

# Beef Exports and Development: Experience and Prospects for Developing Countries

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## Introduction

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Only a very small proportion of total meat production — between four and eight per cent — enters international trade. The proportion is generally slightly higher for beef alone, which remains the principal meat in international trade. In none of the major or minor beef exporting countries is beef the principal export, and beef production generally ranks low among sources of employment within the country.

These opening remarks are made in order to indicate the limitations of the impact which changes in the fortunes of the beef export trade have upon the domestic economies of the exporting countries — lest the emphasis in this article on developments in the beef trade and their relation to the rest of the economy be interpreted as assuming that beef production is the lead sector in any case.

Section I provides a brief background on the pattern of secular changes in the world beef trade. Section II examines how new exporters were drawn into the international beef trade in the second 'wave'. Section III considers the relation of beef export development to economic development in the exporting country, and Section IV looks at future prospects.

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## I. Secular Changes in the World Beef Trade

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Two 'long waves' are apparent in the modern history of the world meat trade, running through the short cyclical fluctuations. The first rises in the 1880s, peaks in 1919, and declines to the late 1940s. The second rises in the 1950s, climbs steeply through the 1960s and 1970s and flattens out from the early 1980s.

The shape and timing of these 'waves' follow the long trend of income changes in industrialised western economies. Meat is a luxury form of protein owing to the amount of energy required to produce it compared to vegetable protein, which is consumed in its production. Therefore the income elasticity of demand for meat (and other animal products) tends to be higher than that of vegetable proteins.

A feature of the second wave of growth has been the entry into beef exporting of a variety of countries — Central American, South American, African (especially

Botswana) and very recently Asian. These countries had previously been outside the mainstream of the world meat trade, either not producing beef (e.g. the forest zones of Central and South America) or confined to supplying cattle on the hoof to regional markets (e.g. Botswana). Their opening up for beef export production has not affected world beef export volume greatly, but has been important within the political economy of the countries concerned. The reasons why their entry took place, the impact thereof and why (in most cases) they will not long remain beef exporters, are the main focus of the remainder of this article.

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## II. How New Exporters were drawn into the Trade in the Second 'Wave'

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Three features of the development of the international beef trade which have affected the location of beef export supply are the import markets, the type of product demanded, and the supply conditions in exporting countries.

### (i) Import Markets

The enormous increase in meat consumption in the developed countries since 1950 (some two per cent per capita per annum), has been met principally by domestic production increases, but leaves a rising deficit to be covered by imports. The increase in the deficit has been most marked in manufacturing beef, reflecting both an increasing demand for manufacturing beef and a dwindling domestic supply.

The increased demand for manufacturing beef has resulted from the rapid growth of the 'fast foods' industry (hamburgers, frankfurters etc.) for which cheap, lean beef is required. On the supply side, two factors have had a negative impact on the production of manufacturing type beef (utility, cutter and canning). Firstly, increased grain production since the 1950s in both Europe and North America, and the secularly increasing beef/grain price ratio [Crotty 1980:29], have brought about greater specialisation of beef herds in grain-fed 'high grade' fat stock production.

Secondly, the chief source of manufacturing beef (and in Europe of all beef) has been cull dairy cows. But higher productivity of dairy cows and sluggish

demand for dairy products have reduced dairy herds and this source of lean beef.

### **(ii) Type of Product demanded**

The changes in the form in which beef is shipped reflect higher veterinary hygiene standards, higher packing and transport technology and the growing trade in manufacturing-type beef (i.e. the kind of cuts demanded by manufacturers). Refrigerated beef is now shipped predominantly deboned — for veterinary reasons, convenience in later manufacturing and to keep down transport costs (lower weight and volume per unit value, easier handling). Increased precooked exports from South America reflect US veterinary import restrictions against South American refrigerated exports.

### **(iii) Supply Conditions in Exporting Countries**

The decline of Argentina's share of world exports, and the corresponding rise in Australia's and New Zealand's, are the result partly of Argentina's increased domestic demand and much higher beef consumption levels per head, as well as much greater increases in overall herd productivity in Australia and New Zealand. But a further important reason has been the rise of the lucrative US import market and the resulting stimulus to export production. The US gives veterinary access for fresh, chilled and frozen beef to Australia, New Zealand and temperate Central America, but denies it to South America because of endemic Foot and Mouth disease. The US beef deficit has been a principal cause of growing beef exports from Central America during the period.

The remaining 'new exporters' have been African (including Botswana, Kenya, Madagascar, Swaziland) and their overseas export trade has been based largely on the demand for lean beef in the British market, assisted in the 1950s and 1960s by Commonwealth Preferences and, since Britain's accession to the EEC, by the rebate of 90 per cent of the EEC's 'variable levy' on beef import quotas granted to the ACP group of countries under the Lomé Convention of 1975 (renewed in 1979 and 1984). Exemption from the EEC's common external tariff of 20 per cent was simultaneously granted. The more sophisticated and hygienic slaughtering, preparation, packing and transporting of meat now demanded by the export market has, in important respects, aided rather than hindered the entry of new, more remote exporters by encouraging efficient and hygienic meat processing, even under adverse conditions. Automated and standardised slaughtering processes facilitate high productivity and focus skill requirements on management rather than labour; plastics, stainless steel, vacuum sealing and precooking enable higher hygiene standards to be maintained more easily. Deboning and boxing reduce transport costs of meat: together

with improved refrigeration techniques they have made the up-country location of abattoirs more economic, freeing overseas exporting abattoirs from their prior coastal locations, provided transport infrastructure in the hinterland is adequate [Mittendorf 1978].

A major recent feature in the world trade in beef and dairy products has been the growing EEC net surplus resulting from subsidised production and export under the Common Agricultural Policy. Subsidised EEC beef exports have reduced export possibilities for those exporters without veterinary access to the two major net import markets (US and Japan). The alternative markets which arose in the 1970s were those countries experiencing the highest growth rates from relatively low levels of income — notably the oil exporters of the Middle East and the 'new industrial countries' of the Far East. These have been the target for dumped EEC exports and thus largely excluded other exporters. In 1981-83 EEC net exports of fresh, chilled and frozen beef supplied 24 per cent of world import markets outside the US, Japan and EEC itself [FAO 1983].

The ACP beef exporters under these circumstances have become increasingly dependent for export sales on their preferential access to the EEC. Since EEC internal prices have been held above those of alternative markets (and EEC exports have depressed the prices in alternative markets) this has been financially beneficial to ACP exporters.

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## **III. Beef Exports and Economic Development**

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Two generalisations appear to be possible regarding the relation between beef exports and economic development of exporting countries during the two long 'waves' of the international beef trade.

Firstly, beef exporting countries have moved along a growth path involving investment in livestock production and export of meat (beef production has typically been a pioneer activity in the exploitation of virgin lands), followed by a rise of the domestic market (through income and population growth — neither likely to be much the result of the beef industry), increasing competition for land use from arable production (which helps to induce productivity increases in livestock production — not least by providing increased stock feed), followed by continuing reduction in the exportable surplus and then change of status to net importer of meat.

Variations in the progress along this path have had several causes. A country may remain a net exporter of meat through having a particularly low ratio of population to land area and having achieved particularly great increases in productivity in meat production (viz. Australia, New Zealand), or may

revert to net exporter status through heavy subsidisation of livestock production (EEC). Alternatively, a country may become prematurely a net importer of meat, through increases in productivity of meat production being particularly low (several African and South American producers) and/or through increases in domestic demand for meat being particularly high (several Central and South American exporters in the second 'wave' of growth of the world beef trade).

A second generalisation is that the 'new exporting countries' of Latin America and Africa have several common characteristics which have made their experience with beef export particularly socially problematic. These characteristics are destructive land use by beef production, poor agricultural and industrial development, and (for some) severe balance of payments difficulties.

### Land Use

The second 'wave' has seen the increased opening up for beef production and export of *tropical* areas not previously heavily exploited, where soils and climate are inferior for both arable and livestock production (arid savannah, tropical forest) and over-exploitation carries a heavier risk of desertification. The low private costs of exploitation of such land (there being no attractive alternative private uses competing for it) worsens the risk of over-exploitation and creates a major task in social resource management — as in, among others, northern Australia [Young 1979], parts of Latin America [Feder 1978, Shane 1980] and parts of Africa. It also makes unattractive those innovations (such as grazing management, land reclamation and seeding of pastures) which enhance the productivity of land. Inappropriate land tenure can further reduce the private costs of over-exploitation. Large estates under absentee ownership are one instance: cattle raising by *estancieros* in tropical Latin America has been described as 'scavenging' [Crotty 1980:28] and Feder remarks:

Enormous losses occur in various ways — through low fertility rates, high calf mortality, low weight gains etc. — as a result of the failure to control animal health, through lack of adequate nutrition because of poor pasture management, failure to provide food supplements or minerals and simply poor care. In Latin America ranching was and is in most important areas in a primitive state of affairs [Feder 1978:54].

Unregulated communal tenure of grazing lands is another instance, particularly evident in Africa.

### Agriculture

Practically all the major beef exporters of the first and second 'waves' have also at the same time been net exporters of cereal grains (FAO Trade Yearbooks)

whereas the small, new exporters of the second 'wave' are all substantial net importers. Their failure to be self-sufficient in food grains (and stock feed) is not simply a result of infertile land; none of the countries appears to have realised its food crop potential.

### Industry

The development of cattle and sheep production through private enclosures has always displaced peasants and hunter-gatherers — whether in 18th century Britain, 19th century North and South America, Australia, New Zealand and South Africa, or in the present opening up of new beef production zones in Latin America and Africa. But with scant industrial development to provide alternative employment for displaced people, the social cost of ranch development in the new beef exporting countries has been particularly high.

### International Trade and Payments

By the outbreak of the First World War the United States and several industrialised West European countries were becoming net importers of beef. Except for the special cases of Australia, New Zealand and the EEC, the pattern has been reproduced by other industrialising countries. In the 'new exporters' too, there is now rapid change toward net importer status. It has already occurred in Kenya and Panama, and forecasts have indicated that, among others, Mexico, Ecuador, El Salvador, Bolivia, Paraguay and Guyana could be net importers by the turn of the century. In these countries the main source of the existing or impending deficits are population growth (which at three per cent plus per annum virtually offsets the annual increase in Latin American beef production), and relatively high per capita beef consumption levels in Latin America. The result has been frustration of the hopes of policy makers who had intended that rising beef exports should provide a source of foreign exchange additional to their main exports (fruit and coffee), and frequent policy prevarication. The pressure of foreign exchange shortages and attractive export opportunities have underlain occasional efforts to marry 'cheap beef' with higher exports through declaring 'meatless days' (e.g. Guatemala, Honduras, Argentina), designed both to reduce domestic demand and to increase the exportable surplus. This conflict between exports and the domestic market reflects the greater conflict between large land owners (the main cattle producers) and the landless poor, which is so strong a feature of much of Latin America.

Because the anticipated deficits in many 'new exporters' have their main source in population growth and low production, their impact on beef production may also be different from that in countries where the deficit is more the result of income increases. Where rising incomes have driven the domestic price up, absorbed the domestic supply and

started to attract imports, a politically powerful farming lobby (seeing that its future lies in the domestic, not the export market) has sometimes succeeded in forcing through import controls and marketing legislation to make for a 'captive' home market. The resulting higher prices and subsidies act to raise land values further, even of marginal land, by encouraging production. Examples are France and Germany in the late 19th century after they ceased exporting cattle to Britain and closed their markets to cheap US and Argentinian beef imports [Hanson 1938:93], the US in the early 20th century (*ibid*) and South Africa in the mid-1930s when the state gave up trying to establish the country as a major beef exporter and turned to regulating and protecting the expanding internal market. By contrast, a beef deficit caused by growth of a low income population does not offer such opportunities for extracting higher returns from a captive market: the demand is for an increasing volume of production at given prices, whereas higher returns to beef production depend heavily on higher prices (if land is not privately costless and given the biological limits to cattle productivity) [see Preston 1976:243]. The impact might rather be to depress beef production, as a result of the 'cheap beef' policies which the growing low income population gives rise to.

The experience of Botswana (the largest beef exporter in Africa) shares features of the other 'new exporters' except that, to date, she has suffered no overt conflict between domestic beef requirements and exports. A very low population/land ratio (the lowest among beef exporters) is likely to ensure that little conflict arises in the near future, despite a high rate of population and income growth and continuing low productivity in cattle production.

In sum, the expansion of beef export production into predominantly tropical areas has not been accompanied by the same degree of industrial and agricultural growth as occurred in the major exporters. Besides the threat to the more fragile tropical soils and forest zones, the result has been that people have been displaced with little prospect of re-employment, productivity has remained low and there will, in many cases, be an early reversion to net importer status, due largely to the natural population increase. No immediate prospect for change appears to be present from within the dynamic of the economies themselves.

Can any theoretical conclusions be drawn from the observations above concerning the problematic experience of the 'new exporters' with beef export?

'Staple theory' appears to have some relevance. This originated in the hypothesis that the export of staples has been the chief historical source of Canadian economic growth [Innis 1930], from which it was developed further by Watkins [1963].

The approach (it is hardly a theory) is Neoclassical in nature in that failure of growth of a diversified nature to take place is attributed to institutional rigidities, and ignores the role of political power in determining the developmental impact of beef production. Basically, it suggests that different commodities have different growth-inducing potential according to their linkages, and according to the ability developed in the economy to shift resources into alternative activities at the dictates of the market. If resources are inflexibly locked into the staple industry, despite changes in the market, then the economy (or the sector at least) is in a 'staple trap', which is likely to lead to stagnation as markets change and resources are used up. Watkins claims that a 'staple trap' is more likely to occur if the staple industry is imposed on a pre-existing 'subsistence economy'.

'Staple theory' provides a useful framework for discussion and the notion of the 'staple trap' seems applicable to the predicament of beef production in some of the 'new exporters'.

### **(i) Does the Production Function for Beef Indicate its Potential for Stimulating Diversified Economic Growth?**

Empirical evidence of beef's potential for stimulating diversified growth, relative to that of other commodities, is scanty and methodologically problematic.<sup>1</sup> At the processing level its forward, backward and final demand (i.e. stimulus to investment in consumer goods production) linkages are probably as strong as those of many other commodities (involving as it does labour intensive slaughtering lines, cold storage and cold transport). At the cattle production stage its growth linkages are probably weaker — particularly since cattle ranching (the chief form of production in tropical beef production) is land intensive and (where there is fencing) uses little labour. Furthermore, incomes from beef cattle production tend to be concentrated in a few hands (further limiting final demand linkages).

### **(ii) Is Beef Production strengthened or weakened by the Linkages it creates?**

The question posed here by 'Staple theory' is whether linked production stimulated by the staple export industry causes withdrawal of resources used by the

<sup>1</sup> Identification of linkages of a specific industry is not straightforward where the linkages are not solely dependent on that industry, are shifting, or are not viable without subsidy or protection (the problem of 'bad' linkages) [Thoburn 1977:39-44]. Empirical evidence, in the form of measures of linkages to beef production in different countries relative to linkages created by other industries, is also lacking. Simpson [1974], using input-output data from the early 1960s for various Latin American countries, calculated income multipliers for different types of beef export. These varied from approximately three (live cattle) to five (cooked/frozen beef) dollars of additional income for each dollar of sales to final demand.

staple industry or rather complements the staple industry, by cheapening or improving its inputs, increasing its markets or stimulating innovation within it through a degree of competition for resources.

On virgin land which has cropping capability livestock has sometimes been a pioneer activity, creating infrastructure and settlement, with land use subsequently being changed to cropping to a greater extent. In the case of the expansion of cattle production into drier areas, or onto fragile forest soils, a switch to more intensive use is less likely to follow — sustainable alternative uses are not as available. This makes for a low private opportunity cost of land, which discourages innovation and permits even very inefficient production to be profitable for the rancher. Because the land is cheap and has limited productive potential there is also little private motive to conserve it. With low employment in addition, cattle production under these circumstances is insulated against changes in product and factor markets.

The squeeze on exports of beef, resulting from rising local consumption relative to production, has little to do with growth links from the beef sector itself. Nor is a resurgence of beef exports on the basis of stall-feeding likely — as has occurred in recent years in the US because of growing grain surpluses. The 'new exporters' are all net grain importers. The failure of the Kenyan beef fattening scheme of the early 1970s is instructive here.

### **(iii) Are the Resources employed in Beef Production in the New Exporters 'easily shifted at the Dictates of the Market'?**

The discussion above indicates that at the level of cattle production on lower grade lands they are not.

### **(iv) Does a 'Staple Trap' await the Economy which is unable to develop 'a Capacity to Transform' in the Beef Sector?**

Since beef is not the lead sector in any of the cases considered, a 'staple trap' in the beef sector would not necessarily mean that the economy as a whole can be so characterised. But the evidence above suggests a 'staple trap' in the cattle production sector, at least in the less favoured natural regions.

## **IV. Future Prospects**

These observations do not make for an optimistic scenario regarding the benefits likely to be derived by countries hoping to enter the world beef trade. But the conclusion should not be drawn that cattle production is inherently a 'bad' commodity for stimulating diversified growth.

The concentration of cattle in very large holdings in some of the 'new exporters' represents prior

concentration of wealth and political power over land, beyond any economies of scale in cattle ranching. The entire area of policy toward small livestock holders remains virtually undeveloped in some of the countries: access to veterinary services, markets and capital (for herd growth and restocking after drought) being critical considerations in building up a small but viable herd, usually multipurpose (draught, milk and meat). While an efficient ranching sector may achieve higher beef productivity per animal — and many ranching sectors of the countries concerned are not efficient — smaller herds may attain higher overall productivity per unit of land [see, for example, De Ridder and Wagenaar 1984 on Botswana] and have stronger growth linkages to other sectors (particularly final demand linkages). But the political commitment necessary for smallholder livestock policy to be effective is uncommon, and the experience of World Bank smallholder livestock development projects has often been poor, particularly in Africa [World Bank 1987:43].

Future expansion of meat production is going to depend increasingly on arable production (grains, fodder crops, by-products of milling used for feed concentrates). As the last grassland and forest frontiers close, so increases in livestock production and in export of livestock products are already shifting towards those countries with the highest growth of arable production and with grain surpluses. While countries with expanses of arid land used only for livestock keeping (e.g. Botswana) will continue to have a comparative advantage in livestock production (because of low cost of the resource and in spite of low productivity) this may be only up to a level not greatly in excess of current production, since there is little scope remaining for expansion onto unused land. Under these circumstances the potential for sustained or increased production lies in improving drought response (increasing offtake as the drought hits, restocking more quickly thereafter) to reduce the net losses imposed by drought, improving management and veterinary care (to reduce calf losses in particular) and developing a fattening and finishing sector (through increasing arable productivity and feed production, at least in those areas where it is possible).

The tailing off in the 1980s of the second 'long wave' of expansion in the world beef trade is coincident with the slowing of income growth in some of the fastest growing markets of the 1970s (middle income oil exporters particularly), and reduced imports by the USSR. At the same time surpluses have been accumulating in the EEC, and in the US (though it remains a net importer), as a result of the production stimulus of high levels of protection, and their beef exports have formed a higher proportion of a fairly constant level of world trade in the 1980s.

Reductions in subsidisation and protection of

agriculture in the EEC, US and Japan, would, it is widely believed, raise the average price of meat in international trade as well as the volumes traded, and shift the source of exports. Substantial reductions in protectionism (which do not presently look imminent) or another long boom in income growth, will start a third 'long wave' of growth in the international beef trade. The countries likely to supply most of the increased trade will be the established, high productivity exporters (Australia, New Zealand, Brazil, Argentina) which have the feed, infrastructure and animal production technology to increase their output rapidly in response to higher prices.

Countries whose advantages in beef production has lain only in their possession of marginal grassland or forest land may find that these resources are merely exploited more heavily in response to higher export prices: more 'primitive accumulation' in such areas without great or continuing increases in output. The efforts presently being made to open up the last refuges of the *tsetse* fly (swamps and forests) for cattle production in Africa may find this result.

A substantial reduction in protectionism in the EEC would mean lower prices for ACP beef exporters, since EEC domestic prices would fall, even if the ACP Lomé Convention beef quota is not reduced, and they would face more competition from other imports now entering the market. Their exports are therefore likely to be depressed rather than boosted by a reduction in protectionism.

## References

Crotty, R., 1980, *Cattle. Economics and Development*, Commonwealth Agricultural Bureaux

de Ridder, N. and Wagenaar, K., 1984, 'A comparison between the productivity of traditional livestock system and ranching in eastern Botswana', *ICLA Newsletter*, vol 3 no 3, July, (International Livestock Centre for Africa, Addis Ababa)

FAO, 1983, *Trade Yearbook*

Feder, E., 1978, 'Lean Cows Fat Ranchers', *America Latina*, London

Hanson, S., 1938, 'Argentine Meat and the British Market: Chapters in the History of the Argentine Meat Industry', Stanford

Innis, H., 1930, 'The Fur Trade in Canada: an Introduction to Canadian Economic History', Toronto

Mittendorf, H., 1978, 'Factors affecting the location of slaughter houses in developing countries', *World Animal Review* 25, pp 13-77, FAO, Rome

Preston, T., 1976, 'Prospects for the Intensification of Cattle Production in Developing Countries', in A. Smith (ed.), *Beef Cattle Production in Developing Countries*, Centre for Tropical Veterinary Medicine, University of Edinburgh

Shane, D., 1980, 'Hoofprints on the Forest: An Inquiry into the Beef Cattle Industry in the Tropical Forest Areas of Latin America', Office of Environmental Affairs, US Department of State, Washington D.C.

Simpson, J. R., 1974, 'International Trade in Beef and Economic Development of Selected South American Countries', unpublished PhD thesis, Department of Agricultural Economics and Rural Sociology, Texas A & M University

Thoburn, J., 1977, *Primary Commodity Exports and Economic Development: theory, evidence and a study of Malaysia*, Wiley, Chichester

Watkins, M., 1963, 'A staple theory of economic growth', *Canadian Journal of Economics and Political Science*, Vol XXIX No 2, May

World Bank, 1987, *The Twelfth Annual Review of Project Performance Results*, Operations Evaluation Department, Washington D.C.

Young, M., 1979, 'Influencing Land Use in Pastoral Australia', *Journal of Arid Environments* vol 2 pp 279-88