputs and services.
- The veterinarians with access to larger numbers of farmers through the groups were more attractive customers for the larger input suppliers, namely Intervet and the AI supply firm. In their view, these veterinarians would buy more supplies and therefore warranted greater attention, which was bestowed in the form of buyer-credit, training in AI product application and generally stronger business relations.

Successfully facilitating the consolidation of demand for supporting markets' products and services is, however, challenging. Lessons from this case for development practitioners include:

- Facilitating group formation should aim to foster the economic interests of group members, focusing on a particular, common economic activity. In this case, the farmers' focus was on increasing access to products and services that would improve their livestock production. Farmers had specific complaints: their livestock were often sick, production yields were low and they could not get veterinarians to come and assist them. As a group, farmers were able to attract veterinarians and create sufficient economies of scale for veterinary services to be commercially viable.
- Facilitators should help groups to achieve small goals in building their capacity to tackle larger, more complex problems. Many of the groups' first activities were gaining access to veterinarians and formalizing their relationships through scheduled visits. Later, groups developed the means to share animal health and market information and undertake disease prevention measures that required greater cooperation.
- The participation of women in groups, particularly their role in decision making, can be fraught with cultural complications. Facilitators need to be sensitive to this difficulty and work with all members to help incorporate women into the groups' activities.
- Successes by livestock farmers' groups can attract the attention of other development organizations who may wish to use the groups as points of entry into rural communities. Group involvement in activities extraneous to their livestock interests could dilute or introduce conflicting incentives and thereby jeopardize the groups' cohesion and sustainability.

VERTICAL LINKAGES IN SUPPORTING MARKETS

This case demonstrated that strengthening the linkages between veterinarians and their suppliers had a direct impact on the beef and dairy value chains. Veterinarians providing services to a greater number of small-scale farmers were able to differentiate themselves from their competitors. They were able to provide more and better services in part because they had access to the medical supplies and AI products most demanded by farmers. By facilitating veterinarians' linkages with Intervet and the AI supplier, the development organization fostered profitable business relationships between these actors that bolstered the growth of the overall supporting markets. This was critical to the sustainability of the delivery of veterinary products and services to farmers.

The same best practices for facilitating vertical linkages between actors in core value chains apply to those in supporting markets. For example, facilitating embedded services like buyer-credit to overcome access to credit constraints is

an effective means for businesses to strengthen relations and grow, whether in the case of Intervet's relations with veterinarians or when agricultural traders pre-finance farmers' production.

Facilitating learning flows—assuring that market actors can relay consumer demand and share industry innovations—is also important in supporting markets. In this case, veterinarians were an important conduit between farmers and input suppliers. They were able to relay the farmers' demand for higher quality medicines to the input suppliers, and were also able to share innovations from the input suppliers (such as AI products) with the farmers.

Finally, supporting markets often have their own enabling environment that should be considered when designing interventions. In this case, the supply of veterinary products and services was being liberalized at a different pace than the markets for beef and dairy. For instance, the state still plays a major role in importing veterinary products: Intervet and the AI supply firms are only recent entrants into the Azeri market. Development organizations might therefore need to help quicken the liberalization of support markets so that they can have the greatest impact.

QUESTIONS RAISED BY THE CASE

There appears to be a virtuous, inter-dependent dynamic between the growth of small livestock farmers and the growth of supporting markets for veterinary products and services. Questions arise as to how sustainable are the inter-related economic prospects of the beef and dairy value chains and that of the supporting markets.

- How rapidly would the market for beef and dairy products need to grow for the profitability of veterinarians to be secure?
- If the market changed, could the value chain and its actors respond? For example, if a new disease were to break out, would the cooperative relationships forged to date serve both farmers and veterinarians well, such that there could be an effective response?
- Will donor interventions eventually lead to oversupply in the beef and dairy markets? What would help mitigate such an outcome?

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