CHOICES
The magazine of food, farm, and resource issues
2nd Quarter 2006 • 21(2)
A publication of the American Agricultural Economics Association

Modern Beef Production in Brazil and Argentina

Carlos Steiger

JEL Classifications: Q54, Q13, O13

Perspectives in the demand for meat products look promising because of increasing incomes around the world and changes in consumer preferences favoring meat and dairy products. Within that context, Mercosur countries seem to be in a good position to take advantage of this favorable scenario.

Brazil is a leading player in the beef, poultry, and pork world markets. Focused attention has now been placed on dairy production as well, in order to improve productivity to attain self-sufficiency, or even become a net exporter.

Argentina too has been a leading player in the world beef market, but has been losing ground because of domestic policies that favored domestic consumption, and avoiding inflation, over exports. Argentina has historically been a very minor poultry producer and a net importer, but recently has been able to use favorable exchange rates to become a net exporter. Dairy continues to be an active industry with strong exports. The pork sector is neither efficient nor large, and remains a minor activity.

The goal of this paper is to present an analysis of two of South America's leading livestock economies, Brazil and Argentina. The analysis will focus on recent trends and future scenarios related to factor endowments, economic policies, and the behavior of the micro economy.

Trends

Meat consumers have benefited from the increasingly liberal trade environment and the globalization of meat markets (Figure 1). Within a more free trade environment, the most important variables that will shape the global meat complex in near term will be positive macroeconomic growth and market disruptions form disease outbreaks (USDA, 2005a,b,c). Macro growth will spur new investments that expand and modernize production, while consumer demand will provide new and growing markets for a variety of meat and dairy products. At the same time, red meat and poultry meat prices for major exporters will continued to be influenced by disease-related trade disruptions.

Livestock diseases such as Avian Influenza (AI) (Asia and Europe), foot and mouth disease (FMD) in Brazil and Argentina, and bovine spongiform encephalopathy (BSE) (Europe, North America, and Japan) continue to impact global trade and are cause for great concern. Nevertheless global meat consumption continues to climb spurring increased production and growth in exports (Figure 2).

Brazil and Argentina only accounted for 16% of the global beef trade in 2001, but are forecast to account for over 35% of that beef trade in 2006. Beef exports from 2001 to 2005 have increased 25% or 1,280,000 metric tons (Table 1). Brazil's exports have grown over 1 mmt, as a result of the fall in United States (US) exports due to the BSE problem.

In relative terms, Mercosur countries (Brazil, Argentina, Uruguay, and Paraguay) have also shown a noticeable increase in market share. In year 2001 these countries represented 19% of world exports, while in year 2005 the share reached 42% of the market.

Brazil

Brazil has expanded its national herd 24% since 1994, with consumption per capita rising 13% over the same period. The dramatic story though has been the expansion of exports, up over 450% in volume and 385% in value. Brazil is now the world's leading exporter. This dramatic change has occurred because of the continued availability of natural resources, a favorable exchange rate, and subsidized credit. The credit program is designed to promote

investment in genetics, pasture, machinery, and cold storage capacity.

Major factors that explain the improvement of the productivity of the cattle industry in Brazil were:

- Improvement in animal genetics mostly through the use of cross breeding programs in the Center-West region. The adoption rate by beef producers of artificial insemination is about 50% greater than the adoption rate by dairy farmers in Brazil. Cattlemen are using imported bull semen, such as Red Angus, Angus, Simmental, and Limousin, to cross with the domestic Nelore breed.
- Higher enrollment in the program MODERAGRO, which replaced the program PROPASTO. MODERAGRO includes funds for soil erosion and conservation of lands and is expected to reach approximately US$390 million at a subsidized interest rate of 8.5% per year. (Commercial rates are more than 14%.) Each producer may borrow up to US$50,000.
- The Agriculture and Livestock Plan expects to allocate US$19.2 billion of rural credit, of which US$5.1 billion is designated for the beef sector.
- The program MODERINFRA allows producers to build or rebuild silos and warehouses on their farms and can also be used to modernize irrigation. This fund is limited to US$43,000 per livestock producer.
- MODERFROTA is a program aimed at the modernization of farm machinery. US$2.4billion has been allocated to this program.

Also significant has been the aggressive marketing efforts of ABIEC (Brazilian Beef Processors and Exporters Association), an association of the largest beef processors, packers, and exporters. Since 2001, ABIEC initiated an aggressive promotion program approved by the National Export Promotion Agency (APEX) to promote the brand: Brazilian Beef. They emphasize the product as natural (grass-fed beef as opposed to grain-fed beef), environmental, and healthy. ABEIC has an agreement with APEX valued at US$1.6million for market promotion, 50% of which are APEX funds.

ABIEC targets markets worldwide, but their primary focus is the

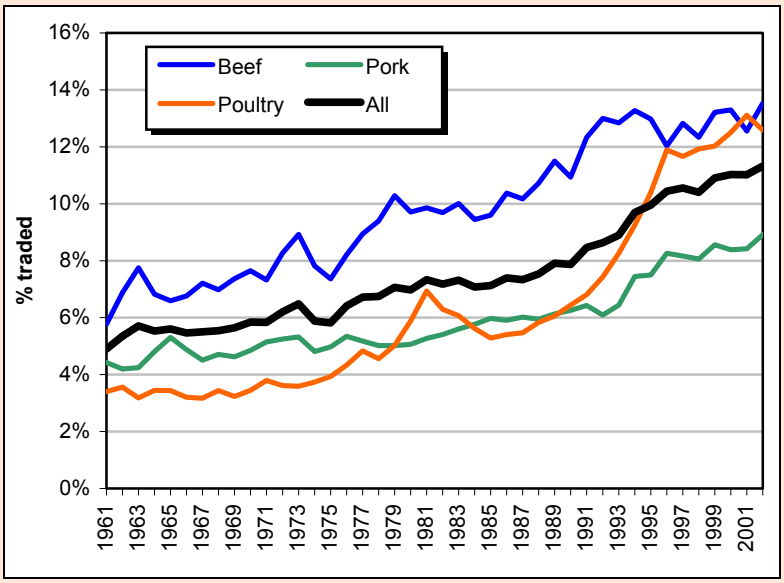

Figure 1. Evolution of global trade of key meat commodities.

Source: Goldsmith, P.D., and Cordier, J. (2006). Managing non-linear risk: Is distance an advantage or a liability? Presented at the workshop Multi-functionality: Implication for Market, Trade, and Environment. University of Illinois at Urbana-Champaign, March 1-3.

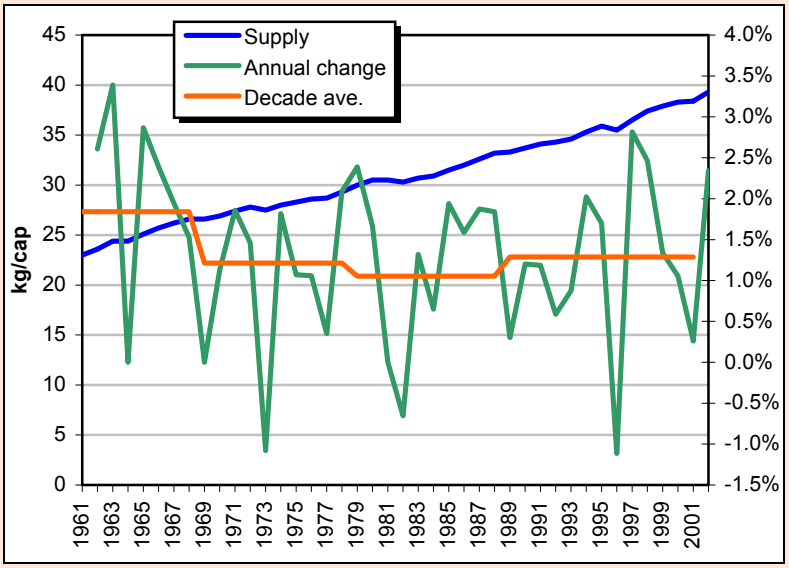

Figure 2. Global meat supply.

Source : FAS/USDA Livestock and Poultry: World Markets and Trade.

Table 1. Beef exports of selected countries.

	2001	2002	2003	2004	2005(p)	2006(f)
Brazil	748	881	1,175	1,628	1,800	1,800
Argentina	169	348	386	623	680	720
Australia	1,399	1,366	1,264	1,394	1,470	1,480
India	370	417	439	499	620	675
Canada	575	610	384	559	615	640
New Zealand	496	486	558	606	575	615
Uruguay	145	262	325	410	460	470
European Union	502	485	388	358	250	220
China	60	44	43	61	75	90
Ukraine	98	181	202	108	85	90
United States	1,029	1,110	1,142	209	285	290
Other	81	85	34	43	37	48
Total	5,672	6,275	6,340	6,498	6,952	7,138

Source : FAS/USDA Livestock and Poultry: World Markets and Trade (2001-2004), Annual Issues.

European Union (60% of Brazilian exports.) Other markets include the Middle East, Russia, Asia, Chile, and the United States.

For the last two decades, the cattle industry has moved towards the Center-West region. It is now home to over one-third of Brazil's herd. But recently, cattle production has begun to move North because of the expansion of soybean production, which has raised land prices in the Center-West. Raising cattle in the North is 10% more profitable than in other regions in Brazil because of lower land prices. Once timber is harvested, there is competition from other land uses such as crop production.

In 2006, production is forecast to reach 8.85 million metric tons (mmt) and surpasses the current record production of 8.7 million metric tons. The increase in production is pulled from the demand side due to continued expansion of the export market because of BSE outbreaks in North America; aggressive marketing efforts by Brazilian packers; competitive export prices due to favorable exchange rates; and an increase in domestic demand as incomes rise. The average slaughter age has fallen from 54 months to 38 months of age as a short-term response to brisk demand. If the herd is unable to expand, either due to competition with other crops such as sugar and soybeans and the associated higher land prices, there will be pressure on domestic inflation because of the inelasticity of beef demand.

There is still room for production and export growth. For example, the majority of Brazilian cattle are traditional breeds, with a fraction being improved cross-breeds. Despite improved genetics, Brazil produces predominantly lower-value, slower-growing, and less well-muscled grass-fed beef.

Brazil recognizes the need to not just increase quantity, but also quality of its beef products, especially in specialty and niche markets. While Brazil is the world leader in beef exports by quantity, Australia is the world's leader in beef exports by value. Australia is able to sell into some of the premium markets.

While Brazil has capitalized on the perceived minimize risk on BSE by leveraging its grass-fed production model, it is still vulnerable to supply shocks. The industry is still challenged by periodic outbreaks of foot and mouth disease. The most recent event occurred in October 2005 in the Paraguayan border State of Mato Grosso do Sul. Only with Brazil achieving FMD free status without vaccination will it be possible for exporters to access higher-value markets such as the United States.

Argentina

Argentinean beef production has showed a stable but sometimes erratic production pattern. There has been export volatility during the 1990s, the financial crisis of 2001, and an outbreak of FMD in 2003 and 2006. Exports in 2006 are expected to be up 325% over 2001 levels because of a competitive rate of exchange after the devaluation of the peso, the change in sanitary status after the World Organization for Animal Health identified Argentina as a country with an FMD zone without vaccination, and the increased demand in world markets. The early 2006 outbreak of FMD in the prov-

ince of Corrientes will dampen the demand somewhat.

There is no accurate stock number in Argentina, and most sources estimate the national herd to be between 50-55 million head. Recently, crop production was very profitable as a result of the devaluation, high world grain and oilseed prices, and the efficiency of producing and processing Roundup Ready® soybeans. Soybean production is up over 400% since 1996, while agricultural land has increased less than 1%. Though farmers shifted much pastureland to crop production, they did not reduce the size of their herds. Cattle production methods had to adjust. Feeder cattle production became more intensive by utilizing higher energy rations. However, cow-calf production became less intensive as brood cows were placed on lower quality pastures.

The slaughter in 2006 is projected to be somewhat lower than the previous year due to poorer herd efficiency. However, the average carcass weight is expected to increase as a result of a recent measure implemented by the Argentine Government prohibiting the slaughter of cattle weighing less than 300 kilos.

Beef consumption in Argentina is the highest in the world, though there has been a steady decrease from the record levels of the early 1990s (80 kg/cap) to current levels of 60 kg/cap. Much of the decrease has simply been due to the lack of buying power following the 2001 financial crisis.

Argentine beef exports in 2006 were forecast to reach 720,000 tons, one of the highest levels in history. An improved sanitary status, the opening of new markets, and strong foreign demand for beef are creating more opportunities for the local industry, which is very optimistic about the future.

Argentina will also take advantage of the decreases in production in the European Union (EU), which became a net importer of beef in 2003. EU beef consumption has rebounded from the BSE-induced decline. Total beef production in the EU though will continue to trend downward in 2006 to 7.8 mmt. Increases in the beef herd of New Member States (NMS) have not offset EU total decreases.

The decoupling of payments under the reform to the CAP (Common Agricultural Policy) reduced cow numbers (and, hence, beef production) and caused an increase in prices. Though the NMS are net beef exporters, dairy quotas under the accession agreement have forced the culling of dairy cattle and, as a result, raised the supply beef. However, any increase in beef production in the NMS will be short-lived as EU policies are likely to increase grain prices and, hence, production costs in the NMS.

The European Union is the largest market in terms of value for Argentine beef exports. Europeans are importing large volumes of out-of-quota beef and paying the very high duties on the high-value chilled cuts. The Russian Federation is the largest market in terms of volume. Their declining domestic supply, plus the European Union's lack of export surpluses has forced the Russians to look to South America for its beef. High world oil prices will generate income for the Russian Federation which will allow it to continue importing large volumes of beef.

All the factors together (competitive exchange rate, improved sanitary status, new markets open, growing world demand, and FMD outbreak in Brazil) mean a positive shift in export demand for Argentina. The question is how judiciously are farmers able to expand supply to take advantage of the current environment? Although Argentine exporters are close to full capacity, there is still room for further export expansion in the future. Investment in the sector, especially adding capacity, has not been significant over the last decade, even though there was an important flow of foreign investment in the Argentine food sector. However, exporters can still tap some unused capacity and shift some production from the local market to exports. Some companies have been buying idle processing plants and refitting them to serve export customers.

An important change in Argentina's cattle sector in the past couple of years has been the utilization of corn as feed. Before, alfalfa pastures were the most common source of feed. Many owners are now able to increase their herd sizes as cattle are placed on more marginal land and in smaller lots are being fed inexpensive and highly productive corn. Domestic corn prices were also below world prices because of export taxes that translated into lower prices at the farm level. As a result, the feed lot industry expanded significantly. Cattle feeders copied the vibrant domestic dairy industry and incorporated the use of corn silage and corn grain into cattle rations. This production technique was especially profitable to farmers and ranchers located far from the ports where freight costs per kilo were reduced and added value could be added to corn.

A second recent event in Argentina has been the use by the government of consumers' inelastic demand for beef as a means to control domestic inflation and maintain political stability. The Argentine government has stated that its goal is to provide

beef at reasonable prices. In 2005, the government implemented measures to discourage beef exports in order to increase domestic supply. In November 2005, the government suspended export tax rebates on 200 mostly food products.[1] Export rebates were designed to return to exporters 2.7% for beef cuts and 5% for thermo-processed products. The government raised export taxes on beef cuts from 5% to 15% (a 200% increase). This has dimmed the once favorable outlook for beef exports.

The Future

United States beef exports are going to recover from the BSE incidents and will add another important player to the global beef scene. Even though the US exports are oriented to Japan and Korea, and not direct competitors with Mercosur, the added supply will negatively impact prices. This is less of a concern to Argentina and Brazil beef producers because they have some of the lowest costs of production in the world. The real challenge will not come from greater price competition, but market access. Brazil and Argentina need to improve their quality control and traceability to comply with Europe's increasingly rigid standards. This will require relatively greater investment in the processing sector than for the farming sector. Delivering a fully traceable product though will be a challenge for all.

Up until now, Brazil has shown dramatic increases in production that have allowed the country to keep per capita consumption constant, while still increasing exports. Now the question is whether in the future it will be possible for Brazil to keep the same growth rates. While there is still plenty of room to increase the industry's productivity and quality, the industry is extremely heterogeneous, uncoordinated, and strategically not well defined (Zylbersztajn & Pinehro Machado). The future portends greater segmentation of meat demand towards more sophisticated quality attributes. Therefore, all players in the Brazilian beef chain will have to adapt and improve coordination in order to meet the changing needs of final demand.

There is a good opportunity at present, while prices are high, for organizational change in Brazil's beef and meat system. There is an opportunity to add value to the beef the country produces by moving from a low cost/low value-only industry to a more modern industry that competes at multiple levels. The industry needs to be able to exploit niche and high-value opportunities, while still being a reliable low cost commodity supplier.

An immediate challenge is the overvaluation of the Brazilian Real. Unfavorable exchange rates have directly reduced the competitiveness of Brazil's low value commodity exporters. Another important issue is the need to improve the coordination of private firms and government agencies regarding sanitary problems such as FMD. Foot and Mouth disease not only cuts off key markets, but causes deleterious fluctuations for those in the chain with fixed asset investments. Also, national and proprietary export promotion programs are challenged to counter the effects of FMD, while marketing the healthful aspects of Brazilian grass-fed beef. The implications with respect to FMD are the same for both Brazil and Argentina.

Longer term, the Brazilian beef industry faces serious challenges as well as it attempts to develop in the Center-West region. The agrarian reform movement calls for very different land use priorities in the Cerrado and drier regions of the Amazon compared to those of commercial agriculture. Top priorities include environmental preservation, land for the landless, and preservation of lands held by indigenous peoples. The impacts are greater competition for land, higher land prices, and increases in costs of production. The prevalence of large landowners in the Center-West and the high cost of land in the traditional eastern agricultural regions could generate conditions potentially conducive to social unrest (Matthey, Fabiosa, & Fuller). International organizations continue to apply pressure on the Brazilian government and corporations to limit deforestation in Brazil.

So, in Brazil there is a potential conflict that would prevent the continued expansion of larger, more commercial, operations. Brazil's subsidization of small farms may increase rather than decrease in the coming years. Such policies give priority to social objectives rather than efficiency objectives, and as a result could limit the rate of growth of the beef industry.

In Argentina, the future of the beef and meat sector will heavily depend on government policies. Policymakers are torn between serving domestic consumers that have the highest per capita meat consumption in the world and helping the industry to service growing world-wide demand.

In 2006, for example, the government banned beef exports, reducing forecasts for the year by 200,000 metric tons. This measure caused a decline of about 20% in the price of

1. *The measure was relaxed in May 2006 releasing large quantities of meat into the marketplace from cold storage.*

live cattle. Surprisingly, the drop in producer prices was not fully transferred to retail prices, thus limiting the government's efforts to fight inflation. The impact on the industry was immediate and very negative. More than 8,000 workers in the export processing plants were fired. Argentina's credibility as a reliable supplier was damaged as export contracts had to be broken. These events were taking place at the same time the Institute for Argentine Beef Promotion was attending fairs around the world promoting the Argentine brand.

The future direction of Argentina's role as a major beef exporter is uncertain because of Argentina's history of government intervention in the industry to serve policy objectives. In the short run, Argentina will not increase its global share of exports because the government's priority is to control inflation. Even though the government has allowed the industry to partially resume exports after the decline in live cattle prices, the Argentine image as a reliable supplier has been hurt.

The expansion of Mercosur beef exports would benefit from trade liberalization and elimination of farm domestic support policies around the globe. Support programs are creating artificially high beef production in regions like the EU. This causes the accumulation of meat stocks at target prices that are well above world prices and subsequent dumping, which drives prices down. This has been historically problematic in low purchasing power countries like Russia, which is both a customer for the EU's excess production as well as Mercosur beef.

The Common Agricultural policy in Europe and agricultural policies in Japan are designed in part to slow or prevent the continued decline in the number of farms in these countries. By retaining small family-owned farms, rural economies are strengthened and certain environmental goals are achieved in Europe. However, these policies have the indirect effect of hindering the expansion of the large-scale, low-cost farms typically found in Mercosur countries.

The next meeting of the Doha Round of the World Trade Organization is going to discuss those issues regarding the decrease of tariffs and other protectionist measures. But experience has shown that little progress has been achieved so far. So there is not much optimism in Mercosur countries regarding trade liberalization in world beef markets.

For More Information

Zylbersztajn, D., & Pinheiro Machado, C. (July 2001). *Competitiveness of meat agrifood chain in Brazil.* Invited paper, Conference on Globalization, Production, and Competitiveness of Livestock Products, Braunsweig, Germany, 19 pages.

Matthey, H., Fabiosa, J., & Fuller, F. (2004). *Brazil: The future of modern agriculture?* MATRIC (Midwest Agribusiness Trade Research and Information Center) Briefing paper, Ames, Iowa. 25 pages.

United States Department of Agriculture (USDA). (November 2005a). *Argentine government takes measures to discourage beef exports.* GAIN (Global Agriculture Information Network) Report, AR 5035, Washington, D.C.

United States Department of Agriculture (USDA). (August 2005b). *Argentina livestock and products.* GAIN (Global Agriculture Information Network) Report, AR 5027, Washington, D.C.

United States Department of Agriculture (USDA). (August 2005c). *Brazil livestock and products.* GAIN (Global Agriculture Information Network) Report, BR 5622, Washington, D.C.

Carlos Steiger (steiger@ub.edu.ar) is an Agricultural Economist and Director of the Agribusiness Program, as well as Dean of the Business School, University of Belgrano, Buenos Aires, Argentina.