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High animal welfare standards in the EU and international trade – How to prevent potential 'low animal welfare havens'?

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Abstract

Future costs of compliance with obligatory animal welfare standards in the EU for poultry and egg production are significant and may lead to relocation of production to third countries. After an overview of different rationales for complementary policies to prevent relocation, this article systematically compares such policies. Some policies, like multilateral agreements and labelling, may be supporting, but may not be able to prevent relocation comprehensively. Compensatory payments to domestic producers, in contrast, are effective but disadvantage third country producers that comply with equivalent standards. Therefore, tariff discrimination may be a better alternative. A major drawback of tariff discrimination, however, is its severe institutional requirements. Future research questions include quantification of potential relocation as well as transaction costs of various complementary policies.

Keywords: Animal welfare; International trade; Process standards; WTO; Labelling; International competitiveness; EU animal welfare legislation

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Introduction

In the process of economic development, demand for various process standards such as environmental standards, labour standards, standards for the protection of intellectual property rights, and animal welfare standards usually increases. As a consequence, process standards display a high degree of international heterogeneity. This raises questions with respect to international trade: Are these differences and the potential relocation of production in accordance with the principle of specialization related to comparative advantages resulting from differences in factor endowment and preferences? Or are complementary policies needed in order to promote efficient factor allocation and other potential aims of society?

This article focuses on the trade consequences of the high degree of international heterogeneity in animal welfare standards. In doing so, reference is regularly made to the discussion of other process standards, although, they are not at the core of this analysis. An example for internationally heterogeneous animal welfare standards is husbandry systems for layer hens. The EU ban of conventional cages for layer hens beginning in 2012 goes far beyond standards in most other countries and imposes substantial compliance costs on producers. Therefore, concerns that animal production may be induced to move to countries with lower welfare standards may be well founded – a new variation of the well-known 'pollution haven hypothesis,' which has figured prominently in the debate on the increasing heterogeneity of national environmental standards that has emerged since the mid-1980s. The empirical evidence for a significant effect of environmental standards on relocation of industries is rather low (see, for example, Low, 1992; Tobey, 1990; van Beers and van den Bergh, 2000). Also for agriculture, to date, the effect of higher environmental standards on the location of production and on trade appears not to have been large, due to modest compliance costs (Grote et al., 2001, p. 259; Hirschfeld, 2001; Brouwer et al., 2000). This may be different, however, for animal welfare standards because of higher costs of compliance.

Several options exist for policy makers in facing potential relocation of animal production because of high domestic animal welfare standards. First, high animal welfare standards can be pursued to a lesser extent because of the fear of international competition. And indeed, the loss of international competitiveness is often put forward as one of the main arguments against the implementation of stricter animal welfare legislation (e.g. in Böckmann and Windhorst, 2001). Second, some relocation of animal production could be accepted as the lesser of two evils compared to mandatory domestic animal welfare standards being too low to reflect societies' ethical attitudes. And third, various complementary measures to inhibit the relocation of production could be implemented together with high domestic animal welfare standards. Such measures are currently being discussed among agricultural economists as well as in international agricultural policy and by NGOs. They include demand side policies aimed at enhancing product differentiation and consumer preferences for animal-friendly products such as the establishment and promotion of labelling schemes, and supply side policies that aim to compensate for the cost of compliance with high animal welfare standards such as compensatory payments to producers and tariff discrimination. One of the drawbacks for most of these policies is that they do not comply with existing WTO rules.

This article concentrates on four aspects with respect to a 'low animal welfare haven hypothesis.' Section 'Empirical relevance' identifies animal products that will have substantial additional production costs due to compliance with existing or future animal welfare legislation in the EU. In Section 'Rationales for complementary policies', various rationales for complementary policies to prevent relocation are discussed. In Section 'Comparison of com-

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plementary policies', alternative complementary policies are discussed and assessed against the background of: (i) their potential to achieve the primary aim of avoiding the relocation of production as a result of higher animal welfare standards; (ii) their impact on the interests of trading partners; (iii) their institutional implications and (iv) their current and future compatibility with the multilateral WTO framework. In Section 'Conclusions and outlook', some conclusions are drawn and questions for further investigation are raised.[1]

Empirical relevance

The EU has an extensive body of animal welfare legislation. In addition, some member states apply stricter legislation for certain farm animals. In this article, standards laid down in EU legislation are reviewed systematically, whereas higher national standards are reported only incidentally.

General rules concerning the welfare of farm animals are laid down in EC Directive 98/58/EC.[2] In addition, specific legislation exists for some farm animals. For cattle and sheep, no animal-specific welfare legislation is in force at the EU level except for calves. Consequently, an EU report comes to the conclusion that 'competitive distortions are most likely to arise in the more intensive forms of agricultural production, notably the pig and poultry sectors' (Commission of the European Communities, 2002, 3).

For pigs, the basic EC Directive 91/630/EC[3] was amended in 2001 and requires group housing for sows, minimum floor space per animal, the provision of material for rooting and playing, and minimum light intensity and periods. National legislation is considerably above the EU level in some countries in terms of minimum floor space, choice of material for playing and rooting, cooling facilities (water sprayers), and daylight, as well as floor texture. For example, in Denmark and parts of Germany the space requirement is up to 50% above the EU level, which is considered to be close to the optimal level for economically efficient production (Fritzsche, 2002). Fritzsche and the Scientific Veterinary Committee (Commission of the European Communities, 1997) estimate the cost of extending the current minimum space by 41% and 30%, respectively, at about 4% of current production cost. Furthermore, Fritzsche estimates the cost of water sprayers at 0.2% of production costs, material for rooting and playing at 0.2–0.8%, and daylight requirements at 0.15%. The Scientific Veterinary Committee (Commission of the European Communities, 1997) estimates total cost of the EU illumination requirement at 0.4% of production costs, compared to an industry minimum of 20 lux for 1 h per day. All this shows that the cost of compliance with current legislation even in those EU countries with national standards significantly above the EU level is 6% of production cost at maximum.

[1] The paper concentrates on the international relocation of production and potential compensating policies. The EU, in this context, is considered a "nation" because of its single market. Therefore, trade policies like compensating tariffs cannot be applied among member states. Although, animal welfare legislation in the EU is rather homogenous compared to international heterogeneity, differences among member states exist, and their potential in affecting the location of production in the EU is discussed (e.g., in Tacken et al., 2003). Although many aspects of relocation within the EU are similar to the international dimension, it is not discussed here partly because of different policy options (e.g., discriminatory taxing instead of discriminatory tariffs), and partly because of its less distinct significance.

[2] Official Journal of the European Communities (OJ) L 221, 08.08.1998: 23.

[3] OJ L 340, 11.12.1991: 31. Amendments in Directive 2001/88/EC (OJ L 316, 1.12.2001: 1) and Directive 2001/93/EC (OJ L 316, 1.12.2001: 36).

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For chicken designated for meat production (broilers), no animal-specific welfare legislation is currently in force at the EU level, although, national legislation and agreements exist in some member states. However, the EU Commission has put forward a legislative proposal (Commission of the European Communities, 2005), which specifies standards for the equipment of buildings and limits the stocking density to 30 or 38 kg per m^2 depending on the respective equipment of the building. This proposal is intended to address the problems identified in the report of the Scientific Committee on Animal Health and Animal Welfare (Commission of the European Communities, 2000). The major animal welfare problems identified in that report are mainly based on two factors: the intense and almost exclusive selection in breeding on growth and feed conversion, which is not addressed in the current legislative proposal, and extremely high stocking densities (Commission of the European Communities, 2000, p. 110). The Scientific Committee estimates the additional production cost resulting from a 22% reduction in stocking density (from a current average of 38.4–30 kg per m^2) at 4.2–5.2%, and a reduced growth rate may add additional costs of 5.2% (ibid: 148).[4]

For layer hens, the cost of compliance with existing EU legislation is already significant and will increase in the future. Cage space per layer hen is one of the important factors determining production cost, and from an economic point of view 350–400 cm^2 per layer hen gives the highest income for poultry farmers (Horne and Bondt, 2003). Currently, the EU standard of minimum cage space is 550 cm^2 per layer hen. This compares to 310 cm^2 in Russia, China, Japan, and Brazil, and 350 cm^2 in the United States (Rauch, 2001). In many other countries no specific legislation on animal welfare standards for layer hens exists (Commission of the European Communities, 2002). Furthermore, Directive 99/74/EC[5] prohibits the housing of layer hens in conventional cages from 2012 on. After 2012, cages with at least 750 cm^2 cage area per layer hen, a perch, nest box, and litter will be the minimum requirement (so-called 'enriched cages'). Various authors estimate the additional cost resulting from the use of enriched cages at a significant share of current production cost: Damme (2000) estimates 20%, while Horne and Bondt (2003, pp. 23–25) estimate 13%. Blandford et al. (2002) report similar magnitudes from other sources, whereas Agra CEAS Consulting (2004: vi) does not find a significant cost difference.

Summarizing the above information it is clear that it is especially in egg production that the future cost of compliance with animal legislation in the EU is high, as it will add up to 20% to the current production costs. For broilers, this may be a 10% increase, while for pigs it is expected to be significantly lower with strong differences between member states. Furthermore, empirical evidence suggests that consumers' willingness to pay a higher price for products subject to high animal welfare standards is relatively low in the market, in contrast to the hypothetical willingness to pay, that is, assessed in various contingent valuation analyses (Theuvsen et al., 2005, pp. 11–12). Due to the potentially significant cost differences and the difficulty of establishing a price premium, concerns that egg and chicken meat production may be induced to move to countries with lower welfare standards are well founded. In addition to the high cost of compliance, egg and broiler production are generally organized under an industrial model – production is not linked to land

[4] This is the data for France, which has been chosen as an 'average EU member' in terms of production conditions. Results vary significantly between Northern and Southern member states.

[5] OJ L 203, 03.08.1999: 53.

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and is highly concentrated, thus creating considerably more potential for relocation than smaller structured, and more land-based, production systems.

Rationales for complementary policies

The discussion on rationales for complementary policies in order to avoid international relocation of production to low animal welfare standard regions is part of a more general discussion on how to deal with different process standards in international trade. Parallels exist with the discussion on different labour standards (Brown et al., 1997; Maskus, 1997; Golub, 1997; Brown, 2001), different degrees of trade related intellectual property rights protection (Maskus and Penubarti, 1995; Maskus, 2000), and different environmental standards (Baumol and Oates, 1988; Meinheit, 1995; Low and Safadi, 1992). The answer to the question of whether complementary policies should be taken to avoid the relocation of production depends much on the motivation for the implementation of domestic standards. A crucial aspect in the motivation of complementary policies is the question of whether the standards in question should be considered public or private goods.

For many environmental goods, it is well established that they have a public good character, and mandatory standards are therefore justified. It is equally well established that environmental goods with a transboundary nature justify international policy coordination in order to internalize cross-border externalities (Baumol and Oates, 1988). Meinheit (1995) shows that trade restrictions can be justified by economic theory as internalizing the costs of providing such goods as a second best option. Also for core labour standards some authors claim a public good nature. Maskus (2000, p. 7) finds 'utility spillovers [of low labour standards in the exporting country on consumers in the importing country]…sensible' from a theoretical perspective, but the empirical base weak. Other authors argue that core labour standards are a private good (Freeman, 1994); therefore, no policy intervention is needed, and demand for such standards can be addressed through labelling systems.

Bennett (1995) argues that animal welfare can be considered a public good – the well-being of animals does not affect members of society only as consumers; it is also an argument in the utility functions of non-consuming members of society. If one follows this argument, animal welfare could be compared to global environmental goods, and complementary policies to prevent relocation could be justified. In contrast, Mann (2004) convincingly argues that animal welfare should not be considered a public good. This is because the concept of external effects providing a *prima facie* case for government intervention would lose much rigor if external effects were defined to include psychological in addition to technological effects, which are usually covered by the economic concept of public goods. With such an extension, the way would be paved for all kinds of paternalistic and arbitrary reasons to restrict international trade.

If, on the other hand, one considers animal welfare a private good, there is no reason for obligatory animal welfare standards at all. Products that are produced according to above average animal welfare standards are rivals in consumption (more production of such goods is more expensive) and consumers who do not pay a price premium can be excluded from consumption. And indeed, niche markets for products produced above public level animal welfare standards are widely found (Neuland, 2006; Royal Society for the Prevention of Cruelty to Animals, 2006; Label Rouge, 2006). A reason for government intervention, however, could be the problem of asymmetric information, which could be addressed with the support or implementation of voluntary or obligatory labelling schemes, such that

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consumers' trust in a label would be enhanced. Of course, in such a case, no additional complementary policies with respect to internationally traded products would be required.

Two other rationales for obligatory animal welfare standards can be found. First, ethics can lead to the conclusion that animals have a moral standing and that human beings therefore have certain duties to animals.[6] If certain duties to animals are considered a justified moral view, it follows that the 'right' level of minimum animal welfare standards needs to be established for all members of society, although, this does not provide much guidance with respect to how imports should be treated. Should a society only be responsible for its own production methods, no complementary policies to avoid relocation would be justified. Or if a society was responsible for production methods of all goods it consumes, this could potentially justify an import ban of products failing to meet certain animal welfare standards. If a society is considered responsible for the consequences arising from the production of goods in third countries, however, it seems equally justified that society should be responsible for the consequences arising from not importing these products. These consequences may, for example, include negative income effects for poor population groups in developing countries. How then, should these effects be weighted?

A second rationale for domestic mandatory animal welfare standards is that the government acts in order to implement 'reflective preferences' of consumers, which may differ from their market preferences (Mann, 2004). Brennan and Lomasky (1984) argue that reflective preferences for some products may be closer to those revealed by voting in the political process than to those revealed in the marketplace. If animal welfare is considered such a good, high animal welfare standards set by the government could be considered a self-binding measure by a society not to follow market preferences.[7] Like the ethical reasoning above, this approach provides little guidance with respect to the treatment of international trade.

Maskus (2000) compares the arguments for incorporation of intellectual property rights, competition policy, environmental standards, and core labour standards into the WTO. He concludes that the case for inclusion of core labour standards is weak compared to environmental standards, especially because of the weak theoretical argument and empirical evidence with respect to cross-border externalities. In that aspect, animal standards score equally weak as core labour standards.

A more pragmatic reasoning in favour of complementary policies is based on the fact that the political aim underlying animal welfare standards may at least partially be undermined if production relocates to countries with lower standards (Niedersächsische Regierungskommission, 2001; Isermeyer and Schrader, 2003). An additional concern is that the WTO process may be discredited if consumers get the impression that it inhibits, among other things, the development of stricter domestic rules on animal welfare (Swinbank, 2000, 19) or even results in a 'race to the bottom' for animal welfare standards. These arguments may determine the pressure for complementary policy options in the future more than the theoretical considerations above, simply because policy makers will be reluctant to enforce higher animal welfare standards domestically if this causes production to relocate.

[6] See Sandoe et al. (1997) for an introductory overview and Weikard (1992) for a more in depth treatment of ethical justification of animal welfare measures.

[7] For a composition of various factors that may lead to the deviation of market and reflective preferences see Birner et al. (2002).

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Comparison of complementary policies

Overview

Whatever the justification of complementary policies to prevent relocation of domestic production, this section looks at different policy instruments and evaluates them with respect to: (i) their potential to achieve the primary aim of avoiding relocation; (ii) their impact on the interests of trading partners; (iii) their institutional implications and (iv) their current and future compatibility with the WTO framework. It seems as though the fact that domestic production may be replaced by imports causes more concern than a declining export market share due to reduced international competitiveness (WTO, 2000). Therefore, potential compensating policies explicitly designed to maintain a certain export level are not included in this section. Policies analyzed include: (1) multilateral agreements; (2) government supported voluntary labelling of animal-friendly imports; (3) obligatory labelling of non-animal-friendly imports; (4) compensation of domestic producers through producer subsidies; (5) tariff differentiation according to product-specific animal welfare level within WTO tariff bounds; (6) tariff differentiation according to product-specific animal welfare level above WTO tariff bounds and (7) import bans.

Table 1 displays an overview and assessment of potential instruments organized in rows, with the criteria mentioned above in columns.

Multilateral agreements

Multilateral agreements are one of three measures proposed by the EU for dealing with the problem of internationally heterogeneous animal welfare legislation in the WTO (WTO, 2000). The basic idea is simple: in a world of uniform or at least equivalent animal welfare standards, no trade frictions would occur and no additional policy instruments would be needed. But such agreements are hypothetical, at least for countries with significantly differing states of economic development. Demand for higher animal welfare standards rises with increasing income, and cultural differences play a major role (Fraser, 2001). A multilateral agreement on a level comparable to EU animal welfare standards, including a large number of WTO members, is therefore not conceivable. At most, such agreements can be reached for country groups that similarly value animal welfare. The European Convention for the Protection of Animals Kept for Farming Purposes of 1976 is such an example, and, although, the Council of Europe includes only 45 countries from a relatively homogeneous region (in 1976), the Convention sticks to general principles, subject to very different interpretation in different signatory states. Although, such multilateral agreements are widely considered to play an important role in improving animal welfare worldwide (Knierim and Jackson, 1997), they do not cope with the most significant trade problems – those resulting between countries with especially high and low animal welfare standards. Finally, high domestic animal welfare standards combined with a multilateral agreement among only a few countries may have a positive effect on non-members; if no complementary policies were applied, their exports to the countries covered by the agreement could benefit from improved competitiveness.

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Table 1
Overview of policies for preventing relocation of animal production due to cost of compliance with domestic standards

	Effectiveness in preventing relocation		Effects on exporting trading partners[a] (complying/non-complying)		Institutional implications			Current WTO compatibility	Potential WTO compatibility	Other aspects
	Imports	Exports	Compl.	Non compl.	Mutual recognition/equivalence	Import certification	Determination of level of payments/tariffs			
Multilateral agreements										Only countries with comparable animal welfare levels
Members:	++	++	0	0	+	0	0	+	+	
Non members:	0	0	0	+	0	0	0	0	0	
Voluntary labelling	+	0	+/0	+/−	+/0	+	0	0	0	
Obligatory labelling	+	0	+/0	+/−	+	+	0	−	−	
Domestic payments	++	++	−	0	0	0	+	−	0	Domestic price below marginal cost
Tariff discrimination above WTO bound	++	0	+	0	+	+	+	−	−	
Tariff discrimination below WTO bound	++	0	+	0	+	+	+	_	−	Erosion
Import ban	++	0	0	−	+	+	0	−	−	Potential overcompensation

++ = Strong, + = Weak/positive/yes, 0 = Neutral/not/no, − = Negative. *Source*: own composition.

[a] This assessment is based on the assumption of no comparative advantages in implementing animal welfare standards and thus does not include any effects due to such comparative advantages, which may have different effects on different countries and producer groups.

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Labelling

A second option proposed by the EU (WTO, 2000) for preventing the relocation of animal production is the labelling of imported products according to the animal welfare standard at which they are produced. This is in line with the general EU strategy of promoting labelling as a means to improve animal welfare (Commission of the European Communities, 2006a, 10), and reaching WTO-compatibility of labelling with respect to non-product-related process standards (Commission of the European Communities, 1999, 15). Labelling aims at the market imperfection of asymmetric information. As the animal welfare standard in the production process is a credence good, the market would tend to provide only low qualities if no market segregation based on credible labelling takes place.[8] This is where governments can intervene: if private sector activities do not lead to the establishment of a transparent and credible labelling system, the market outcome can be improved by government involvement in protecting a label and monitoring the certification and auditing process. Two options exist: voluntary and obligatory labelling of imports. Voluntary or positive labelling is practiced in the EU, for example, for organic agricultural products and also for products which are produced above the legislative minimum standards of animal welfare such as under the German Neuland, the British Freedom Food, and the French Label Rouge program (Neuland, 2006; Royal Society for the Prevention of Cruelty to Animals, 2006; Label Rouge, 2006). For domestic production, the EU has a mandatory labelling system for eggs to indicate the husbandry system of layer hens. Furthermore, in the newly proposed animal welfare legislation on chicken for meat production (Commission of the European Communities, 2005), the European Commission is required to submit a report on the possible introduction of a mandatory labelling regime based on compliance with animal welfare standards.

Generally, voluntary animal welfare labels have reached only a relatively small market share. Neuland has an estimated 200 small to medium size certified farms (Neuland, 2006). The Freedom Food Program of the Royal Society for the Prevention of Cruelty to Animals has an estimated market share of about 1% for chicken meat and pork and a share of 25% for all retail shell eggs in the UK market (Douglass, no date). A limited coverage of voluntary labelling schemes can also be observed for social labels. For example, fair trade labelled coffee and bananas accounted for no more than 6% of retail value in 2004 in most European countries. But exemptions exist: for bananas, the fair trade share was 47% in Switzerland; for coffee, it was 20% in the UK (Krier, 2005, 30). Palm (2001) reports a German market share of 16% for Rugmark-labelled carpets from India, which are produced without child labour.

Due to the limited coverage of voluntary labelling schemes with respect to animal welfare, they have a relatively low degree of effectiveness with respect to their aim discussed here: the prevention of relocation. This limited effectiveness stems from two factors. First, additional product information at the point of sale affects consumption decisions to a limited degree. Many reasons, such as information overload, repression, and customs, contribute to market preferences deviating from reflective preferences (Birner et al., 2002; Blandford et al., 2002, 81). Second, the high degree of processing and out-of-home consumption for many products renders labelling rather ineffective, as it is difficult to

[8] Akerlof (1970) first described this market result for the second hand car market.

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communicate any value added from high animal welfare in highly processed products which consumers usually do not perceive as linked to animal production. For example, in Germany only about 40% of egg consumption is a result of households purchasing eggs in shell (ZMP, 2004, 100). Tacken et al. (2003, 31-37) report from interviews with industrial buyers on the market for egg products, such as fluid egg or egg powder, that the housing system for hens is of minor importance as a buying factor and is expected to remain so in the future.

That being said, changes in the public opinion may induce processing companies or retail chains to shift demand at the industry level, such as the announcement of major Dutch retailers renouncing the sale of eggs from cages (Lebensmittelzeitung, 2004). Such processes may result in major shifts in consumption, which would to a large degree be independent from actual consumer choices at retail level. An example for such a process is the fast evolution of private quality assurance schemes, which also include above-public-level process standards. For example EurepGAP has recently established the Integrated Farm Assurance scheme under which complete farms, including animal production, are certified. EurepGAP standards for animal production in third countries include animal welfare requirements comparable to those in the EU (EurepGAP, 2006). If such schemes cover high shares of EU imports, the effect can be equivalent to a legislative import ban on non-complying products. This process can already be observed in certain EU markets for imports of fresh fruit and vegetables for which the EurepGAP standard has become quasi-mandatory (Codron et al., 2005, 279).

An alternative to voluntary labelling is obligatory or negative labelling, under which all products that do not fulfill a certain standard need to be labelled. Obligatory labelling can be expected to be more efficient with respect to its primary aim, as more consumers may be prevented from buying a product by a label which states 'not produced according to EU animal welfare legislation' than by the nonexistence of a positive label.

From a perspective of exporting trading partners, the effects of labelling schemes are ambiguous. If the respective labels result in any price premium or more reliable export markets, their effect on complying producers would be positive. For non-complying producers, any labelling may have averse effects if consumers shift towards complying products, which is more probable under obligatory labelling schemes. In case of a significant share of consumers having a preference for lower priced and non-complying products, however, the effect of high domestic standards in the importing country together with a labelling scheme for imports may even have a positive effect on non-complying producers in exporting countries.

From an institutional point of view, labelling requires a certification process for those products that are to be marketed as animal-friendly in the high standard country. Such certification must operate in third countries as well. In addition, the equivalence issue must be addressed in case of different husbandry systems. The requirements and difficulties of such a process are discussed below in the tariff discrimination section.

Two aspects are of particular importance in the assessment of WTO compatibility of labelling schemes. First, the degree of public involvement and second, the question as to whether the label addresses product or product-related process standards, or non-product-related process standards. Any kind of labelling schemes that are pure private sector activities do not fall under the jurisdiction of the WTO, which is an intergovernmental organization and only deals with standards and labelling schemes that involve public intervention (Chang, 1997, 156). Public intervention, however, can come at different degrees.

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It can involve the promotion of any kind of voluntary label, the active support of the implementation and certification of voluntary labels, the full public operation of a voluntary labelling scheme, or the implementation of a mandatory labelling scheme. It is subject to discussion at which level of government intervention the respective labelling scheme falls under the jurisdiction of the WTO.

The second criterion in the assessment of the WTO legitimacy of labelling schemes is the nature of the standard. The wording in the Agreement on Technical Barriers to Trade (TBT) is ambiguous on the issue of whether non-product-related process standards, such as animal welfare standards, fall under the TBT Agreement.[9] The WTO secretariat, in an analysis of the negotiating history, comes to the conclusion: 'The negotiating history suggests that many participants were of the view that standards based inter alia on PPMs [Process or Product related Measures] unrelated to a product's characteristics should not be considered eligible for being treated as being in conformity with the TBT Agreement' (WTO, 1995a, 2). Chang (1997, 147) comes to a similar conclusion. It is also unlikely that animal welfare standards could be considered to fall under the Sanitary and Phytosanitary (SPS) Agreement, as the SPS Agreement only covers standards to ensure, among others, animal health. The link between animal health and animal welfare, however, is ambiguous, as animal health is only one aspect of animal welfare among others such as the freedom to express normal behaviour.

Although, the TBT and SPS Agreements do not apply to animal welfare standards, general rules of the GATT do apply. GATT Article I on Most-Favoured-Nation-Treatment states that 'like products' need to be treated equally, independent of their origin. In addition, GATT Article III states that imported products have to been treated equally to 'domestic like products' (WTO, 1995b). With respect to the 'like products' criterion, the negotiation history of the GATT suggests that 'products which are intrinsically comparable will…be considered alike, regardless of differences in the manner in which they have been produced' (Scott, 1999, 2). Chang (1997, 151) expresses the view that voluntary ecological labelling with respect to product related process standards can, under certain circumstances, be in conformance with WTO law; he bases his view on a GATT panel's assessment of the labelling provisions of the US Dolphin Protection Consumer Information Act (WTO, 1991: para 5.43 and 5.44). However, negative labelling – of imported eggs from battery production systems in contrast to domestic eggs from alternative husbandry systems, for example – is in clear conflict with Articles I and III of the GATT.

GATT Article XX on general exceptions offers a set of measures that would be permitted to, among others, 'protect public morals, …animal…life or health' or be 'relating to the conservation of exhaustible natural resources.' The WTO Appellate Body (WTO, 1998) found the application of Article XX justified in the context of an US import ban on shrimps, which were harvested with technology adversely affecting sea turtles. In this case, the application of the concept of 'exhaustible resources' to living species was accepted by the Panel (Biermann, 1999). But Article XX has never been used as a basis for measures to protect animal welfare standards, so no precedents exist. Various interpretations of Article XX come to the conclusion that the coverage of animal welfare measures under Article XX is ambiguous, but cannot be ruled out (Blandford et al., 2002, 95-96; Swinbank, 2000, 12). Due to the ambiguous link between animal welfare and animal health the public morals

[9] See Grote et al. (2001, 24-28) or Dröge (2001, 9-11) for a more detailed discussion.

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provision would be the only one to potentially cover animal welfare. It seems unlikely, however, that a WTO Panel would accept animal welfare levels in the exporting country as a justification for mandatory labelling or any other discriminatory policies by the importing country based on the public morals provision of Article XX. In fact, accepting this argument in case of animal welfare standards would set a precedent for any other moral concerns and thus open the door, for example, to apply discriminatory policies because of the labour standards that apply in the exporting country.

Although, the WTO legal status of voluntary labelling – which includes public intervention such as the international certification of organic products – is arbitrary, it is at least tolerated and has not been subject to the dispute settlement process. This, however, does not hold for obligatory labelling, for which conflicts have arisen in the GATT. For example, such a dispute arose between Malaysia and other Asian countries versus Austria about a mandatory label for tropical wood, which was settled without a panel ruling (Dröge, 2001).

Domestic compensation payments for producers

As a third policy measure, the EU has proposed compensation payments to domestic agricultural producers. Isermeyer and Schrader (2003) have argued for the implementation of such payments in the EU. Without a doubt, such payments would be effective with respect to their primary aim – preventing relocation of production – if the level of compensation payments equals cost of complying with animal welfare legislation. The payments would even enable a country to maintain its exports under higher animal welfare standards, in contrast to other measures that impact only the level of imports.

It has been argued that compensation payments could harm third country suppliers of products that meet high animal welfare standards (Grethe, 2001, 23). This is because such producers would need to satisfy standards comparable to those of the importing country, but would not be eligible to receive payments to cover the extra costs of doing so. Trade representatives of third countries share this concern (GTN, 2003). It is important to note that it is not automatically the case that third country suppliers produce at lower animal welfare standards than producers in the EU. Although, legislation is less strict in most countries, natural and economic conditions, especially in developing countries, can sometimes lead to more animal-friendly husbandry systems than in the EU. An example is the grazing of cattle in large parts of Latin America in contrast to the intensive cattle production systems in closely confined pens with slatted flooring common in the EU. Also, in intensive animal production, climatic conditions can sometimes lead to more animal-friendly systems in other countries. For example, chickens for meat production in Brazil are typically kept in open stables at 12–15 animals per m^2 (Grote et al., 2001, 88), whereas typical German husbandry systems consist of closed stables with about 20 animals per m^2. Thus, trading partners may have a comparative advantage in providing high animal welfare standards based on natural and economic conditions such as climate, land endowment, or low wages in labor-intensive husbandry systems.

Another problem with compensation payments is that the resulting market price does not fully reflect the marginal cost of production. This leads to a distorted marketed quantity above the economic optimum, and related consumer and producer welfare losses. Animal welfare would be partly paid by taxpayers instead of consumers of the respective products. From an institutional point of view, compensatory payments would require a process of determination of the cost of compliance.

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Compensation payments for applying high animal welfare standards do not explicitly conform to current WTO legislation. Rules on domestic support are laid down in the respective parts of the Uruguay Round Agreement of Agriculture [URA] (WTO, 1995b). Subsidies, which are explicitly excluded from any reduction commitments and therefore are in long term compliance with WTO legislation, are defined in the so-called green box (Annex 2 to the URA). Annex 2 defines some general requirements for green box policies. For example, they must have 'minimal trade-distorting effects,'must be financed from 'publicly funded government programme…not involving transfers from consumers,' and must 'not have the effect of providing price support.' As these general rules leave much room for interpretation, a list of potential policies and respective criteria to be fulfilled for eligibility within the green box is provided. Payments under environmental programs are explicitly included in the green box with the requirement that 'the amount of payment shall be limited to the extra costs or loss of income involved in complying with the government programme' (Annex 2, para 12(b)). No reference is made in Annex 2 to animal welfare, and, although, payments could be designed to meet the general rules of the green box, this seems to imply that compensation payments for animal welfare standards do not currently fall in the green box. This appraisal is based on the very general nature of the basic rules for green box policies and the long and detailed policy list provided in Annex 2. Other authors come to similar conclusions (Swinbank, 2001; Blandford et al., 2002, 93). The EU is calling for an explicit inclusion of animal welfare payments in the green box (WTO, 2000). Swinbank (2001, pp. 18–19), on the other hand, rejects such an inclusion due to the resulting disadvantage for producers in exporting countries that comply with the standard.

In spite of the major drawbacks of compensation payments described above, the inclusion of such payments in the green box seems to be a serious option in the Doha Round negotiations. It has been included in the proposal for 'modalities' for the liberalization for agricultural trade put forward in March 2003 by the chairman of the negotiating group on agriculture, Stuart Harbinson (WTO, 2003). But this element is neither part of the Framework for Establishing Modalities in Agriculture (WTO, 2004), which includes only the succinct sentence that 'non-trade concerns…will be taken into account,' nor is it included in the Hong Kong declaration (WTO, 2005). Thus, the inclusion of animal welfare payments in the green box is still subject to the ongoing Doha Round negotiations. As for payments under environmental programs, such payments could be 'limited to the extra costs or loss of income involved in complying' with the animal welfare standards and thus be 'minimally trade distorting,' although, they would necessarily be linked in one way or another to the level of production.

But even without inclusion of such payments in the green box, countries can use their bound total Aggregate Measure of Support (if any) or their scope for *de minimis* measures to install such payments without resorting to the green box. Recently, the EU has explicitly included compensatory payments for compliance with animal welfare standards in its list of policies, which may be co-financed by the CAP budget under the second pillar of the CAP (Commission of the European Communities, 2003). In the light of the water in the WTO commitments of the EU in the field of domestic support, which results from the significant reduction of price support and partial decoupling of direct payments, the EU budget may be a more severe limit for the implementation of compensatory payments than the WTO. The production value of eggs and poultry meat in the EU is at about 19 Billion € (Commission of the European Communities, 2006b). If one assumes costs of compliance at about 10%, resulting compensatory payments could amount to 1.9 Billion € annually. This

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would be equivalent to 20% of the annual EU funds scheduled for the second pillar of the CAP for the period 2007–2013, or 3.6% of the total annual EU agricultural budget for that period (UK Presidency of the EU, 2005).[10]

Tariff discrimination

A further instrument to prevent relocation of production due to cost of compliance with animal welfare standards is production process related tariff discrimination (Grethe, 2001; Blandford et al., 2002). 'Animal welfare tariffs' would be charged only on products that do not comply with the animal welfare standards of the importing country or equivalent standards and would thus not necessarily apply to the country of origin in general. Grethe (2001) highlights that such tariff discrimination would address the problems arising from compensatory payments; producers in other countries complying with equivalent standards would not be disadvantaged and domestic prices would reflect marginal cost. A major drawback of such an approach, however, is the severe institutional requirements.

First, institutions and procedures must be established in order to determine the level of tariffs and the equivalence of animal welfare standards in different countries. Of course, this process is in danger of being captured by rent-seeking domestic producer interests, which are interested in having the cost of compliance (and thus resulting tariff levels) as well as equivalence requirements set as high as possible. To cope with this problem, the process of determining cost of compliance and equivalence requirements must be allocated to an institution independent from producer interests. Furthermore, some international involvement or even surveillance would be required. Potentially the entire process could be located at an international institution. For the determination of equivalence, problems arise from the difficulties of unambiguously assessing different husbandry systems with respect to their degree of animal friendliness. For example, the question of whether a layer hen husbandry system is more or less animal friendly if it provides 30% more floor space than enriched cages in the EU – yet has no nests, perches, or litter – cannot be answered unanimously by ethologists. Therefore, any tariff discrimination needs to be limited to significant differences in animal welfare standards on which some consensus can be reached.

Second, a process of determining compliance with domestic or equivalent standards of producers in other countries must be established. The international certification of organic production is an example for such a process. Like animal welfare standards, organic standards are mainly process standards. It can be observed that, after many years of experience, the certification system in the EU is workable. That is, compliance with standards is ascertained at a relatively low cost, usually less than 1% of product value (Grethe, 2001, 25).

Currently, tariff discrimination according to the animal welfare level adhered to by producers clearly conflicts with WTO legislation. This is because products produced at different animal welfare standards are still considered 'like products' and any discrimination would conflict with Articles I and III of the GATT (see above). In addition, maximum tariff levels for all agricultural products have been bound with the implementation of the Uruguay Round. Any 'additional' animal welfare tariff would conflict with these tariff bindings. Bagwell and Staiger (1999) suggest adjusting WTO rules such that importing

[10] The outlays for compensatory payments from the EU budget would be less than the figures reported here, because second pillar policies are co-financed by member states.

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countries can increase their tariff bindings when making changes to their domestic labour or environmental standards that would otherwise increase foreign access to their markets. Blandford et al. (2002) describe an alternative approach in which tariffs for conforming imports are established below WTO bound rates, so that a margin of tariff preference is provided. This would have a comparable economic effect, and applied tariffs would not conflict with WTO bindings. Still, such tariff discrimination would conflict with GATT Articles I and III. Furthermore, tariff discrimination below WTO bounds would be subject to erosion in the course of further multilateral tariff reduction.

Import ban for non-complying products

As a last option, although, more a theoretical one due to the potential frictions in the WTO, countries applying high domestic animal welfare standards could ban imports that do not comply with domestic or equivalent standards. An import ban would be efficient in preventing relocation of production. It is possible that domestic producers may be over compensated compared to other measures, as those non-complying suppliers in other countries that could compete even in case of compensation payments or tariff discrimination would be excluded from the market. An import ban, however, likely does not comply with WTO legislation unless Article XX were changed, which is currently not on the agenda and probably not an option in the future (see above). The EU explicitly states that it does not aim at an import ban for products not complying with domestic animal welfare standards (WTO, 2000).

Conclusions and outlook

The future costs of compliance with obligatory animal welfare standards in the EU for poultry and eggs are significant, up to 20% of production costs. In addition, consumers' readiness to pay a substantial price premium for high animal welfare in the market is limited, which is also reflected in the low market shares covered by voluntary animal welfare labels. Without any complementary policies, higher domestic animal welfare standards will lead to an international relocation of production with accordant lower EU exports and higher EU imports of animal products, compared to a situation without such standards.

The theoretical justification for any complementary policies to prohibit international relocation that go beyond labelling schemes to address asymmetric information is weak. This is the case because animal welfare standards cannot convincingly be considered a trans-boundary public good, which would establish a *prima facie* case for government intervention in order to internalize externalities. Although, alternative rationales based on ethics and the concept of governments acting to implement reflective preferences of consumers are well suited to justify mandatory domestic animal welfare standards, they do not provide much guidance with respect to the treatment of imported goods. The problem with any argument based on ethics is that complementary policies would potentially harm producers in exporting countries; therefore, animal welfare should not be the only aspect taken into account.

In spite of the weak theoretical base for complementary policies beyond labelling, various policies are currently under discussion, mainly based on the perception that the political aim underlying animal welfare standards may be undermined, at least partially, if production relocates to countries with lower standards. Some of these policies, such as

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multilateral agreements and labelling, may be supporting but cannot comprehensively prevent relocation. In contrast, compensatory payments to producers are effective and already implemented by the EU. Although, their potential inclusion in the green box is currently discussed in the WTO as an approach to deal with different animal welfare standards, compensatory payments have major drawbacks. First, they disadvantage third country producers that comply with equivalent standards and receive no payments. This problem becomes more distinct the higher the comparative advantage of third country producers in providing a high degree of animal welfare. Second, compensatory payments lead to a domestic market price below marginal cost of production. Therefore, tariff discrimination may be a better alternative, as it would avoid both problems. Major drawbacks of tariff discrimination are its severe institutional requirements and its lack of WTO compatibility.

Because of the severe institutional requirements of tariff discrimination and the potential 'negotiating capital' that would have to be spent on establishing such an approach in the WTO, acceptance of some relocation of production seems to be an alternative at least worthy of consideration. Such a scenario could be complemented by a policy mix with fewer institutional requirements and an easier standing in the WTO than tariff discrimination. Policies included may be multilateral agreements, governmental support for voluntary labelling schemes, and the promotion of more consumer awareness of animal welfare issues. In the light of the quick evolution of labelling with regard to non-product related process standards, an explicit coverage of such schemes under WTO disciplines in order to ensure transparency and non-discriminatory design should be considered (see, for example, the proposal of Chang, 1997).

Against the background of the two aspects that are in the fore in determining the attractiveness of any kind of tariff discrimination – namely the transaction costs involved in such a system and the potential relocation of production without such a system – two fields arise for future research. First, the quantification of potential transaction costs involved in different policy options described above would be an important contribution to the discussion. And second, the quantitative magnitude of the degree of relocation that can be expected under different scenarios of the level of animal welfare standards as well as accompanying policies would be valuable. Potential relocation could be analyzed based on economic equilibrium models, which allow for product discrimination according to animal welfare standards in production as well as in consumption. Studies at hand remain scarce and do not cover the topic comprehensively. Rau (2003) simulates potential relocation of German and European egg production due to the ban of conventional cages by shifting constant elasticity egg supply functions leftward to reflect cost of compliance. Yet this model does not include product differentiation in consumption, nor product differentiation in third country production. Horne and Bondt (2003) analyse potential relocation of production of eggs under the EU requirement of enriched cages by increasing capital cost in a general equilibrium framework and conclude that 'the GTAP model gives an impression of the impact of increased production cost due to improvement of animal welfare' (ibid: 40). This, however, seems premature, as no product differentiation at the consumption side is modeled (thus the only buying criterion for consumers are prices), and any product discrimination in third countries (for example, Brazilian producers able to produce eggs either at EU-equivalent or at lower animal welfare standards) is neglected. For those countries with low domestic minimum standards, comprehensive depiction of substitution possibilities between products produced at high and at low animal welfare standards in consumption as well as in production seems indispensable for a comprehensive analysis.

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