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OECD-FAO Agricultural Outlook 2006-2015

Chapter 5

Meat

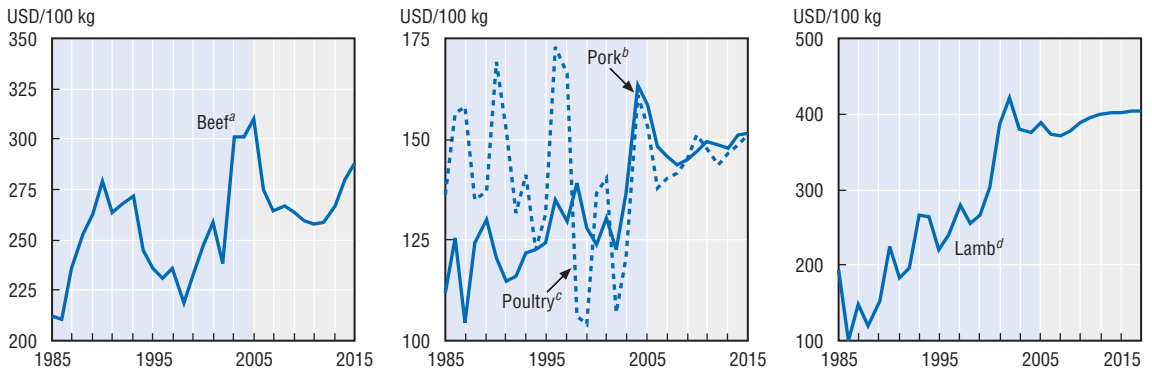
World market trends and prospects

Key market drivers

Partly driven by changing patterns of meat demand due to rising incomes, global meat markets have witnessed a profound transformation over the past 15 years. Consumers and retailers are requiring a broader diversity and higher quality of meat cuts, more ease in preparation and enhanced assurances about product safety. Meanwhile a growing preoccupation about the ways in which meat is produced and sold is driving increased certification requirements, product safety guarantees and rising demand for animal welfare and environmental standards. Concurrently, the resilience of the meat sector to trade and price shocks triggered by recurring and pervasive outbreaks of animal diseases are frequently and increasingly tested.

Market disruptions due to animal disease outbreaks affect consumption and meat trading patterns, alter relative meat prices (Figure 5.1), and impose ripple effects which go beyond the livestock sector. In particular, these effects mean higher costs for input industries and the broader economy. Critical to the medium term outlook of the sector are the policy responses by governments, the nature and the duration of the animal disease outbreaks, the changes in the structure of the industry in response to policies enacted to mitigate the disease impacts, and the long term impact on investment in the sector. In addition to the more traditional forces of income and population growth, these factors, along with other demographic changes and urbanisation as well as consumer's perceptions on meat safety, will be increasingly important drivers of meat consumption. While this is particularly visible in developed countries, it also more and more the case in

Figure 5.1. **Cyclical movement in nominal world prices for meat**



a) Choice steers, USA, dress weight Nebraska.
b) Barrows and gilts, No. 1-3 Iowa/South Minnesota, USA dress weight.
c) Wholesale weighted average broiler price, ready to cook, 12 cities, US.
d) New Zealand lamb schedule price all grade average, dressed weight.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/405315160145*

developing countries where, over the past decade three-quarters of the growth in global meat production and consumption has taken place.

This market outlook is conditioned by various assumptions, such as a continuation of current domestic and trade policies. While consumer and retail requirements in terms of standards and certification are evolving, it is assumed that the relative competitive position of livestock industries in developed and developing countries does not change as a result of national regulatory reforms, such as those for animal health and food safety, the environment or for social issues like animal welfare. In addition, an unchanging policy environment assumes only minimal growth in market access for meat. No major changes in food safety regulations, such as changing rules on antibiotics, decontaminants, or hormones are assumed. The implementation of bilateral or regional free trade agreements, such as the Central American Free Trade Agreement (CAFTA), are expected to support trade growth, at least for the members to such agreements.

Market uncertainties related to the recent impact of animal disease outbreaks, have not been incorporated in the Outlook. This relates in particular to Foot and Mouth disease (FMD) in Brazil and Argentina and early 2006 consumer-related shocks in Europe, the Middle East and Africa due to the progressive spread of Avian Influenza (AI) outbreaks from Asia westward. These developments and the evolving nature of their impacts will be evaluated at a later date.[1] However, an easing of the various Asian trade bans on North American beef, in place over the past two years as a result of Bovine Spongiform Encephalopathy (BSE) reports, is expected.

Changing life styles and technological changes, both in the transformation and marketing of meat products, will increasingly determine how and in what form consumers include meat in their diets. While trends in demand in terms of specific meat cuts, the appearance of the product and the nature of meat consumption (*e.g.* in fast food outlets or at home) may differ by country, the Outlook projects continued strong, albeit slower, growth in meat consumption over the projection period.

Main market developments

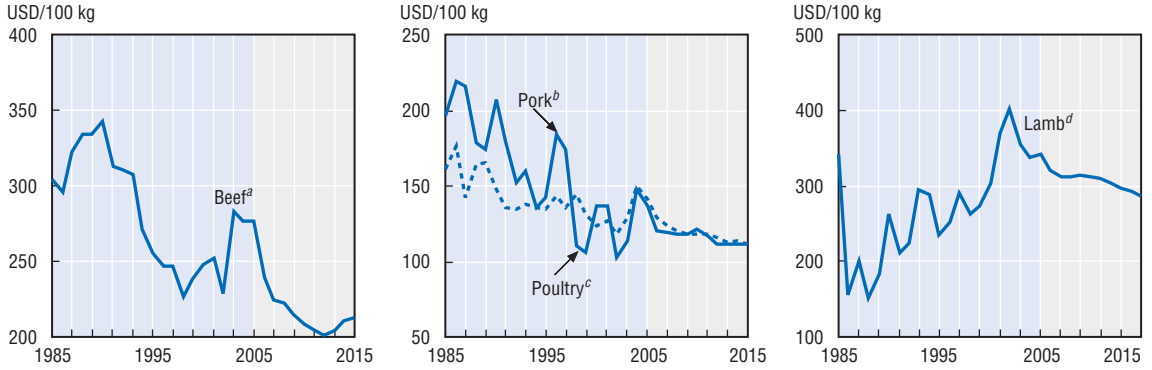
Prices to stabilise after animal disease induced price shocks between 2003 and 2005

The medium term outlook for meat markets and prices is set against a background of major market instability in recent years. An important element in this is the frequent and pervasive outbreaks of animal diseases such as FMD in Europe and South America (2001-2002) as well as reports of BSE in North America (2003-2004), a region which supplies nearly one-quarter of global meat exports. Meanwhile, the onset of Avian Influenza (AI) outbreaks in late 2003 and early 2004 have reduced consumption in Asia, resulted in the loss of export markets for regional suppliers and led, in 2004, to an unprecedented 8% decline in poultry trade and a 2% drop in total meat trade.

Over the 2003-2005 period, these disease outbreaks have led to major meat price rises reflecting reduced global exportable supplies of meat and the adoption in many countries of policies – including import bans, tighter sanitary border control measures, and stronger domestic regulations – to protect their livestock sectors. Countries that were spared from these outbreaks moved to fill the gap in supplies and international beef prices increased by over 40% between 2002 and 2005. Pigmeat prices increased by 50% in 2004, but this growth was reversed in 2005 as consumers moved back to poultry and beef consumption, despite higher prices. Poultry prices in international markets rose by 43% when compared to the year 2002.

In the current Outlook, the assumption of a resumption of normal market conditions after the animal disease induced shocks during the 2003 and 2005 period imply that real prices for meat decline until 2015 by 23% for beef, 21% for poultry and 18% for pork (Figure 5.2). This is consistent with a situation of projected real price declines in feed inputs and productivity gains, particularly in the poultry sector. Given a rather steady international demand, lamb prices are not expected to strengthen significantly over the outlook period. Nevertheless, the sheep meat sector continues to maintain its international competitiveness, with leading trading countries investing in research to reduce costs and to increase efficiency.

Figure 5.2. **Real world prices for meat to decline**



a) Choice steers, US, dress weight Nebraska. Prices deflated by USA GDP deflator 2000 = 1.
b) Barrows and gilts, No. 1-3 Iowa/South Minnesota, US dress weight. Prices deflated by US GDP deflator 2000 = 1.
c) Wholesale weighted average broiler price, ready to cook, 12 cities, USA. Prices deflated by USA GDP deflator 2000 = 1.
d) New Zealand lamb schedule price all grade average, dressed weight. Prices deflated by NZ GDP deflator 2000 = 1.

Source: OECD and FAO Secretariats.

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Meat consumption continues to grow in developing countries

Despite a near stagnation of meat consumption in many developed countries, global meat consumption is projected to expand by 2% annually to 316 million tonnes in 2015. This is similar to trends over the past decade and represents a 23% increase over the projection period. As consumers in non-OECD countries diversify their diets away from grains and adopt more western diets and consumption practices, nearly four-fifths of the growth in meat consumption will occur in these regions. Meanwhile, OECD countries are set to account for less and less of a share of global meat consumption, falling from 43% in 1996 to 38% in 2005 and a projected 35% in 2015.

While the outlook for growth in consumption is positive, there are stark regional variations. Developing countries in Asia, benefiting from expectations of stronger economic growth and rising supplies due to investment in more integrated, vertically coordinated livestock operations, are expected to account for nearly 60% of the global growth in consumption. A large share of this increase will be fuelled by strong economic growth and the emerging middle-class of China which represents a huge potential market. As a result, China's per capita meat consumption will be up 23% from 2005 to reach 55 kg/capita retail weight in 2015. Meanwhile, Least Developed Countries (LDCs) will account for 4% of the increase in global meat consumption, even though they are expected to expand meat consumption, particularly poultry in Africa.

By contrast, the projected increase in consumption in developed countries is slowing and some 43% of this increase occurs in North America. This will push per capita meat consumption in North America past the mark of 100 kg/capita rtw by 2015, nearly three times higher than the global average.

Globally, poultry and pig meat will account for almost three-quarters of growth in consumption, as prices for these meats remain low relative to those for beef and sheep meat, reflecting continued specialisation and advances in meat production management and processing technologies. In OECD countries, most of the growth in meat consumption will be in the form of poultry which will account for 56% of the total. Meanwhile, in developing countries, where beef accounts for less than one-quarter of total meat consumption, the composition of the growth in per capita meat consumption will be spread more evenly with pigmeat taking 38% of the total increase, compared to 31% for poultry and 25% for beef.

Location of growth in meat production mirrors that of consumption

Structural changes in the livestock industries, including improved genetics, animal housing, and enhanced management, are expected to allow growth in meat production to keep pace with income-driven consumption gains. This is particularly true in non-OECD countries where output is projected to expand by nearly 47 million tonnes to 204 million tonnes. This growth in non-OECD countries is facilitated in part by increased cross-border movements of finance, knowledge and technology which continue to stimulate concentration and integration of livestock operations.

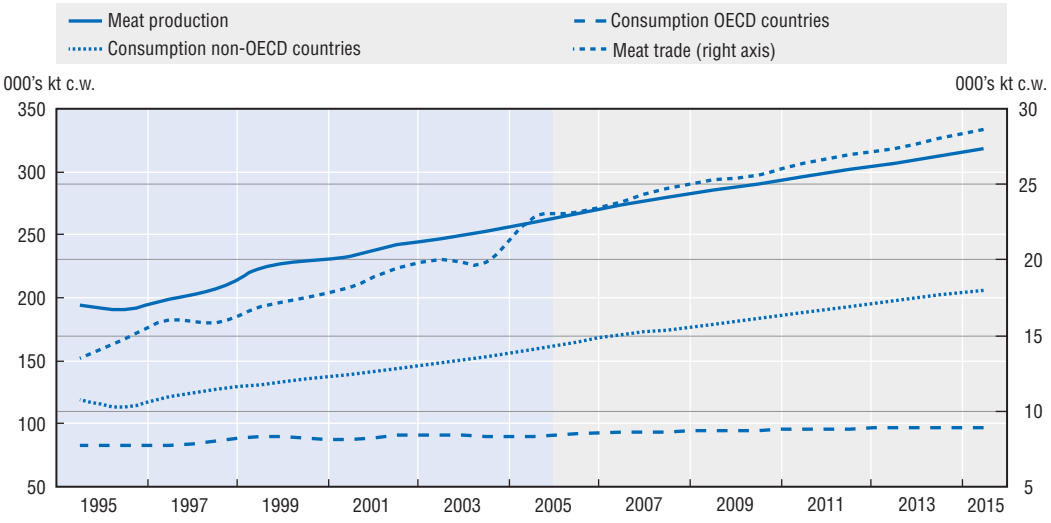
In Asia, where nearly 60% of growth in consumption is expected to take place, an additional 31 million tonnes of meat are expected to be produced. This is raising questions about the sustainability of livestock operations in these countries. In particular, the environmental pressures created by large industrialised livestock operations which in many cases are located in peri-urban areas, are considerable. These pressures are particularly acute as 75% of production gains come from mono-gastric animals, mainly chicken and pigs, which consume mostly concentrate feeds and are easily adapted to large-scale industrial production systems.

In OECD countries, meat production is set to rise less than one per cent annually, increasing by 11.5 million tonnes to reach 114 million tonnes by 2015. Accounting for only 20%of the global growth in meat production over the project period, more than half of this increase is expected to come from higher poultry output. Increased farrowing and a rising number of pigs per litter are driving pig meat production growth in North America to nearly double that of other developed countries. As BSE-concerns abate and as cattle cycles move through a rebuilding stage, slow growth in beef production is expected in developed countries, reversing the decline in output witnessed over the past decade.

Developing countries expand their share of global meat exports…

Global meat trade is expected to grow by 2.2% annually over the projection period. While still slightly exceeding the increase in consumption, this is a slow-down to half the rate of growth witnessed over the previous decade (Figure 5.3). Expanding by nearly 6 million tonnes to 30 million tonnes by 2015, global meat exports are projected to grow by 25% compared to the beginning of the outlook period.

Figure 5.3. **World meat production, consumption and trade**



Source: OECD and FAO Secretariats.

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Successfully challenging the role of beef, which in the mid-1990s dominated meat trade, growth in poultry and pork exports will account for two-thirds of the total increase in meat exports over the projection period. In particular, rising poultry meat trade, accounting for over 40% of total meat trade growth, will dominate the Outlook. Over the projection period, poultry's share of global meat trade is projected to move up from 34% in the mid-1990s to 39% by 2015, surpassing that of beef, which is expected to plummet from 42% to 35% over the same time period.

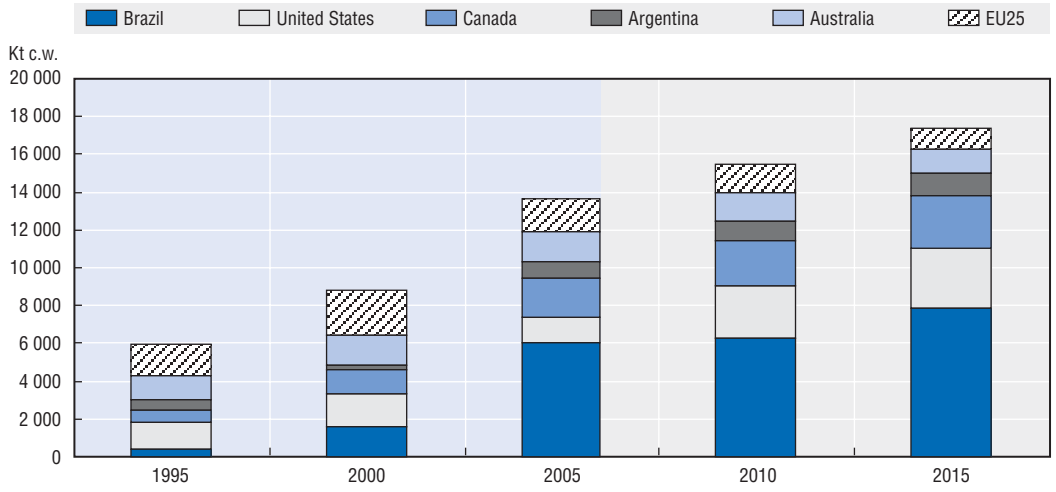
While the degree of concentration in the world meat market remains high, with 5 major exporting countries accounting for nearly three-quarters of global exports, the share of meat trade being provided by developing countries is expected to increase further. In 1996, meat exports from developed countries accounted for more than 71% of global trade; sliding to 54% in 2005, this share is expected to drop to 51% by 2015.

Developing countries, as a group, are projected to develop a net export position over the projection period and are set to capture 61% of global export growth over the period. However, nearly three quarters of this will be sourced by competitively positioned South American meat industries, mainly Brazil, Argentina, and Uruguay, as they maintain strong investments in the livestock sector and continue to diversify markets.

In addition to trade growth by some of the leading developing country exporters, investment in production and processing infrastructure in many of the middle-economy developing countries such as Mexico, Chile, the Philippines and Argentina (for chicken) is triggering larger exports from these countries as well, albeit from a small base. Supporting this development are the numerous bilateral and regional trading agreements which facilitate exports by these non-traditional meat trading countries.[2]

Exports by OECD countries are expected to grow by less than 1 per cent annually, only one-fifth of the rate of increase expected for developing countries. Total OECD countries' meat exports will likely reach 15.3 million tonnes in 2015, up 2.4 million tonnes from the beginning of the projection period. Despite a drop in EU meat exports, this growth will be

Figure 5.4. **Major meat net exporting countries**



Source: OECD and FAO Secretariats.

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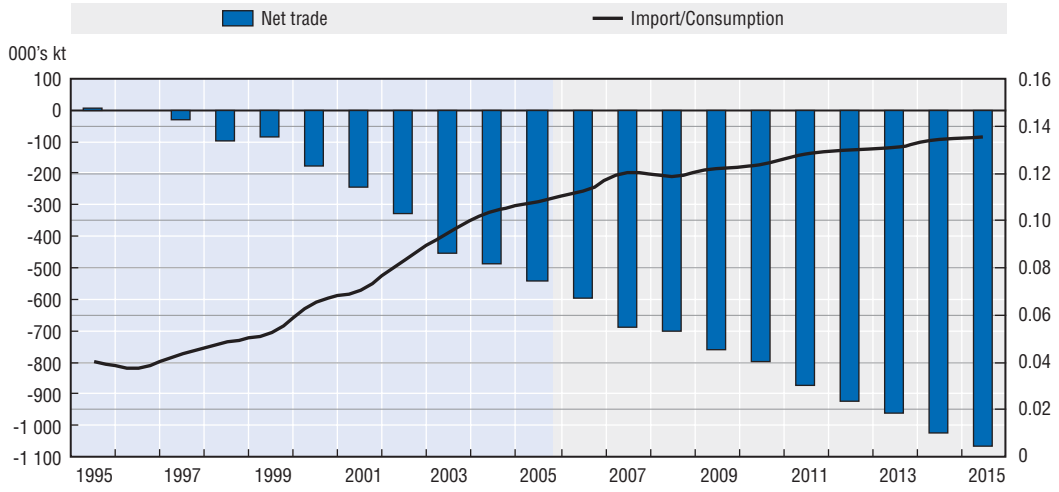
supported by strong performance in the United States and Canada (Figure 5.4) with exports set to expand by 2.7 million tonnes. In the EU25 the long-term effect of CAP reforms and policy driven production declines are expected to reduce net meat exports from 1.5 mt in 2005 to a projected 880, 000 in 2015. This includes growing net imports for beef of about 530 000 tonnes and an erosion of the net export position for poultry to some 200 000 tonnes, as the EU adjusts its tariff lines on frozen boneless chicken cuts to comply with a WTO panel ruling.

... and account for nearly two thirds of global import gains

The bulk of growth in meat imports will originate in developing countries, mainly in Asia. While strong consumption growth is maintaining trade expansion, the effect is muted as many countries are increasing production as well. Consequently, the global share of meat trade in consumption is likely to stay stable at 9%, with the shares for beef and poultry 12% and 11%, respectively, exceeding those for pork and sheep meat (5% and 8% respectively). Meat imports are set to grow in many traditionally meat importing countries, including the OECD countries. In particular, meat imports are projected to grow in Korea (up 62%), Mexico (54%), and Japan (34%).

Developing countries, in aggregate, are projected to become net meat exporters. However, this picture changes substantially when Brazil and Argentina are excluded from this group. Indeed, the remaining group of countries is showing a meat deficit, estimated at nearly 6 million tonnes in 2005, and projected to expand to 8.7 million tonnes in 2015; this is more than triple their 2.7 million tonnes deficit in 1996. Of special importance is the near doubling in the net trade deficit of least developed countries, particularly those in West and Southern Africa as well as in Central America and the Caribbean. Relatively strong consumption gains are supporting a rise in imports to 1.2 million tonnes by 2015. This pushes their import dependency to a projected 14% by 2015, which compares to 4% in 1996 and 10% in 2005 (Figure 5.5). In a context of declining real meat prices, the successful development of viable commercial livestock industries which provide local employment and contribute to economic growth is a particular challenge to these countries.

Figure 5.5. **LDCs lose ground on net trade position for meat products**



Source: OECD and FAO Secretariats.

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Key issues and uncertainties

Some issues and uncertainties cloud the long-term outlook for global meat markets. Russia's meat imports have been marked by uncertainty due to policy decisions. However, the possibility of WTO membership may promise a more orderly regime. In 2003, Russia adopted, for six years, meat import restrictions in the form of tariff rate quotas (TRQs) most of which are allocated to specific countries. Recently the Russian authorities announced that the quota administration should become simpler and more flexible in the process of reallocating quotas from country to country in the course of a year. The outcome of Russia's negotiations on WTO accession will likely influence the import regime after 2009. However, in this analysis, the current regime is assumed to remain in place throughout the projection period. WTO member country-specific tariffs remain stable as this outlook does not anticipate the results of an eventual outcome of ongoing negotiations in the context of the Doha Development Agenda.

Despite the early 2006 re-imposition of the Japanese ban on US beef in response to a BSE-related trade violation, the outlook assumes that the Asian market will reopen for North American beef exports from 2006. It is unclear, however, how market shares will evolve as North American suppliers will be challenged in their effort to recapture their old share – or to gain even more – by exporters from Australia and New Zealand. Trade disruptions related to animal diseases led to changes in suppliers; it is difficult to assess if those changes in trade flows will prove permanent or transitory, once the prohibitions are lifted.

In a recent policy change to attempt to lower domestic beef prices, the Argentine government first increased the existing export tax from 5% to 15%, introduced minimum slaughter weights on cattle, and finally suspended almost all beef exports[3] for at least 180 days from the date of announcement (March 2006). The short-term effects imply a movement of beef to domestic consumers at the expense of foreign buyers, leaving a gap in export supplies which to some extent Brazil is assumed to fill. In the baseline projections, it is not assumed that these restrictions will be extended beyond the 180-day period; the long term beef export prospects from Argentina are assumed to remain unaffected.

Box 5.1. **Disease-related trade restrictions increasingly shape animal product markets**

Over the past five years, the resilience of international meat markets has frequently been tested by the increasingly frequent and pervasive impacts of animal disease outbreaks. While many animal diseases, particularly Foot and Mouth Disease (FMD) and most types of Avian Influenza (AI), are endemic in many parts of the developing world, only since 2001 have the severity of outbreaks of FMD (in Europe and Latin America) and more recently AI outbreaks in Asia, which have moved westward into Europe, had a significant impact on international meat markets.

The increasing complexity of global markets, the uncertain nature of consumer demand, and the often prolonged and unpredictable imposition of market access restrictions make it difficult to assess the duration and magnitude of a short term market shock. Animal health and food safety issues, as well as those related to product quality, are becoming a major factor influencing global developments in meat markets, shaping both consumption and trade patterns. This poses challenges to analyses of the impacts of animal disease outbreaks.

What puts global markets at risk from localised disease outbreaks?

The livestock sector is rapidly globalising as meat demand increases, structures of production change, and trade increases not only in absolute volume but also as share of global production. In addition, the segmentation of meat markets that previously characterised trading patterns is gradually being eroded by disease eradication, policies on zoning and technologies that allow exporters to ship product that minimises the risk of disease transmission (*e.g.* cooked product or beef aged to reduced FMD risk). Nevertheless, the experience in recent years shows that the impacts of localised animal disease outbreaks are quickly transposed into the global marketplace. This can lead to protective measures by importing countries that affect trade and consumption patterns, including substitution in demand between different types of meat, which in turn trigger price shocks in other markets for animal protein products. Some of the key factors which influence the overall duration and impact of animal diseases include:

- **The type of disease and consumer's response to potential human health issues.** The potential risks of transmission to humans of zoonotic diseases, such as the H5N1 avian influenza virus and BSE which is linked to variant Creutzfeld-Jakob-Disease (v-CJD), have had a more durable impact on global meat markets than has been the case with other animal diseases such as FMD or non-H5N1 AI outbreaks.
- **The location and duration of the disease outbreak and global export concentration.** In the context of the high degree of concentration in global meat markets (5 countries account for nearly three quarters of global meat exports), any market shocks, including those resulting from animal disease outbreaks, can have important impacts on international trade and prices.
- **Links to the international livestock markets.** The extent to which a country or region is impacted by a disease is dependent on their trade linkages – both for imports and exports – to international markets for livestock and meat products.
- **The structure of the industry and the degree to which the industry is linked to other sectors of the economy.** Livestock producers can be significant users of raw materials from upstream industries and are major providers of raw materials for downstream industries. Any shock to meat production and supply will have knock-on effects throughout the supply chain.

In addition to the direct market impact on meat industries, there is increased recognition that market disruptions due to animal diseases impose significant indirect costs on economies as a whole as well. Figure 5.6 and Table 5.1 show that these indirect costs can easily amount to 50% or more of total costs.* These financial and economic losses may have longer term implications for trading patterns, policy formulation, and investment in the sector.

Box 5.1. **Disease-related trade restrictions increasingly shape animal product markets** *(cont.)*

Figure 5.6. **Animal disease outbreaks can be expensive...**

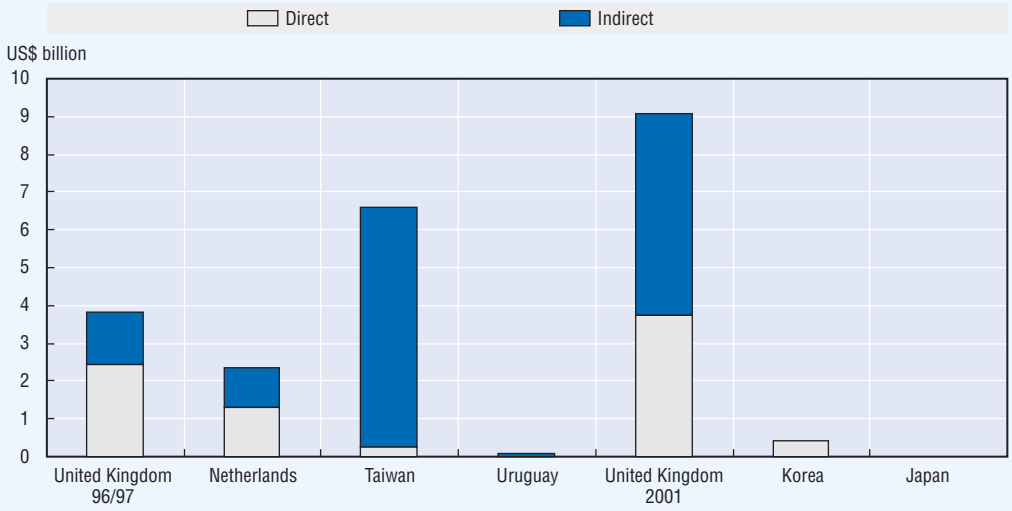

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Table 5.1. **Estimated cost of animal disease incidents**

Disease in 000 USD	BSE[c]	FMD	CSF	FMD	FMD	FMD	FMD
	United Kingdom	Chinese Province of Taiwan	Netherlands	Uruguay	United Kingdom	Republic of Korea	Japan
	1996/97	1997	1997/98	2000 and 2001	2001	2000	2000
Direct costs							
Compensation	2 433	188	1 183		2 375	377	0.5
Control measures		66	138	20	1 345	66	14.5
Sub-total	**2 433**	**254**	**1 321**	**20**	**3 720**	**433**	**15**
Indirect costs							
Agricultural sector		2,202	423		511		
Related industries		3,212	596	60	245		
Other		949			4 600		
Sub-total	**1 395**	**6 363**	**1 019**	**60**	**5 356**	**n.a.**	**n.a.**
Total costs	**3 828**	**6 617**	**2 340**	**80**	**9 076**	**433**	**15**
Impact on GDP	–0.3%[a]	–0.64%	–0.75%	n.a.	–0.2%[b]	n.a.	n.a.
Cost to public sector	63.5%	3.8%	43.5%	25.0%	41.0%		
Cost to private sector	36.5%	96.2%	56.5%	75.0%	59.0%	n.a.	n.a.

n.a.: not available.

a) –0.1 to –0.2% if the cost of compensation, which accounts for 64% of total costs, is excluded.

b) The impact on UK GDP is relatively low because the cancellation of tourism and leisure to the countryside (53% of total costs), was largely offset by increased consumer spending in other sectors of the UK economy (Thompson, 2001).

c) Draws upon the results of a study commissioned from DTZ/PIEDA consultants by UK Agriculture Departments and Her Majesty's Treasury.

Source: FAO document "Animal Diseases: Implications for International Meat Trade", August 2002. United Kingdom data have been revised following comments received from the UK Department for Environment, Food and Rural Affairs.

Statlink: *http://dx.doi.org/10.1787/150842512621*

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Box 5.1. **Disease-related trade restrictions increasingly shape animal product markets** *(cont.)*

The changing face of poultry markets: the evolving impact of avian flu outbreaks

Unlike in 2004 and most of 2005 when the AI consumption impact was largely restricted to the Asian region, new AI detections in February 2006 in more than 12 poultry importing nations in Africa, the Near East and Europe have resulted in immediate and pronounced consumption declines, shifting patterns of trade, an increased number of trade bans and sharp reductions in poultry prices. At the onset of avian influenza outbreaks in 2004, supply adjustments in Asia and the closure of export markets led to an 8% decline in international trade. Over two years, as countries spared from the disease moved to fill the gap in supplies, poultry prices in international markets rose by over 30%.

Market uncertainty in late 2005 and early 2006 is being heightened by the potential impact of any extensive AI outbreak in the EU. Combined with reduced exportable beef supplies from Brazil and Argentina, which have reported FMD outbreaks, this would have immediate implications on global meat and feed markets in the year following the outbreak. Preliminary results of an analysis assuming an extensive AI outbreak in the EU, the imposition of trade bans on EU meat exports and limited consumer responses by European consumers indicates a large short term market impact. This market shock would imply higher prices for all meats on world markets (ranging from 9-11% for poultry and beef and 6% for pigmeat), lower global meat consumption, and a shift in trading patterns with some markets moving to fill the gap left by Europe (for chicken) and Brazil (for beef). In addition, spill over effects would be evident in the feed industry as lower meat production pushes down grain and protein meat consumption, resulting in prices to fall by 2 to 5% respectively.

The results presented above are conditioned by the underlying assumptions and reflect short term market impacts only. It was assumed that trade bans would result in significant export reductions for EU and Brazilian poultry and beef, without accounting for longer term adjustments, in particular the possibility that alternative exporters increase supplies to fill global market shortages. Furthermore, developments in 2006 are revealing that the assumption that European and other consumers would not reduce their consumption of poultry products is a critical market driver. Indeed, poultry consumption has fallen in both AI-affected and non-affected countries, and demand adjustments to animal disease outbreaks are a key determinant in shaping global markets and price movements for meat products over the longer term. The impacts on world prices resulting from this preliminary analysis above may therefore be indicative of an upper limit only.

* The methodologies adopted by the different studies vary and are therefore not directly comparable.

There have been frequent animal disease outbreaks in the past five years, and their impact on trade has been very important. Animal health and food safety problems will likely continue to disrupt markets: new BSE cases have recently been detected and more cases will likely be discovered; FMD outbreaks have arisen in South America; and avian influenza is spreading to other areas. Each new incidence will influence meat markets and may affect trading patterns through part of, or the entire medium term outlook. In the context of growing international meat markets, the trade restrictions imposed in response to animal health and food safety concerns will have increasingly broader and more costly effects. Contagious diseases, with a high mortality, have implications for productivity and market access and lead to serious economic losses for producers. While these losses can be financially compensated by richer economies, this may not be possible in many developing countries which lack the resources for doing so.

The implementation of traceability in the animal industry is becoming essential to re-assure consumers and to allow animal health officials to trace individual animals to their source, with increased rapidity and accuracy in the event of a disease outbreak or other incidents that affect animal health. For major meat trading countries, the recurring apparition of animal diseases led an increasing number of domestic and international traders to request source and age verification of the livestock and meat they purchase. Despite public and private measures taken to prevent and detect disease outbreaks, and notwithstanding contingency plans and regulations to control and eradicate them, the eventuality of an outbreak remains a clear possibility and creates uncertainties for all agents in the livestock industry, both in domestic and international markets. With growing international meat trade, it is important that appropriate regulatory and veterinary frameworks are established in all trading countries as a means to facilitate the international management of animal disease outbreaks and to minimize the related costs.

Notes

1. The ongoing evolution of the short and medium term implication of these market impacts are not included in the current outlook, but will be evaluated in a separate analysis based on the current baseline.
2. Free trade agreements include that between Mexico and Japan. Meanwhile, increasing market access will be facilitated by sanitary agreements, particularly with Japan, which allow Chile and Poland to export pigmeat to that market, while India and the Philippines have benefited from increased access for poultry.
3. The ban excludes the sales of high-quality beef to Europe and other exports guaranteed in bilateral agreements.