



Smallholder Livestock Keepers in the Era of Globalization

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Summary

Despite economic growth and development in most countries of the world, extreme poverty is still at an unacceptably high level, particularly in rural areas. The majority of the world's poor depend on agriculture for their livelihoods and within agriculture livestock fulfill a number of important roles. Growth rates of the livestock sector, fuelled by increasing demand for livestock derived food items from growing and more affluent urban populations, are higher than those for crops and non-food agricultural products. Diversification into and intensification of smallholder livestock production could therefore effectively contribute to poverty alleviation. Markets, both for production inputs as well as for outputs are essential for connecting rural smallholders with urban consumers. Globalization has the potential to result in enhanced market access by smallholders through direct as well as indirect impacts but also bears the risk of their exclusion.

Introduction

Despite economic growth and development in most countries of the world, large numbers of people, estimated at over one billion in total, remain in 'extreme consumption poverty', defined as those obtaining a 'global consumption bundle' worth US\$ 1 or less per person per day in constant purchasing power of 1993. Low consumption is only one dimension of poverty, but it is closely linked with others such as malnutrition and hunger, illiteracy, low life expectancy, insecurity, powerlessness and low self esteem. Generally, the links are close enough to rely on consumption value as an overall indicator (Kanbur & Squire, 1999).

Over recent decades, world leaders have repeatedly proclaimed their commitment to the alleviation of world poverty and recommended various targets. These were drawn together in the eight Millennium Development Goals by the United Nations General Assembly in 2001 (UN, 2001). The first of these goals is to eradicate extreme poverty and hunger, with the twin targets of halving between 1990 and 2015, (a) the proportion of people whose income is less than US\$ 1 a day, and (b) the proportion of people who suffer from hunger.

Progress in achieving the first target has been mixed, but globally, the reduction in numbers of the poor by 1999 appeared sufficient to predict the intended 50 percent halving by 2015 (see Table 1). The same findings apply to the developing countries as a group. However, there are large discrepancies between regions. While in East Asia the proportion of the population in extreme poverty was almost halved by 1999, progress in the other regions was slower. South Asia still has the largest number of people in extreme poverty (nearly 43% of the global total) but the proportion is lower than in Africa, and it is predicted that the target halving will be achieved. In sub-Saharan Africa however, estimated numbers of the very poor are estimated to have risen and are predicted to continue to do so. Although, as a percentage of the total population, those in extreme poverty are falling, there is little hope of achieving a reduction by 50 percent by 2015 in sub-Saharan Africa.

Table 1: Estimates and projections of extreme consumption poverty by main regions (million persons and percentage of total population).

	Developing Countries	Sub-Saharan Africa	North Africa & Near East	South Asia	East Asia (incl. China)	Latin America & Caribbean	World total ^a
1990	1,269 (32.0 %)	242 (47.7 %)	6 (2.4 %)	495 (44.0 %)	452 (27.6 %)	74 (16.8 %)	1,276 (29.0 %)
1999	1,134 (24.6 %)	300 (46.7 %)	7 (2.3 %)	490 (36.9 %)	260 (14.2 %)	77 (15.1 %)	1,151 (22.7 %)
2015	749 (13.2 %)	345 (39.3 %)	6 (1.5 %)	279 (16.7 %)	59 (2.8 %)	60 (9.7 %)	753 (12.3 %)

a. The world totals differ from the developing country totals by the estimated incidence of poverty in the transition countries of Eastern Europe and Central Asia.

Source: Adapted from World Bank (2001)

Within these broad regional groupings, there are major inequalities and differences in the extent of severe poverty between and within countries. In particular there is an imbalance between urban and rural areas. Most of the world's extremely poor (about 75 %) live and work in rural areas. Despite high rates of rural-urban migration in most developing countries, most of the poor remain in rural areas. This occurs for two reasons, first because in most regions a majority of the

population still live in rural areas, and second because poverty is relatively more prevalent in rural areas, and may in part account for the migration to urban areas. It is estimated that 70 percent of the world's rural poor are women, for whom livestock represent one of the most important assets and sources of income (DFID, 2000).

It may be noted that high rates of rural-urban migration and resultant rapid urban growth accounts for much of the total population increase, so rural population growth rates are slowing. World-wide, total rural population is expected to decline after 2020. In the developed countries, as a group, and in Latin America and the Caribbean, the rural populations are already declining. However, in sub-Saharan Africa, North Africa and the Near East and in South Asia the rural populations are still growing by more than one percent annually. Hence increased income must be generated in rural areas if only to prevent current low income levels per head from falling.

Meanwhile, the fast growing urban populations represent a steadily expanding market for food and raw materials produced in the rural areas. Thus, increased production is needed not only to reduce rural poverty but also to supply the expanding urban markets. However, road networks and other communications are often poor and, as a result, market connectivity is limited.

Rural poverty is exacerbated by lower levels of public spending per head on services such as health and education compared to urban areas. Few opportunities exist for local employment in the manufacturing or service sectors as these are concentrated in the urban areas. While rural-urban migration may be an option, alternative local employment opportunities are restricted to agricultural production or rural non-farm activities.

This paper aims to provide an overview of the role of agriculture and livestock as well as of rural non-farm activities to rural livelihoods, examines the links between farm and rural non-farm activities, reviews the demand trends for livestock-derived food, and highlights the importance of markets for rural poverty reduction.

Rural Livelihoods, Agriculture and Rural Non-farm Activity

Dependence on Agriculture

A majority of the people of developing countries, over 52 per cent of the total population, depend on agriculture for their livelihoods. In Africa and South Asia the proportions are even higher: the proportion of the rural population dependent on agriculture is around 75 per cent in North Africa, the Near East and South Asia, and close to 100 per cent in sub-Saharan Africa. Although the proportion is decreasing as a result of rural-urban migration, the absolute numbers securing their livelihoods from agricultural production are still increasing in the developing countries. Within the

developing country group, only Latin America and the Caribbean have fewer people dependent on agriculture today than ten years ago. In the 'transition economies' of the former Soviet Block, which in this paper are not included among the developing countries, agricultural populations have fallen rapidly.

Poverty and malnutrition exist in both a 'chronic', or long term, form and on a temporary, or 'transient' basis, as a result of droughts, or floods, pest and disease outbreaks or war and civil unrest. In some cases, the loss of income and productive assets associated with temporary disaster, result in chronic poverty and malnutrition.

Within agriculture, the degree of poverty depends upon the level of access to natural (land and water) and physical resources such as stocks of productive inputs, permanent crops, livestock, equipment and machinery. The 'extremely poor' or 'poorest of the poor' are likely to include smallholders with very small and/or infertile land holdings, pastoralists with depleted herds, and rural landless households. Landless people, who may be forced to depend on casual employment as wage labourers for their livelihoods, are found in all parts of the developing world. Africa is exceptional since even the poorest are likely to have access to some land and can operate a smallholding.

The particularly vulnerable are found in the more remote, often arid, marginal and degraded areas, among displaced persons and refugees, scheduled castes in South Asia, and notably among female-headed households in Africa, Asia and Latin America. Many situations have been documented where local institutions limit women's access to land, credit, technology, education and health and constrain their productive activities. Rural women are often also less likely to obtain off-farm work than men. Poverty incidence among children is everywhere much higher than among adults. The HIV/AIDS epidemic in Southern Africa and elsewhere causes widespread poverty in urban and rural areas, by causing the death of able-bodied adult family members, leaving children and aged dependants without support.

Non-farm Income and Off-farm Employment

Non-farm income is important to farm households in developing countries. A review of about 100 farm-survey studies found that on average the share of non-farm income in total rural household income was 42 per cent in sub-Saharan Africa, 40 per cent in Latin America and 32 per cent in Asia (Reardon *et al*, 1998). Thus the rural non-farm sector is second only to agriculture in providing incomes and employment for rural people. Income diversification into non-farm activities is likely to increase incomes and reduce risk.

In many rural areas of the developing countries, where communications with the major urban markets for manufactured goods and services are limited, these items must be produced and traded locally within the village economy. These include activities such as house building, bicycle repairs, crafts, dress-making, food processing, firewood and charcoal selling, food retailing and local brewing and distilling. The products are described as non-tradable since they are delivered and used mainly within the rural community, and cannot readily be traded in urban or international markets. These activities are highly labour intensive, but only expand in response to growth in local demand.

For many rural households, rural non-farm activities offer opportunities for investment and self-employment to supplement the farm income. However, for the very poor, rural non-farm activities can only offer opportunities for wage-employment, as an alternative to working on other people's farms. In either case complementarity exists between agricultural and non-farm activities. Increases in agricultural production and farm incomes, generate increases in demand for rural non-farm goods and services, which then induce a supply response and increased incomes for those engaged in the non-farm sector.

In comparison with urban based manufacturing and service industries, both traditional agriculture and rural non-farm activities are labour intensive. This means that the labour input requirement is high in relation to the physical capital invested, and per unit of output. Expansion, of agricultural or rural non-farm production, is therefore beneficial by creating employment in labour abundant but otherwise resource poor societies.

In very unequal societies, where there is bimodal development with some rich farmers and some poor, this complementary development is unlikely to occur. Because of pecuniary, and possibly technical, economies of scale, the rich, well-endowed farmers are most likely to benefit from improvements in agricultural productivity or prices. However, they are also more likely to spend income gains on tradable goods and services available in the urban areas, and not on rural non-farm products.

Contributions of Livestock to Rural Livelihoods

Importance of Livestock Production within the Agricultural Sector

The important roles of livestock, within the agricultural sector, in contributing to rural livelihoods, and particularly those of the poor, are well-recognised (LID, 1999, Upton, 2004). Livestock and their products are estimated to make up about a third of the total gross value added of agricultural output in the developing countries and this share is rising quickly (Bruinsma, 2003).

Production is increasing rapidly in response to the fast growing demand for livestock products resulting from increasing population, especially that of urban areas, and rising consumer incomes. Over the last decade, annual growth rates of the livestock sector have been around 3.8 percent, compared to 2.7 percent for crops and 1.2 percent for non-food agricultural products. Given also the estimate that livestock contribute to the livelihoods of at least 70 percent of the world's rural poor (LID, 1999), the case for a focus on livestock in pro-poor development is clear.

Poor farmers are more likely to own poultry and pigs, sheep and goats, or other small stock rather than large stock. In comparison with larger stock such as cattle they have several advantages: small animals require less capital investment to buy and maintain; they are more convenient for distress sales while death of a single animal is less damaging; they grow and breed faster and can often thrive on harsher terrain.

Livestock not only produce meat, milk and eggs, wool and other products, for sale or home consumption, but also yield manure for use as fertilizer or fuel and may serve as a form of saving or reserve against emergencies when they may be sold to provide essential cash. In many societies livestock have ceremonial uses and ownership enhances the status of a household. However, there are many different species and breeds of livestock and different livestock production systems. Ways in which livestock keeping contributes to the relief of poverty, will vary with the type of production system.

Main Types of Livestock Production System (LPS) and Distribution of Poor by LPS and Region

Livestock production systems may be broadly categorised into (i) 'grassland-based' pastoralism and ranching (ii) 'mixed-farming', either rainfed or irrigated, and (iii) 'landless', mainly pig and poultry production systems (Seré & Steinfeld, 1996).

The 'landless' production systems are largely responsible for the rapid growth in average meat supply per person in the developing countries, poultry production having doubled over the last 10 years. Reproduction and growth rates are faster in pigs and poultry than in the ruminant livestock species. However, housing and hand feeding increase capital requirements and labour costs. Much of the expansion has been due to increased production from large-scale, commercial and peri-urban enterprises.

Inter-regional differences in livestock production systems depend upon agro-ecological features, human population density and cultural norms. Although livestock production systems vary considerably between regions within countries, some broad differences may be identified

between continents and linked with the availability of natural resources. The distribution of poor livestock keepers by production system and region is given in Table 2.

Table 2: Proportion (percent) of poor livestock keepers within production systems by region.

	Developing countries	Sub-Saharan Africa	North Africa & Near East	South Asia	East & South east Asia (incl. China)	Latin America & Carib-bean
Grassland-based systems	7.1	13.1	14.3	2.5	1.8	9.0
Mixed rainfed systems	66.0	77.9	56.6	60.1	59.3	67.9
Mixed irrigated systems	18.5	0.4	16.9	33.7	29.0	3.6
Landless	8.4	8.5	12.1	3.7	9.9	19.5

Source: Thornton *et al*, 2002

In Sub-Saharan Africa, agricultural population density is relatively sparse, so that land endowments per person are quite good. However, much of the land is classified as arid, and only a very small proportion of the crop land is irrigated. Grassland-based ruminant production is prevalent in the arid/semi-arid areas but most people are supported by, and most ruminant meat and milk is produced from, mixed rainfed farming systems. Mixed farming is practised in both arid and humid regions along with some in the temperate highlands of East Africa. There is some limited development of pig and poultry production, particularly in peri-urban areas. Overall levels of production and consumption per capita are low and improving rather slowly.

In contrast South Asia, including India, is densely populated, with very limited land resources per person depending on agriculture. Much of the land area is arid or semi-arid. However, a high proportion of the crop land is irrigated. Thus virtually all the ruminant livestock production is derived from mixed production systems, either irrigated or rainfed. Little meat is consumed but milk production and consumption have grown rapidly and India is now the world's largest milk producer. Poultry meat production and consumption have also grown rapidly albeit from a fairly low base.

The land resource availability per person in agriculture in East and South East Asia, including China, is similar to that in South Asia, the only difference being that most of the land area is classified as 'temperate'. Most of the livestock are produced on mixed irrigated and rainfed farms, but the main species are pigs and poultry rather than ruminants. Milk production and consumption are very low. However, the production and consumption of pig and poultry meat

and eggs are high and growing fast, although the quantities are possibly exaggerated in the Chinese statistics.

Land resources per head of agricultural population, in Latin America and the Caribbean, are higher than in other parts of the developing world. This low agricultural population density is linked with higher than average levels of urbanisation and per capita incomes. Only about a third of the land supporting livestock systems is arid. The extensive grassland of the 'pampas' allows production of ruminants, mostly ranched cattle. Nonetheless, rainfed mixed farming systems are the source of most of the ruminant production. Landless poultry and pig production is expanding rapidly, particularly in Brazil. Overall livestock production and consumption per person are considerably higher than in most developing countries, and are increasing quite rapidly.

Land areas per person dependent on agriculture in the Near East / North Africa are high but the climate over much of the region is arid or semi-arid. A substantial proportion of the crop land is irrigated. The large areas of 'permanent pasture' carry ruminant stock, mostly sheep and some camels. The majority of ruminant stock are raised, however, on mixed farms, many of which are irrigated. No pigs are kept but landless poultry production systems are expanding in number. Livestock products make a relatively small contribution to human diets, but the contributions from milk and poultry meat are increasing.

Comparison of the main developing country continents shows that sub-Saharan Africa, Latin America and the Near East, with reasonably large areas of land per person engaged in agriculture, have a greater proportion dependent on grassland-based, ruminant livestock systems than do the more densely populated, land-scarce, regions of South and East Asia. Nonetheless, in all the continents listed, most of the agricultural population are engaged in mixed farming systems. Poultry production is a key enterprise in Latin America, particularly Brazil, and in East and South East Asia, mainly China which is also a major pig producing country. South Asia is the largest milk producing region.

Supply of Animal Protein (and Calories)

Within the household, livestock production contributes to improved nutrition, particularly of children, in any of three ways. Diets may be improved (i) by direct consumption of milk or eggs and meat occasionally; (ii) by the use of the income earned from sales of livestock products to buy food; or (iii) from increases in crop production resulting from mixed farming (Tangka *et al*, 2000, Neumann, 2000, Shapiro *et al*, 2000).

By contributing to human protein and calorie consumption, livestock production reduces the incidence of under-nutrition. An indication of poor diets in the developing world, and hence of the

necessity to improve nutrition, is given by the average daily calorie supplies per head, which for all regions are lower than in the developed countries (Table 3). The regional averages are between an eighth (in the Near East) and a third (in Africa) lower than in the developed countries. While the regional averages are lower, the calorie intakes of the poor within each region are much lower.

Table 3: Supplies of calories and livestock products per capita (2002).

	Develop- ing Coun- tries	Sub- Saharan Africa	North Africa & Near East	South Asia	East & South East Asia (incl. China)*	Latin America & Caribbean	Develop- ed Coun- tries
Calories /cap/day	2,666	2,207	2,894	2,427	2,703	2,860	3,314
Meat supply/cap/year (kg)	28.5	11.4	22.5	5.9	21.6	61.2	79.5
Milk-excluding butter supply/cap/year (kg)	45.6	29.0	75.0	66.9	13.9	106.3	202.1

Source FAOSTAT, 2005

While developing country diets are poorer than those of developed countries in quantitative terms, the difference in dietary quality is even more marked. The poorer quality of diets in the developing countries is reflected in the low average levels of consumption per head of meat and dairy products. In all regions but Latin America, the average intake per head of meat and dairy products is a small fraction of that in the developed countries.

Low levels of dietary intakes of livestock products, such as meat, milk and eggs, may be explained by the higher cost of production, per tonne and per unit of food energy, than for staple crop products. To some extent, high levels of cereal supply and consumption per person compensate for the low levels of meat, milk and egg consumption. However, as incomes rise, in the developing countries, consumers seek more variety and better quality foods in their diets. Hence demand for livestock products rises rapidly, an effect which is also driven by rapid growth in the number of consumers. The high rates of growth in meat supply, and consumption, per capita recorded in all regions except North Africa and the Near East, are significant and provide livestock producers with rapidly expanding domestic markets. Much of the growth in demand is, however, concentrated in urban areas.

The rapid changes in demand and supply of meat are accompanied by shifts in the types of meat contributing to the total. Over the past ten years, while consumption per head of bovine and sheep and goat meat have stagnated in all regions of the developing world ¹, poultry meat consumption has risen annually by over 6.5 percent in South Asia, and by nearly 6 percent in Latin America and on average for all developing countries. Significant increases in consumption of eggs are recorded for all regions except Africa. Hence it can be argued that the rapid increases in consumption of livestock products have largely stemmed from a shift towards consumption of poultry products.

The Importance of Markets

Home Consumption and Local Markets

Limited market access is a key constraint on the rural poor. Remoteness and poverty both tend to reduce access to markets, particularly for disadvantaged groups, such as the illiterate or poorly educated and different ethnic minorities. There are five main physical reasons why market access may be difficult: poor road network, high transport costs, poor postal and telecommunication services, low value to weight ratios of some products, such as manure, and the perishability of products, such as milk or meat. These last two characteristics determine whether livestock products are tradable in the larger urban and international markets.

Even if no products are sold, livestock may still contribute to rural livelihoods by increasing household consumption. As already stated nutrition, particularly that of children, is improved by home production of milk and meat, eggs or honey. Smallstock, such as poultry, sheep and goats, are often kept near the home, largely scavenging for food and requiring very few resource inputs and they are more convenient as a source of household meat, than cattle and other large ruminants. In mixed farming systems, the main benefits of manure production and the provision of animal draught power, are derived within the farming system. Crop yields are increased by the use of manure as fertiliser, while cropped areas, or cropping intensity, may be increased by using animal draught. Increases in crop production then contribute to improved livelihoods and human nutrition. Hence livestock production can contribute to the livelihoods and nutrition of purely subsistence households.

However, the vast majority of rural households are partly engaged in market activities, despite also aiming to produce food for the family. Whilst production of staple food crops for home consumption is generally a key objective, livestock production is commonly seen as a cash

¹ with the exception of Latin America where beef consumption rose by 1% annually.

earning enterprise. Escape from poverty requires production of a marketed surplus over basic subsistence needs, to pay for productive inputs, consumer goods and immediate cash requirements. Although herd or flock expansion may be based simply on the natural processes of reproduction and growth, the initial investment in a new enterprise and other forms of asset accumulation require cash savings or credit supplies. Sale of produce provides income to improve consumption levels, to purchase inputs (concentrate feeds, labour, drugs and veterinary services) and to invest in genetic material, housing and equipment for increased future production.

In rural areas, where access to the large urban markets is limited, many market transactions take place within the local community or 'village economy'. Agricultural products and the necessary inputs may be bought and sold locally, while services may be hired. The importance of the rural non-farm sector has already been emphasised, as a source of local services and consumer goods. Live animals, particularly small-stock, may be bought and sold locally, and loaned or hired for breeding or, in the case of large ruminants, for draught purposes. Products such as meat, milk and eggs may also be sold locally, but for meat and milk some basic processing is needed; slaughter and butchery for meat and cooling or fermentation to increase the shelf life of milk. Manure sold as fuel is generally dried before sale.

Intangible benefits conferred by livestock ownership, such as the gain in status, are only realised in the context of the local community. The transfer of land use rights and labour hire are transacted in local markets, but access to 'new' inputs, such as improved genetic material, pre-mixed feeds and animal health services, is dependent on there being sufficient local market demand and/or special programmes to provide these inputs. Similarly the growth of the non-agricultural rural industries, that provide local goods and services, is highly dependent on the growth of demand. Given the fast growing demand for livestock products in many developing countries, there is great potential for rapid expansion of production, producer incomes and rural non-farm economic activity, which in turn will increase employment opportunities for poor landless labourers, if supply and demand can be linked through efficient markets.

Urban Markets

Large towns and cities are market foci, where demand for most products is concentrated, as is the supply of manufactured goods and public services. The process of urbanisation is associated with industrial development and growth. Communications are facilitated, and transaction costs reduced, while there are benefits from economies of scale and agglomeration. The main consumer markets for livestock products are found in these market centres, where the rapid growth of urban populations and incomes account for much of the growth in consumer demand.

Access to urban markets, by rural livestock producers, requires development of an infrastructure of communications and transport, intermediaries, market places and processing facilities. Markets link producers and consumers, usually through a chain of intermediary traders. Within the market chain, products are transported from one location to another, and processed from one form into another. All these operations must be financed as well as the 'transaction costs' of negotiating and enforcing contracts. The institutional framework has an important influence on the share of prices received by producers.

Access, and hence tradability, also differs between types of livestock and their products. Large animals may be moved over large distances, on the hoof, but may lose condition as a result. Where motorised transport is available, it may well prove a cheaper alternative. Small animals, and poultry require transport but are bulky and therefore costly to move over large distances. None the less for remote rural producers, live animals are more readily tradable, than most other livestock products.

Products such as meat, milk and eggs are perishable and meat and milk require chilled transport if moved over large distances. Transport costs are considerably higher, per tonne, than they are for live animals. Since transport costs also vary with distance to the market and quality of road surface, the producer prices net of transport costs are much lower in remote production areas, than in locations close to the main markets. For similar reasons the costs of new inputs, supplied from urban areas are more costly for livestock producers in remote areas. Small-scale producers are at a particular disadvantage, due to the high unit costs of moving small consignments

Peri-urban producers have a clear advantage due to their market proximity. Costs of produce marketing, and of input delivery, are lower than those for more remote rural producers. Hence, intensive milk production or landless pig and poultry production systems often develop in these zones.

The marketing problems associated with the perishable nature of livestock products, such as meat and milk may be alleviated by chilling and hanging of meat, plucking and eviscerating broiler chickens, processing of by-products, or the cooling and pasteurising or souring of milk. Further processing of meat may involve drying, salting or smoking, while milk can be processed into dried milk powder, butter, cheese, and yoghurts. Such processes extend the potential shelf life of the product and may facilitate transport, although the cost of refrigerated transport per tonne-kilometre is much higher than that of ordinary transport.

However, this is counterbalanced by the considerable value added, per tonne of produce, by processing. All these operations require capital equipment and are subject to economies of scale. Pecuniary economies, in the form of higher prices, also result from bulk selling. This benefit also applies to the grading and packing of eggs (FAO, 2003).

While there are large numbers of small scale livestock producers, and consumers of the products, there are often very few traders or market intermediaries. The results are a lack of competition and inequality of bargaining power. This situation results from the small-scale and scattered distribution of producers, and inadequate transport and communications. The costs of setting up a trading agency are high and there may not be enough business to justify many traders becoming involved.

In the past Governments intervened, through parastatal Marketing Boards, for meat and for milk. Following structural adjustment, and identified weaknesses in their operation, many marketing boards have stopped operations. It was hoped that private enterprises would fill the gaps and provide marketing services. There has been a tendency to revert to more traditional methods of more direct marketing from producer to consumer. Co-operatives, or group activity by producers, have been successful in milk marketing, for instance in India and for a time in Kenya. Pig and poultry (broilers and eggs) marketing is often controlled by large commercial companies, which may contract with smallholder producers. In these instances it is clear that the commercial companies have monopsony (a buyers monopoly) power in relation to the producers.

International Markets

Urban markets are also the conduits for international trade, which has increased at an accelerating rate over time. Trade in livestock products has expanded since the development of refrigerated shipping at the end of the 19th Century. Today, domestic livestock producers, in most countries, face market competition from imported products. Local producers must achieve comparable quality standards at no higher price in order to compete. Some developing country livestock producers are able to compete in world markets, so the country becomes a net exporter (for further discussion of trade in livestock products, see Upton, 2001 or Upton & Otte, 2004)

Although most developing country economies depended on agricultural exports at the time of independence, over recent decades the developing countries as a group have become net importers of agricultural products, including livestock products, from the developed world. Estimates of the current net trade, in livestock products in 2002 (average 2001 – 2003) for developing regions, are given in Table 4. The balance of trade in livestock products, for the developing countries, as a group, is indicated by the data for the developed countries (last column), which provide net exports to the developing countries in all products.

Milk and dairy products, measured as milk equivalent, make up by far the largest item of net imports, in all regions. Net imports of 'milk equivalent' have been growing at between 2 and 4 percent annually, other than in Latin America and South Asia where they have diminished in recent years. For the meat products, there is much variation between regions. South Asia is a

net exporter of ruminant meat, from cattle, sheep and goats. Latin America is a net exporter of bovine, pig and poultry meat, while East and South East Asia exports poultry meat. The Near East is the only region which is a net importer of all livestock products, while Sub-Saharan Africa is a net importer for all livestock products with the exception of ovine meat. Net imports of ruminant meat and pig meat to East Asia, poultry meat to Africa and the Near East, and sheep meat to Latin America are all growing rapidly.

Table 4: Net trade in livestock products (1,000 metric Tonnes) in 2002 (average of 2001 - 2003).

	Sub-Saharan Africa	North Africa & Near East	South Asia	East & South-east Asia (incl. China)*	Latin America & Caribbean	Developed Countries
Milk equivalent	-2,045	-6,400	-762	-8,642	-3,886	25,894
Bovine meat	-21	-351	297	-610	711	346
Ovine meat	3	-108	9	-76	-47	277
Pig meat	-38	-10	1	-77	152	138
Poultry meat	-306	-750	-3	193	1,033	1,072

Source FAOSTAT, 2005 (negative values = net importer)

These broad statistics only give a rough guide as to developments in livestock trade. There is much variation between countries, within continental regions, while trade in live animals, and some minor products have been omitted. Of particular note is the trade in live ruminants from the tsetse-free but poor, Least Developed Countries of the African Sahel to Coastal West African countries and to East African States (de Haan, van Ufford & Zaal, 1999). Despite the data limitations, it may be concluded that the growth of imports in many developing countries reflects a failure of domestic producers to meet the growing domestic demand. There are therefore significant opportunities for import substitution, as opposed to attempting penetration of international markets, where other countries, that are net exporters of livestock products, are already established as competitors.

Nevertheless, it is widely argued that the tariffs and non-tariff barriers imposed, by the USA, the European Union and Japan, on imports from third countries, to support their domestic producers, restrict production and trade for developing country exporters and destabilise world markets. At the same time, support for developed country (OECD) producers is thought to depress world prices below their free trade levels. As a result producers in developing countries may face competition from 'artificially' cheap imports. Reduced farm support in the USA, Europe and Japan should result in slight increases in world prices for livestock products, that, while raising food costs for developing country consumers, will improve opportunities and incentives for the producers.

Health and food safety (SPS) standards are aimed at risk reduction for importing countries but may impose barriers against exports from developing countries because of the high costs of compliance. The WTO provides a forum for dispute settlement, but financial, legal and technical support may be needed by developing countries to negotiate settlements and comply with agreed standards. Separate, less stringent standards might be appropriate for inter-developing country trade. Other issues such as environmental impact of productive activity and animal welfare are likely to be increasingly important in future international trade negotiations. The main conclusion, for developing country producers, is that improved animal health care and product quality management is essential for access to major world markets.

The Impact of Globalization on Smallholders

Globalization and the consequent integration of domestic and international markets present both opportunities as well as threats for smallholder livestock producers in developing countries. As countries are obliged to lower their barriers (tariff and non-tariff) to foreign suppliers of livestock products, this opens market opportunities for livestock producers in developing countries who have the capacity to produce what is demanded and are in a position to exploit their potential. On the other hand, globalization means that these developing countries also have to open their own markets for livestock products to competition from abroad, both from industrialized countries as well as from other developing countries. If domestic producers cannot match the imported products at the prices and quality at which they can be imported, they will find themselves progressively pushed out of their traditional market domains.

Increasing integration of international and domestic markets for livestock products and production inputs can provide direct benefits to smallholder producers through increased access to production enhancing inputs, for example cheaper feed grains through lower domestic tariffs, and faster diffusion of technology. An important channel for improving rural incomes is the labour market, which can provide cash employment for farm residents locally and, if they are willing to migrate, regionally, nationally, and even internationally. Direct local earnings are important and many rural communities exhibit complex markets for off-farm employment, including both cash and in-kind compensation. Generally speaking, however, the primary driver of rising living standards in this channel is remittances from workers who migrate to regional or national urban markets. Not only does this migration provide rural households with access to more dynamic economic growth trends fuelled by globalization, but cash remittances overcome many obstacles to local capital accumulation, investment, and enterprise development. These new sources of savings also reduce the vulnerability of rural households to economic shocks and thereby reduce their relative risk aversion, promoting adoption of new practices and other forms of entrepreneurial risk taking. This latter category surely includes livestock development.

One aspect of globalization is foreign direct investment (FDI) in activities that, among other things, engage in the supply of meat and dairy products, whether from domestic or imported sources. In the food industry FDI manifests itself in the entry and expansion of supermarket chains in developing countries, aimed at capturing market share in the major urban consumer centres (T. Reardon and C.P Timmer, forthcoming). Where supermarkets source their array of meat and dairy products through imports, adverse impacts on domestic suppliers will prevail, and even where they source their supplies from domestic producers, their procurement practices of relying on a few large-volume and quality standards-meeting suppliers will generally benefit large-scale producers. As these supermarkets expand market share in meat and milk products and encroach on even the smaller towns, they will displace market share of traditional wholesalers, and smallholder producers supplying consumers through these wholesale market chains will have to contend with narrower market options, lower incomes from the sale of livestock and milk products, with some opting out of unprofitable market engagement.

In an era of globalization, there is a generally held belief that greater external orientation can confer aggregate growth benefits. Despite this apparent consensus, however, the detailed incidence of trade and growth, among many economy-wide trends, is not so easy to generalize. Whether globalization will marginalize smallholder livestock keepers in developing countries to fringe markets, or will allow them to expand access to markets beyond the local and national confines will depend much on their initial competitive position, i.e., whether or not the production and marketing systems they are engaged in exhibit actual or potential competitive advantage for the export of livestock products demanded by trading partners, or against imports of similar products demanded by consumers in the home country.

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