

ECONOMIC ANALYSIS OF THE SALE CHANNELS OF CAMELID FRESH MEAT AND *CHARQUI* IN PERU, BOLIVIA AND ARGENTINA ¹

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RESUMEN

En los países andinos son numerosos los factores que explican la escasa valorización al consumo de los productos derivado por la carne. El consumo es muy difuso dentro de las poblaciones de ganaderos mientras sobre el mercado la demanda es escasa.

El objetivo del trabajo de investigación consiste en el análisis comparativo de los canales de venta de carne y *charqui*.

El cambio de un mercado rural no regular a aquel urbano controlado y valorizado podría representar una propuesta merecedora de valoración. Las consideraciones conclusivas consisten en la discusión de intervenciones realizables de los operadores privados y las políticas públicas por la calidad.

Palabras Claves: canales de venta, camélidos, carne, *charqui*

ABSTRACT

In the Andean countries the factors that explain the scarce consumption of the products derived by the meat of the south American camelids are numerous. Currently the consumption of these foods is diffuse among the populations of breeders whereas on the market the demand is scarce.

The objective of the research is a comparative analysis of the sale channels of fresh meat and *charqui*.

The change from a non-regular rural market of the meat to a controlled urban market and the valorisation of the quality and the typicalness of the products could represent a deserving consideration proposal to favour the improvement of the operators' income and the quality of the final product. The conclusive considerations consist in the proposals to favour the development of the chains: interventions from the private operators and the public quality policies.

Key words: sale channels, camelids, llama meat, *charqui*

¹ This paper is the fruit of the common discussion of the authors in all of its phases and it has jointly been conducted. 3, 4, 5, 6, 7 have developed the specific investigations among the subjects of the chains (breeders, food industry, transformers and distributors), they have collected the data of economic character and have contributed, with profitable critical considerations, to the evaluation of the sale channels for the products of the CSDs in Bolivia, Peru and Argentina. As regards the written text, F. Ansaloni has written paragraph 1 and 4, F. Pyszny paragraphs 2 and 3.

1. Introduction

The problem object of analysis consists in the scarce economic development of the Andean rural areas that, despite having a remarkable patrimony of south American domestic camelids (CSD), in the majority of the cases are unable to organise and valorise the offer of fresh meat and *charqui* for the market.

The Andean rural areas of Peru, Bolivia and Argentina are characterized by general poverty and scarce economic development (Bonanni 2004, 26). The patrimony of camelids is elevated and in these areas there is an urgent need for an improvement of the life quality and the people's working conditions.

The factors that influence the behaviour of the urban markets consumers of these countries are numerous. Among those that reduce the consumption of CSD meat we can list the eating habits and the low quality level. In fact, CSD meat is not part of the eating habits of the majority of the population and this meat is often seen as food for poor people (Bonanni 2004, 44; Sammels 1995) and the quality does not often satisfy the consumers' demand.

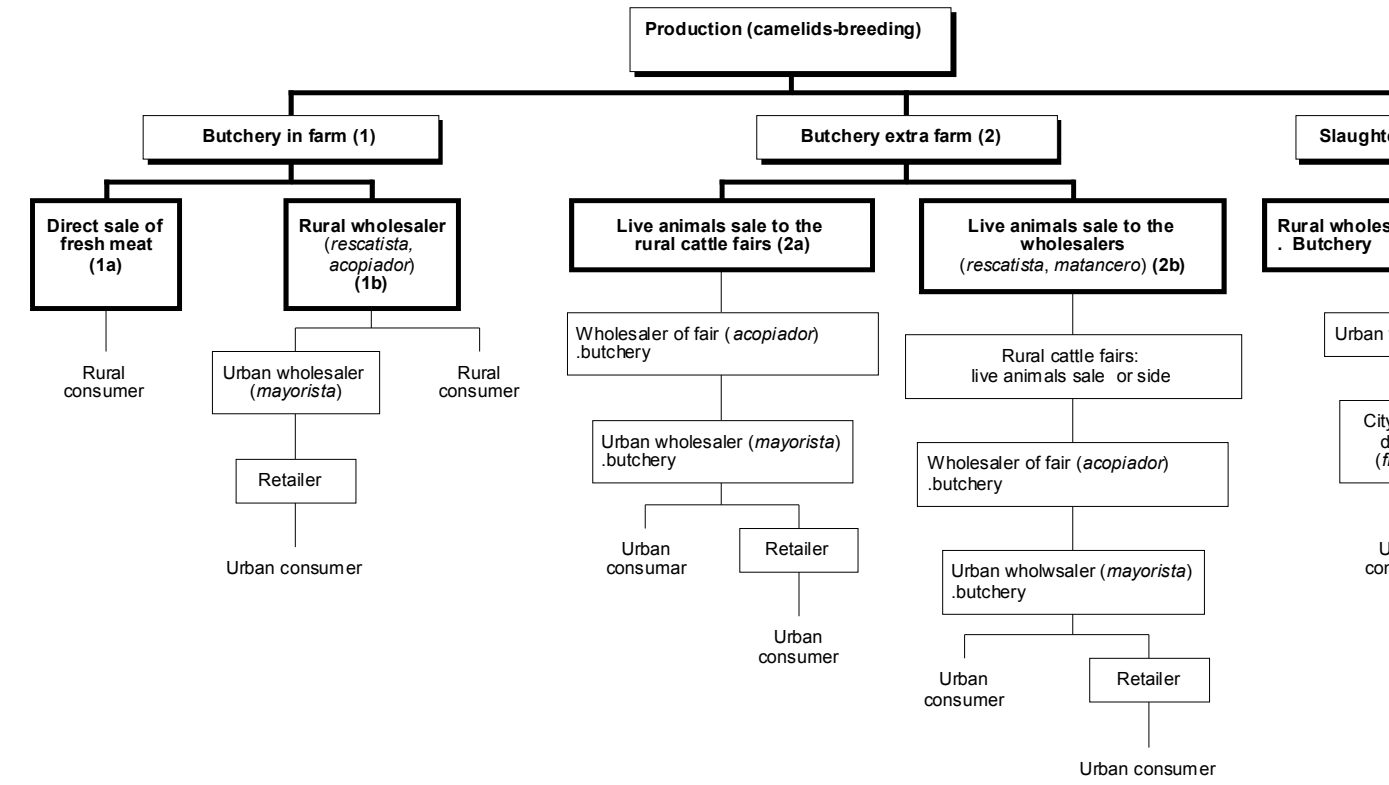
On the other hand, among the factors that positively influence the consumption of CSD meat there are the nutritional value, the high level of environmental sustainability of the breeding method and the typicalness of the products. The consumers' renewed interest for the health aspects and the nutritional value of the food can be satisfied by the consumption of CSD meat. Besides, as regards the respect of the natural resources, the breeding method of the livestock shows an elevated level of environmental sustainability and in fact it can be considered an organic breeding method. Finally, the consumption is also connected to the identification of the geographical origin of the product.

The challenge consists in individualizing the private and public interventions able to begin a development process of the fresh meat chains and the CSD *charqui* to improve the products quality and to increase the producers' income.

The main objective of the study consists in the comparative economic analysis of the fresh meat and CSD *charqui* sale channels in Peru, Bolivia and Argentina.

The data and information sources are represented by specific searches developed in the countries, by interviews to the subjects of the chain and by the available documentation. The wealth of economic relationships among the different products, among the economic agents of the different phases of the products chains and of the countries underlines a notable complexity of the phenomenon. For this reason, we have prepared questionnaires for the data collection in the different countries according to experimental homogeneous protocols provided within the project of U.E. research *Sustainable Development of Camelid Products and Services Marketed Oriented in Andean Region*, DECAMA - WP2 Market and Services, Market analysis. In the principal productive realities interviews to producers and experts have been realized, among whom we remember, for example, the producers of private agricultural enterprises and rural communities, small industrial transformers - butchery and meat processing - and distributors of the final products. Finally, the available documentation of official statistics and literature of the sector has been examined.

Figure 1 - Principal sale channels of the camelid fresh meat



2. Fresh meat sale channels

The first criterion of discrimination for the fresh meat sale channels is represented by the place of butchery of the livestock. According to the distance of the farms from the urban centres and to the availability of means of transport for the breeder, the butchery of the animals can happen "in farm" (1) or in other near places "external to the farm" (2), among which, for example, the rural fairs where living animals are transported from the farms and the properties of the wholesalers that go to the rural communities to purchase the living animals. Finally, in the last sale channel described the place of butchery is "the slaughter house" (3) (Fig. 1).

In the first case the breeder butchers the livestock in farm and directly sells the meat to the final local consumers (1). The butchery often happens in the open air and without using any particular structure. This reality is diffuse in Argentina where the camelids breeding is concentrated in the north territories of the country that extend on the massif of the Cordillera of the Andes. In this zone the direct sale is possible because the farms are near the urban centres and the breeders can transport the meat to the markets. The average consumer price of the meat sold through this channel amounts to 1.07 US \$ for kg (Tab. 1). A similar situation is also observed in Bolivia, where the breeders are united in the Camelids Breeders Zone Associations (*AZCCA Asociación Zonal de Criadores de Camélidos*).

The most diffuse fresh meat sale channel in Bolivia is not the direct sale to the final consumer at the breeder's (1a) (Claros A. G. *et al.*, 2006), but the channel characterized by the presence, after the phase of butchery among the rural communities, of one or more middlemen that purchase the carcasses and sell the meat to the consumers (1b).

The motives that justify this sale channel are the long distances that separate the places of breeding from the urban centres of consumption and, above all, the lack of means of transport for the communities breeders. For the purchase of the carcasses the middlemen, *rescatista* or *acopiador* (rural wholesalers), go by their own means among the communities to purchase a consistent volume of meat and the exchange is a widely spread method of payment. In exchange for the meat, the middleman offers other food like rice, pasta or sugar. In this sale model, the animals are averagely butchered when they are between 5 and 7 years old with a weight varying from 75.5 to 85.5 kgs for the llamas and from 60 to 65 kgs for the alpacas. For both species the mean productivity in carcass is of 50 - 55% (Claros - Quispe, 2004).

From the analysis of the costs and the proceeds calculated in five case studies of rural community Bolivian breeders for the years 2003 and 2004 the average production cost for living animal sold for the butchery amounts to 26.41 US \$ (Ansaloni *et al.*, 2004).

The direct sale of the fresh meat from breeder to final consumer allows to overcome the middlemen and permits the breeder to cash a higher sum; nevertheless, the isolation of the breeders communities from the urban centres and the lack of means of transport that would allow them to reach the principal markets of consumption represent the main problems for the development of this channel.

In the second sale channel (2) the breeders butcher the animals externally to the farm and they sell the living animals in the rural fairs or to wholesalers (*rescatista*, *matancero*) that resell them in other fairs of greater importance.

In Peru the most diffuse channel consists in the sale of living animals near the provincial weekly rural fairs and the butchery is realized near the fair by the breeders or by the rural wholesalers that purchase an elevated number of camelids (2a). The

medium price cashed by the breeder for the sale of the living animals near the rural fairs amounts to 36 US \$, while it is of 33.6 US \$ if the animal is sold to the wholesaler that travels for the communities (1b, 2b).

From the analysis of 43 Peruvian farms related to the year 2003 it results that the average production cost for animals destined to the butchery amounts to 28.14 US \$, while the proceeds obtained with the sale show a positive difference between 5.46 and 7.86 US \$.

After the butchery the wholesalers of fair sell the carcasses to the urban wholesalers (*mayoristas*) (2a, 2b) to an average price of 38 US \$ for carcass.

Possible further proceeds can derive by the sale of offal, leather and fibre of the butchered animal. These last parts reach an average price of about 1.90 US \$.

Subsequently the urban wholesaler sections the carcasses in smaller cuts and transports the meat to the urban wholesale markets to sell it to city retailers. The urban wholesale markets are also frequented by final consumers that purchase from the wholesalers the available cuts of meat. For the sale of the whole carcass the urban wholesaler cashes 49 US \$.

The last ring of the chain is represented by the retailer of the city popular markets that sells small portions of meat to the clients. From the retail sale of the fresh meat obtained by a carcass of llama, the estimated average proceeds amount to about 55 US \$ (Marquina, 2004). The increase of meat value that is observed from the farm to the retail sale of the fresh meat varies from 19.0 to 21.4 US \$.

In the majority of the cases, the commercialization service of the living animals or carcasses effected by the wholesalers is the only possible channel for the meat sale and the principal positive aspect of this activity consists in the start of a form of offer concentration. For the breeder an elevated number of middlemen represents a disadvantage with a consequent smaller cashed price, whereas the consumer pays a higher price.

Besides, the diffuse lack of equipments for the preservation of the meat - refrigerators and cold chain - creates remarkable organizational difficulties with the consequences of the limitation of the volume and the variability of the meat offer.

The typology of consumer that directly purchases fresh camelid meat from the communities breeder or in the urban popular markets is characterized by low income. It is often the part of population that moves from the rural zones to the city in search of better life conditions. A sale channel that introduces better working conditions and preservation of the meat is that one where the animals are butchered in the slaughter house (3). This channel will now be illustrated.

The sale channel with the presence of slaughter houses for the butchery of camelids, particularly llamas, has been observed only in Bolivia (Claros *et al.*, 2004). Currently the activity of these structures is very limited and the number of animals butchered in one year amounts to about 15,500 that represents only 5% of all the butchered animals.

The principal motives for scarce use of the slaughter houses are their distance from the places of breeding, the difficulty for the breeders or the middlemen to reach them and the lack of means of transport for the animals. A further motive is that the camelid meat still has a market very limited from the quantity point of view; more than half of all the camelid meat production is destined to the self-consumption of breeders' families. Also in this case, the breeder receives a medium price for sold animal a little higher than 33 US \$. The cost sustained for the service of butchery for animal amounts to 0.81 US \$ and for every carcass a sanitary certification is issued (Claros - Quispe, 2004).

In the majority of the cases the transport of the meat to the urban centres is effected by the wholesalers. The wholesalers resell the meat to the retailers after having sectioned the carcasses in the principal cuts. As in the sale channel of the butchery “extra farm” - rural fairs, wholesalers’ property - for the urban wholesalers the proceeds for the sale of a carcass amount to about 49 US \$.

The retailers - *friales* - sell fresh meat of animals butchered in the slaughter house to an urban clientele with a higher income. These people demand for a product with greater qualitative characteristics; the meat in fact is preserved in refrigerators and the sale price is higher than the price of the meat sold in the popular markets. In this case the total proceeds esteemed for the sale of the meat of a whole llama carcass amount to 68 US \$. In this channel, a point of strength is the butchery of the heads in an equipped and fit structure that enables to improve the quality and the hygienic-sanitary conditions of the meat. Besides, the use of refrigerators in the shops is essential for an increase of the commercialization activity of the fresh meat.

Tab. 1- Costs and sale prices of the fresh meat for channels and for chain stadium in 2005 (US \$) (Source: Claros - Quispe - Marquina - Lamas, 2005)

			Farm		Trasformation		Retail trade
			Production cost	Sale price	Rural wholesaler sale price	Urban wholesaler sale price	Consumer price
Butchery in farm (1) for:	living animal	BOL, PE	27.28 ^b	33.60	38.00	49.00	55.00
		ARG		40.17 ^c			
	kg of live weight ^a	BOL, PE	0.38	0.47	0.53	0.69	0.77
		ARG		0.56			
	kg of meat	BOL, PE			1.01	1.31	1.47
		ARG					1.07
Butchery extra farm (2) for:	living animal	BOL, PE	27.28	33.60 ^d 36.00 ^e	38.00	49.00	55.00
	kg of live weight	BOL, PE	0.38	0.47 ^d 0.50 ^e	0.53	0.69	0.77
	kg of meat	BOL, PE			1.01	1.31	1.47
Slaughter house (3) for:	living animal	BOL	26.41	33.6		49.00	68.00
	kg of live weight	BOL	0.37	0.47		0.69	0.95
	kg of meat	BOL				1.31	1.80

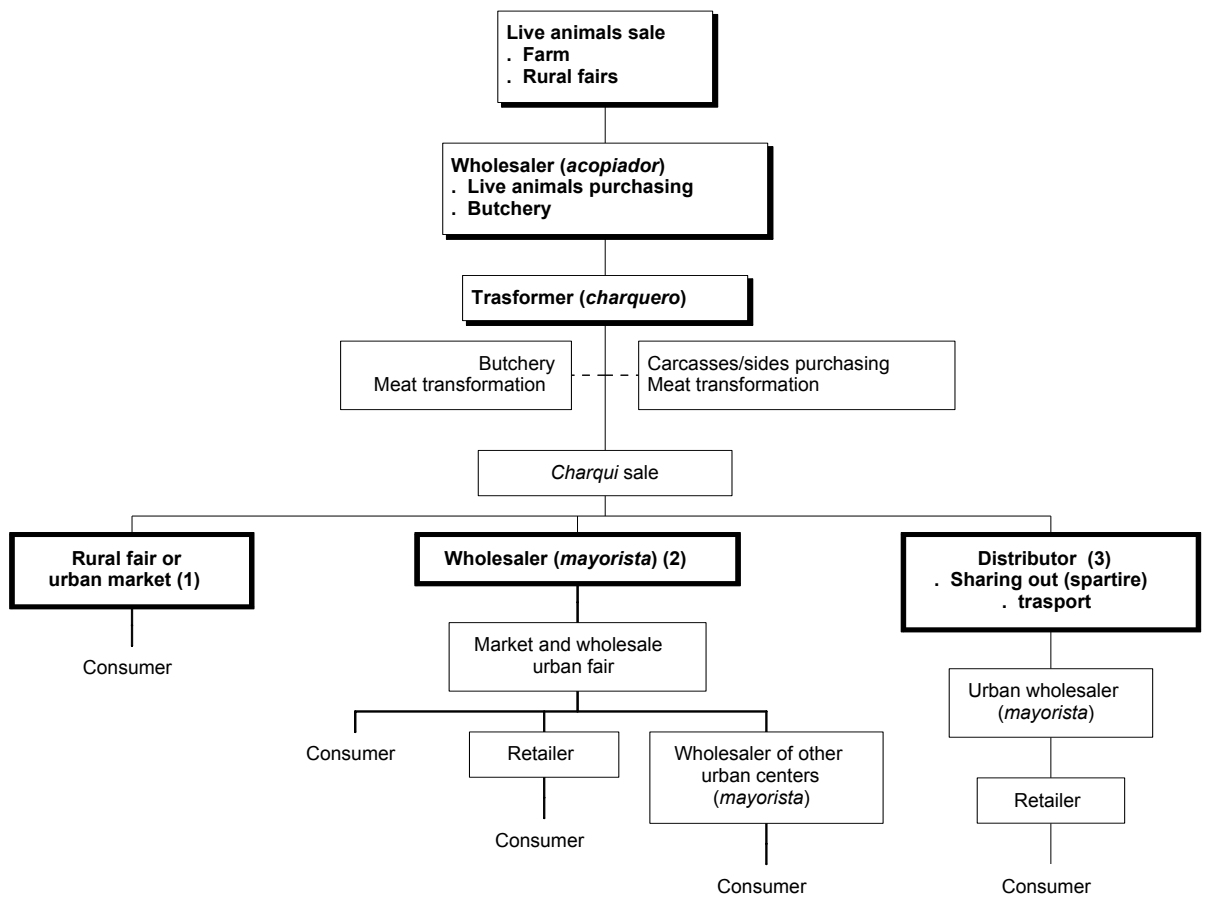
BOL= Bolivia; PE= Perú; ARG= Argentina

a This value is 71.5 kgs and refers to a mean among the two species (lama and alpaca) for a living animal destined to the butchery.

b Mean value, min 26.41 US \$ (Bolivia), max 28.14 US \$ (Peru)

- c Mean value of live weight 71.5 kgs, mean yield in carcass 52.5%, sale price kg of fresh meat 1.07 US \$ (71.5 kgs *52.5%*1.07 US \$) = 40.17 US \$.
- d Sale to wholesalers
- e Direct sale in rural fair

Figure 2 - Principal sale channels of the *charqui*



3. *Charqui* sale channels

The production of *charqui* is localized in the rural zones of the Andean highland where the camelid breeders' communities live. Also for this product, as for the fresh meat, the most diffuse destination consists in the self-consumption of the breeders' families.

In the case of the direct sale to the consumers (1) the transformer of *charqui* can cash higher prices in comparison with the prices paid by the wholesaler, but the distance from the urban centres is a problem for the development of this channel. In addition, the *charqui* produced in the rural zones is often of scarce quality. A particular case is represented by a community of Bolivian families that sell *charqui* to bus passengers and truck drivers on the border roads between Bolivia and Chile (Claros *et al.* 2006).

The demand of *charqui* from the urban market, initially stimulated by the population immigrated from the rural zones, has determined an increase of the production and the specialization of operators for the activity of camelid meat transformation. Currently the *charqui* is produced both by communities of breeders and by specialized transformers that purchase the fresh meat or the living animal to butcher and transform it. The development of an urban market has originated different sale channels that involve different economic figures (Fig. 2).

In Argentina the production of *charqui* is very limited. The reason is the smaller quantity of camelids that live only in the highland zone in the north of the country. Therefore, the consumption of *charqui* is located inside the breeders' communities and in the neighbouring populated centres.

In Bolivia and in Peru, the *charqui* can go by long routes before reaching the final consumer. In these two countries the biggest quantity of product commercialized in the urban centres comes from single farms or specialized operators - *charqueros* - that primarily purchase the fresh meat from the wholesalers. The wholesalers purchase the living animals by the breeders in the rural fairs, they provide the butchery and the following transport of the carcasses. For the sale of a living animal the breeder cashes a medium price of about 36 US \$ (Tab. 2).

In Bolivia the breeders rarely possess means of transport and, for this motive, the sale of live animals to the wholesalers that travel for the communities to purchase the animals prevails. On the contrary, the Peruvian breeders more frequently own a means of transport and they can reach the places where the rural fairs are organized to sell the livestock. In this case the middleman is bypassed, but his role is fundamental for the more isolated breeders' communities.

The wholesalers that sell the carcasses to the transformers of *charqui* cash a price for carcass that varies between 38 and 42 US \$(Claros *et al.*, 2004; Marquina, 2004). In some cases the transformer can reach the rural fairs and purchase the living animals, the carcasses or the quarters of meat at lower prices.

The analysis of the *charqui* transformation cost for a Peruvian firm (a case study) demonstrates that the biggest cost - 91% of the total, equal to 1.85 US \$ for kg of *charqui* - is represented by the purchase of fresh meat whereas the labour cost weighs for 4% (0.08 US \$) and the remainder 5% (0.10 US \$) is due to the cost of the salt (2%) and of the transport of the product to the places of sale (Marquina, 2004). As regards the sale channels of *charqui*, differentiation depends on the location of the transformer in the territory.

If the producer is near a centre of consumption, like the rural provincial fairs or the popular markets of the urban centres, he can transport his product and directly sell it. In the case the transformer of *charqui* is far from the centres of consumption, the

wholesaler intervenes to purchase the *charqui* and transport it to the centres of urban consumption (2). Then he will resell it in the daily markets and in the weekly wholesale fairs. This sale channel is diffuse both in Peru and in Bolivia.

In addition, the wholesale fairs in the city of *Arequipa* in Peru are places of restocking for all the south Peruvian wholesalers that arrive from other urban centres and treat smaller volumes of product.

A particular sale channel is represented by the city of *Lima Metropolitana*, the capital of Peru. The numerous small transformers present in the city sell their production, in the form of great portions (*planchas*), to distributors who transport the product as far as the urban centre. The distributors can sometimes divide the *charqui* into smaller and frayed portions and subsequently sell them to the wholesalers of the city districts. These last ones sell to the retailers where the *charqui* is purchased by the final consumers.

As regards the mean productivity of meat transformation, from a carcass of llama with a weight of around 45 kgs it is possible to obtain respectively 5.5 and 12.5 kgs of *charqui* and *chalonga* (Claros - Quispe, 2004).

The consumer prices of *charqui* are extremely variable, because of the different quality, of the sale place and the methods of packaging. For example, in Bolivia the packaged *charqui* of good quality can reach a sale price of 6.54 US \$ for kg, while the *chalonga*, produced with the cuts of meat and the parts of the carcass not used for the *charqui*, reaches a price equal or lower than 2.10 US \$ (Claros *et al.*, 2004). In Peru prices seem to be lower and for the *charqui* they can vary from 2.30 US \$ to 4.30 US \$ for kg (Marquina, 2004).

In the longer sale channels the service of the wholesalers and the distributors is necessary to reach the markets of the urban centres and, above all, those of the great cities; on the other hand an elevated number of middlemen creates an increase of the consumer price.

Finally, in the majority of the illustrated cases the butchery is made in places not equipped and without any type of sanitary control and, both for fresh meat and for that destined to the transformation, it is evident that in the slaughter houses suitable hygienic-sanitary conditions should be guaranteed to improve the product quality.

Tab. 2 - Costs and sale prices of *charqui* for sale channels and for chain stadium in Peru and Bolivia, year 2005 (Source: Claros - Quispe - Marquina, 2005)

		Farm		Trasformation	Retail trade	
		Sale price for the breeder	Sale price for the wholesaler	Production Cost (PE)	Consumer price (BOL)	Consumer price (PE)
Rural fair or urban market (1) for:	living animal	36.00				
	kg of live weight	0.50				
	kg of <i>charqui</i>			2.03	6.54	^d 3.30
Whosaler (<i>mayorista</i>) (2) for:	living animal	36.00				
	kg of live weight	0.50	^a 0.56			
	carcass		^b 40.00			
	Kg of meat		^c 1.07			
	kg of <i>charqui</i>			2.03	6.54	^d 3.30
Distributor (3) for:	living animal	36.00				
	kg of live weight	0.50	^a 0.56			
	carcass		^b 40.00			
	kg of meat		^c 1.07			
	kg di <i>charqui</i>			2.03	6.54	^d 3.30

PE= Perú; BOL= Bolivia

- a Mean value, min0.53, max 0.59
- b Mean value, min38.00, max 42.00
- c Mean value, min 38.00, max 42.00
- d Mean value, min 2.30, max 4.30

4. Conclusive considerations

For the different countries the improvement of the agricultural producers' income and the consumers' protection does not seem realizable through the choice of specific market politics. However, it is possible, in connection with the specific exigencies of each country, to suggest interventions to start the process of economic development of the fresh meat and *charqui* chains. Particularly, it is necessary to move from the non-regular commerce to the utilization of the fresh meat and the *charqui*.

Among the private interventions it seems important to realize the activities with greater added value in the rural areas (sale of carcasses instead of living animals, butchery, meat working, desiccation and packaging of the products). Moreover, in order to direct the activity toward the market, the development of breeders' associations is fundamental and the creation of chain contracts is instrumental in making the income stable. Finally, at industrial level, it is necessary to develop a greater differentiation of the products to increase the market share of these products.

The breeders' associations could physically concentrate greater volumes of product to increase the market power in the phase of the sales negotiation and increase the level of professionalism of the breeding techniques.

The contracts of chain, agreements stipulated among breeders, transformers and distributors for the realization of products according to specific norms of production and for quantity defined in time, could improve the commercialization of the product. In addition, it would be useful to consider, within every contract of chain, the development of "agencies" with commercial and technical functions and the aim of collecting the financial contributions disbursed by the public institutions.

At transformation industry level it is desirable to adopt choices directed to the differentiation of the products with quality improvement and the offer of innovations; for example, the adoption of the quality certification systems, the HACCP, the recognition of the geographical origin (typicalness) and the products traceability.

As regards the public politics they consists especially in the improvement of the hygienic conditions of the butchery and meat transformation phase, in the food education and in the incentive to the improvement of the products quality.

In the case of the butchery and meat transformation-conservation phase it is useful to improve the level of professionalism of the employees and the sanitary inspections both of the animals destined to the butchery and of the meat for the consumption. The abolition of the butchery costs in rural areas could result extremely effective. In the end, the availability of resources and basic infrastructures is essential, for example electricity, water, buildings and structures of butchery and roads for the transport of side with refrigerated trucks.

To improve the level of consumer protection it is necessary to intervene with sanitary controls of the products among the wholesale markets and the retailers and with courses of food education for pupils of elementary schools.

Finally, to improve the quality, politics of typicalness and development of Unions for the products protection can be started.

The number and the complexity of the problems of the fresh meat and *charqui* sale channels could restrain the producers and the institutions from embarking on interventions to favour the change. In perspective, we hope to see the producers react with choices of gradual orientation to the market and with the organization of the offer through the development of the producers' associations, without fears of losses at environmental level and products quality.

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