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COMMISSION STAFF WORKING DOCUMENT
IMPACT ASSESSMENT REPORT

Accompanying the document

**Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE
COUNCIL**

**on the protection of animals during transport and related operations, amending Council
Regulation (EC) No 1255/97 and repealing Council Regulation (EC) No 1/2005**

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Glossary

Term or acronym	Meaning or definition
AMR	Antimicrobial Resistance
CAP	Common Agricultural Policy
NO _x	Nitrogen Oxides
ECI	European Citizens' Initiative
EFSA	European Food Safety Authority
EU	European Union
ARB	Anti-microbial resistant bacteria
ARG	Anti-microbial resistant gene
GHG	Green House Gases
IRU	International Road Transport Union
GPS	Global Positioning System
NGO	Non-Governmental Organisation
SDG	Sustainable Development Goal
SMEs	Small and Medium-sized Enterprises
SSR	Self-Sufficiency Ratio
THETIS database	THETIS-EU is a platform that supports the implementation of a wide spectrum of EU maritime legislation
TRACES database	European Commission's online platform for sanitary and phytosanitary certification required for the importation of animals, animal products, food and feed of non-animal origin and plants into the European Union, and the intra-EU trade and EU exports of animals and certain animal products

1. INTRODUCTION: POLITICAL AND LEGAL CONTEXT

Every year, over a billion of animals are transported within or between Member States or being exported to third countries. The welfare of these animals is protected by European Union (EU) legislation which was adopted in 2005¹ ([Council Regulation \(EC\) No 1/2005](#), later referred to as ‘the Transport Regulation’), with some key provisions which were not amended in 2005 and are therefore based on the knowledge and the perspective dating from the 1990’s.

Since then, science on the welfare of animals during transport has evolved², EU citizens pay increasing attention to this topic, and societal concerns have changed³. Significant developments in science and technology are not fully taken into account in the current EU legislation. This impact assessment analyses policy options designed to address these and other shortcomings highlighted in the Fitness Check of the EU animal welfare legislation, finalised in 2022⁴, such as, among others, differences in controls and enforcement. The impact assessment supports a proposal for a Regulation on the **protection of animals during transport**, revising and repealing Council Regulation (EC) No 1/2005.

While the scope of the existing Regulation on the protection of animals during transport will remain largely unchanged, the impact assessment considers more targeted rules as well as some clarifications and simplifications of existing provisions. This includes specific rules on the movement of cats and dogs for economic purposes that go beyond the existing general requirements.

The following categories of animals that are commonly transported in the EU are covered by this impact assessment: vertebrate animals (including amphibians, fish and reptiles), whether or not they are intended for food consumption⁵.

As established in the Fitness Check, the current Regulation hampers the implementation of Directive 2010/63/EU, since certain of its provisions seem difficult, albeit not impossible, to reconcile with the principles of reduction and refinement, enshrined in the Directive⁶. Hence, less specific requirements should apply for animals used for scientific purposes than today.

The initiative on the protection of animals during transport is carried out under the [Farm to Fork Strategy](#)⁷ and aims to ensure a higher level of animal welfare by bringing the current rules closer to the latest scientific evidence, broadening their scope (by developing more specific requirements for

¹ Council Regulation (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97, OJ L 3, 5.1.2005, p. 1–44.

² A summary of the main scientific findings in recent years is presented in Annex 7.

³ European Commission, Directorate-General for Health and Food Safety, *Attitudes of Europeans towards animal welfare – Report*, Publications Office of the European Union, 2023, p. 82 and p. 84, <https://data.europa.eu/doi/10.2875/872312>.

⁴ European Commission, *Commission Staff Working Document, Fitness Check of the EU Animal Welfare Legislation*, 2022, SWD/2022/0328 final.

⁵ In the absence of scientific consensus on their sentience, insects kept for food and feed production are not covered by this initiative.

⁶ Fitness Check, p. 46, footnote 241 (see note 4, page 1).

⁷ European Commission, Directorate-General for Health and Food Safety, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system*, 2020, COM(2020)381 final.

certain categories of animals, such as cats and dogs), making them easier to enforce and addressing societal demands.

Political context

Adopted in December 2019, the [European Green Deal](#)⁸ sets out to make Europe the first climate-neutral continent by 2050. The Farm to Fork Strategy is at the heart of the European Green Deal. It addresses comprehensively the challenges of sustainable food systems and recognises the inextricable links between healthy people, healthy societies, and a healthy planet.

Animal welfare – defined as “*the physical and mental state of an animal in relation to the conditions in which it lives and dies*”⁹ – is an integral part of a sustainable food system¹⁰ and there is a nexus between animal welfare, the environment, and sustainable development. Hence, under the Farm to Fork Strategy, the Commission has launched work on the revision of the EU animal welfare legislation.

Both the Council and the European Parliament have been paying increasing attention to animal welfare during transport in recent years. In several Conclusions, the Council has consistently highlighted the need for higher animal welfare standards when animals are moved for commercial purposes¹¹. The European Parliament has also adopted a series of specific recommendations on animal welfare during transport¹², following 18 months of work of a European Parliament Committee of Inquiry on the Protection of Animals during transport¹³. The European Court of Auditors found that, while EU actions to improve welfare have been successful to some extent, weaknesses persist during transport^{14,15}.

An initiative on the protection of animals during transport would indirectly contribute to the United Nations’ Sustainable Development Goals (SDGs) 12 ‘*Responsible consumption and production*’ and

⁸ European Commission, *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, the European Green Deal*, 2019, [COM/2019/640 final](#).

⁹ Definition by the World Organisation for Animal Health, Terrestrial Animal Health Code, Section 7. Animal Welfare, Chapter 7.1. Introduction to the recommendations for animal welfare, Article 7.1.1. General Considerations, p. 2.

¹⁰ European Commission, Directorate-General for Research and Innovation, Group of Chief Scientific Advisors, *Towards a sustainable food system: moving from food as a commodity to food as more of a common good: independent expert report*, Publications Office of the European Union, 2020, <https://data.europa.eu/doi/10.2777/282386>.

¹¹ Council of the European Union, *Council Conclusions on animal welfare – an integral part of sustainable animal welfare production*, 14975/19, Brussels, 2019; Council of the EU, *Council Conclusions on an EU-wide animal welfare label*, Ref 14047/20, Brussels, 2020; Council of the EU, *Council conclusions on animal welfare during maritime long distances transport to third countries*, 10235/21, Brussels, 2021.

¹² European Parliament, *European Parliament recommendation of 20 January 2022 to the Council and the Commission following the investigation of alleged contraventions and maladministration in the application of Union law in relation to the protection of animals during transport within and outside the Union*, 2021/2736(RSP), 2022/C 336/04, 2022.

¹³ European Parliament, Committee of Inquiry on the Protection of Animals during Transport, *Report on the investigation of alleged contraventions and maladministration in the application of Union law in relation to the protection of animals during transport within and outside the Union*, 2020/2269(INI), 2021.

¹⁴ European Court of Auditors, *Animal welfare in the EU – Closing the gap between ambitious goals and practical implementation. Special report No 31*, 2018, Publications Office of the European Union, 2018, p. 5, <https://data.europa.eu/doi/10.2865/950259>.

¹⁵ European Court of Auditors, *Transport of live animals in the EU – Challenges and opportunities*, Publications Office of the European Union, 2023, p. 4, <https://data.europa.eu/doi/10.2865/211704>.

3 ‘Good health and well-being’. As described in Annex 3, there is a positive relationship between achieving the SDGs and improving animal welfare during transport¹⁶.

Relation with other EU initiatives

The revision of the Transport Regulation is intended to work in synergy with the proposal on the welfare of dogs and cats and their traceability and has interlinks with other EU initiatives and policies affecting both animals and transport, such as the EU animal health policy and certain EU social legislation relating to road transport. Further details on these and other pieces of EU policies and legislation considered in this Impact Assessment are provided in Annex 8.

2. PROBLEM DEFINITION

2.1. What are the problems?

As shown in the Fitness Check, when regulating elements of the food production system, animal welfare standards have to be balanced with economical and practical constraints to ensure that economic viability can be maintained. More details regarding the magnitude of the problems described below are further described in Annex 9.

2.1.1. *Animals are transported in sub-optimal conditions*

The Fitness Check concludes that there is a sub-optimal level of welfare of animals in the EU¹⁷. This is especially the case for animals for which targeted legislation is currently lacking, such as cats and dogs.

As further specified below, the main animal welfare issues are related to the fact that rules related to journey times, watering and feeding intervals as well as to minimum space allowances are grossly outdated (based on scientific opinions of 1992). Those consequences are further described below. Current conditions for animal transport on board of livestock vessels pose serious threats to animal welfare as animals are exposed to a number of high animal welfare and health risks, as demonstrated by several serious incidents in the past (boat sinking, consignments refused at arrival or blocked due to the Suez Canal blockage, etc.). In 2019, 88.5% of livestock carriers had one deficiency or more recorded by Port State Controls¹⁸.

Additionally, increased stress caused by transportation affects the immune system and leads to higher susceptibility to infection¹⁹. Transport can lead to tissue damage, disease due to already present pathogens in the animal which under normal circumstances would not have led to disease and transmission of pathogens by infected animals to healthy animals²⁰. In addition, there is a risk of spreading antimicrobial resistant bacteria. Furthermore, some diseases are specific to transport. An

¹⁶ Keeling L. et al., ‘Animal Welfare and the United Nations Sustainable Development Goals’, *Frontiers in veterinary science*, Vol. 6, No 1, Frontiers Media S.A, 2019, <https://doi.org/10.3389/fvets.2019.00336>.

¹⁷ Fitness Check of the EU Animal Welfare Legislation (see note 4, page 1).

¹⁸ Robin des Bois, Animal Welfare Foundation and Tierschutzbund Zürich, *78 EU-approved livestock carriers*, 2021.

¹⁹ K. Vogel et al., ‘Stress physiology of animals during transport’, *Livestock Handling and Transport*, 5th ed., CABI, Wallingford, Oxfordshire, UK; Boston, MA, 2019, pp. 30-57.

²⁰ Broom, D. M., ‘Welfare of transported animals: welfare assessment and factors affecting welfare’, *Livestock Handling and Transport*, 5th ed., CABI, Wallingford, Oxfordshire, UK; Boston, MA, 2019, pp. 12-29.

example is shipping fever, which can occur in bovines and equidae²¹. Transportation of animals forms the biggest risk factor for the spread of animal diseases, some of which are zoonotic, i.e. transferable to humans²². Stress caused by transport amplifies this risk²³.

As explained in the Review 03/2023 from the European Court of Auditors, bad welfare conditions also translate into costs related to wounds, lameness, death and other issues, for animals transported for production or slaughter. For instance, as established in the Fitness Check this may lead to meat rejections in slaughterhouses which could amount to a financial impact corresponding to 43% of the producers' profit margin, putting the viability of the pig farming sector²⁴.

Cramped environments

The current space allowances are not in line with the latest European Food Safety Authority (EFSA) findings and must be adjusted to ensure enough space for transported animals. This is important, as cramped environments can lead to multiple hazards that will affect welfare negatively. For example, restriction of movement in cattle can lead to reduced stability as the animal is unable to adjust its footing in response to the movement of the vehicle. This can lead to bruising and an increase of stress, but also exposes the animals to the risk of injuries, such as becoming trampled, trapped, or crushed by others in the load^{25,26}. Improper space allowances also worsen the problems linked to long journey times, by limiting the possibility to rest, the access to water or feed, and increasing thermal stress due to high humidity (urine, respiration) and competition for resources (fight). This leads to competition and aggression.

Lengthy journeys

The current legislation provides for maximum journey times (ranging from 8 hours to 29 hours, depending on the animal species and categories), but after a consignment has been rested for 24 hours, it may be transported again for rounds with the same maximum journey times, without any limit until reaching the place of destination, including those in third countries²⁷. This negatively influences animal welfare because during transport animals are potentially exposed to several stress factors, the negative effects of which will increase the longer the journey takes²⁸. Animals usually cannot lay down during transport while they consume energy in keeping their balance and their body temperature without being properly watered or often without being fed at all (without mentioning the competition between animals for space and water). Faeces and urine accumulate during long

²¹ Maeda, Y. and Oikawa, M., 'Patterns of rectal temperature and shipping fever incidence in horses transported over long-distances', *Frontiers in Veterinary Science*, Vol. 6, 27, Frontiers Media SA, 2019. <https://doi.org/10.3389/fvets.2019.00027>

²² Schrijver, R. et al, [Study on the welfare of dogs and cats involved in commercial practices, SANCO 2013/12364](#), 2015, p. 26.

²³ Rioja-Lang, F. C. et al., 'A review of swine transportation research on priority welfare issues: a Canadian perspective', *Frontiers in Veterinary Science*, Vol. 6, 36, Frontiers Media SA, 2019. <https://doi.org/10.3389/fvets.2019.00036>

²⁴ Fitness Check of the EU Animal Welfare Legislation, p. 42 (see note 4, page 1).

²⁵ European Commission, Directorate-General for Health and Food Safety, *Study supporting the Impact Assessment accompanying the revision of the EU legislation on the welfare of animals during transport*, Publications Office of the European Union, 2023, section 5.2.1., doi: 10.2875/110728. (Transport study).

²⁶ EFSA Panel on Animal Health and Welfare (AHAW), 'Welfare of cattle during transport', *EFSA Journal*, Vol. 20, Issue 9 (e07442), 2022.

²⁷ Council Regulation (EC) No 1/2005 of 22 December 2004 (see note 1, page 1).

²⁸ Welfare of cattle during transport (see note 26, page 4).

journeys, increasing humidity and discomfort. Certain driving behaviour, delays during transport and significant changes in the weather conditions through very long journeys can increase the risks to the welfare of transported animals (e.g., animals transported from the west or north of Europe to the Middle East or Africa). When it comes to pigs, studies suggest that they are more sensitive to motion stress than other animals, a stress factor which presence is prolonged if journey times are longer²⁹.

Hot temperatures

The current legislation does not provide a maximum ambient temperature during which animals may be transported³⁰, even though this is an important factor influencing the heat load that is placed on animals during transport, which, if too high, can lead to heat stress³¹. For instance, as identified by EFSA, birds are very sensitive to heat stress. And with more than 1.3 billion poultry transported in the EU every year, the consequences may be quite substantial.

Problems related to long journey times are exacerbated under hot temperatures, for instance when it comes to difficulties to rest, water and feed. The exposure to high temperatures, sometimes to the extent of days and weeks in the context of exports, is known to lead to stress and discomfort in animals. Existing provisions are insufficient to prevent that animals are transported in vehicles that are too warm, especially now extreme temperatures are occurring more often due to climate change.

Vulnerable animals

The risks presented above are amplified during the transport of vulnerable categories of animals such as very young ones or end-of-carrier animals (dairy cows, sows, laying hens) for which mortality does not represent significant economic losses due to their low values.

For instance, every year 1.4 million unweaned dairy calves are moved across Member State borders, of which 580 000 animals experience journeys of more than 8 hours³². Unweaned calves are considered as particularly vulnerable animals because of their young age (low immune system, dependency on milk diet). Currently, most unweaned dairy calves are transported at an age of 2-4 weeks³³ (the minimum requirement is 10 days) and there is no minimal weight that they should have³⁴. Very young calves are still developing their physiological and immunological systems, making them very fragile and prone to health hazards while body weight highly impacts mortality and morbidity. Current provisions are not in line with the latest scientific recommendations that unweaned calves should have a minimum age of 5 weeks and a body weight of 50kg before they are transported³⁵.

²⁹ EFSA Panel on Animal Health and Welfare (AHAW), 'Welfare of pigs during transport', *EFSA Journal*, Vol. 20, Issue 9 (e07445), 2022.

³⁰ Council Regulation (EC) No 1/2005 of 22 December 2004 (see note 1, page 1).

³¹ Welfare of cattle during transport (see note 26, page 4); Welfare of pigs during transport (see note 29, page 5); EFSA Panel on Animal Health and Welfare (AHAW), 'Welfare of equidae during transport', *EFSA Journal*, Vol. 20, Issue 9 (e07444), 2022; EFSA Panel on Animal Health and Welfare (AHAW), 'Welfare of small ruminants during transport', *EFSA Journal*, Vol. 20, Issue 9 (e07404), 2022; EFSA Panel on Animal Health and Welfare (AHAW), 'Welfare of domestic birds and rabbits transported in containers', *EFSA Journal*, Vol. 20, Issue 9 (e07441), 2022.

³² Transport study, section 5.4. (see note 25, page 4).

³³ Welfare of cattle during transport, section 3.9. (see note 26, page 4).

³⁴ Council Regulation (EC) No 1/2005 of 22 December 2004 (see note 1, page 1).

³⁵ Welfare of cattle during transport, section 3.9. (see note 26, page 4).

The main stakeholders' views on these problems can be summarised as follows: according to Non-Governmental Organisations (NGOs), it is not natural for animals to be transported by any means as their psychological needs cannot be fulfilled³⁶. There is a broad agreement among all stakeholder groups regarding the necessity of placing restrictions on animal transport, albeit to a lesser extent for business organisations³⁷. One representative of European farmers also considers that the EU standards on animal welfare are among the highest in the world but recognizes the need for revision of the current legislation. Upholding these high standards ensures that the trust in the high value and quality of the European agricultural and food sector is maintained. Hence, it is in the interest of all stakeholders that all transported animals arrive in a healthy and good condition. Furthermore, this representative also considers that the quality of transport is essential in ensuring animal welfare (e.g. space allowances and temperature), more than the duration of the transport³⁸.

2.1.2. Few requirements for the transport of cats & dogs

There are currently 127 million cats and 104 million dogs kept in EU households (representing 68% of all companion animals in the EU), with a growing market for the trade of such pets. Regardless, the current EU transport legislation contains only two specific rules for cats and dogs, regarding young age and fitness for transport, and watering and feeding. Furthermore, while the general principles and certain provisions of the current EU legislation (e.g. approval of transport means, approval of transporters) apply to the commercial transport of cats and dogs, this is poorly implemented in practice. The legislation does not address the specific needs per species, age or health status of the animals. As a result, the health and welfare of cats and dogs during transport cannot be ensured. Consulted national authorities generally acknowledge the need for new EU provisions on the transport of cats and dogs³⁹.

2.1.3. Low uptake of new technologies

Automated systems that could help monitor and enforce measures contributing to animal welfare are not systematically developed and introduced for routine use. As indicated in the Fitness Check, various stakeholders suggest these shortcomings as a reason behind problems of compliance by operators and enforcement by competent authorities⁴⁰. Furthermore, a large number of stakeholders – including over half of all business respondents to the public consultation – supports that there should be more technical requirements for the different means of transport on long journeys (e.g. ventilation, water supply and satellite systems)⁴¹. In its 2023 review on transport of animals in the EU⁴², the Court of Auditors identified similar problems as stated by stakeholders in the Fitness Check and recommended “using digital tools to optimise the planning and logistics of animal transport”⁴³

³⁶ Transport study, stakeholder consultations (see note 25, page 4).

³⁷ European Commission, *Factual summary report of the online public consultation in support to the fitness check and revision of the EU animal welfare legislation, summary report*, 2022, p. 5

³⁸ Copa and Copega, *Copa and Cogeca's position on animal welfare during transport*, Brussels, 2021, p. 2.

³⁹ Transport study, Annex 2, p. 214 (see note 25, page 4).

⁴⁰ Fitness Check of the EU Animal Welfare Legislation, p. 118 (see note 4, page 1).

⁴¹ Transport study, stakeholder consultations (see note 25, page 4).

⁴² Transport of live animals in the EU – Challenges and opportunities (see note 15, page 2).

⁴³ Transport of live animals in the EU – Challenges and opportunities, p. 6 (see note 15, page 2).

and “to create a central EU IT system for digitalising certificates and authorisations, carrying out automatic documentation checks, and granting real-time access to journey data”⁴⁴.

There are still big challenges regarding monitoring and enforcing EU rules for the non-EU part of the journeys⁴⁵. One of the weaknesses of the current legislation is that authorities mainly check compliance with the estimated journey times on the basis of self-declarations of transporters (journey logs). Although the use of new technologies (e.g. satellite navigation systems for animal transports) could help to prevent non-compliances, this potential is largely unused⁴⁶.

In addition, as established by the Court of Justice’s jurisprudence, EU operators are responsible to ensure that certain requirements of the Transport Regulation are also met in those stages of the transport taking place outside the EU until the transports reach their place of destination⁴⁷. Still, as shown in the Fitness Check, compliance with these provisions is very challenging to enforce. Better use of new technologies could help to remedy this⁴⁸.

2.2. What are the problem drivers?

As established in the Fitness Check⁴⁹ and further described below, regulatory failures are to a considerable extent the cause of animal welfare problems and the main cause of an uneven level playing field for EU business operators in the single market. Transport conditions that are harmful to animals are due to the fact that the regulatory framework is not aligned with the latest science on animal welfare, nor it is aligned with the latest technological progress. Moreover, this aspect has not kept abreast of ethical concerns and market drivers, and there is a lack of monitoring tools to ensure compliance with welfare requirements. In addition, certain external factors are problems themselves (e.g. economic dynamics) that go beyond the area of influence of the legislation on animal welfare during transport. The initiative therefore cannot address in a complete manner all factors that lead to sub-optimal welfare outcomes during transport.

2.2.1. Regulatory drivers

Conditions of exports difficult to enforce

As established in the Fitness Check, the main concerns for the welfare of animals relate to the non-EU leg of the journey⁵⁰. Available information indicates that, for most transporters, it is challenging to ensure that applicable EU requirements are met after leaving the Union. The absence of agreements

⁴⁴ Transport of live animals in the EU – Challenges and opportunities, p. 42 (see note 15, page 2).

⁴⁵ European Commission, Directorate-General for Health and Food Safety, *Commission staff working document accompanying the document Report from the Commission to the European Parliament and the Council on the overall operation of official controls performed in Member States (2017-2018) to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products*, Publications Office of the European Union, 2020, <https://data.europa.eu/doi/10.2875/01218>.

⁴⁶ Fitness Check of the EU Animal Welfare Legislation, section 4.1.2. (see note 4, page 1).

⁴⁷ Judgment of the Court of Justice of 23 April 2015, *Zuchtvieh-Export GmbH v Stadt Kempten*, C-424/13, EU:C:2015:259.

⁴⁸ Fitness Check of the EU Animal Welfare Legislation, Section 4.1.2. (see note 4, page 1). The use of such a system for animal transports would allow collecting reliable data on the state of compliance of operators in the EU and allow addressing enforcement weaknesses in a more efficient way, compared to today’s system which is mainly paper based.

⁴⁹ Fitness Check of the EU Animal Welfare Legislation, p. 27 and p. 63 (see note 4, page 1).

⁵⁰ Fitness Check of the EU Animal Welfare Legislation, p. 16 (see note 4, page 1).

with EU neighbouring countries, together with poor retrospective checks and the inability of Member States to ascertain the conditions of transport and the feasibility of the plan for that part of the journey contribute to that concern. Furthermore, under the current legislation, which was designed in the past with the aim to regulate mainly the internal market, neither the Member States nor the Commission have the necessary IT tools, systems or software to readily monitor the route, temperature or driving hours of vehicles transporting animals⁵¹.

Fragmented internal market due to differing national legislations

While the Transport Regulation has contributed to more equal conditions among EU business operators, a real level playing field in the single market has not yet been achieved. As illustrated by the examples below, differing legislation adopted at national level – in order to respond to growing citizens’ concerns, since EU legislation has not been updated for a long time – results in a further partitioning of the internal market and an uneven playing field, causing practical problems for EU business operators involved in cross-border animal transports⁵². In this scattered legal landscape, there is still a sub-optimal level of animal welfare in certain Member States and regions.

Examples of Member States national rules and implementation on live animal transport going beyond EU legislation

- Germany has, with some exceptions, suspended long-distance exports of live animals for breeding to third countries (suspension of bilateral veterinary certificate with a series of destination countries as from 1 July 2023 for long-distance transports of breeding bovines, ovines and caprines)⁵³.
- Germany also adopted a maximum journey time for animals to slaughter of maximum 8 hours, and maximum 4.5 hours if the temperature is above 30°C, while calves under 28 days are not permitted to be transported within the country⁵⁴.
- Ireland applies stricter national rules on export to third countries by livestock vessels⁵⁵.
- The Netherlands has stricter national hot weather protocols⁵⁶.
- Sweden is another Member States who decided to restrict the journey times of young calves⁵⁷.

This driver is also interlinked with differences in the implementation and enforcement of common EU requirements, due to overly general provisions.

Overly general provisions leave too much margin of interpretation

Differences in implementation and enforcement still create obstacles to cross-border exchanges (leading to competitive advantages for certain operators, at the detriment of others)⁵⁸ but also to effective harmonisation, thus to the achievement of comparable levels of animal welfare across the EU⁵⁹. This is partly due to the fact that certain provisions of legislative acts on animal welfare leave

⁵¹ Fitness Check of the EU Animal Welfare Legislation (see note 4, page 1).

⁵² Fitness Check of the EU Animal Welfare Legislation, p. 28 (see note 4, page 1).

⁵³ German Federal Ministry of Food and Agriculture, *Press Release No. 148/2022, Animal transports from Germany will be significantly restricted*, 2022.

⁵⁴ German Federal Ministry of Justice, *Tierschutztransportverordnung*, 2009.

⁵⁵ World Organisation for Animal Health, ‘Inspection and Approval of Dedicated Livestock Vessels. Multi-regional Whole Journey Scenario workshop on long-distance transport by land and sea between Europe, the Middle East, and North Africa. 8 - 10 November 2022, Cairo, Egypt’, 2022.

⁵⁶ Dutch Ministry of Agriculture, Nature and Food Quality, *Beleidsregel diertransport bij hoge temperaturen*, 2020.

⁵⁷ Swedish Board of Agriculture, *Transport av nötkreatur*, 2019.

⁵⁸ Fitness Check of the EU Animal Welfare Legislation, section 4.1.1. (see note 4, page 1); Animal welfare in the EU – Closing the gap between ambitious goals and practical implementation (see note 14, page 2).

⁵⁹ Fitness Check of the EU Animal Welfare Legislation, p. 25 (see note 4, page 1).

too much room for interpretation and application for both operators and authorities. These differences in interpretation and implementation in turn lead to ‘a lack of consistency around enforcement’⁶⁰.

In particular, in the Transport Regulation, terms such as “appropriate” (used 39 times), “sufficient” (used 21 times) and “adequate” (used 14 times) are not defined and are interpreted very differently hampering coherent enforcement⁶¹.

The lack of precision in the current animal transport legislation is further aggravated by insufficient common definitions. For example, in the case of transport, the fitness of animals or rest time have been interpreted differently by Member States⁶² and there is no definition of the ‘end of career animal’⁶³. In addition, the division of responsibilities between keepers, drivers and transport companies is unclear, which hampers the enforcement of the rules related to the animals’ fitness for transport⁶⁴. The need to clarify the definition and identification of organisers and transporters and their obligations was also identified by the European Parliament⁶⁵. In the stakeholder consultations, one representative of road transporters at global level underlined the problems linked to the lack of a precise description of the liability of the various parties involved in the animal carriage chain under the current legislation. Finally, although the Official Controls Regulation provides for a more harmonised approach, the risk-based approach used for official controls and the different levels of resources that Member States put into such controls contribute to the variations in enforcement.

Outdated legislation

The Transport Regulation does not take into account the latest scientific evidence and major technological developments in relation to transport operations. As highlighted in section 2.1.1., existing provisions on journey times, watering and feeding intervals as well as on minimum space allowances are based on scientific opinions of 1992. New scientific evidence is now available, in particular concerning journey times and space allowances. The outdated legislation causes animal welfare problems due to certain not updated management practices and transport conditions.

2.2.2. Societal driver

Increasing citizens’ concerns, including ethics and sustainability

The increase/upward trend of societal demands is clearly evidenced in growing concern for animal welfare, as shown in the Eurobarometer⁶⁶ on the “Attitudes of EU citizens towards Animal Welfare”

⁶⁰ European Commission, *Commission Staff Working Document, Evaluation of the European Union Strategy for the Protection and Welfare of Animals 2012-2015*, 2021, p. 57, [SWD\(2021\) 76 final](#).

⁶¹ Fitness Check of the EU Animal Welfare Legislation, p. 26 (see note 4, page 1).

⁶² Rayment et al, *Evaluation of the EU Policy on Animal Welfare and Possible Policy Options for the Future*, European Commission, 2010, p. 6.

⁶³ Fitness Check of the EU Animal Welfare Legislation, p. 26 (see note 4, page 1).

⁶⁴ Report on the investigation of alleged contraventions and maladministration in the application of Union law in relation to the protection of animals during transport within and outside the Union (see note 13, page 2).

⁶⁵ European Parliament [recommendation](#) of 20 January 2022 to the Council and the Commission following the investigation of alleged contraventions and maladministration in the application of Union law in relation to the protection of animals during transport within and outside the Union (see note 12, page 2).

⁶⁶ Attitudes of EU Citizens towards Animal Welfare, report (see note 3, page 1); European Commission, Directorate-General for Health and Food Safety, *Attitudes of EU Citizens towards Animal Welfare - report*, European Commission,

from 2005 and 2015 and the latest Eurobarometer on animal welfare from 2023. Of note as well is that out of 10 successful ECIs so far, 6 relate to animals⁶⁷. Many citizens have ethical concerns regarding animals being transported on long journeys⁶⁸. According to the 2023 Eurobarometer on animal welfare, 83% of respondents shared the view that the travel time for the transport of live animals should be limited⁶⁹.

This trend includes concerns related to current and future sustainability challenges, such as food security and threats to public health (e.g. antimicrobial resistance (AMR))⁷⁰.

2.2.3. External factors

In addition to these drivers, some influencing factors are contributing to the problem, but these are not addressed as part of this impact assessment.

Economic dynamics and pressure to reduce costs are particularly relevant as animals are transported for various economic reasons. As any economic dynamic, there is a pressure to reduce costs balanced by the possibility of economic gain. This is why the level of welfare of transported animals grossly depends on their individual economic value at arrival. Animals with a low value are more exposed to the risk of bad welfare conditions because their mortality will marginally affect the overall economic gain. This is often the case with animals that are considered as by-products of other productions (e.g. dairy calves; end-of-carrier animals, such as laying hens that have become too old to lay eggs). Similarly, animals for slaughter have less value than fattening animals and animals with high genetic potential (breeding animals). A second economic dynamic related to the transport of animals is the extent to which animals are mainly fed by local seasonal resources (e.g. grassland) or by products from global trade. Ruminants (e.g. cattle, sheep) are often transported due to seasonal variation of feed availability while poultry and pigs are mostly transported for breeding purposes. Finally, market dynamics are the main factor for animal transport over long distances, due to price differences between Member States and a limited slaughter or processing capacity in some Member States⁷¹. Consequently, the regional production of meat within the EU does not always equal regional consumption.

Market dynamics also have a negative influence on the welfare of cats and dogs. The lack of precise animal welfare legislation at EU level regarding the breeding and trade of cats and dogs, as well as

2015, <https://data.europa.eu/doi/10.2875/884639>; European Commission, Directorate-General for Health and Food Safety, *Attitudes of consumers towards the welfare of farmed animals*, European Commission, 2005, [Attitudes of Europeans towards Animal Welfare - June 2005 - - Eurobarometer survey \(europa.eu\)](#). The Eurobarometer surveys show that consumer awareness and citizens' interest in animal welfare have increased from 2005 to 2015. A shift in opinion was observed from those who "probably" believe animal protection should be better, to "certainly" (in 14 Member States, there are increases of more than 5%).

⁶⁷ European Commission, *End the Cage Age - European Citizens' Initiative*, 2018; European Commission, *Fur Free Europe – European Citizens' Initiative*, 2022. Out of 10 successful ECIs so far, 6 are related to animals.

⁶⁸ e.g. Eurogroup for Animals #StopTheTrucks [campaign](#) on [live animal transport](#) in 2017 and the ECI Fur Free Europe (see note 67, page 10).

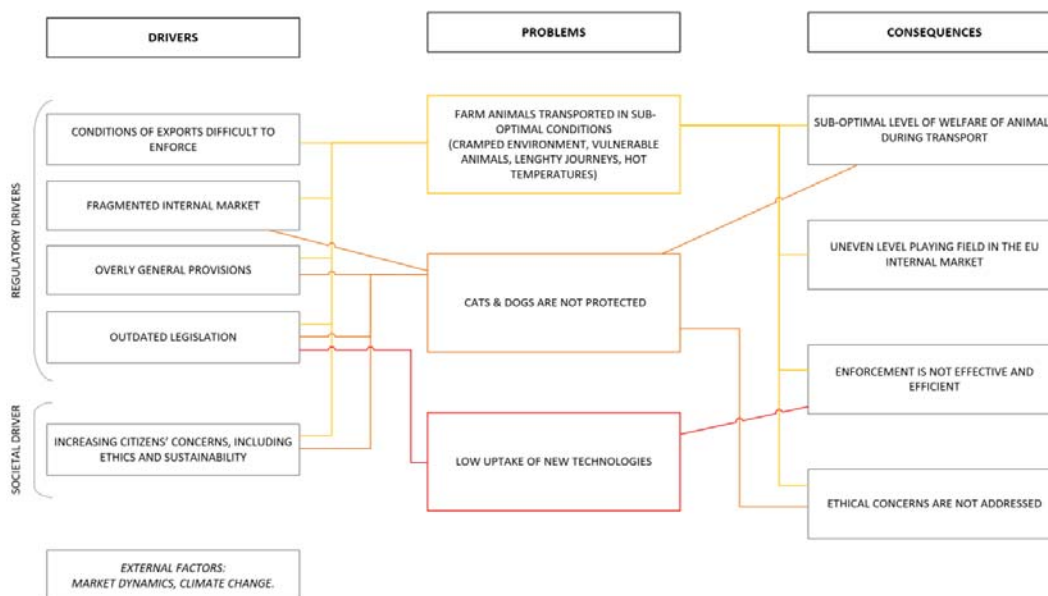
⁶⁹ Attitudes of EU Citizens towards Animal Welfare, report, p. 51 (see note 3, page 1).

⁷⁰ Animal welfare in the EU – Closing the gap between ambitious goals and practical implementation, p. 18 (see note 14, page 2).

⁷¹ Transport study, section 3.3.4 (see note 25, page 4). It is to be noted that other factors such as production conditions related to the natural environment also play a role. For instance, pasture areas have a higher concentration in dairy cows, resulting in an output of calves which need to be transported to other areas.

the lack of traceability and the disparity in controls, has left room for the growth of illegal trade⁷² of cats and dogs raised and transported under uncontrolled and very poor animal welfare conditions⁷³. The trade of these animals represents a major economic activity with an annual value of cat and dog sales in the EU estimated at EUR 1.3 billion and a sector employing directly 300 000 people⁷⁴. These last years there has been a significant increase in the illegal movements of cats and dogs⁷⁵.

Other key influencing factors of relevance for the welfare of animals during transport are related to climate change and increasingly hot temperatures during summer. **Figure 1: Problem tree**



2.3. How likely is the problem to persist?

The problems and drivers identified in the section above are closely interlinked and will likely continue to grow. Without an updated transport regulation, the gaps between scientific evidence on animal welfare and current rules are expected to widen, and their implementation to remain uneven across Member States. The different factors driving the pressure to reduce production costs in the food sector are not expected to radically change⁷⁶. However, the current acute situation linked to the inflationary pressure is projected to be overcome⁷⁷ by the time the legislative changes assessed in this report would be adopted and enter into application after the relevant transition periods.

Legislation, policies, and private initiatives on animal welfare during transport are expected to keep developing at national levels⁷⁸, while EU rules will continue to be applied unevenly across the EU,

⁷² European Commission, *EU Enforcement action on illegal trade of cats and dogs*.

⁷³ Study on the welfare of dogs and cats involved in commercial practices, section 3.3.3. (see note 22, page 4).

⁷⁴ Study on the welfare of dogs and cats involved in commercial practices, p. 6 (see note 22, page 4).

⁷⁵ European Commission, Directorate-General for Health and Food Safety, *Alert and cooperation network: 2021 annual report*, Publications Office of the European Union, 2022, <https://data.europa.eu/doi/10.2875/328358>, according to which among fraud suspicions the most frequent requests were related to the illegal movement of cats and dogs (114 out of 407 fraud suspicions in total). More than half of those requests involved animals coming from non-EU countries.

⁷⁶ As current food system views food as a commodity rather than a common good.

⁷⁷ European Commission, Directorate-General for Agriculture and Rural Development, *EU agricultural outlook for markets, income and environment 2022-2032*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2762/29222>.

⁷⁸ See section 2.2.

especially with regards to the lack of monitoring and enforcement of those rules as well as the illegal trade of cats and dogs. Actions at national level are expected to develop in an uncoordinated and uneven manner leading to internal market distortions⁷⁹.

While tighter rules on maximum journey times might be expected in a minority of Member States⁸⁰, the increasing concentration of the livestock sector might overall imply longer distances between farms and slaughterhouses, leading to longer journeys for most of the animals transported. It may also be expected that other initiatives at EU or Member State level, such as environmental policies, will lead to a decrease in livestock populations or to long journeys in some Member States in order to meet emission targets and will thus have an indirect effect on animal welfare⁸¹.

EU citizens' and consumers' concerns towards animal welfare and ethical issues over the conditions in which food-producing and non-food-producing animals are transported will continue to grow⁸². Those concerns will continue to be driven by the increasing awareness about the way animals are transported.

3. WHY SHOULD THE EU ACT?

3.1. Legal basis

The current EU Regulation on the protection of animals during transport is based on Article 43 of the Treaty on the Functioning of the European Union providing a legal basis for measures for working out and implementing the Common Agricultural Policy (CAP). The initiative would base itself on Article 114 as well, since the proposal also aims at ensuring the smooth functioning of the internal market, not only for animals covered under the CAP but also for other animals, such as cats and dogs, fur animals, certain types of wild animals, and animals used for scientific purposes.

3.2. Subsidiarity: Necessity of EU action

Animal transport is often of a cross-border nature. 1.4 billion animals are transported⁸³ each year with a cross-border movement within the EU Member States. Animal welfare requirements linked to transport at EU level require a harmonised approach and thus can effectively be regulated at EU level. The identified animal welfare problems and their underlying drivers occur across the EU, albeit to a different degree in different Member States. Finally, the identified animal welfare problems have transboundary consequences including threats to public health, such as AMR.

Action taken at national level is not expected to lead to considerably improved animal welfare and would only partially be able to meet citizens' concerns.

Given the already existing regulatory fragmentation, it is very unlikely that 27 Member States would legislate in a coherent way on the animal welfare requirements linked to transport. Action at national level would lead to a further fragmentation of requirements and increased differences in the levels of animal welfare in the EU Member States. Although current EU rules on the protection of animals

⁷⁹ See more explanations in section 2.2.

⁸⁰ e.g., Germany introduced as of 2022 a maximum transport time for animals to slaughter of 8 hours, reduced to 4.5 hours in case temperatures risk to rise over 30°C (transport study, p. 89 and 91 (see note 25, page 4)).

⁸¹ i.e., lower stocking densities, shorter journeys.

⁸² Attitudes of EU Citizens towards Animal Welfare, report (see note 3, page 1).

⁸³ Transport study, p. 22 (see note 25, page 4).

during transport have brought some harmonisation to the sector⁸⁴, Member States continue to adopt their own differing rules on the transportation of animals. Member States also apply certain provisions and enforce rules differently, thereby creating obstacles to the smooth functioning of the internal market⁸⁵. Furthermore, national rules cannot apply to operators from other Member States and therefore, cross-EU-border movements would be a driver for lower animal welfare standards. In addition, as various stakeholders are involved in animal transport, serious challenges manifest in terms of sanctioning operators who are not established in the country where they were found to not comply with the legislation (e.g. checks on animal welfare carried out during transit, at EU exit points and at the place of destination).

Providing further precision and extending the scope of the species-specific EU requirements for the transport of cats and dogs, would bring further harmonisation. There is indeed a considerable trade with cats and dogs in the EU⁸⁶. There is evidence of a growing grey market of cats and dogs, involving also imports from non-EU countries⁸⁷. Improving the welfare of cats and dogs during transport, combined with better enforcement tools at EU level, could help address the animal welfare problems observed and respond to citizens' expectations.

3.3. Subsidiarity: Added value of EU action

According to the Fitness Check, the overall objectives to contribute to agricultural and food production and avoid distortions of the internal market of agricultural products while ensuring a coherent approach to animal welfare, including by addressing common societal expectations and ethical concerns, are better achieved at EU level⁸⁸.

Actions only on a national level would result in Member States having their own, differing legislation. This would result in further fragmentation, distortion of competition for operators and an unequal level of animal welfare across the EU as well as a sub-optimal situation for sustainable EU agricultural and food production, making the costs of non-EU action very high⁸⁹. The initiative would provide uniform and clearer requirements for the transport of animals and a better use of available technologies. The initiative would thus ensure a level-playing field for operators within the single market, facilitate intra-EU trade of animals⁹⁰ and provide a more efficient regulatory oversight. Hence, the high EU values on animal welfare would be more easily and coherently promoted at global level.

4. OBJECTIVES: WHAT IS TO BE ACHIEVED?

4.1. General objectives

The initiative seeks to contribute to sustainable agricultural and food production by ensuring a higher level of animal welfare, and avoiding distortions on the internal market, thereby contributing to a

⁸⁴ Fitness Check of the EU Animal Welfare Legislation, section 4.1. (see note 4, page 1).

⁸⁵ Fitness Check of the EU Animal Welfare Legislation, page 38 (see note 4, page 1).

⁸⁶ European Commission, [Online sales of cats and dogs](#).

⁸⁷ Commission, Directorate-General for Health and Food Safety, *Illegal trade of cats & dogs, EU enforcement action*, 2023, doi: 10.2875/236344

⁸⁸ Fitness Check of the EU Animal Welfare Legislation, p. 52 (see note 4, page 1).

⁸⁹ Fitness Check of the EU Animal Welfare Legislation, p. 52 (see note 4, page 1) and section 2.2.

⁹⁰ Fitness Check of the EU Animal Welfare Legislation, Section 4.2. (see note 4, page 1). According to consulted industry organisations, common EU requirements help to reduce distortions on the Single Market.

shift towards an economically, environmentally, and socially sustainable food system, as set out in the Farm to Fork strategy. The general objectives of the initiative are therefore to:

- contribute to a **sustainable food system**
- ensure a **higher level of animal welfare**
- bring animal welfare requirements closer to the latest **scientific evidence**
- address **societal demands**
- make **rules easier to enforce** (including through digitalisation)
- ensure a **smooth functioning of the single market**

4.2. Specific objectives

To adequately realise the aforementioned general objectives, the policy options address the following specific objectives:

- reduce animal welfare problems linked to long journeys and resting periods;
- ensure animals have more space when transported;
- improve the conditions of transport of vulnerable animals;
- avoid exposing animals to high temperatures;
- facilitate enforcement of EU rules on the protection of animals, including through digitalisation;
- better protect animals exported to non-EU countries;
- better protect cats and dogs transported for commercial purposes.

Table 1: General and specific objectives

General objectives Specific objectives	Contribute to a sustainable food system	Ensure a higher level of animal welfare	Bring animal welfare requirements closer to the latest scientific evidence	Address societal demands	Make rules easier to enforce	Ensure smooth functioning of the single market
SO1. Reduce animal welfare problems linked to long journeys and resting periods	✓	✓	✓	✓		✓
SO2. Ensure animals have more space when transported	✓	✓	✓	✓		✓
SO3. Improve the conditions of transport of vulnerable animals	✓	✓	✓	✓		✓
SO4. Avoid exposing animals to hot temperatures	✓	✓	✓	✓		✓
SO5. Facilitate enforcement of EU rules on the protection of animals, including through digitalisation		✓			✓	✓
SO6. Better protect animals exported to non-EU countries	✓	✓		✓		✓
SO7. Better protect cats and dogs transported for commercial purposes		✓		✓		✓

5. WHAT ARE THE AVAILABLE POLICY OPTIONS?

5.1. What is the baseline from which options are assessed?

The baseline against which the impacts are assessed is set at 2031. More information on the evolution of the baseline is provided in the relevant sections on impacts of the “no EU-action” scenario, for each of the measures, in Annex 9.

In a “no-policy-change” scenario, due to the expected reduction of the livestock population in Europe, it is expected that the number of journeys will decrease⁹¹. However, in the absence of legislative changes, longer journeys may represent an even larger share of all journeys due to the expected higher concentration of the livestock sector⁹², increasing the distances to transfer animals. This is true for most Member States, while some other Member States⁹³ are taking measures to reduce or ban long journeys.

Without legislative initiative, the high pressure on margins and costs for business operators coupled with the expected increasing costs of transport may also lead some operators to minimise costs associated with ensuring the welfare of animals during transport (e.g. reduced space allowance) at the expense of animal welfare. So even if less animals will travel, their welfare during transport would not be sufficiently protected by the current standards.

The lack of compliance with the existing EU legislation and enforcement issues will remain, while the lack of harmonisation of welfare rules across the EU will increase due to Member States continuing to adopt and implement their own rules, at different speeds and with different requirements. Different levels of compliance, diverging interpretations, poor implementation and a fragmented legislative landscape will continue to cause market distortion and unfair competition for EU economic operators within the single market, as well as a continued sub-optimal level of animal welfare in the EU.

Trade in puppies and kittens has grown substantially in recent years within the EU, as well as through import from third countries. Consequently, a large number of dogs and cats are being transported in a commercial context all across the EU, also as part of illegal activities. No significant changes in the number of cats and dogs transported are expected until 2031, compared to the current situation⁹⁴. Without a revised legislation, the current welfare consequences caused by the lack of specific requirements and monitoring tools could be expected to remain.

5.2. Description of the policy options

To address the specific objectives, this document considers six policy *measures*, which cover the different areas of intervention targeted by this initiative.⁹⁵ Under each *measure*, different *options* are defined as alternatives: with each time a main option and where relevant an alternative option (see table 2 below). They stem from the analysis carried out as part of the Fitness Check, the scientific

⁹¹ Transport study, p. 52 (see note 25, page 4).

⁹² Eurostat.

⁹³ See examples in section 2.2.

⁹⁴ Transport study, p. 84 (see note 25, page 4).

⁹⁵ Details of the current rules for each of the 6 measures are provided in Annex 9. For space allowance, the current rules are specified individually for different weight or age of animals, for different species and for different means of transport.

evidence as confirmed by EFSA, the recommendations from the European Parliament Committee of Inquiry on the Protection of Animals during Transport and from the European Court of Auditors, the stakeholder consultations on animal transport and a supporting study⁹⁶. Parameters for defining alternative options include different ways to address the specific problem, alternative options to mitigate the economic costs for operators including Small and Medium-sized Enterprises (SMEs), variations in relevant parameters (e.g. journey times, minimum age, maximum temperature etc.). The “non EU-action” is also to be considered as an alternative to the options and is assessed in detail for each measure in Annex 9.

At an early stage or during the impact assessment process, a number of these options have been discarded. These *options* and the justifications for discarding them are provided in section 5.3.

The measures including the main and alternative options are:

- 1) **Journey times and space allowance.** Maximum journey times of 9 hours for animals transported for slaughter (or, as an *alternative measure*, a maximum of 12 hours)⁹⁷. For other journeys, a maximum journey time of 12 hours would be required or, *alternatively*, a limit of 21 hours followed by a 24 hours’ rest in a control post and then another journey of maximum 21 hours before reaching the final destination⁹⁸ would apply. Species-specific space allowances per animal during transport by road, by rail, by roll-on-roll-off and by livestock vessel would be increased according to the scientific advice provided by EFSA. A table with space allowance parameters for each species is included in Annex 9, section 1.1.1.
- 2) **Export of animals to third countries.** Banning live animal exports by road⁹⁹ or, as an *alternative measure*, limit the journey times in line with what will apply for intra-EU transports in measure 1 above, and apply other relevant measures until the place of destination in line with the European Court of Justice ruling¹⁰⁰. Banning live exports by maritime transport¹⁰¹ or, a combination of *alternative solutions*: to require the presence of a veterinarian on board or *alternatively* an animal welfare officer¹⁰², and the registration of the vessels under white flag for maritime safety purposes¹⁰³ or as an *alternative measure* that the vessels can be under white or grey flag. A transition period of 5 years is foreseen. The options of banning

⁹⁶ Transport study (see note 25, page 4).

⁹⁷ EFSA does not provide direct recommendations on maximum journey times but highlights that the longer the journey the more negative welfare consequences, and provides the number of hours after which animals give physiological signs that they suffer from hunger and thirst (different times from 3h to 12h depending of the species for thirst, and 12h for hunger (except for laying hens, who suffer from hunger after 10h)). The measure of maximum 9h would aim to align EU rules on maximum journey times with the EU legislation on social rights of drivers (which foresee maximum 9h when there is only one driver).

⁹⁸ 21h + 24h in a control post + 21h would allow alignment with the EU legislation on social rights of drivers, in the case where there are two drivers (the latter foresee maximum 19h in that case + approximately 1h of loading the animals and 1h of unloading = 21h journey time). The 21h include a 1h resting time.

⁹⁹ The ban would foresee an exemption where the non-EU country of destination, and any non-EU country of transit, has been recognised by the EU as providing equivalent welfare protection to the EU rules on the welfare of animals during transport.

¹⁰⁰ Zuchtvieh-Export GmbH v Stadt Kempten (see note 47, page 7).

¹⁰¹ The same exemption as for transport by road would apply.

¹⁰² Both the veterinarian and the animal welfare officer would be private persons hired by the organiser of the transport, but the animal welfare officer would only have followed specific trainings without having the degree of a veterinarian.

¹⁰³ The [Paris Memorandum of Understanding on Port State Control](#) inspects ships for their safety and publishes yearly a list of flag States classified as white, grey or black, from quality flags to flags with a poor performance that are considered high or very high risk.

exports of animals would foresee exemptions for those third countries of destination and transit that are recognised by bilateral agreement as fulfilling equivalent welfare standards for the transport of animals as those in the EU.

- 3) **Transport of unweaned calves.** A minimum age of 5 weeks and a minimum weight of 50kg would be required to allow unweaned calves to be transported¹⁰⁴. Provided that an efficient system for feeding the animals in the vehicles allowing to effectively feed calves with milk or milk replacers would be approved and installed in the truck, the maximum journey times allowed would be 19 hours¹⁰⁵. If no such feeding system is installed in the truck, a maximum journey time of 8 hours would apply, as recommended by EFSA. For the requirements regarding age and weight, a 2 years' transition period is foreseen, while for the journey times a transition period of 5 years is considered.
- 4) **Transport in hot temperatures.** To avoid heat stress among transported animals, the approval of long journeys transports would be made subject to the weather forecast at the place of departure and at the place of destination (and, where applicable, at control points). If the forecast is **between 25°C and 30°C**, only short journeys (maximum 9 hours) would be allowed during the day, with continued access to water for the animals. If the forecast is **higher than 30°C**, only transport at night (i.e. between 21h00 and 10h00) would be allowed.
- 5) **New technologies for monitoring and controls. Real-time positioning** for all journeys¹⁰⁶ for all trucks would be required, or, as an *alternative option*, retrospective checks based on tachographs. A **digital application** with TRACES as an enriched database for official controls would be established. A transition period of 5 years is foreseen.
- 6) **Transport of cats and dogs.** Detailed animal welfare requirements for the transport of cats and dogs for economic purposes would be established, with a **minimum age** of 15 weeks to be allowed to be transported and with stricter rules on **feeding and watering, temperature and humidity** and **vehicle approvals**. As an *alternative option*, similar requirements plus a minimum age of 12 weeks would be allowed.

¹⁰⁴ Compared to current rules requiring minimum 10 days, and no specific weight.

¹⁰⁵ 9h + 1h rest + 9h of road transport (the time spent on a boat, either in a livestock vessel or on roll-on-roll-off vessel, not counting in this maximum journey time).

¹⁰⁶ Excluding, as today, the transports carried out by farmers of their own animals, in their own means of transport for a distance of less than 50 km from their holding, as well as transhumance transports (see Article 1(2) of Council Regulation (EC) No 1/2005 (see note 1, page 1)).

Figure 2: Specific objectives and measures

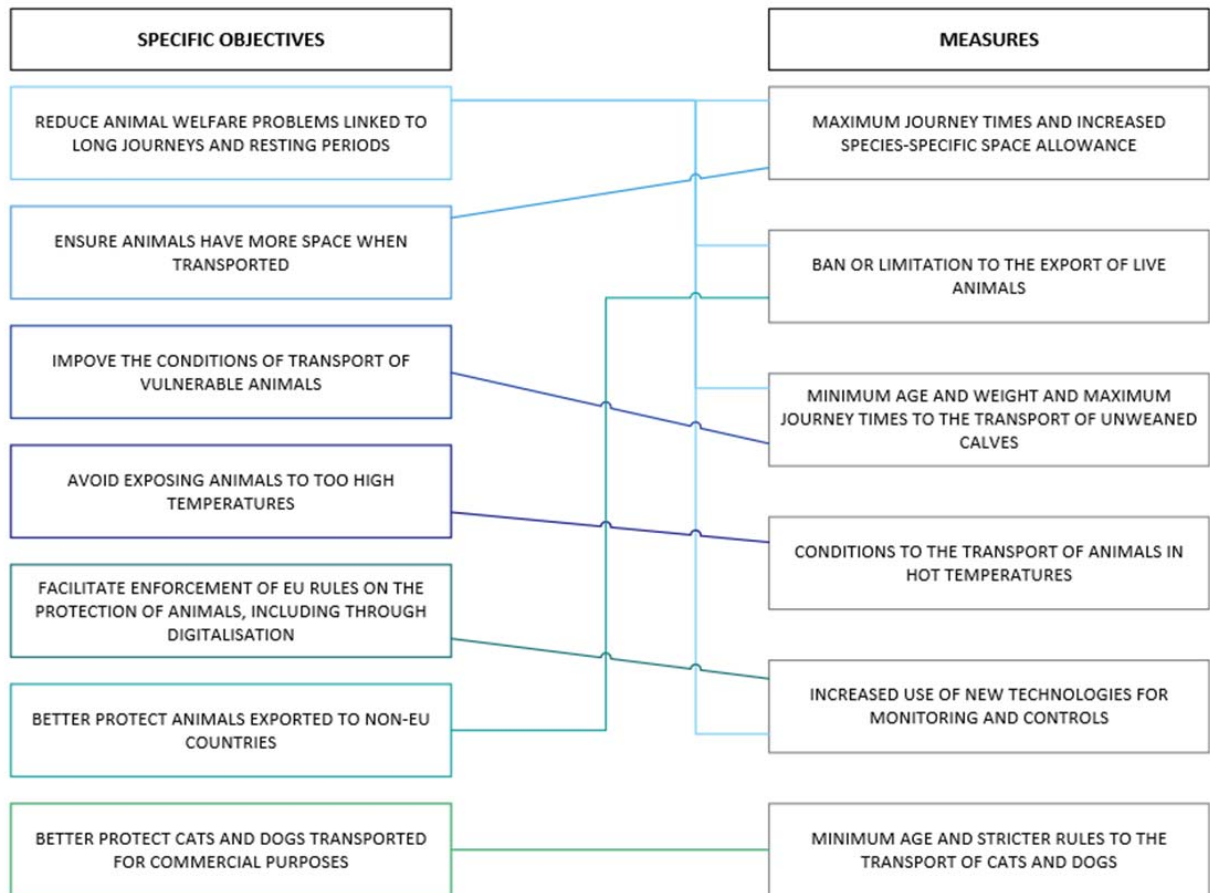


Table 2: Policy measures with policy options

Measure	Policy option	Alternative when applicable
1. Journey times¹⁰⁷ and space allowance	Journey time for slaughter (5 years transition period): 1.O.1A: 9 hours	1.O.1B: 12 hours
	Journey time for other journeys (5 years transition period): 1.O.2A: 12 hours	1.O.2B: 21h + 24h rest + 21h
	Space allowance (5 years transition period): 1.O.3A: Minimum species-specific space allowance (according to EFSA opinions)	
2. Exports	Road (5 years transition period): 2.O.1A: Ban exports of ruminants	2.O.1B: Limit journey time by road in line with the journey times limit applicable for intra-EU trade under measure 1, and apply also measures on space allowance and hot temperature at export
	Maritime (5 years transition period): 2.O.2A: Ban exports of ruminants	2.O.2B: Improved conditions: vet on board 2.O.2C: Improved conditions: animal welfare officer on board 2.O.2D: Improved conditions: only white flag 2.O.2E: Improved conditions: white and grey flags
3. Transport of unweaned calves	(5 years transition period for journey times, 2 years transition period for weight and age) 3.O.1: Journeys of max 19h for unweaned calves, with min. age of 5 weeks and minimum weight 50kg, provided that an efficient feeding system exists	
4. Hot temperatures	4.O.1: Approval of transport on long journeys subject to weather forecasts. If weather forecast is between 25°C and 30°C, only short journeys (max 9 hours) should be allowed during day time, with access to water for the animals. If weather forecast is higher than 30°C only transport at night (i.e. between 21h00 and 10h00) allowed.	
5. New technologies	(5 years transition period) 5.O.1A: Real-time positioning 5.O.2: A central database and digital application	5.O.1B: Retrospective checks based on tachographs
6. Transport of cats and dogs	(3 years transition period): 6.O.1A: Requirements for the transport of cats and dogs for economic purposes, e.g. age limits (15 weeks) and temperature conditions	6.O.1B: Similar requirements but lower age limit (12 weeks)

¹⁰⁷ The measure related to journey times does not cover birds (including poultry).

5.3. Options discarded at an early stage

For all measures, alternative policy options have been envisaged to address the problems and their drivers. However, a number of these options have been discarded as they were not viable (i.e. not proportionate, not feasible), deviate too much from EFSA's recommendations or were considered insufficient to address the problems. This concerns in particular:

- for the welfare of animals exported from the EU as well as maximum journey times within the EU, the option of applying the maximum journey time also for the time spent on livestock vessels or roll-on-roll-off vessel was discarded at an early stage because animals can be fed and watered during maritime transport. In addition, applying a maximum journey time for the sea leg of the journey is not feasible in practice as it would prevent access of certain island to the internal market.
- for space allowance during transport, options that would deviate from EFSA's recommendations would insufficiently address the animal welfare problems identified and therefore were not considered effective. Furthermore, as acknowledged e.g. by farmers' representatives, the conditions onboard vehicles and vessels are very important for the welfare of the animals transported.
- for transport of unweaned calves, the other options considered¹⁰⁸ were discarded as they were not addressing the main welfare problems identified with such transport (i.e. the need for calves to be fed with milk after 8h, while taking account of the economic importance of long distance transport of calves). Instead, the option assessed allows long distance transport of calves under specific conditions.
- for hot temperatures during transport, a full alignment with EFSA recommendations was discarded at an early stage since it would require all trucks to be equipped with air conditioning, which was considered neither economically nor environmentally viable. In addition, alternative options of transporting live animals by night only during the three summer months were considered, but discarded as it would be disproportionate for those regions where the temperatures are rarely above 25°C during the summer. Hence the option assessed consists of restricting transport and transport conditions when the weather forecast is above certain temperatures.

5.4. Packages of policy options

In addition to assessing the impacts per option presented under section 5.2., two *packages* of options with varying degrees of ambition have been designed, assessed (see section 6.2.1) and compared (see section 7.7.) based on the above list of measures and potential alternatives. These *packages* combine selected options for all measures.

¹⁰⁸ The other options assessed in the external study on transport were: 8h maximum journey times with minimum age of 5 weeks; 8h + 8h maximum journey time (with 3h of rest) with minimum age of 5 weeks; and 8h + 8h maximum journey time with minimum age of 4 weeks.

The definition of different packages of options was necessary in order to assess the impacts on production, consumption, imports, exports, producer price and consumer price, and food affordability. Those impacts are assessed using the Agricultural Commodity Market Model (see Annex 4), which requires the input of an aggregate of the costs of all measures considered. Therefore, only the costs of a package and not of individual options could be used to assess the impacts of the elements mentioned above. This also allowed for additional analysis of the distributional effects among directly impacted stakeholders and across EU geographies (see section 6.2.).

The assessment of these two packages is mainly based on a supply chain analysis and economic modelling for the main livestock species, namely pigs, laying hens, broilers, dairy cows, calves and beef cattle. In the below tables, this covers the parts of the packages that are not highlighted in grey. Cat and dog transport is not part of the modelling process as they are not part of food production and therefore are not covered by the model used (Agricultural Commodity Market Model). Furthermore, the measure on export is not taken into account in the modelling due to the difficulty to account for indirect effects of the measures (such as the share of animal exports that would be replaced by meat exports). Therefore, the assessment of the packages through the supply chain analysis and economic modelling is complemented by separate assessments of the costs and benefits of cats and dogs transport and export measures (i.e. as highlighted in grey in the below tables).

- **Package 1** corresponds to a stronger alignment with EFSA’s recommendations (in particular when it comes to journey times) or a more prohibitive approach (ban on export) to address the animal welfare problems identified, and consists of the following policy measures and options:

Measure	Policy option
1. Journey times and space allowance	Journey time for slaughter: 1.O.1A: 9 hours
	Journey time for other journeys: 1.O.2A: 12 hours
	Space allowance: 1.O.3A: Space allowance according to EFSA opinions
2. Exports	Road: 2.O.1A: Ban exports of ruminants
	Maritime: 2.O.2A: Ban exports of ruminants
3. Transport of unweaned calves	3.O.1: Maximum journey times and minimum age and weight
4. Hot temperatures	4.O.1: Additional criteria when approving transport on long journeys subject to weather forecasts
5. New technologies	5.O.1A: Real-time positioning: 5.O.2: A central database and digital application
6. Transport of cats and dogs	6.O.1A: Requirements for the transport of cats and dogs for economic purposes, e.g. age limits (15 days) and temperature conditions

- **Package 2** corresponds to a balanced approach between the objective to align with the latest scientific evidence and the economic impacts, as well as an approach to address animal welfare problems linked to exports based on enhanced control tools rather than bans, and is composed of the following set of alternative measures and options:

Measure	Policy option
1. Journey times and space allowance	Journey time for slaughter: 1.O.1A: 9h
	Journey time for other journeys: 1.O.2B: 21h + 24h rest + 21h
	Space allowance: 1.O.3A: Space allowance according to EFSA opinions
2. Exports	Road: 2.O.1B: Limit journey time

	Maritime 2.O.2C + 2.O.2E: Improved conditions: animal welfare officer and white and grey flags
3. Transport of unweaned calves	3.O.1: Maximum journey times and minimum age and weight
4. Hot temperatures	4.O.1: Additional criteria when approving transport on long journeys subject to weather forecasts
5. New technologies	5.O.1A: Real-time positioning; 5.O.2: A central database and digital application
6. Transport of cats and dogs	6.O.1B: Similar requirements but lower age limit for transport (12 days)

The choice of options included in package 2 results from the assessment of the options in section 6.1.

Other combinations of options that would bring variations in terms of scope (e.g. excluding some measures from the two packages of options, or some species) are not assessed as packages of options as these would be insufficient to address the findings of the Fitness Check. In particular, such combinations would not allow to address the sub-optimal levels of animal welfare and internal market distortions which are wide-spread across animal species and categories¹⁰⁹, while at the same time addressing the other problems related to enforcement and the low uptake of technologies. Other variations of packages in terms of scope would also not be effective in meeting all specific objectives described in section 4.

In addition, since several options contain quantitative parameters (related to temperatures, to minimum age for transport, to maximum journey times, space allowance, etc.), for those options, in theory, the whole range of values between current requirements (or in the absence of EU requirements, current practice) and the recommendations of the EFSA opinions, could be envisaged for additional alternative options. However, there are limitations to the number of meaningful alternatives that are likely to have substantially varied impacts.

Overall, the main policy choices and trade-offs to consider in the packages of options for welfare during transport can be summarised as follows:

- the extent to which **journey times** should be further restricted, for different categories of animals¹¹⁰, with a trade-off between animal welfare improvements and economic impacts, as assessed in sections 6.1.1. and 7.1.;
- the best way to address welfare problems for **animals exported from the EU** to non-EU countries: whether to ban such exports considering the difficulty to implement controls in third countries or to improve such transport conditions via additional requirements, as appraised in section 6.1.2. and compared in 7.2.

6. WHAT ARE THE IMPACTS OF THE POLICY OPTIONS?

This section presents the analysis of the impacts of the options (section 6.1. – which is further detailed in Annex 9) as well as of the two packages of options (section 6.2.). The assessment of the packages also includes the impacts on food security and food affordability, as well as the distributional effects.

¹⁰⁹ Fitness Check of the EU Animal Welfare Legislation, pp. 24-25 (see note 4, page 1).

¹¹⁰ Slaughter, fattening and breeding animals, as well as different categories of vulnerable animals, such as unweaned calves.

6.1. Impacts of the policy options

Each impact of each option was scored using a Multi-Criteria Decision Analysis (MCDA). The scale used is a -2 to +2 scale (with 0 being neutral). When required, under some measures, options are combined and assessed together. More details on the methodology used to assess the impacts is available in Annex 4.

6.1.1. *Journey times and space allowances during transport*

Journey times and space allowances need to be assessed together rather than separately due to the strong interaction effects between the two as regards to the impacts. The impacts on animal welfare are first assessed per combination of options differentiating between journeys for slaughter and other types of journeys (fattening, breeding). The limitation of journey times to 9 hours for slaughter and 12 hours for other journeys (options 1.O.1A and 1.O.2A) would have a **high positive impact on animal welfare**. 2.6 million mammals are transported annually for a duration of over 9 hours for slaughter, and 13 million are transported annually for over 12 hours for other types of journeys between Member States¹¹¹. It provides, overall, for a shorter journey duration than today¹¹² and does not imply an additional stop in a control post¹¹³ where animals are exposed to further welfare risks (such as group stress and injuries due to unloading).. Another combination would be to limit journey times to 9 hours for slaughter (1.O.1A) with a maximum of 21 hours' journey + 24 hours' rest + 21 hours' journey¹¹⁴ (option 1.O.2B) for all other types of journeys¹¹⁵. This **would also be a major improvement in terms of animal welfare**, although to a lesser extent, for the more than 1 million animals transported each year for production and breeding for journeys longer than 42 hours between Member States¹¹⁶. Combining options 1.O.1B (for which a maximum journey time of 12 hours should apply for slaughter) with 1.O.2B would still result in a significant animal welfare improvement compared to the baseline, however to a lesser extent as the options above. The impact on the welfare of animals of the combination of options 1.O.1B and 1.O.2A is not considered. Multiple agricultural stakeholders argue that with regards to animal welfare during transport, a scientific assessment should not focus on the length of the journey but rather on the conditions of transport¹¹⁷. However, EFSA has concluded that journey length is of big importance as animals are exposed to a number of welfare risks during transport, the exposure of which is prolonged with longer journey times¹¹⁸.

The reduced journey times should be combined with **increased space allowances**, as recommended by EFSA (1.O.3) which would further improve **animal welfare**. Limited

¹¹² For poultry, the current requirements already limit the maximum duration to 12h.

¹¹³ Current rules allow journeys to resume after animals have been rested 24h in a control post.

¹¹⁴ With 1 hour for rest and feeding each 10 hours, and permanent access to water.

¹¹⁵ For poultry, the current requirements of 12h would still apply for other journeys than transport.

¹¹⁶ Transport study, section 5.2. (see note 25, page 4).

¹¹⁷ Transport study, consultation activities (see note 25, page 4).

¹¹⁸ EFSA reports on animal welfare during transport (see note 26, page 4; note 29, page 5; note 31, page 5).

space allowance has been assessed by EFSA as the first factor reducing the ability of animals to undertake relevant biological functions during transport. Providing animals with this space during transport will allow them to adjust their posture in response to acceleration and other events related to driving, and to rest in a normal position, including room to lie-down and get up¹¹⁹, which will substantially improve their welfare compared to current conditions. The space allowances proposed are in line with EFSA recommendations and are set per animal species and live weight. They are described in Annex 9.

The restrictions to the journey times coupled with the projected reduction of most of the livestock species in the EU are expected to result in a decrease of the number of transport hours with associated decreases in the number of kilometres travelled and the transport costs. However, increasing the space allowance for animals will increase the number of kilometres travelled to transport animals, as more trucks will be needed. As a result, the options will affect transport costs for transporters, but the limitations on journey time will mostly affect the rest of the supply chain (farmers, slaughterhouses, control posts and assembly centres operators) as certain establishments may become out of reach within the allowed time.

For the limitation on journey times, none of the options would have major **economic impacts** as regards animals transported for *slaughter* since relatively few of those journeys are performed above 9 hours in the EU (between 0.3% and 3.4% of animals are transported for slaughter across Member States, depending on the species). Therefore, options 1.O.1A (limitation of journey time to 9 hours for slaughter) and 1.O.1B (limitation of journey time to 12 hours for slaughter) are expected to be very similar in terms of economic impacts. However, a potential impact on revenues for slaughterhouses cannot be excluded. When it comes to journeys *other than for slaughter*, option 1.O.2A (limitation of journey time to 12 hours) would concern 4.2% of the bovines (compared to 1.4% with option 1.O.2B) and 4% of the pigs (compared to 0.2% with option 1.O.2B) transported for *fattening and further production* (e.g. of milk) between Member States. Around 50% (compared to between 9% and 16%, depending on the species with option 1.O.2B) of cows, goats, pigs and sheep moved between Member States for *breeding* would be prevented from making their journeys, affecting mostly Germany, France, Poland, the Netherlands and Ireland. Therefore, with journey time limitations, more animals would need to be sold on a more regional market, which would likely negatively affect the revenues of producers. It is therefore possible that option 1.O.2A, with a maximum of 12 hours' journey time as recommended by EFSA, may pose a threat to the economic sustainability of the sector. Option 1.O.2B would greatly mitigate this impact. A general transition period of 5 years is foreseen, to allow for a smooth adaption to the new rules. The option on space allowance (1.O.3), would lead to a reduction of the capacity per truck which would result in more vehicles being needed to transport the same number of animals. The space allowance proposed is in line with EFSA recommendations. Overall, the limitation of the journey times combined with the increase in space allowance is expected to result in an increase in the number of transport hours and costs for the combination of options 1.O.1A, 1.O.2B

¹¹⁹ Transport study, p. 92 (see note 25, page 4).

and 1.O.3. The majority of the costs for transporters resulting from the combined options is due to the increase in space allowance. At EU level, the yearly net costs incurred by implementing option 1.O.1A combined with 1.O.2B and 1.O.3 could amount to, for all stakeholders, EUR 642 million for the pig sector, EUR 35 million for the laying hen sector, EUR 914 million for the broiler sector and EUR 1 069 million for the cattle sector. Implementing option 1.O.1A combined with 1.O.2A and 1.O.3 would amount to EUR 695 million for the pig sector, EUR 35 million for the laying hen sector, EUR 944 million for the broiler sector and EUR 1 194 million for the cattle sector.

Due to control posts not being needed anymore under options 1.O.1A, 1.O.1B and 1.O.2A, the enforcement costs for public authorities are expected to decrease, while they are expected to remain the same with the combinations that include option 1.O.2B. The remaining enforcement and administrative costs are expected to increase marginally due to the small increase of intra-EU transport resulting from the limitation in journey time and increase in space allowance (1.O.1A, 1.O.2B, 1.O.3).

Generally, lowering journey times and ensuring improved transport conditions leads to reduced morbidity and mortality of animals, increased meat quality and improvement of the sector's reputation, which may bring additional economic benefits to operators.

In terms of **social impacts**, an increase in the number of trucks and therefore drivers is seen in most combinations, except combination 1.O.1A with 1.O.2A and 1.O.3, due to the measure on space allowances, see Annex 9. Overall, limiting journey duration is expected to counter the increasing concentration that the livestock sector is facing, by incentivising the different parts of the supply chain to remain at a limited distance (i.e. breeding farm, fattening farm and slaughterhouse remaining within a limited perimeter instead of having the different operators relocating to different parts of the EU). One concern that multiple stakeholders have expressed is that stricter rules concerning the resting times for animals, would not coincide with the provisions laid down in Regulation (EC) No 561/2006 regarding drivers' resting times¹²⁰. All combinations of options would be compatible with the said legislation, although option 1.O.1A (9 hours' limit) to a somewhat larger extent than options 1.O.1B and 1.O.2A (12 hours' limit).

As for **environmental impacts**, limiting journey times reduces the distance travelled, fuel used, and therefore emissions. It also incentivises the regionalisation of supply chains and seeks to incentivise the transport of meat over live animals, which has an important positive environmental impact. Increasing space allowances require more trucks and more transport to carry the same number of animals. The combination of options 1.O.1A with 1.O.2A and 1.O.3 is estimated to have the largest reduction of CO₂ and NO_x emissions from transport, as despite the additional number of trucks required, the total number of kilometres travelled would be lower compared to today. With the 1.O.1A, 1.O.2B and 1.O.3 combination, and the 1.O.1B, 1.O.2B and 1.O.3 combination, the increase in the number of trucks needed is expected to see a marginal increase in emissions.

¹²⁰ Transport study, consultation activities (see note 25, page 4).

One organisation representing agricultural entrepreneurs at national and European level underlines that increasing space allowances will have a negative environmental impact as more transports will be needed to transport the same number of animals. However, it should be noted that transport makes up only a small portion of the environmental footprint of agricultural production. FAO indicates that post farmgate emissions (transports, slaughter etc.) account for only 2.8% of the emissions from livestock supply chains¹²¹. Hence, the overall impacts on emissions should be limited.

Dimension/ Policy Option	Baseline Scenario	1.O.1A + 1.O.2A+ 1.O.3	1.O.1A + 1.O.2B+ 1.O.3	1.O.1B + 1.O.2B +1.O.3
Animal Welfare	0	2	1.9	1.8
Environmental	0	0.5	-0.2	-0.4
Economic	0	-1.8	-0.6	-0.6
Social	0	0	-0.1	-0.1
Total Score	0	0.18	0.25	0.18

Stakeholders' views on the policy options concerning limiting journey times varied. Consulted business and professional organisations considered the current legislation sufficient, while 96% of the respondents to the public consultation (of which 92% were citizens) were in favor of adopting maximum journey times. Some remote regions of Finland could experience challenges with the limits of journey times for slaughter due to a less dense slaughterhouse network (however a derogation is foreseen where no slaughterhouse is available within 9 hours). A representative of the meat industry at EU level indicated that further limiting journey times can be difficult for some regions of Europe, in particular for big countries. They stress that the transport of animals contributes to avoiding the concentration of livestock in the regions where animals are born, giving the opportunity to develop specialised production activities in other regions¹²². On the other hand, animal welfare NGOs favour a limit of 8 hours for all animals. All interviewed stakeholders as well as the members of the subgroup¹²³ on transport of the EU Animal Welfare Platform favoured better enforcement and increased specificity of future legislation. Some industry representatives would prefer a focus on better enforcement of existing rules instead of than a legislative revision. However, as demonstrated in the problem definition and the analysis of negative animal welfare consequences, simply focusing on improved enforcement without changing the rules, for instance as regards space allowance, would not be sufficient to address the problems.

6.1.2. *Export of live animals*

The largest share of EU exports of live animals is related to the export of bovines (over 1 million animals per year) and sheep and goats (over 3 million animals per year). Hence,

¹²¹ Food and Agricultural Association of the United Nations (FAO), [Global Livestock Environmental Assessment Model \(GLEAM\)](#).

¹²² Transport study, consultation activities (see note 25, page 4).

¹²³ Composed of Member States experts, industry and NGO representatives, and independent experts (European Commission, Directorate-General for Health and Food Safety, EU Platform on Animal Welfare, *Meeting of the sub-group on transport – Limiting journey times – Third meeting, 24 June 2022 10-12:30 (Videoconference on Teams) – Minutes, 2022, [aw_platform_20220624_sub-transport_min.pdf](#) (europa.eu)*).

the options explored mainly relate to these species¹²⁴. Of all transported bovines, 62% are exported by sea (involving some road transport as well) and 37% exclusively by road. 96% of the transported sheep are exported by sea and only 4% by road. The total value of EU exports of live bovines and sheep and goats to third countries is more than EUR 1.5 billion¹²⁵.

The options to ban the export of live small and large ruminants by road and maritime transport (2.O.1A and 2.O.2A) would **improve animal welfare** for EU animals, as it would prevent the risk of heat stress, prolonged hunger, thirst, loading, unloading, handling stress, disease and other animal welfare problems caused by long journeys. However, the impact on the overall welfare of animals transported internationally may be more limited as it is likely that most importing countries would import animals from some other countries instead of importing EU meat. Imposing a limit to journey duration and stricter conditions of transport would still mean a significant improvement (for road transport: 2.O.1B; for maritime transport: 2.O.2B, 2.O.2C, 2.O.2D, 2.O.2E).

A ban would have important negative **economic impacts** on the EU, in terms of revenue loss from exported animals for farmers but also for export companies, as animal exports account for 3.3% of gross indigenous production in the bovine sector, and 10% for sheep and goats¹²⁶. Thus, the impact on both sectors, but particularly the sheep and goat sector, would be substantial as this quantity would have to be diverted either to meat exports or be sold on the EU market. However, evidence suggests that the export of animals can only partly be replaced by the sales of meat¹²⁷. Since demand for food tends to be price inelastic (consumers will not significantly increase their mutton consumption if price decreases), the downward impact on prices (due to more meat having to be sold on the EU market) would likely be considerably higher than those percentages. It is estimated that an export ban would increase the supply of beef by 2.3% and supply of mutton by 7.5% (i.e. by 39 298 tonnes)¹²⁸, which would affect market prices. Loss of revenues due to banning exports of animals would affect only operators (farmers, traders) involved in live animals exports, while losses due to a price decrease would affect all beef and sheep producers in the EU. The overall short-term effect is estimated to amount to EUR 1.9 billion per year¹²⁹. A ban would however decrease enforcement and administrative costs for public authorities and avoid difficulties that may arise with guaranteeing the compliance with the EU welfare standards until destination in a third country, depending on the third country concerned. These savings may however be limited as the number of transports between Member States may increase. A general transition period of 5 years is foreseen for both bans as a mitigating

¹²⁴ For pigs, although exports of meat account for a far higher proportion of EU production, exports of live animals account for a far lower proportion of EU production (0.2%) than in the case of bovines or sheep and goats.

¹²⁵ Compared to the number of live animals exported, the number of animals imported into the EU is very small. In 2020, the value of the imported animals was EUR 5.74 million (data from Comext).

¹²⁶ Calculated as a percentage of meat production in carcass weight equivalent (EU agricultural outlook for markets, income and environment 2022-2032 (see note 77, page 11)).

¹²⁷ Transport study, p. 119 (see note 25, page 4).

¹²⁸ Transport study, p. 120 (see note 25, page 4).

¹²⁹ Transport study, p. 120 (see note 25, page 4). This estimate is calculated based on the values of exports of sheep, goats and cattle, the additional sales of meat (instead of live animals), and the price effect due to increased supply on the EU market.

measure. The alternative option to impose restrictions on journey times¹³⁰ would bring additional costs for operators. While the number of kilometres travelled may be reduced, operators will need to upgrade their trucks for increased space allowances.

For maritime transports, it is estimated that upgrading existing vessels to make them compliant to white flag (option 2.O.2D) or to white and grey flag (option 2.O.2E) requirements would cost around EUR 20 million per vessel, plus EUR 5 000 per vessel for the registration of the flag¹³¹. For white and grey flags, it is estimated that 19 vessels would need to upgrade and 39 need to register a new flag. 44 would need to upgrade and 80 would need to register if white flags only are authorised¹³².

Another cost is related to the requirement of having a veterinarian on board of vessels¹³³ (2.O.2B). This may be very challenging to implement given the low interest of the job for veterinarians, which would render the measure very costly to make it attractive, up to EUR 20 000 per journey. There are about 750 maritime journeys per year. Another similarly effective option could therefore be to instead require the presence of an animal welfare officer, who would be a member of the crew trained specifically on animal welfare issues (2.O.2C). The average cost of training per person per year is estimated at EUR 241¹³⁴ for each of the 88 EU-registered vessels. When it comes to administrative costs, an increase of the enforcement costs associated with the option of upgrading standards for livestock vessels could be expected.

Overall, option 2.O.2B is estimated to cost EUR 7.5 million per year for the presence of a veterinarian on board, while option 2.O.2C amounts to EUR 21 208 per year for the training of an animal welfare officer. Option 2.O.2D would result in a one-off cost of EUR 880 400 000, while option 2.O.2E would result in a one-off cost of EUR 380 195 000.

A ban on export would have a positive **environmental impact** if only looking at the environmental impacts of EU production, as it would reduce the emissions of CO₂/NO_x by trucks and livestock vessels. However, since trading partners would likely switch to importing live animals from other third countries, the environmental impact linked to emissions might be unchanged or negative. If journey conditions are improved (2.O.1B; 2.O.2B; 2.O.2C; 2.O.2D; 2.O.2E), the emissions by trucks and livestock vessels would not be expected to vary significantly, as the number of animals transported is not expected to vary significantly due to the rerouting of some exports which became out-of-reach. However, 64% of vessels have been reported to have pollution deficiencies such as the quality of fuel oil or the segregation of oil and water ballast¹³⁵, and 36% of EU-approved livestock vessels have suffered major incidents such as collisions or oil spills that clearly

¹³⁰ The journey time limitation would be similar to the intra-EU journey time limitations.

¹³¹ Transport study, p. 117 (see note 25, page 4).

¹³² See Annex 9 for details.

¹³³ Estimated by industry to amount to between EUR 5 000 and EUR 20 000 per journey.

¹³⁴ In consultation with national authorities.

¹³⁵ European Parliament, Directorate-General for Internal Policies, Policy Department for Structural and Cohesion Policies, [Animal welfare on sea vessels and criteria for approval of livestock authorisation - PE 690.876](#), 2021.

have negative environmental implications¹³⁶. The measure foresees stricter conditions for livestock vessels which would greatly increase safety and compliance, including reducing the illegal disposal of carcasses in waters leading to environmental contamination.

The transport of animals to third countries by trucks is partly done by EU-registered companies, which would therefore be negatively impacted by the ban envisaged in the main option. However, the **social impacts** on EU transporters' workforce are expected to be limited under the option limiting journey time since it is likely to result in new transport patterns. Most livestock vessels are registered outside the EU and their employees mostly come from outside the EU. Hence, the social impacts at EU level would not be significant for livestock vessel transports either under a ban. The social impacts would also be limited for the alternative options, as described in Annex 9.

Dimension/ Policy Option	Baseline Scenario	2.O.1A + 2.O.2A (ban)	2.O.1B + combination of 2.O.2C (animal welfare officer) and 2.O.2E (white and grey flag)	2.O.1B + combination of 2.O.2B (vet on board) and 2.O.2D (white flag)
Animal Welfare	0	2	1.7	1.8
Environmental	0	0.6	0.3	0.3
Economic	0	-2	-0.6	-1.2
Social	0	-1.8	-0.6	-0.6
Total Score	0	-0.3	0.2	0.08

Consulted national competent authorities and business operators considered that banning live animal exports completely (2.O.1A + 2.O.2A) may deteriorate animal welfare through the replacement of EU exports by third country exports with lower welfare standards and transports across longer distances. According to the experience of one representative of the meat industry at EU level, the presence of an animal welfare officer on board of a livestock vessel allows to foresee, prevent and solve in a very efficient way potential issues that could affect the welfare of animals during long journeys. This stakeholder is also of the opinion that stricter conditions must ensure the welfare of animals in a proportionate manner, so that the continuity of business is also ensured¹³⁷. Instead of a ban, the industry pled in favour of improved transport conditions. In the public consultation, NGOs, citizens, and academic experts broadly supported a total ban of live animal exports outside the EU.

6.1.3. *Transport of unweaned calves*

Each year, around 1.4 million unweaned calves (7% of the EU unweaned non-replacement dairy calves population) are moved across Member State borders, of which 42% on journeys with a duration of 8-19 hours or even more (578 000 animals/year)¹³⁸. The main

¹³⁶ Animal welfare on sea vessels and criteria for approval of livestock authorisation (see note 136, page 28).

¹³⁷ Transport study, consultation activities (see note 25, page 4).

¹³⁸ Projections show that the dairy cow herd is expected to decrease by 10% by 2032, therefore the number of unweaned calves transported in the EU is expected to decrease at a similar rate (Agricultural outlook for markets, income and environment 2022-2032 (see note 77, page 11)).

Member States of origin for long journeys are France, Ireland and Germany¹³⁹ (304 000 animals/year). The main Member States of destination are Spain, the Netherlands, Italy and Belgium, accounting for over 93% of the animals¹⁴⁰. A decrease in the number of calves of 10% by 2032 is expected¹⁴¹.

Under option 3.O.1, provided that an effective system for feeding calves on trucks is available, calves may be transported for a maximum of 19 hours (NB: the time spent on board of vessels does not count under the condition that feeding is provided at regular intervals). If no such system is available on board, an 8-hour maximum journey time should be applied. Maximum journey times and minimum age (5 weeks) and weight (50kg), as recommended by EFSA, would greatly **improve the welfare** of a large number of unweaned calves, which belong to the group of vulnerable animals and are especially exposed to animal welfare and animal health risks during transport activities.

The option would have a negative economic impact on long-journey **transporters** (over 8 hours) which will need to invest in feeding systems on board. The cost for installing a feeding system in an existing truck is estimated to be between EUR 25 000 – EUR 30 000, while a new truck equipped with such a feeding system is estimated to cost around EUR 500 000¹⁴². The higher age and therefore bigger size of the calves will lead to a reduced transport capacity for the share of the current transport fleet that was transporting calves below 5 weeks¹⁴³. Overall, the measure is expected to cost transporters around EUR 3 million per year.

The new requirements on minimum age and weight of the animals to be transported are estimated to increase the cost for dairy farmers due to the longer presence of calves on farms by approximately EUR 4.20 per calf and day.¹⁴⁴ However, this will also delay the arrival of calves at veal and beef producing farms, leading to reduced costs for those (as the fattening period will be shorter). Dairy farmers are expected to be able to transfer those costs to fattening farms by an increase in the price of calves¹⁴⁵. Overall, the measure is expected to bring to dairy farms additional costs of EUR 2 million per year and to fattening farms savings of 2 million per year. An improved health status and reduced mortality of calves upon arrival due to increased resilience is also beneficial for fattening farms. It will increase yields and decrease the costs associated with the treatment of sick calves and the death of calves¹⁴⁶.

Estonia, Latvia and Lithuania will be the most affected by this option since a significant share of the journeys exceed 19 hours. Therefore, a transition period of 5 years is

¹³⁹ However, Germany recently banned long journeys for the transport of calves in the absence of an approved feeding system.

¹⁴⁰ Transport study, section 5.4. (see note 25, page 4).

¹⁴¹ Agricultural outlook for markets, income and environment 2022-2032 (see note 77, page 11).

¹⁴² Based on stakeholder consultations.

¹⁴³ While the measure on space allowance applies to calves, the difference between the previous requirements and the new requirements for a calf of 50kg is a 5% increase in space allowance. The measure is therefore not expected to substantially affect transport capacity.

¹⁴⁴ Transport Study, section 5.4. (see note 25, page 4).

¹⁴⁵ Experience in Germany (where calves can only be transported from 4 weeks old since 2022) shows that dairy farmers were able to sell their calves at higher prices (based on stakeholder consultation).

¹⁴⁶ Dutch Ministry of Agriculture, Nature and Food Quality, *Scenariostudie Kalverketen - Scenario's voor een andere inrichting van de keten*, the Hague, 2021.

considered for the option related to journey times to leave time for these countries to restructure the sector. The longer period of fattening unweaned calves locally is expected to increase the environmental impact of the beef production sector in Ireland¹⁴⁷. Most of the calves originating from Ireland are expected to be able to complete their current route, since part of the journey leg is on board of vessels, which is not included in the 19 hours limit provided that calves are fed at regular intervals. Since feeding systems exist today, it is expected that by the time the new measure would become applicable (5 years after the date of entry into force of the new legislation), such feeding systems will be approved and in use. A 2 years' transition period is foreseen for the requirements related to age and weight.

The option would have a neutral to positive **environmental impact**, since more limited journey times would reduce transport related Green House Gases (GHG) emissions. However, the current long journeys would to some extent be replaced by shorter journeys, and the reduced capacity of the trucks may partly offset the reduction as more trucks are needed for the same number of animals. A reduction in the death rate of calves and increased yields would also have a positive environmental impact.

The **social impacts** in terms of employment largely depend on the feeding solution. If no effective system for on-truck feeding is approved, more staff might be needed to unload, feed and reload the animals at the resting place. If the option results in a relocation of farms, with more local fattening of unweaned calves, this would also have a negative impact on farmers.

Dimension/Policy Option	Baseline Scenario	3.O.1
Animal Welfare	0	2
Environmental	0	0.5
Economic	0	-0.7
Social	0	-0.5
Total Score	0	0.33

In the consultations carried out, there was general agreement across all stakeholder groups that specific rules for unweaned and vulnerable animals should be provided. There was broad support for the measure regarding the weight and minimum age of animals, although some business stakeholders flagged the economic and logistical challenge (e.g. trucks with two decks instead of three have to be used). Regarding the measure on journey times, specific concerns were highlighted by authorities and private stakeholders from Ireland since Ireland is a major dairy producer, with a high surplus of dairy calves which cannot be fattened in Ireland due to space limitations and thus have to be transported to continental Europe. Given the current practices, both the requirement of an approved feeding system and a minimum age of 5 weeks would impact Ireland.

¹⁴⁷ European Commission, Directorate-General for Health and Food Safety, *Study on shifting from transport of unweaned male dairy calves over long distance to local rearing and fattening – Final report*, Publications Office of the European Union, 2022, <https://data.europa.eu/doi/10.2875/072915>.

6.1.4. Transport in hot temperatures

The number of summer days with high temperatures (above 30°C) is increasing in the EU. Requiring that only short journeys take place over daytime (without restrictions on the transport by night) when outside temperatures are between 25°C and 30°C and that animal transport takes place at night when the weather forecast is above 30°C (option 4.O.1), would **improve the welfare** of the animals as it would allow them to avoid heat stress.

Several Member States, such as Germany and the Netherlands, have already restricted animal transports in hot temperatures in their national legislation. Many Member States are currently not approving long journeys when temperatures above 30°C are forecasted, further to activities from the Commission¹⁴⁸. Hence, the **economic impacts** of this option could be expected to be mainly linked to the logistical challenge of transport by night but will provide uniformity for such cases in the EU. Transporters will see an increase in their costs due to higher wages for nighttime driving but also higher administrative costs when inspections and checks have to be performed during the night. The extent of this increase depends on the number of days above 30°C, which will depend on the geographical location¹⁴⁹. The nighttime driving bonus is on average 20% in the EU¹⁵⁰, while the costs for competent authorities are on average 30%¹⁵¹ higher outside of business hours. A limited impact is also expected on farmers (overcrowded stables) and slaughterhouses (those will have to either slaughter at night or provide a space to shelter the animals until slaughter resumes in the morning)¹⁵². Overall, the measure is expected to cost per year EUR 5 million for broiler transporters, EUR 3 million for pig transporters, EUR 2 million for beef transporters, and EUR 1 million for calf transporters.

No **environmental impact** is expected. With regards to **social impact**, no impact on employment is expected, but some types of personnel (drivers, slaughterhouse personnel, official veterinarians) may need to perform an increased number of nightshifts.

Dimension/Policy Option	Baseline Scenario	4.O.1
Animal Welfare	0	2
Environmental	0	0
Economic	0	-0.5
Social	0	-0.5
Total Score	0	0.25

¹⁴⁸ Already in 2018, in reaction to Commission activities, at least 13 Member States had taken action to limit transports, and another five Member States that did not export animals by road at all, during hot days (European Commission, Directorate-General for Health and Food Safety, *Welfare of animals exported by road – Overview report*, Publications Office, 2020, <https://data.europa.eu/doi/10.2875/946999>).

¹⁴⁹ Based on EEA data, in 2038 southern Europe is expected to have an average of 50 days per year over 30°C, central Europe 15 days, and northern Europe 3 days. The majority of transport occurs in northern and eastern Europe.

¹⁵⁰ Latvian Road Transport Directorate, *Guidance on level of remuneration for drivers in EU Member States*.

¹⁵¹ For the Netherlands, costs for competent authorities outside normal business hours are 30% higher than costs within business hours (source Dutch competent authorities).

¹⁵² Hoorweg, F. A., et al., *Metingen temperatuur tijdens diertransport*, KD-2020-063. Wageningen University and Research, 2021, <https://library.wur.nl/WebQuery/wurpubs/fulltext/559400>.

Member States and business stakeholders from southern Member States are generally more concerned by the measure as they will be impacted more. They often flag the logistical challenges linked to transporting live animals by night. Furthermore, these stakeholders argue that the trade of southern Member States will be seriously distorted by maximum temperature measures, as they are subject to higher temperatures throughout the year. Consequently, these Member States would be considerably affected¹⁵³. However, a stakeholder from the meat industry indicated that in practice the measure would not pose major problems for Spanish producers, since they are already accustomed to transporting animals by night.

6.1.5. *New technologies*

Real-time positioning systems (option 5.O.1A) would make it possible to check in real time whether operators and drivers respect the maximum journey times and in particular the resting periods. As an alternative, mandatory retrospective checks of the tachographs could be required (option 5.O.1B), bringing a higher level of harmonization as regards this tool for monitoring which currently is being used differently by the Member States¹⁵⁴. Combined with a central EU database (option 5.O.2), both options would improve animal welfare as official controls would be better targeted and more efficiently performed, however to a larger extent if real-time positioning systems are used (5.O.1A). A 5 years' transition period is foreseen (5.O.1A and 5.O.2).

The combination of options (5.O.1A and 5.O.2) would have **economic impacts**. Since more than 77% of the current transport trucks are already equipped with a satellite navigation system, the operators' costs for meeting the new standards could be expected to be relatively marginal. The administrative burden for operators is expected to decrease substantially with the use of an automated tracking system and IT platform. For instance, a 30% reduction of labour costs is expected, corresponding to an overall cost saving of around EUR 71 million per year for transporters¹⁵⁵. The main costs would be associated with the development of the EU database, but since it will build on the existing TRACES system, also those costs for the EU administration could be limited. Member States' administrations would incur limited costs related to the training of staff on how to use a new system and the processing of generated data. The combination of options (5.O.1B and 5.O.2) would have limited economic impacts as trucks are already equipped with tachographs.

Replacing the current paper-based system with a digital trail would reduce the use of paper and archives and other storage facilities would be replaced by servers. This may have a positive **environmental impact** as GHG emissions associated with paper would be reduced. However, a negative impact is foreseen due to the increase in GHG emissions associated with the higher energy use. Although it cannot be estimated to what extent environmental benefits would occur from the lower paper and storage facility use and to

¹⁵³ Transport study, consultation activities (see note 25, page 4).

¹⁵⁴ Welfare of animals exported by road – overview report, p. 12 (see note 149, page 32).

¹⁵⁵ *Modelling of policy options to support the Impact Assessment accompanying the revision of the EU legislation on the welfare of animals during transport*, 2023, doi: 10.2875/061480

what extent emissions would increase from the higher energy use, it can be expected that there will be a limited negative environmental impact.

While less administrative staff may be needed among business operators, the number of staff needed in public administration for processing the data collected might increase. Due to the expected increased demand of staff needed in administrations, a slight positive **social impact** could be expected in terms of employment. Furthermore, for operators, the simplification thanks to digitalization will mean improved working conditions.

Dimension/ Option	Policy	Baseline Scenario	5.O.1A + 5.O.2	5.O.1B
Animal Welfare		0	2	0
Environmental		0	-1.0	0
Economic		0	0	0
Social		0	+1	0
Total Score		0	0.5	0

In the consultation activities, introducing a digital application at EU level to reduce administrative costs and facilitate data exchange between Member States was supported by competent authorities and business operators and proposed by the subgroup¹⁵⁶ on transport for the Animal Welfare Platform.

6.1.6. *Transport of cats and dogs*

Option 6.O.1A would considerably **improve the welfare** of cats and dogs, for which specific provisions are currently largely missing. A minimum age of 15 weeks for transport will allow for a better development of immunity against infectious diseases. In the case of puppies for instance, there is a period of low immunity between weeks 8 and 16 when they are susceptible to infection with infectious diseases, in addition to the impact of an early separation with their environment. A similar reasoning applies to kittens. Option 6.O.1B would also almost equally improve their welfare since it proposes similar requirements with the difference of imposing a minimum age of 12 weeks for transport.

Both options will have some limited **economic impacts**, especially for breeders since commercial transport of cats and dogs is mostly performed by them or under their direct responsibility. For instance, it is estimated that additional veterinary health checks of the cats and dogs may cost between EUR 10 and EUR 40 per animal. However, the economic impact of the new requirements for feeding and watering are expected to be limited, since relatively similar rules apply already. Additional costs for transporters may also be expected, related to the improvement or replacement of their current vehicles to meet the new standards. To note that most transport companies are SMEs. A commercially available new dog trailer without air conditioning but properly designed is estimated to cost between EUR 1 000 and EUR 3 000 for two to four dogs¹⁵⁷. Due to the lower age limit, option 6.O.1A will have a slightly more negative impact as breeders will have to keep the puppies

¹⁵⁶ European Commission, Directorate-General for Health and Food Safety, EU Platform on Animal Welfare, Sub-Group Animal Transport – Working Group on Extreme Temperatures, *Proposal for an application on live animal transport*, 2019.

¹⁵⁷ Transport study, section 5.6.2. (see note 25, page 4).

and kittens for longer. Overall, under option 6.O.1B, it is estimated that, at EU level, transporters of puppies and kittens would face a reoccurring administrative cost of EUR 94.5 million and a single adjustment cost of EUR 7.5 million.

No significant **environmental impacts** are expected.

Considering **social impacts**, the additional vaccination requirements and the higher age at transport proposed in this measure may result in fewer sick animals at arrival. This would also have a positive impact on human health as it would reduce the need for antibiotics to treat these animals and, consequently, contribute to reducing AMR and the development and spread of zoonotic diseases. The option 6.O.1B would allow future owners to socialise with their pets from an earlier age, bringing additional social benefits compared to the option of 6.O.1A.

Dimension/ Policy Option	Baseline Scenario	6.O.1A (15 weeks)	6.O.1B (12 weeks)
Animal Welfare	0	2	1.9
Environmental	0	0	0
Economic	0	-0.3	-0.1
Social	0	1.0	1.2
Total Score	0	0.68	0.75

Providing transport requirements for cats and dogs was favoured by all stakeholder groups consulted.

6.2. Assessment of the packages of options

6.2.1. *Costs and benefits of the packages*

6.2.1.1. Costs

As explained in section 5.4., the assessment of these packages is mainly based on a supply chain analysis (for the costs of the measures per species, for the different sectors) and agricultural market modelling (for the impacts on quantities produced, consumed, imports, exports and prices) for the main livestock species only, namely pigs, laying hens, broilers, dairy cows, calves and beef cattle¹⁵⁸.

To calculate the costs of the different measures, changes considered in the different packages were reviewed, and information was collected to identify what kind of quantitative effect those measures were expected to have for the different stakeholders (farmers, transporters, slaughterhouses, consumers, public authorities). The impact of each measure was quantified for each species and operator when relevant: additional variable costs, possible savings in variable costs, changes in market revenues, possible investments needed to comply with the measures and possible reductions in the number of animals that can be kept, transported or processed. Finally, the economic impact of each measure was quantified in a consistent manner so they could be grouped into packages, by transforming the additional costs (or, if applicable, savings) into a figure that describe the net impact per

¹⁵⁸ Modelling of policy options to support the Impact Assessment accompanying the revision of the EU legislation on the welfare of animals during transport (see note 156, page 33).

kilogram of output (e.g. EUR/kg meat produced). The net impacts were normalised to the production cost of one kilogram of meat, milk or eggs (depending on the stakeholder, costs to farmer, transporter or slaughterhouse) and then converted into a percentage change in production costs per unit of output and calculated on the condition that an actor must implement a change (e.g. if baseline cost of producing 1kg of pork is EUR 1, and measure X leads to a production cost of EUR 1.50 per 1kg of pork, the increase per unit of output is 50%). Then, the proportion of the product that would be required to implement the change was identified (i.e. if a given measure is already implemented in some Member States, not 100% of the quantities will need to adapt due to the new EU rules). The exercise was repeated for each measure and each species. Finally, the cost change was multiplied by the proportion of the product that needs to implement the change, per measure and per species (e.g. the measure costs EUR 0.5 per kg produced, 100kg produced annually are concerned by the measure, therefore the total cost of the measure is EUR 50). Further details regarding the methodology and limitations thereof are presented below as well as in Annex 4, section 1.5.

The below figures, aggregating different sectors within each measure and aggregating figures for the packages of measures combined, should be interpreted with caution. Table 5 below provides an overview of the costs per sector and per measure. The order of magnitude of the figures per sector is a direct consequence of the quantities produced at EU level (billions of kg produced every year in each sector). Important limitations as regards to those figures should however be highlighted. Lack of data is the main limitation, with information on regional (within Member States) animal welfare practices and the costs attached to them being particularly difficult to obtain.

The costs presented are on a yearly basis (except when specified that they are one-off costs). It is assumed that the costs will occur during the transition period, set at 5 years from the date of entry into force, as it is the time needed for a realistic implementation of the measures and for planning the required investments. After that transition period, it is expected that transporters and other operators of the supply chain (e.g. many slaughterhouses possess their own transport fleet or entirely integrated production chain from breeding to slaughter, retailers may also absorb the costs) will have absorbed the costs.

Assessment of costs for package 1:

Table 3: Costs of package 1

Measure	Costs	Total net cost at EU level per year from the date of the date of entry into force of the measures, for a period of 5 years (except when mentioned otherwise)
Supply chain analysis		
1 Journey times + space allowance	Investments Increased number of journeys	EUR 3 149 million (adjustment cost)
3 Transport of unweaned calves	Investments	EUR 3 million
4 Hot temperatures	Nighttime bonus for drivers and official veterinarians	EUR 11 million
5 New technologies	Savings due to automation	-EUR 71 million

TOTAL COSTS		EUR 3 092 million
Other costs		
2 Exports		Loss of EUR 1 954 million
6 Transport of cats and dogs	Investments	EUR 94.5 million + One-off cost of 7.5 million

Expressing total costs in aggregated absolute figures at EU level for all sectors leads to gives high figures due to the high number of kg of meat, milk and eggs produced every year in the EU (the methodology used calculates a percentage of increase by kg), as the EU produces in total 198 billion kg of meat, milk and eggs per year. The total cost represents an increase of EUR 0.015 per kg of meat, milk or eggs.

As described in section 5.4., the packages also contain measures that were not covered by the supply chain analysis and economic modelling:

- Measure on exports – options 2.O.1A + 2.O.2A: ban on export of live ruminants: the loss of revenues from exports of live animals and the effect on the EU market of having more animals for sale in the EU (i.e. decrease in price of meat in the EU) is estimated at approximately EUR 1 954 million per year.
- Measure on the protection of cats and dogs - option 6.O.1A: requirement for the transport of cats and dogs: transporters of puppies and kittens would face a reoccurring administrative cost of EUR 94.5 million and a single adjustment cost of EUR 1.5 million.

The costs and benefits of those options could not be assessed with a uniform and comparable methodology, and therefore it is not possible to assess the cumulative impact of those options.

Assessment of costs for package 2:

Table 4: Costs of package 2

Measure	Costs	Total net cost at EU level per year from the date of entry into force of the measures, for a period of 5 years (except when mentioned otherwise)
Supply chain analysis		
1 Journey times + space allowance	Investments Increased number of journeys	EUR 2 941 million (adjustment cost)
3 Transport of unweaned calves	Investments	EUR 3 million
4 Hot temperatures	Nighttime bonus for drivers and official veterinarians	EUR 11 million
5 New technologies	Savings due to automation	-EUR 71 million
TOTAL COSTS		EUR 2 884 million
Other costs		
2 Exports		EUR 21 208 + one-off cost of EUR 380 million

6 Transport of cats and dogs	Investments	EUR 94.5 million + one-off cost of EUR 7.5 million
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Expressing total costs in aggregated absolute figures at EU level for all sectors gives high figures due to the high number of kg of meat, milk and eggs produced every year in the EU (the methodology used calculates a % of increase by kg), as the EU produces in total 198 billion kg of meat, milk and eggs per year. The total cost represents an increase of EUR 0.014 per kg of meat, milk or eggs.

As described in section 5.4., the packages also contain measures that were not covered by the supply chain analysis and economic modelling:

- Measure on exports – options 2.O.2C + 2.O.2E: measures on exports of live animals by maritime transport (white or grey flag for vessels, animal welfare officer on board): for export via maritime transport of beef and sheep, the administrative burden would be EUR 195 000 for the one-off registration of vessels to a white or grey flag and EUR 21 208 annually for the training of a certified animal welfare officer to be included on each journey. Additionally, the adjustment cost of upgrading vessels to meet new requirements would cost EUR 380 million overall (one-off cost).
- Measure on the protection of cats and dogs - option 6.O.1B: requirements for the transport of cats and dogs, including a lower minimum age for transport (12 weeks).

The costs and benefits of those options could not be assessed with a uniform and comparable methodology, and therefore it is not possible to assess the cumulative impact of those options.

Table 5: Detailed costs per option and per sector, in EUR million per year (for 5 years).

Production sector	Dairy		Beef		Pork		Broiler meat		Eggs	
	I	II	I	II	I	II	I	II	I	II
Space allowance during transport and journey times	281	281	1 194	1 069	695	642	944	914	35	35
Transport of unweaned calves			3	3						
Hot temperatures	1	1	2	2	3	3	5	5	/	/
New technologies	-3	-3	-9	-9	-23	-23	-34	-34	-2	-2
In total	279	279	1 190	1 065	675	622	915	885	33	33

6.2.1.2. Benefits

First, the two packages are expected to bring high animal welfare benefits, albeit to a slightly higher extent in package 1.

The packages will also provide additional direct and indirect societal and economic benefits.

In terms of financial benefits for operators, the welfare of the animals on and off farm has an impact on the yields and quality of the meat. Overcrowding, aggressivity between animals, improper handling and stress levels have a negative impact on productivity and carcass quality. During transport, improper handling, loading, unloading, overcrowding and water and feed scarcity, as well as increased susceptibility to infections affect meat and carcass quality negatively¹⁵⁹.

Improving conditions during transport reduces the occurrence of welfare hazards. After implementing the Transport Regulation in 2007, the share of transported animals with lameness, injuries, or dehydration decreased or remained similar, and the numbers of animals reported 'dead on arrival' decreased significantly¹⁶⁰.

Such issues have financial consequences for operators. Wounds in cattle and sheep are estimated to result in a loss of half the commercial value of the hide (EUR 33 for cattle and EUR 9 for sheep, 2015 prices). In case of lameness, production animals (such as piglets and calves) are assumed to be culled on arrival, resulting in labour and disposal costs¹⁶¹.

In the case of calves, increasing the age at which calves are transported results in reduced mortality and morbidity as older animals are better fit for transport, more resilient and less susceptible to infections. More calves reach the slaughter lines, and the costs of destroying carcasses, estimated to EUR 27 per carcass¹⁶², are avoided. The main cause of mortality of calves is pneumonia¹⁶³, and studies show a difference of 11kg carcass weight between calves treated for pneumonia and calves that did not require treatment. Veterinary costs are also reduced, with the average treatment costs for pneumonia ranging between EUR 10 and EUR 15¹⁶⁴. A Dutch study¹⁶⁵ estimates that the impacts of halving the cases of pneumonia in calves in the Netherlands, due to higher age at transport, may result in additional revenues of tens of millions of euros per year due to increased growth, savings on carcass destructions equivalent to two tons a year and savings on medical treatment estimated to several million euros.

Transport of animals increases their risk of contracting infectious diseases due to cross contamination between animals or via contaminated surfaces. Animals experience

¹⁵⁹ Ijaz, M. et al., 'Effect of on- and off-Farm Factors on Animal Stress and Meat Quality Characteristics', *Animal Husbandry*, InTechOpen, 2022, <https://doi.org/10.5772/intechopen.104669>.

¹⁶⁰ Baltussen, W. H. M., Gebrensbet, G. and Roest, K., *Study on the impact of regulation (EC) No 1/2005 on the protection of animals during transport*, 2011.

¹⁶¹ Van Wagenberg et al., *Cost-benefit analysis of private certification schemes for animal welfare during long-distance transport in the EU*, Wageningen University and Research, 2015.

¹⁶² Rendac, *Kadavertarieven 2020*, 2020.

¹⁶³ Pardon B. et al., 'Longitudinal study on morbidity and mortality in white veal calves in Belgium,' *BMC veterinary research*, Vol. 8, 26, BMC, 2012, <https://doi.org/10.1186/1746-6148-8-26>.

¹⁶⁴ Wang M. et al., 'Beef producer survey of the cost to prevent and treat bovine respiratory disease in preweaned calves,' *Journal of the American Veterinary Medical Association*, Vol. 253, 5, American Veterinary Medical Association, 2018, pp. 617-623, <https://doi.org/10.2460/javma.253.5.617>.

¹⁶⁵ Scenariostudie kalverketen (see note 147, page 30).

increased stress levels during transport, placing them at increased risk of infection¹⁶⁶. This increase does not only impact animal health, it also has implications for zoonoses and AMR and therefore implications for human health.

The transmission of AMR between animals during transport forms indeed another threat to human health, on which EFSA published a Scientific Opinion only recently¹⁶⁷. In this opinion, risk factors contributing to the probability of transmission of AMR during animal transport were identified, among which are contact with animals shedding antibiotic resistant bacteria and antibiotic resistance genes, the duration of transport (in combination with other risk factors), airborne transmission within the vehicle and adverse environmental conditions like high temperatures. EFSA added that shortening the duration of transport times could serve as a mitigating strategy with a likelihood of 95-99% to reduce the probability of ARB/ARGs transmission. Moreover, with a certainty of 90-95%, any measure improving animal health before or during transport is considered to reduce the transmission of ARB/ARGs. Reducing the number of animals per transport is also considered likely to reduce the probability of AMR transmission¹⁶⁸.

6.2.2. *Impacts of the cost-increases (Agricultural Commodity Market Model)*

The proposed EU legislation on animal welfare during transport is projected to increase or decrease the costs for transporting and, in some case, producing animals. The additional costs are presented in the sections above. A change in the production costs of meat or other products of animal origin may have an impact on the producer¹⁶⁹ and consumer prices, but also on the quantities produced and consumed, as well as the quantities imported and exported. There is therefore a direct relationship between the analysis of competitiveness impacts and the analysis of cost changes through the supply chain analysis. Those effects, resulting from a change in cost, can be assessed with the help of an agricultural economic model. The model used by the European Commission Joint Research Centre for this purpose is the Agricultural Commodity Market Model, and the main results are described below. Additional information can be found in Annex 4 and in the accompanying study¹⁷⁰.

The graphs 1 to 5 below present the impacts of the measures on exports (EX), imports (IM), quantity consumed domestically (QC), quantity produced domestically (QP), value of production, which is the multiplication of quantities and prices (VP), as well as producers' prices (PP) and consumers' prices (CP) in % versus the 2031 baseline. Additionally, it presents the impacts on producers and consumer prices in % versus the

¹⁶⁶ European Parliament, Directorate-General for International Policies, Policy Department for Economic, Scientific and Quality of Life Policies, *The relation between different zoonotic pandemics and the livestock sector*, PE 695.456, 2021, p. 23.

¹⁶⁷ EFSA Panel on Biological Hazards (BIOHAZ), 'Transmission of antimicrobial resistance (AMR) during animal transport', *EFSA Journal*, Vol. 20, Issue 10 (e07586), 2022.

¹⁶⁸ Transmission of antimicrobial resistance (AMR) during animal transport (see note 168, page 40).

¹⁶⁹ The producer's price is the price received by the producer in exchange for a good.

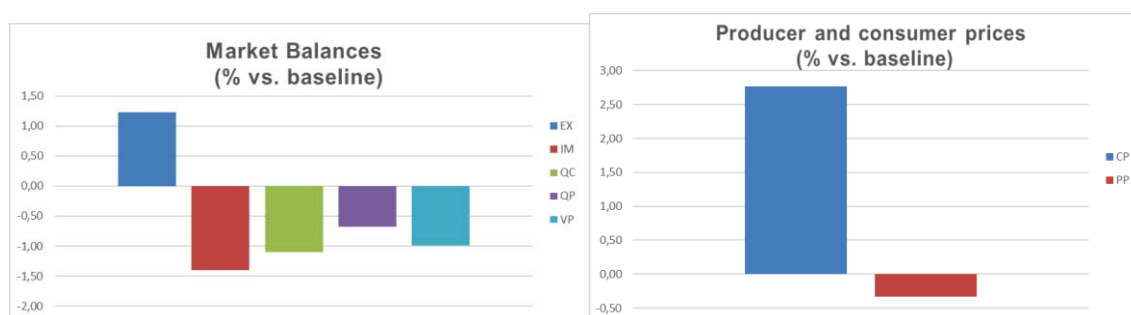
¹⁷⁰ Modelling of policy options to support the Impact Assessment accompanying the revision of the EU legislation on the welfare of animals during transport (see note 156, page 33).

2031 baseline. As shown by the graphs all impacts are very limited – which is to be expected as costs increase linked to animal transport are very limited (EUR 0.014 per kg). Additionally, transport costs are only a small fraction of the final production costs and even more so of consumer prices of meat, dairy and eggs.

Package I

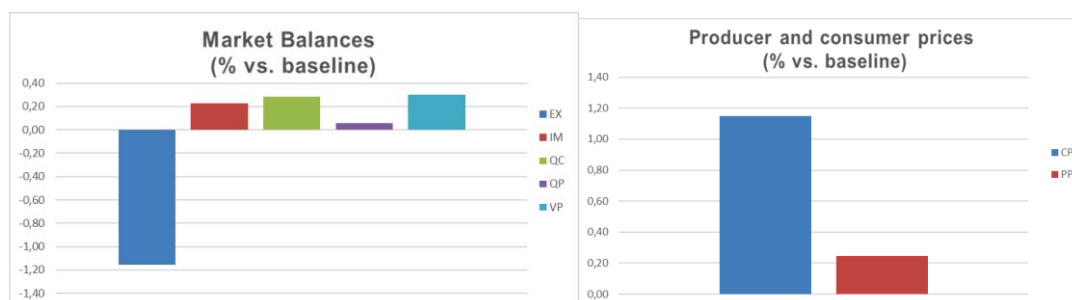
For poultry, this marginal cost increase is projected to minimally affect the producer’s margin, because it would slightly decrease demand due to a marginally higher consumer price and reduce producer prices (the price received by producers). For the beef and veal market the effects are similar.

Graph 1: Poultry meat



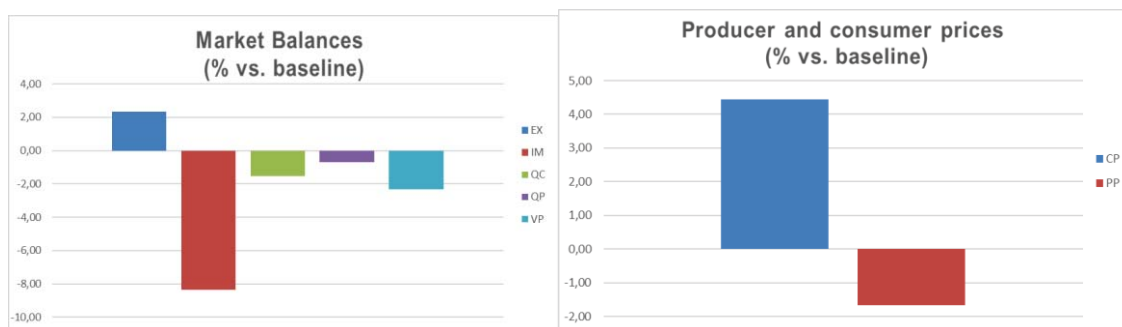
Quantities exported: +1.23% ; quantities imported: -1.40% ; quantities consumed: -1.10%; quantities produced : -0.68% ; value of production : -0.99% ; consumer price: +2.77% ; producer price: -0.33%

Graph 2: Pig meat



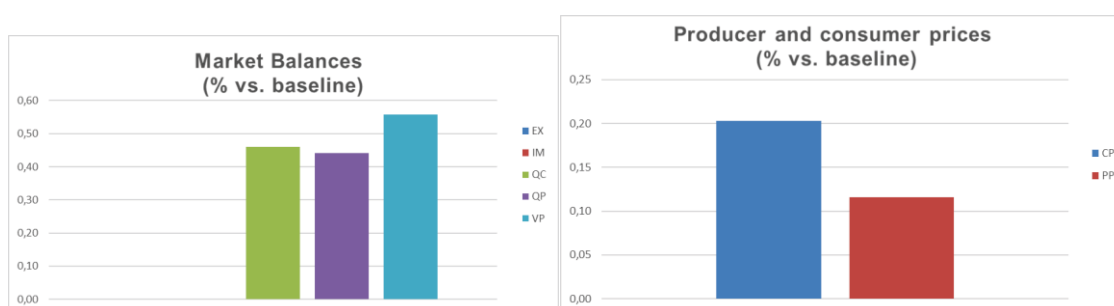
Quantities exported: -1.16% ; quantities imported: +0.23% ; quantities consumed: +0.29% ; quantities produced : +0.06% ; value of production : +0.30% ; consumer price: +1.15% ; producer price: +0.25%.

Graph 3: Beef and veal



Quantities exported: +2.33% ; quantities imported: -8.35% ; quantities consumed: -1.54% ; quantities produced : -0.68% ; value of production : -2.34% ; consumer price: +4.45% ; producer price: -1.67%

Graph 4: Eggs



Quantities consumed: +0.46% ; quantities produced : +0.44% ; value of production : +0.56% ; consumer price: +0.20% ; producer price: +0.12%

Graph 5: Milk¹⁷¹



Quantities produced: +0.03% ; value of production : +0.17% ; producer price: +0.13%

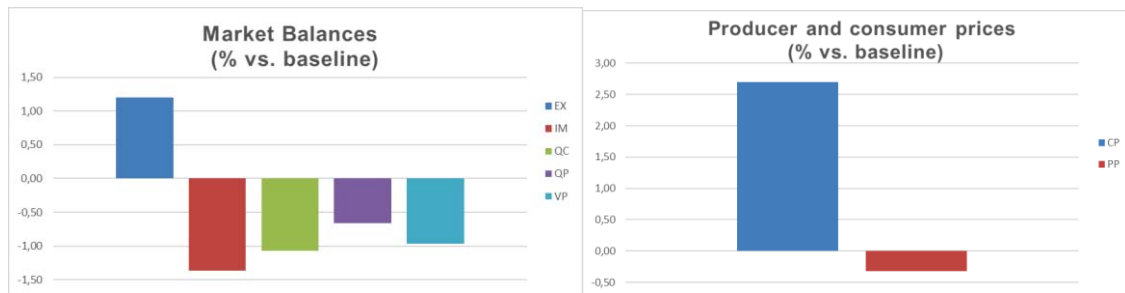
Package II

For poultry, this marginal cost increase is projected to minimally affect the producer's margin, because it would slightly decrease demand due to a marginally higher consumer

¹⁷¹ The commodity "milk" in the ACMM corresponds to raw milk which is neither traded nor consumed. Hence, only the impacts on domestic production of milk are displayed.

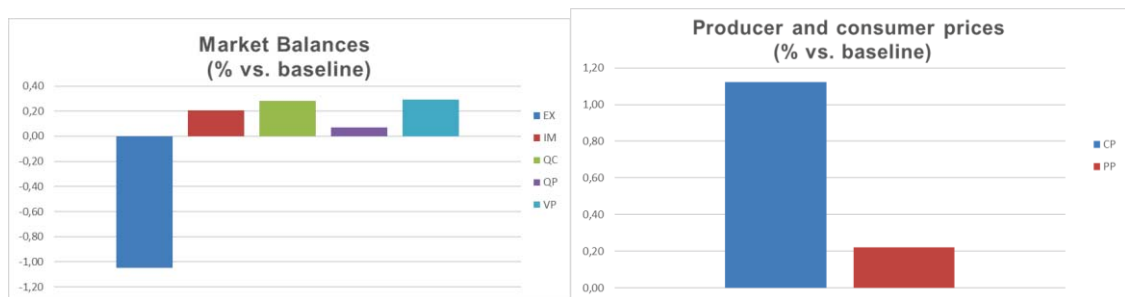
price and reduce producer prices (the price received by producers). For the beef and veal market the effects are similar.

Graph 6: Poultry meat



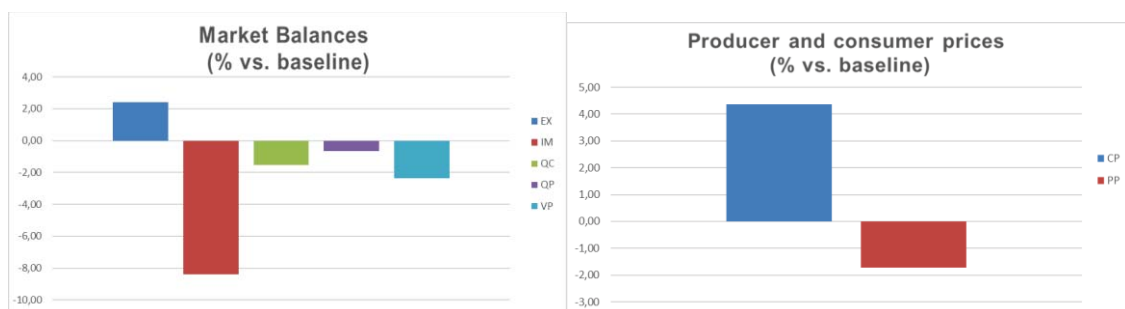
Quantities exported: +1.20% ; quantities imported: -1.36% ; quantities consumed: -1.07% ; quantities produced : -0.66% ; value of production : -0.96% ; consumer price: +2.70% ; producer price: -0.33%

Graph 7: Pig meat



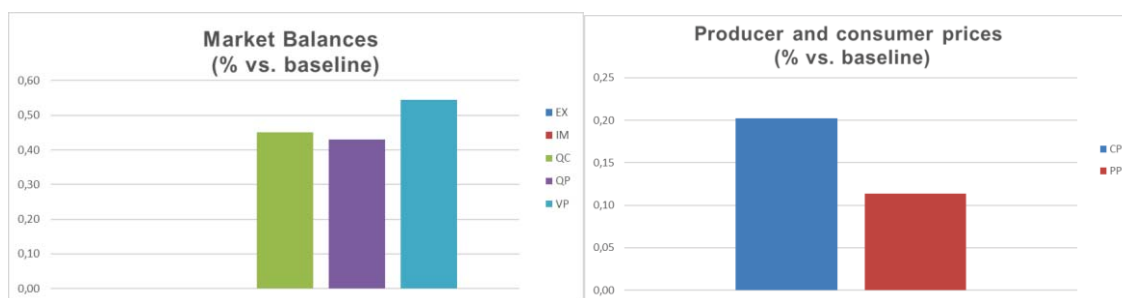
Quantities exported: -1.05% ; quantities imported: +0.20% ; quantities consumed: +0.28% ; quantities produced : +0.07% ; value of production : +0.29% ; consumer price: +1.12% ; producer price: +0.22%.

Graph 8: Beef and veal



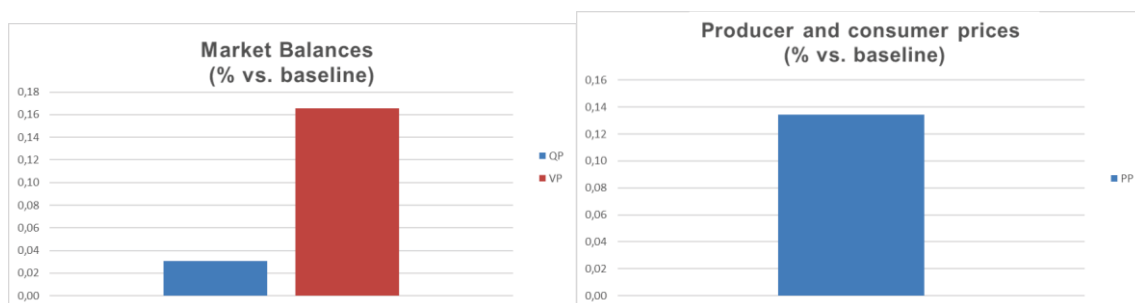
Quantities exported: +2.41% ; quantities imported: -8.38% ; quantities consumed: -1.51% ; quantities produced : -0.64% ; value of production : -2.36% ; consumer price: +4.37% ; producer price: -1.73%

Graph 9: Eggs



Quantities consumed: +0.45% ; quantities produced : +0.43% ; value of production : +0.54% ; consumer price: +0.20% ; producer price: +0.11%

Graph 10: Milk¹⁷²



Quantities produced: +0.03% ; value of production : +0.17% ; producer price: +0.13%

6.2.3. Impacts on international competitiveness

Depending on the animal species considered and the EU's net trade position, the impacts on the competitiveness of the EU animal products' export market will change, but is globally very limited and similar for both packages. A more detailed analysis by animal species follows here.

Poultry meat is a heavily traded commodity in both directions (imports and exports), but the EU produces more than it consumes in the internal market (i.e. there is a surplus of approximately 1.2 Mt in 2022). Given an increase in poultry consumer price (+EUR 180, or +2.8% for package I; and +EUR 175, or +2.7%, for package II), the animal transportation reform would imply a slightly lower level of domestic production (-92 kiloton (kt) or -0.68% for package I; and -90 kt, or -0.66%, for package II). The drop in domestic production and consumption (-134 kt or -1.1% for package I; and -130.5 kt or -1.07%, for package II) would imply a slight increase in exports (+29 kt or +1.23% for package I; and +28 kt or +1.20% for package II), given also that intra-EU producer price (EUR 2029) would drop compared to the baseline (EUR 2036, -0.3%) but would still be

¹⁷² The commodity "milk" in the ACMM corresponds to raw milk which is neither traded nor consumed. Hence, only the impacts on domestic production of milk are displayed.

higher than the world market price (expressed in Euro, at EUR 1020 in the baseline in 2031). The drop in consumption, coupled with a lower drop in production, increases exports.

In the case of **pigmeat**, the EU is mainly an exporter country (4 Mt exported in 2022) with low pork imports (126kt) and a production of 22.5 Mt. Given an increase in EU consumer price (+ EUR 108 or +1.15% for package I; and + EUR 106, or +1.12% for package II in 2031) and in producer price (+ EUR 3.6 or +0.25% for package I; and + EUR 3.2 or +0.22% for package II in 2031), there is a slightly higher production (+12 kt, or +0.06% for package I; and +15 kt, or +0.07% for package II in 2031) but also consumption (+51 kt, or +0.29% for package I; and +50 kt, or +0.28% for package II in 2031) due to cross-price elasticity effects¹⁷³. This implies slightly lower exports (-39 kt, or -1.16% for package I, and -35 kt, or -1.05% for package II) given the export price increases less than the domestic price (+ EUR 2.7, or +0.16% in package I; and + EUR 2.4, or +0.15% in package II). The lower increase in EU pork export price compared to the increase in domestic producer prices implies a lower demand toward export markets.

In the case of **beef and veal**, the EU baseline exports in 2022 (744 kt) are around 10.5% of what is produced (7 Mt) and imports approximately 5% (355 kt) of production. In the scenario, given an increase in EU consumer price (+ EUR 624, or +4.45% in package I; and + EUR 612, or +4.37% in package II in 2031), there is a drop in quantity demanded (consumption drops by -94 kt or -1.54% in package I and -92 kt, or -1.51% for package II in 2031), production (-44 kt or -0.7% for package I, and -42kt, or -0.64% for package II in 2031) and producer price (+ EUR 68, or -1.67% in package I, and - EUR 70, or -1.73% for package II in 2031). Exporters sell at a price that is only marginally decreasing (- EUR 9.60 or - 0.244% for package I and - EUR 9.75, or -0.247% in package II). Given the lower drop in exporter price, these changes imply a slight increase in exports (+18.6 kt or +2.33% in package I or +19.2 kt, or +2.4% in package II).

6.2.4. *Impacts on food security*

The current geopolitical context as well as the climate crisis have put food security as a high priority on the political agenda, both at EU and global level.

Regarding the availability dimension of the food security impact, the Agricultural Commodity Market Model points to modest impacts for both packages. EU production of poultry for example, for package I, is expected to contract by around 92 thousand tonnes (kt) in 2031, as compared to the Agricultural Outlook baseline. Poultry exports go up by around 29 kt, and imports down by 13 kt so the impact on EU consumption is around 134 kt. For package 2, it contracts by around 90 thousand tonnes (kt), with exports going up by

¹⁷³ When the price of a product increases, consumers may shift to another corresponding product. In this case, the increase in the price of other products lead consumers to switch to pork, increasing consumption.

around 28 kt, and imports down by 12 kt, so the impact on EU consumption is around 130.5 kt.

With a projected EU population of 445 million in 2031, the marginal reduction in production translates into 293g less poultry consumption per capita per year or 0.8g per capita per day for package 2, and 301g less poultry consumption per capita per year or 0.8g per capita per day for package 1. Total EU protein, fat and carbohydrate consumption in 2031 will change by negligible amounts, compared to the baseline.

In addition, the impact of the packages on food security can be assessed looking at the Self-Sufficiency ratio (SSR), as defined in the OECD-FAO outlook in terms of production divided by production availability (production + imports - exports). In aggregate, based on the results of the Agricultural Commodity Market Model, it can be further established that the animal welfare measures considered have negligible impacts on the SSR in terms of energy derived from food for both packages (+0.02%).

6.2.5. Food affordability

Transport costs represent a small share of the total costs of animal products production and an even smaller share of the final retail price of meat (e.g. less than 1% of the total price¹⁷⁴) or other products of animal origin¹⁷⁵. As a result, even the most significant measure (in terms of cost) in the package of preferred options (increase in space allowance), is expected to have a minor impact. The Agricultural Commodity Market Model predicts a minimal impact on producer price and a limited increase for the consumer (between 0.06% and 4.45% for package 1 and 0.06% and 4.37% for package 2). Considering variations in market structure and the minimal marginal impact these options will have on the overall cost of production, it is difficult to robustly conclude whether transporters are likely to absorb these costs themselves or pass them upstream (farmers) or downstream (other farmers, slaughterhouses, retailers). However, even if those costs are entirely passed on to the consumer, the food affordability analysis concludes with very marginal impacts on food prices for package 2: between 0.06% and 4.37%.

Table 6: Consumer price increase by 2030¹⁷⁶ (in %)

Product	Retail price increase by 2030 (%)	
	Package 1	Package 2
Beef and Veal	4.45	4.37
Sheep and Goat ¹⁷⁷	0.18	0.17
Pig	1.15	1.12
Poultry	2.77	2.70
Eggs	0.20	0.20

¹⁷⁴ Van Horne, P.L.M. and Bondt, N., *Competitiveness of the EU poultry meat sector*, Wageningen University and Research, 2018, p. 6.

¹⁷⁵ One study informs that the transport costs of transporting live lambs from Hungary to Italy represents 11% of the value of the animals, while transporting spent hens (very low value animals) from the Netherlands to Poland represent 16% of the value of those animals (to be noted that the value of animals is less than the value of retail meat).

¹⁷⁶ The food affordability analysis is set as 2030, as GDP growth projections above 2030 are not reliable.

¹⁷⁷ Impact from endogenous response in the model to shocks to other products.

Fresh Dairy products	0.17	0.17
Cheese	0.06	0.06
Butter	0.08	0.08

In terms of affordability calculated as the additional expenditure to keep the same diet, these small changes mean that the additional expenditure needed is negligible. The specific details can be found in Annex 4 section 2.6. (food affordability), and the additional expenditure ranges from EUR 2.87 to EUR 14.38 per person and year for package 1 and 2.81 to EUR 14.09 per person and year for package 2, depending on diet and income. The additional expenditures amount to between 0.035% and 0.096% of total income for package 1 and 0.034% and 0.094% of total income for package 2.

6.2.6. *Distributional effects*

Distributional effects among stakeholders

Stakeholders involved in moving animals, i.e. transporters and public authorities who carry out official controls, would be directly affected by the measures. Other stakeholders in the value chain such as farmers, breeders, exporters, slaughterhouses, retailers, or consumers may experience indirect impacts. For instance, the options limiting animal transport to nighttime in periods of high temperature are expected to have limited additional impacts on farmers, control posts and slaughterhouses¹⁷⁸. Either slaughterhouses will have to switch to slaughtering during the night, which is likely to result in higher labour costs, or they will have to increase the capacity of waiting areas since the whole day production will arrive during nighttime. This effect is highly dependent on the temperatures and therefore on regional area.

Concerning the measure related to fitness for transport (e.g. minimum age of animals to be transported), farmers and breeders will be directly impacted as they bear the responsibility to ensure operators respect rules on the fitness for transport at loading (and in some cases will need to keep their animals longer in their farm or establishment).

Producers relying on export of live animals will also be impacted by the enhanced conditions for such exports as their margins may be reduced if they are unable to reflect the increased cost in their selling price. However, as there is a trend from certain global exporters to ban exports of live animals for animal welfare reasons (e.g. Australia, New Zealand, ongoing discussions in Brazil), this may have an opposite effect by increasing market opportunities for EU operators.

In case of an EU ban on export of live animals, EU producers relying on exports will be impacted as they will need to either sell their animals on the EU market or export meat instead of animals.

¹⁷⁸ Transport study, section 5.2.2.3. (see note 25, page 4).

It is unclear if transporters can transfer increased transport costs to either farmers or slaughterhouses or whether they need to absorb (part of) these costs themselves¹⁷⁹.

Geographical distributional effects

Certain Member States would be naturally more affected due to their geographical situation (e.g. by being an island, like Ireland). Member States from the southern Europe will be more affected by the measure on temperature.

The impacts of limiting significantly journey times (e.g. to maximum 12h) will be greatest in those Member States that send large numbers of animals to other Member States, i.e. Denmark and the Netherlands (for pigs), Hungary and Romania (for sheep and goats) and Ireland (for unweaned calves) and also for those that rely on receiving animals from other Member States for their own production (e.g. Spain, the Netherlands and Italy for unweaned calves). As regards breeding animals, since they are mostly dairy animals the major dairy producing Member States will be affected most, i.e. Germany, France, Poland, the Netherlands, Italy and Ireland. In 2020, the main Member States of origin of bovines exported were Portugal with 101 552 bovines, Romania with 97 833 bovines, Spain with 82 217 bovines and Croatia with 80 035 bovines¹⁸⁰.

Furthermore, livestock production is not evenly spread across EU countries and regions (for instance, the production in Greece represents 26% of the livestock in goats), and the sector is increasingly specialised, which further incentivises the transport of animals¹⁸¹ (e.g. cattle born in France or Lithuania are often fattened and slaughtered in Spain or Italy).

7. HOW DO THE OPTIONS COMPARE?

This section contains a comparison, in terms of effectiveness, efficiency, coherence and proportionality of all policy *options*¹⁸² (sections 7.1. to 7.6.) using a --- to +++ scale¹⁸³. This assessment builds on the preceding impact analysis in section 6 and Annex 9, including the multi-criteria analysis and a qualitative cost-benefit analysis¹⁸⁴. This section also compares the two packages of options (section 7.7) using the same scale, based on the preceding analysis of impacts in section 6, in particular the cost-benefit analysis of section 6.2.1. The comparison is done against the non-EU-action, i.e. the dynamic baseline which is set at zero.

¹⁷⁹ Transport study, section 5.2.2.1. (see note 25, page 4). Transporters have indicated that, due to fierce competition amongst transporters, such transfer is only possible to a limited extent.

¹⁸⁰ Comext; Transport Study, section 5.3.2.3. (see note 25, page 4). Indirect economic impacts on economic operators.

¹⁸¹ Transport study, section 3.3.4. (see note 25, page 4).

¹⁸² When required, under some measures, options are combined.

¹⁸³ The scores are given on the expected magnitude of impact: + + + being strongly positive, + + positive, + moderately positive, 0 neutral, – moderately negative, – – negative and – – strongly negative.

¹⁸⁴ The total benefits and total costs for each option (or combination of options when relevant) have been qualitatively assessed in the overview tables below under the criteria *efficiency*.

7.1. Journey times and space allowances for animal transports

Limiting the journey times would improve the welfare of animals during transport under all combinations considered (1.O.1A + 1.O.2A; 1.O.1A + 1.O.2B; 1.O.1B + 1.O.2B) which therefore all score positively in terms of *effectiveness*. The combination of options 1.O.1A + 1.O.2A scores the highest given that it would improve the welfare of the largest number of animals transported. Combinations 1.O.1A + 1.O.2B and 1.O.1B + 1.O.2B score lower given that they would improve the welfare of animals transported other than for slaughter to a more limited extent. The difference between these two combinations is limited given that only a small number of animals are transported for slaughter during journeys of more than 9 hours to date.

While the existing number of long journeys for slaughter together with the network of near available slaughterhouses makes it *proportionate* and *efficient* in terms of costs to opt for option 1.O.1A, for other type of journeys a maximum journey time of 21 hours + 24 hours' rest + 21 hours' journey with 1 hour for rest and feed after 10 hours of journey, and permanent access to water (as suggested in option 1.O.2B) would be more *efficient* and *proportionate* than option 1.O.1B. All options would be *coherent* with other measures, EU policies and pieces of EU legislation. However, a 9-hour maximum journey time (1.O.1A) would be easier to reconcile with the social legislation on drivers' resting time, and therefore the related combinations score better.

Aligning space allowances with EFSA recommendations (1.O.3) will bring very high animal welfare benefits and is therefore very *effective* to achieve specific objective 2. Given the very high benefits, it remains *efficient*, although the measure is associated with significant costs. The measure is overall *coherent* with other measures and EU policies, and therefore scores positively, however it is not given the highest scores given its impact on emissions. Nevertheless, combined with journey times, the impact on emissions is minor, and therefore the option is coherent with environmental policies. The measure is overall *proportionate*, and therefore scores positive, however it is not given the highest scores due to the costs of increasing the number of journeys for certain sectors (bovines and poultry).

Table 7: Comparison of policy options for journey times and space allowance:

Criteria	Baseline scenario	Policy options 1.O.1A + 1.O.2A + 1.O.3	Policy options 1.O.1A + 1.O.2B + 1.O.3	Policy options 1.O.1B + 1.O.2B + 1.O.3
Effectiveness: contributing to achieving the policy objectives				
SO1. Reduce animal welfare problems linked to long journeys and resting periods	0	+++	++	+
SO2. Ensure animals have more space when transported	0	+++	+++	+++
Efficiency: comparison of benefits and cost	0	0	+	0
Total Benefits	0	+++	++	+
Total Costs	0	---	-	-
Coherence	0	+++	+++	++
Proportionality	0	++	+++	++

7.2. Export of live ruminants

While a total ban on the export of live and small ruminants (combination of options 2.O.1A for road transport and 2.O.2A for maritime transport) would be seemingly *effective* to improve the welfare of EU animals, this combination would be less *effective* than the combinations of alternative options 2.O.1B (limit journey time for road transport), 2.O.2C (animal welfare officer on board) with 2.O.2E (white and grey flag of vessels) and than 2.O.1B, 2.O.2B (veterinarian) with 2.O.2D (white flag of vessels), as it would increase the likelihood that third countries import live animals from other third countries with lower animal welfare standards.

The ban of export of ruminants (combination of options 2.O.1A and 2.O.2A) is not expected to be *efficient* as it would have a great negative economic impact on the EU production chain, compared to the limited benefits to the environment and to the welfare of the animals if transported from other third countries. Similarly, the combination of options 2.O.1B + 2.O.2B + 2.O.2D would be challenging and costly to implement. Hence, such a combination would not be efficient. The most *efficient* alternative would be to limit the export by road by imposing limited journey time and to upgrade the conditions of road (option 2.O.1B) and maritime transports (options 2.O.2C and 2.O.2E) as it lowers the economic costs for operators while ensuring higher benefits in particular in terms of animal welfare and unchanged environmental and social benefits under both combinations considered.

All combinations would be equally *coherent* with other measures, EU policies and pieces of EU legislation. Both the ban on export and the requirements to have a veterinarian onboard and to be white flag compliant are expected to be *disproportionate* given the impact on EU operators and therefore scores negatively, while the combination of options to have an animal welfare officer and to be white or grey flags compliant is considered proportionate and scores positively.

Table 8: Comparison of policy options for live animal exports:

Criteria	Baseline scenario	Policy option 2.O.1A + 2.O.2A	Policy option 2.O.1B + 2.O.2C (welfare officer) + 2.O.2E (white or grey flag)	Policy option 2.O.1B + 2.O.2B (veterinarian) + 2.O.2D (white flag)
Effectiveness: contributing to achieving the policy objectives				
SO1. Reduce animal welfare problems linked to long journeys and resting periods	0	++	+++	+++
SO6. Better protect animals exported to non-EU countries	0	++	+++	+++
Efficiency: comparison of benefits and cost	0	-	++	0
Total Benefits	0	+	+++	+++
Total Costs	0	---	-	---

Coherence	0	+++	+++	+++
Proportionality	0	--	+++	-

7.3. Transport of unweaned calves

Option 3.O.1 is very *effective* as it provides an effective response to the welfare problems related to the transport of unweaned calves including during long journeys. The option therefore scores equally for both specific objectives considered. Although this option is expected to have some negative economic impact, in particular for transporters and dairy farmers, it is expected to bring important animal welfare benefits and some environmental benefits. Therefore, this option is considered *efficient* and scores positively. The option would be *coherent* with other measures, as well as with other EU policies and pieces of legislations. This option is considered *proportionate* as it allows to transport calves for a maximum of 19 hours provided that a feeding system is available, therefore allowing most of the current journeys to continue.

Table 9: Assessment of the policy option for the transport of unweaned calves:

Criteria	Baseline scenario	Policy option 3.O.1
Effectiveness: contributing to achieving the policy objectives		
SO1. Reduce animal welfare problems linked to long journeys and resting periods	0	+++
SO3. Improve the conditions of transport of vulnerable animals	0	+++
Efficiency: comparison of benefits and cost	0	+
Total Benefits	0	+++
Total Costs	0	--
Coherence	0	+++
Proportionality	0	+++

7.4. Hot temperatures

Option 4.O.1 is very *effective* to improve the conditions of animals during transport as it would allow them to avoid heat stress. As this option still allows the transport of animals by night when temperatures are above threshold, which is expected to remain occasional depending on the geographical area, it is expected to have limited negative economic impact on farmers and slaughterhouses. Compared to the important animal welfare benefits, it is therefore considered *efficient* and scores positively. The option would be *coherent* with other measures, as well as with other EU policies and pieces of legislation. The option is also *proportionate* considering the limited economic impacts on operators.

Table 10: Assessment of the policy option for the transport in hot temperatures:

Criteria	Baseline scenario	Policy option 4.O.1
Effectiveness: contributing to achieving the policy objectives		
SO4. Avoid exposing animals to hot temperatures	0	+++
Efficiency: comparison of benefits and cost	0	++
Total Benefits	0	+++
Total Costs	0	-

Coherence	0	+++
Proportionality	0	+++

7.5. New technologies

The combination of options 5.O.1A and 5.O.2 is the most *effective* as it provides for real-time access to data, while use of new technology that would only allow to perform retrospective checks (Option 5.O.1B + 5.O.2) would facilitate enforcement to a lesser extent. In particular, real-time access to data will allow to more effectively achieve the specific objective of reducing animal welfare problems linked to long journeys. Indeed, experience with enforcement shows that retrospective checks are insufficient to achieve proper enforcement of these rules. All options would be equally *coherent* with other measures, as well as with other EU policies and pieces of legislation, and are considered equally *proportionate* given the limited costs for operators and public administrations which is why they score positively for both criteria.

Table 11: Comparison of policy options for the use of new technologies:

Criteria	Baseline scenario	Policy option 5.O.1A	Policy option 5.O.1B
Effectiveness: contributing to achieving the policy objectives			
SO5. Facilitate enforcement of EU rules on the protection of animals, including through digitalisation	0	+++	++
SO1. Reduce animal welfare problems linked to long journeys	0	+++	++
Efficiency: comparison of benefits and cost	0	+	+
Total Benefits	0	+++	++
Total Costs	0	--	-
Coherence	0	+++	+++
Proportionality	0	+++	+++

7.6. Transport of cats & dogs

Option 6.O.1A is slightly more *effective* than option 6.O.1B to protect cats and dogs when transported for commercial purposes. This is due to the fact that option 6.O.1A protects more cats and dogs due to the higher minimum age required to be allowed to be transported than option 6.O.1B. Option 6.O.1B is more *efficient* given the slightly lower economic impact it has on breeders while still setting an age limit appropriate to allow the development of cats and dogs' immunity and providing higher social benefits. Option 6.O.1A would be slightly more *coherent* than option 6.O.1B with the animal health policy objectives. Both options would be equally *proportionate* as no operators are facing disproportionate costs.

Table 12: Comparison of policy options for the transport of cats and dogs:

Criteria	Baseline scenario	Policy option 6.O.1A	Policy option 6.O.1B
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Effectiveness: contributing to achieving the policy objectives			
SO7. Better protect cats and dogs when transported for commercial purposes	0	+++	+++
Efficiency: comparison of benefits and cost	0	+	++
Total Benefits	0	+++	+++
Total Costs	0	--	-
Coherence	0	+++	++
Proportionality	0	+++	+++

7.7. Overall comparison of policy packages

Table 13: Comparison of policy packages:

Criteria	Baseline scenario	Package 1	Package 2
Effectiveness: contributing to achieving the policy objectives			
SO1. Reduce animal welfare problems linked to long journeys and resting periods	0	+++	++
SO2. Ensure animals have more space when transported	0	+++	+++
SO3. Improve the conditions of transport of vulnerable animals	0	+++	+++
SO4. Avoid exposing animals to high temperatures	0	+++	+++
SO5. Facilitate enforcement of EU rules on the protection of animals, including through digitalisation	0	+++	+++
SO6. Better protect animals exported to non-EU countries	0	++	+++
SO7. Better protect cats and dogs transported for commercial purposes	0	+++	+++
Efficiency: comparison of benefits and cost	0	++	+++
Total Benefits	0	+++	+++
Total Costs	0	---	--
Coherence	0	++	+++
Proportionality	0	+	+++

Regarding the *effectiveness* of the packages, the scores allocated to SO2 to SO7 for the two packages are explained in the scores allocated to the respective options in section 7.1. to 7.6. When it comes to the effectiveness of the two packages to reduce welfare problems linked to long journeys and resting periods (SO1), as is addressed by several measures, package 1 scores better than package 2 due to the different combination of options on journey times which improves the welfare of a higher number of animals transported.

Package 2 is more *efficient* and more *proportionate* than package 1. This is especially the case considering the high economic costs that package 1 would entail. This is mainly due to the impact of the ban on exports of animals. As established in section 6.1.2., an export ban would increase the supply of beef by 2.3% and the supply of mutton by 7.5%, which would affect market prices with losses amounting to EUR 1.9 billion per year. In addition, the high percentage of long journeys (49% of bovines for 47% of sheep) for the export of breeding animals that could no longer take place with a maximum 12 hours' rule, would

negatively impact the whole farming sector. Package 1 is also more costly for operators given the stricter restrictions in journey times, amounting to EUR 3.15 billion per year for this measure, without bringing considerably more benefits overall.

According to the estimates by the Spanish beef cattle industry (using a different methodology than in this report), the measures included in package 1 could result in the disappearance of 6 190 livestock production establishments in Spain and an increase in production costs of EUR 220.8 million, representing 3% of the production value¹⁸⁵.

The overall *coherence* of the two packages is high and similar. The only slight differences are the coherence with the options on cats and dogs with the animal health policy objectives, and the options on journey times where package 2 is better articulated with the social rules on drivers' resting times.

8. PREFERRED OPTION

8.1. Preferred package of options

The choice of the preferred package of options (package 2) is based on the analysis in terms of effectiveness, efficiency, coherence and proportionality, taking into account the outcome of the multi-criteria decision analysis (MCDA) and of the qualitative cost-benefit analysis.

Description of the preferred policy options:

MEASURE 1 (Options 1.O.1A, 1.O.2B, 1.O.3): 9 hours' maximum journey time for animals transported for slaughter. For animals transported for other reasons, a maximum journey time of 21 hours + 24 hours' rest + 21 hours' journey, with 1 hour for rest and feeding each 10 hours, and permanent access to water; space allowance according to EFSA recommendations. *Transition period: 5 years.*

MEASURE 2 (Options 2.O.1B, 2.O.2C + 2.O.2E): transport by road: a limit of 9 hours' journey time for animals exported for slaughter, and of 21 hours + 24 hours' rest + 21 hours' journey for animals transported for other reasons, with 1 hour for rest and feeding each 10 hours, and permanent access to water; maritime transport: upgrade the conditions of maritime transports, including requiring the presence of an animal welfare officer on board and to be listed under white or grey flag. *Transition period: 5 years.*

MEASURE 3 (Option 3.O.1): maximum journey time of 19 hours for unweaned calves (excluding the leg of the journey on vessels) provided that an efficient feeding system exists (in the absence of such a system, an 8 hour journey time would apply) (*5 years transition period*). Minimum age of 5 weeks and minimum weight 50kg (*2 years transition period*).

MEASURE 4 (Option 4.O.1): length and timing of journeys subject to weather forecasts. If weather forecast is between 25°C and 30°C, only short journeys (maximum 8 hours)

¹⁸⁵ PROVACUNO, *Welfare of cattle during transport: pre-revision assessment July 2023*, 2023, p. 9.

should be allowed, with access to water for the animals. If the weather forecast is higher than 30°C only transport at night (i.e. between 21h00 and 10h00) allowed.

MEASURE 5 (Options 5.O.1A, 5.O.2): real-time positioning; central database and digital application. *Transition period: 5 years.*

MEASURE 6 (Option 6.O.1B): requirements for the transport of cats and dogs for economic purposes, e.g. age limits (12 weeks) and temperature conditions. *Transition period: 3 years.*

Justification of the preferred combination:

The options presented above are considered to constitute **the best combination of options** for the following reasons:

While limitations in journey times alone would improve the welfare of animals during transport, it would not address the problems related to transport conditions, including the risk for heat stress, the animals' fitness to travel, animal welfare problems linked to poor enforcement (particularly at export) and the problem of cramped environments during the journey. Hence, the provisions on journey times must be supplemented with policy options covering these aspects as well, combined with a greater use of modern technology for monitoring purposes to better ensure compliance.

In addition, the preferred package of options strikes a balance between different stakeholder views. Indeed, even if there are some internal divisions within groups of stakeholders, the general tendency in the spectrum of stakeholders' views goes from certain transport operators and producers, in particular in those Member States most involved in exports of bovines with very long journeys, advocating for smaller changes than the preferred option, and animal welfare NGOs, advocating for more radical changes. Furthermore, a vast majority (36 out of 42, or 85%) of the transport organisers, transporters, traders and assembly centres that responded to the public consultation were against a ban on the export of live animals for breeding, as suggested in Package 1.

Implications of the preferred combination of options:

The combination of preferred options will generate significant welfare benefits for the more than 1.4 billion animals that are transported each year with a cross-border movement within the EU Member States as well as for the millions of animals transported annually within Member States over long distances. Clearer provisions and a greater use of modern technology will make the revised legislation easier to comply with and to enforce. In addition, the set of preferred options responds to European citizens' expectations of high EU standards on animal welfare during transport.

For business operators, investments and adaptations of business practices will be needed in different areas. Transport companies will have to adapt to new transport patterns, invest in new trucks to provide more space for animals, and in the case of maritime transport, some of the transporters will need to renovate their vessels. Some costs will be offset by the savings incurred by a lower administrative burden due to digitalisation and a reduced fuel consumption. While the economic impacts for business operators are important, 2 to 5 years' transition periods are foreseen to facilitate a smooth transition. Ultimately, with

clearer and more harmonised rules than today, business operators will profit from a more level playing field on the single market.

In terms of trade, an increase in production costs and decrease in production levels will lead to decreases in exports for beef, sheep and goat (in quantity, but not necessarily in value)¹⁸⁶. Economic impacts on imports are expected to be very limited considering the relatively minor proportion of live animals that are transported into the Union.

8.2. REFIT (simplification and improved efficiency)

Providing more harmonised requirements – such as common rules on the maximum journey times for animal transport – will bring a simplification for business operators, as well as for public authorities, compared to the current rules which are now different for the different species and categories of animals. Furthermore, clearer definitions and less use of open norms will make the legislation more efficient and easier to comply with, as business operators no longer need to make their own assessments to decide on the thresholds to use for different provisions to apply.

A greater use of digital tools will simplify the communication between businesses and public authorities. This will represent an improvement, mainly regarding paper based systems e.g. as regards the journey logs for animal transports. For instance, real-time tracking of vehicles would allow to better plan, target and streamline all official controls on animal welfare during transport.

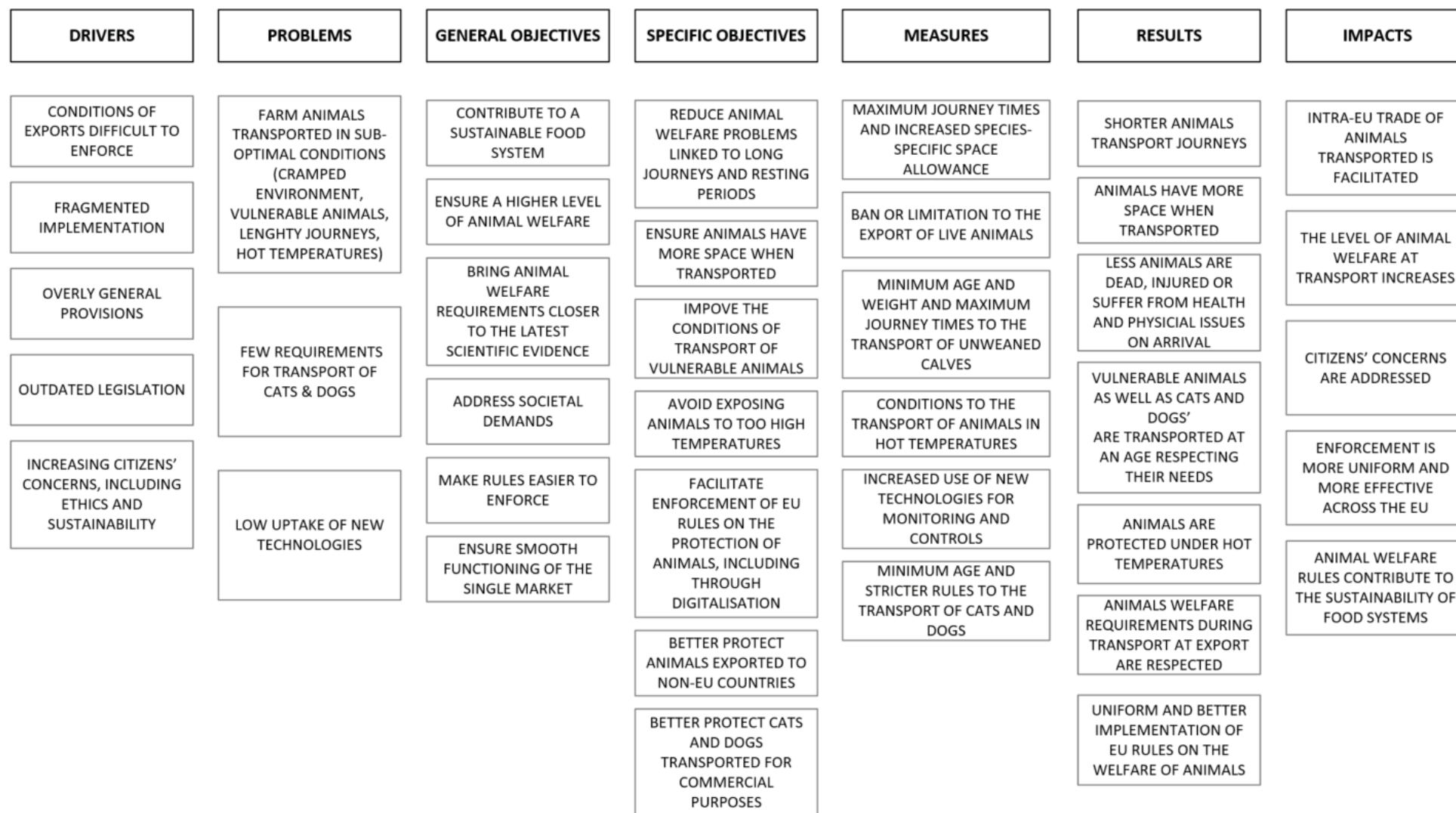
8.3. Application of the ‘one in, one out’ approach

The package of preferred options will result in certain adjustment costs and administrative costs for business operators, as described in Annex 3. These costs will partly be off-set by mitigating measures, as well as by the further simplification provided by the actions referred to in Section 8.2., and could be expected to be negligible in the long-term, after the end of the depreciation period of the investments made.

Transporters may benefit from up to EUR 71 million in savings from an increased use of digital technologies, such as Global Positioning System (GPS). For export via sea of beef and sheep, the administrative burden would be EUR 195 000 for the one-off registration of vessels to a white or grey flag and EUR 21 208 million annually for the training of a certified animal welfare officer onto each consignment. Additionally, transporters of cats & dogs will face a reoccurring yearly administrative cost of EUR 94.5 million for veterinary checks. Adjustment costs are presented in detail in Annex 3. Adjustment costs by sectors are also presented in Section 6.2.

¹⁸⁶ Modelling of Policy Options, Study Supporting the Impact Assessment accompanying the revision of the EU legislation on the protection of animals during transport (see note 156, page 33).

Figure 3: Intervention Logic



9. HOW WILL ACTUAL IMPACTS BE MONITORED AND EVALUATED?

The measures will be considered successful if, at the end of the transition period, animals suffer less during transport. In addition, the measures would be successful if implementation of EU rules on the welfare of animals during transport improves and becomes more uniform throughout the EU. To monitor and evaluate the measures on the protection of animals during transport, indicators have been identified (Table 14).

Some indicators will continue to be collected from relevant operators and competent authorities through the existing TRACES database. Some additional data – however already available - will also be reported from operators through TRACES and will be collected every 3 years. The introduction of information into TRACES will be simplified by the use of a user-friendly app. In addition, data will be collected through the already existing annual reports from the Member States' competent authorities on their official controls¹⁸⁷, as well as through the THETIS database, with higher granularity. These will serve as the basis for the monitoring reports.

A **monitoring report** on the state of animal welfare in the Union with regards to transport shall be presented 5 years after the date of entry into force of the new Regulation. These reports shall be presented at least every 5 years. In order to be able to gather robust evidence after the 5 years transition periods, **an evaluation report** should be presented 10 years after the entry into force. Data on the implementation of the new Regulation will notably be gathered in the network of liaison bodies on the protection of animals during transport, data collected through the monitoring reports, data from audits carried out by the Commission in relation to the new Regulation, as well as relevant data collected and analysed through the four EU Reference Centres for Animal Welfare¹⁸⁸.

¹⁸⁷ Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products OJ L 95, 7.4.2017, p. 1-163.

¹⁸⁸ Four EU Reference Centres for animal welfare have been established, which cover inter alia welfare of animals during transport: on pigs, on poultry and small farmed animals, on ruminants and equines, and on farmed aquatic animals.

Table 14: Monitoring indicators

Specific objectives	Operational objectives	Indicators	Data source/frequency	Actors responsible for data collection
SO1. Reduce animal welfare problems linked to long journeys and resting periods	- Specify requirements on journey times and resting periods for animals for slaughter as well as transported for other reasons	1. Duration of journey times	- Operators /real-time	- EC (via TRACES)
		2. Number of transports of animals	- Operators /real-time	- EC (via TRACES)
		3. Number and percentage of animals dead on arrival	- Operators /every 3 years	- EC or EFSA (via TRACES)
		4. Number and percentage of animals injured during transport	- Operators /every 3 years	- EC or EFSA (via TRACES)
		5. Absence or presence of animals with health and physical issues other than injuries	- Operators /every 3 years	- EC or EFSA (via TRACES)
SO2. Ensure animals have more space when transported	- Specify requirements on space allowance	6. Percentage of non-compliance of space allowance requirements	- Official controls	- NCA
		7. Number and percentage of animals dead on arrival	- Operators /every 3 years	- EC or EFSA (via TRACES)
		8. Number and percentage of animals injured during transport	- Operators /every 3 years	- EC or EFSA (via TRACES)
		9. Absence or presence of animals with health and physical issues other than injuries	- Operators /every 3 years	- EC or EFSA (via TRACES)
SO3. Improve the conditions of transport of vulnerable animals	- Specify requirements on journey times for transport of unweaned calves	10. Duration of journey times	- Operators /real-time	- EC (via TRACES)
		11. Number of transports of animals	- Operators /real-time	- EC (via TRACES)
		12. Number and percentage of animals injured during transport	- Operators /every 3 years	- EC or EFSA (via TRACES)
	- Specify requirements on minimum age	13. Absence or presence of animals with health and physical issues other than injuries, including prolonged thirst and hunger	- Operators /every 3 years	- EC or EFSA (via TRACES)
		14. Percentage of non-compliance of minimum age requirements	- Official controls	- NCA
SO4. Avoid exposing animals to high temperatures	- Specify conditions and requirements on journey departure and arrival times and journey duration, based on weather forecast	15. Duration of journey times	- Operators /real-time	- EC (via TRACES)
		16. Absence or presence of animals with health and physical issues other than injuries, including heat stress	- Official controls	- NCA
		17. Number and percentage of transports that respect time of departure	- Operators /real-time	- EC (via TRACES)
		18. Number and percentage of transports that respect time of arrival	- Operators /real-time	- EC (via TRACES)
SO5. Facilitate enforcement of EU rules on the protection of animals, including through digitalisation	- Develop additional modules in TRACES - Set up a digital application - Provide access to real-time data to competent authorities as regards the location of trucks	19. Percentage of use of a digital app based on TRACES by operators and national authorities compared to the total transports	- Operators and NCA /real-time	- EC (via digital app)
		20. Number of NCA enforcement actions based on real-time data	- Official controls	- NCA
SO6. Better protect animals exported to non-EU countries	- Specify requirements on journey times and resting periods for animal exports by road	21. Duration of journey times	- Operators/ real-time	- EC (via TRACES)
		22. Number of transports of animals	- Operators/ real-time	- EC (via TRACES)
	- Specify requirements for the presence of an animal welfare officer on board of vessels for exports - Require vessels to be listed under white or grey flag for exports	23. Number of organisers involved in exports from the EU which have received a certificate from a certifying body	- Operators /real-time	- EC (via TRACES)
		24. Percentage of non-compliance of animal welfare office presence requirement	- Official controls	- NCA
		25. Number of listed vessels under white or grey flags	- Operators /real-time	- EC (via THETIS)
SO7. Better protect cats and dogs transported for commercial purposes	- Specify minimum age requirements for the transport of cats and dogs - Specify temperature conditions for the transport of cats and dogs	26. Percentage of non-compliance of minimum age and temperature requirements	- Official controls	- NCA



Brussels, 7.12.2023
SWD(2023) 401 final

PART 2/2

COMMISSION STAFF WORKING DOCUMENT
IMPACT ASSESSMENT REPORT

Accompanying the document

**Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE
COUNCIL**

**on the protection of animals during transport and related operations, amending Council
Regulation (EC) No 1255/97 and repealing Council Regulation (EC) No 1/2005**

{COM(2023) 770 final} - {SEC(2023) 397 final} - {SWD(2023) 399 final} -
{SWD(2023) 402 final}

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ANNEX 1: PROCEDURAL INFORMATION

1. LEAD DG, DECIDE PLANNING/CWP REFERENCES

The Directorate for Health and Food Safety (DG SANTE) is the lead DG on the initiative on the Proposal for a Regulation of the European Parliament and of the Council on the protection of **animals during transport and related operations** (repealing and replacing Council Regulation (EC) 1/2005).

The initiative has the reference **PLAN/2022/1491** in the Agenda Planning.

The initiative is in the Annex 1 of the **European Commission's Work Programme for 2023**¹ (under the heading “A European Green Deal”, item 5).

The **Fitness Check of the existing animal welfare legislation**², which includes the Transport Regulation, was published on 4 October 2022, after it received a positive opinion from the RSB with recommendations that have been addressed.

2. ORGANISATION AND TIMING

An Inter-Service Steering Group (ISSG) was first established in May 2020 for the purpose of the Fitness Check of the existing animal welfare legislation and involved representatives from several Commission’ services: DG AGRI, DG INTPA, DG ENV, DG JUST, DG MARE, DG MOVE, DG NEAR, DG TRADE, DG RTD, DG JRC, Legal Service and the Secretariat General.

The mandate of the existing ISSG was amended to also cover the work on the revision of the animal welfare legislation, which included transport. The ISSG met on 12 December 2022, 19 January 2023, 20 February 2023, 27 March 2023 and 9 June 2023. The members of the ISSG were regularly informed on the progress of the initiative and invited to relevant meetings.

3. CONSULTATION OF THE RSB

An **upstream meeting** with the Regulatory Scrutiny Board (RSB) was held on 3 October 2022. At the meeting, the Commission introduced the initiative and its objectives, as well as the methodological challenges (e.g. unquantifiable benefits, lack of data, timing of certain scientific input, as well as uncertainties related to food security).

This Impact Assessment Report, covering the initiative on the protection of animals during transport, was submitted to the RSB on 30 October 2023 and benefitted from a written

¹ European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Commission work programme 2023, A Union standing firm and united*, COM(2022) 548 final, 2022, [Annex 1](#).

² European Commission, *Commission Staff Working Document, Fitness Check of the EU Animal Welfare Legislation*, 2022, SWD/2022/0328 final, p. 52.

procedure. The RSB opinion was received on 17 November 2023. The RSB gave a positive opinion with reservations, based on the following findings:

- (1) The analysis of costs and benefits is not clearly presented.
- (2) The analysis of impacts on competitiveness and the distributional impacts in the supply chain, including on producers and consumers, is not sufficiently comprehensive.
- (3) The comparison of options is not sufficiently clear.

The table below lists the changes made to the Impact Assessment Report in response to the detailed recommendations of the RSB in its opinion:

Table 1: RSB recommendations

RECOMMENDATIONS OF THE RSB	MODIFICATIONS IN THE IMPACT ASSESSMENT REPORT IN RESPONSE TO THESE RECOMMENDATIONS
<p>(1) The report should complete and better substantiate the impact analysis. It should better explain how the costs were calculated so that the costs of the measures and the packages of options are presented in all their components and as totals. In particular, the supply chain and distributional analysis should be more comprehensive and include the acknowledged effects on the whole supply chain. The report should make an effort to quantify the effects of market dynamics and regional patterns which affect the price of products and hence producers. It should further develop the assessment of distributional effects on affected stakeholders and clearly present which sectors, regions or Member States would be most impacted. It should be clearer where and to what extent the costs are likely to be passed on to consumers in the different sectors. Annex 3 should be completed in line with the above, to include the implications for consumers, as well as to complete the cost-benefit tables in accordance with the supply-chain analysis and to include the estimations of costs and benefits for all impacted actors. It should include the impact</p>	<p>Section 6 and Annex 3 have been completed to better substantiate the impact analysis, and to better explain how costs were calculated, how these costs are distributed and how these costs might be passed on to consumers.</p> <p>The supply chain analysis has been made more comprehensive to better take account of impacts on farms and slaughterhouses. The distributional analysis was elaborated upon to better describe the impacts on different sectors.</p> <p>To the extent possible the effects on market dynamics and regional patterns have been quantified in the external study on the modelling of policy options for the protection of animal welfare during transport.</p> <p>The cost-benefit table in Annex 3 has been updated accordingly.</p>

<p>of all measures included in the preferred package.</p>	
<p>(2) The overall impact on competitiveness should be more explicit regarding the costs faced by the different actors. The scoring of cost and price competitiveness should be reviewed in this light in the Competitiveness Check presented in Annex 5. The ability of the cost-bearing actors to afford the necessary investments should be discussed, in particular where costs are unlikely to be passed on through the supply chain. The report should better explain the relation between the economic costs generated by the proposal and the relatively low reported impact on consumer prices and food affordability.</p>	<p>Annex 5 was reviewed to be more explicit regarding the costs faced by the different actors to ensure consistency with the scores allocated and to align it with the updated modelling results based on the more comprehensive supply chain analysis referred to above.</p> <p>The extent to which operators would be able to afford the necessary investments has been clarified.</p> <p>Furthermore, the relation between the economic costs generated by the proposal and the relatively low reported impact on consumer prices and food affordability has been explained.</p>
<p>(3) The report should better explain the methodology for scoring the impacts. This is particularly important where ranking of options is based on relatively small differences in the total scores. The impact scoring tables and the associated discussions in section 6 should be substantiated with the relevant cost or benefit estimations, systematically complementing scores with the relevant quantitative data, and ensuring their consistency with the key estimates.</p>	<p>The report mentions in Section 6 more clearly that a MCDA has been performed to score the impacts and links to the Annex 4 where the detailed methodology is presented.</p> <p>Section 6 was also revised to present more clearly the costs and benefits estimations underlying the scores allocated to the different impacts.</p>
<p>(4) The report should be clear as to the policy choices and trade-offs as regards alternative options. The report should provide an adequate justification for the cases in which only one choice is offered on measures, or on parameters such as transition periods. It should for example inform whether stakeholders concurred with the finding of having only one option. The report should clarify the assessment of those measures with an impact such as space allowance for specific sectors, including its potential</p>	<p>The policy choices and trade-offs were clarified. Further justification has been provided in Section 5.3 as regards discarded options to justify cases where no alternative option or parameter is assessed.</p> <p>The presentation of stakeholders' views on the options considered has been strengthened in Section 6 where the impacts are presented.</p> <p>Section 6.1. on the impacts of the options on journey times and space allowance was</p>

<p>impact on the environment. In general, the assessment of environmental impacts and coherence with climate and environmental objectives should be clarified for all options.</p>	<p>clarified to present the impacts on different sectors.</p> <p>The assessment of the environmental impacts was revised across the Section 6. The comparison of the options in terms of coherence was also strengthened across the Section 7.</p>
<p>(5) The report should better compare the options packages and explain the methodology behind their scoring. The report should complement the scores in the tables with the relevant and more granular cost and benefit data, so that the comparison of packages in terms of effectiveness, efficiency, coherence and proportionality becomes clearer. This is in particular important for measures without alternative options. The report should provide further clarification on the relationship of the scoring of measures with the cost benefit analysis on one side, and the scoring of option packages on the other, and indicate clearly what is the basis for the scoring in each case, how they are related and whether the scoring of packages takes other factors into account, and how. The parameters used in the comparison of the two packages in terms of effectiveness, efficiency, coherence and proportionality should be adequately explained. The total costs and benefits of the preferred package should be clearly presented. The report should make further use of stakeholders' views, including diverging ones, in the comparison of options and in justifying the preferred option. The proportionality assessment of the preferred package should be further developed and substantiated by the preceding analysis.</p>	<p>The scores allocated in the comparison of the packages were revised to ensure consistency with the comparison of the options (Section 7.1. to 7.6.) and their impacts (Sections 6.1. and 6.2) and are further explained with a revised text including in terms of proportionality.</p> <p>The comparison of the measures without alternative options was clarified (Sections 7.3. and 7.4.) and combined with other options where needed (Section 7.1.).</p> <p>The description of the total costs and total benefits of the packages was reinforced in relevant parts of the document.</p> <p>The total costs and benefits of the preferred package are presented in Section 6.2.1. Stakeholders' views are presented into more details in Section 6, including diverging views.</p>
<p>(6) The report should ensure the consistency of figures and scores reported. The metrics of the impacts should be clarified. In particular, the report should explain why a time horizon of 5 years is indicated in relation to the</p>	<p>The report was checked to ensure consistency of figures and scores reported.</p> <p>The time horizon of 5 years has been clarified in Section 6.2.1.</p>

impacts and how costs will develop after this time horizon.	
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4. EVIDENCE, SOURCES AND QUALITY

The Impact Assessment Report has built on the **Fitness Check** of the EU animal welfare legislation as well as new scientific evidence on animal welfare, in particular the **EFSA recommendations listed in Annex 7**.

The Impact Assessment Report takes into account the input from stakeholders, including the feedback on the [Inception Impact Assessment](#)³ (IIA) and the contributions to the [Public Consultation](#)⁴ (PC). The IIA, covering both the fitness check and the impact assessment, was published on 6 July 2021 and open for feedback until 24 August 2021. The PC, also covering both the fitness check and the impact assessment, ran from 15 October 2021 to 21 January 2022.

An **external study**⁵ supporting the impact assessment accompanying the initiative on the welfare of animals during transport was carried out. This study gathered information and data on impacts and costs for stakeholders of the initially proposed measures and options (it should be noted that some measures presented in this impact assessment report deviate from the measures that were originally assessed in the external supporting study), and further documented six case studies. Views from stakeholders gathered during the targeted consultation activities (surveys, interviews, focus groups, workshop) organised in the context of this study are presented in Annex 2. In addition, an assessment of the cumulative impacts of the two proposed packages of measures and options was made based on a supply chain analysis by external experts.

Finally, the Commission's Joint Research Centre has performed two analysis:

- the outcome of the supply chain analysis on impact on production costs was used to model impacts on production levels, consumer prices, exports and imports
- The impacts of the two packages on food security and food affordability were assessed.

As part of the supporting study, statistical sources and databases have been consulted:

- **Eurostat** (e.g. EU trade, annual enterprise statistics, labour force main indicators, etc);
- **European Commission databases or reports** (e.g. overview reports of DG SANTE Directorate for audits and analysis, Trade Control and Expert System (TRACES));

³ Available on the European Commission Have Your Say platform : https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12950-Animal-welfare-revision-of-EU-legislation_en

⁴ Available on the European Commission Have Your Say platform : https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12950-Animal-welfare-revision-of-EU-legislation/public-consultation_en

⁵ European Commission, Directorate-General for Health and Food Safety, *Study supporting the Impact Assessment accompanying the revision of the EU legislation on the welfare of animals during transport*, Publications Office of the European Union, 2023, doi: 10.2875/110728. (Transport study).

- **Other European institutions or international statistical sources** (e.g. EPRS reports, European Court of Auditors reports, UN Comtrade, etc.).

ANNEX 2: STAKEHOLDER CONSULTATION (SYNOPSIS REPORT)

This synopsis report provides an overview of the results of the consultation activities carried out in the context of the Impact Assessment supporting the initiative on the protection of animals during transport.

1. CONSULTATION STRATEGY

The aims of the consultations were to:

- inform stakeholders and the public on the ongoing impact assessment.
- receive views of the public and stakeholders on possible future options; and
- to gather evidence and data regarding impacts of policy options from stakeholders.

2. IDENTIFIED STAKEHOLDERS

The initiative is relevant to a wide and varied range of stakeholders. The main categories of concerned stakeholders are:

- Business and professional organisations in the food supply chain (including in particular: farmers, transporters and meat production/processing).
- Competent authorities of the EU Member States responsible for animal transport.
- Citizens (EU and non-EU).
- NGOs active at Union level in relation to animal welfare, sustainability and environmental policies, and consumer organisations.
- Trade Unions
- Experts from academic and research institutes active in the field of animal welfare.
- European bodies, including the European Food Safety Authority (EFSA).
- International intergovernmental organisations active on animal welfare.
- Third country trading partners with the EU.

3. OVERVIEW OF CONSULTATION ACTIVITIES AND EVIDENCE GATHERED

Table 1: Overview of consultation activities carried out per stakeholder group relevant to the protection of animals during transport

Category	IIA ⁶	Conference	Preliminary interviews	Targeted survey	Focus groups / workshop	PC ⁷
Business operators and business associations (e.g. primary producers, transporter,	X	X	X	X	X	X

⁶ Inception Impact Assessment.

⁷ Public Consultation.

processor/retailer, etc).						
Public authorities	X	X	X	X	X	X
EU bodies		X	X		X	
Competent authorities in the Member States	X	X	X	X	X	X
Citizens (EU and non EU)	X					X
Civil society & NGOs	X	X	X	X	X	X
Consumer and environmental organisations	X	X	X	X	X	X
Academic/research institutions		X	X	X	X	
Intergovernmental organisations			X		X	X
Trading partners					X	X

Inception Impact Assessment

The [Inception Impact Assessment⁸ \(IIA\) on the revision of the EU legislation on animal welfare](#), presenting the objectives of the revision and the policy options under consideration, was published on 6 July 2021 and open for feedback until 24 August 2021. Amongst others, it covered animal welfare during transport. There was a total of 983 feedback received and additional information was provided as part of the responses of 114 organisations, including NGOs, business associations and companies / business organisations. After the screening of the feedback⁹, 110 feedback were identified as belonging to four stakeholder campaigns leading to a total of 873 individual feedback. Out of these, 525 have been analysed as relevant to the protection of animals during transport in the context of the external study.

Based on the 525 individual contributions relevant to transport, the majority of feedback was received from EU citizens (428; 81.52%), followed by NGOs (43; 8.19%) and business associations (15; 2.86%) and company/business organisation (13; 2.48%). 515 contributions came from stakeholders from EU Member States, three from stakeholders from the UK and 7 from stakeholders from other third countries. There were no responses from respondents from seven Member States¹⁰.

⁸ Available on the European Commission Have Your Say platform : https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12950-Animal-welfare-revision-of-EU-legislation_en

⁹ No feedback to the IIA has been moderated.

¹⁰ Croatia, Cyprus, Hungary, Latvia, Luxembourg, Malta and Slovenia.

Interviews

As part of the external study, nine exploratory interviews were conducted to discuss the challenges with the current implementation of the Transport Regulation as well as to gather views on the proposed policy options including their impacts. The interviews were also used to gather feedback about information sources that could be consulted in the context of the study. Consulted stakeholders in this context were: competent authorities from three Member States, two NGOs, one business association, one international organisation, one academic expert and representatives of the European Commission (DG SANTE). 43 other interviews were carried out as part of the six case studies and were used to assess the impacts of the options in specific contexts. They are therefore not reported in this annex.

Survey

As part of the external study, one targeted survey was completed. It aimed to collect information on the options considered and their potential impacts. This included views on whether the options would result in adjustment costs or changes in administrative and enforcement costs. The survey targeted competent authorities (20 contributions), businesses (14 contributions) or associations representing them (19 contributions), NGOs (11 contributions) and researchers/academics (2 contributions). Two respondents replied as 'other'. 68 responses have been analysed¹¹.

Focus groups and workshop

As part of the external study, two focus groups and one workshop were organised in September 2022 in order to discuss the findings of the study with relevant stakeholders and gather feedback and insights.

The two focus groups gathered different types of stakeholders to ensure targeted and robust discussion:

- The first focus group brought together 22 representatives of businesses or business associations (representing transporters, breeders and producers) and 11 competent authorities from nine Member States. The discussion covered the economic impacts, focusing especially on potential costs, of the options related to transport conditions, exports to non-EU countries, the transport of vulnerable animals and monitoring.
- The second focus group brought together 17 representatives of NGOs (11) and academic or other relevant experts on animal welfare (6). The discussion covered mainly issues and impacts on animal welfare of the options on transport conditions, exports to non-EU countries, transport of vulnerable animals and monitoring.

The workshop gathered 80 participants representing 35 business associations (transporters, breeders, agriculture/producers) and three business organisations / companies, 17 competent

¹¹ Out of the total 79 responses received, 11 responses were found to be duplicates or blank and were therefore excluded from the analysis. One response was sent via email following the closure of the survey and was included in the final sample for analysis.

authorities from 12 Member States¹², nine NGOs, five academic experts and six stakeholders from EU institutions, international organisations and non-EU countries. The analysis and main conclusions for the policy measures were presented for the participants to express views on the findings, in particular on the effectiveness of the different options considered.

Public consultation

The [Public Consultation¹³ \(PC\) on the revision of the EU animal welfare legislation](#) ran from 15 October 2021 to 21 January 2022.

The Impact Assessment Report presents the outcomes of the analysis of the public consultation as carried out in the external study. The analysis has been performed based on 59 281 total contributions¹⁴. 1 546 contributions as being part of campaigns were identified.

As part of the valid individual contributions analysed (57 727), the vast majority of respondents were EU citizens (54 600 contributions; 92,12%) and non EU citizens (2 817 contributions; 4,75%). Other contributions were received from businesses (537 contributions; 0,91%) and business associations (123 contributions; 0,21%) but also from NGOs (266 contributions, 0,45%), academic/research institution (116 contributions; 0,20%), environmental organisation (92 contributions; 0,16%) and consumer organisations (11 contributions; 0,02%). 83 contributions were also received from public authorities (0,14%), trade unions (38 contributions; 0,06%) and respondents categorised as ‘Other’ (590 contributions, 1%).

1 546 contributions were identified as part of 10 campaigns and analysed separately. Nearly all of the respondents gave their contribution as EU and non-EU citizens (1 521 out of 1 546; 98,4%). The other respondents gave their contributions as another type of stakeholders (25 out of 1546; 1,6%), predominantly as representing an NGO (12 out of 1546; 0,8%).

Other consultation activities

A Stakeholder Conference¹⁵ was organised on 9 December 2021. The conference provided an opportunity to elaborate on possible improvements for the future, as well as for stakeholders to validate the preliminary findings of the Inception Impact Assessment. One panel covered the specific challenges of animal welfare during transport (Panel 3). Almost **500 stakeholders**, representing e.g. Member States, NGOs, academia, SMEs and international organisations, participated in the discussions.

In addition, since the publication of the Inception Impact Assessment in July 2021 and until the end of March 2023 when the Impact Assessment Report (initially covering a potential revision of the different legislations on animal welfare) was first submitted to the RSB, the

¹² Austria, Belgium, Czechia, Denmark, Finland, Germany, Hungary, Italy, Latvia, Lithuania, Netherlands, Sweden.

¹³ Available on the European Commission Have Your Say platform : https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12950-Animal-welfare-revision-of-EU-legislation/public-consultation_en

¹⁴ Eight contributions were considered duplications and excluded from the analysis.

¹⁵ European Commission, *EU Animal welfare today & tomorrow, an opportunity for stakeholders to validate the preliminary findings of the Fitness Check of the current EU animal welfare legislation.*

Commission has held **72 meetings with stakeholders** both from industry and civil society. During the meetings, stakeholders could provide **their views, insights and when available any additional data** to inform the work of the European Commission. Since then, the Commission has continued liaising with many stakeholders and the Impact Assessment report on the revision of the legislation on the welfare of animals during transport has been enriched with elements coming from this additional consultation.

4. METHODOLOGY

All concerned stakeholder categories were reached throughout the various consultation activities and participated. All expressed views were analysed and taken into account as part of the evidence base of the Impact Assessment. Table 1 “Stakeholders engaged per consultation activity” (presented under section 1.) provides an overview of stakeholders consulted as part of the Impact Assessment.

The supporting study conducted a quantitative and qualitative analysis of information gathered through the different consultation activities. The quantitative analysis included a statistical analysis of the results of the public consultation and the targeted surveys. The analysis of the evidence from consultation activities was conducted first at the level of individual data collection tools. Then, to the extent possible, the data was triangulated with data coming from the literature review.

5. CONSULTATION CHALLENGES

Some challenges emerged during the consultation activities. These can be summarised as follows:

- **Analysis of public consultation results:** The outcomes of the analysis performed as part of the external study has been presented in this Impact Assessment Report, based on the data extracted from EU Survey (59 281 contributions, with 8 duplications identified and excluded from the analysis). However, it should be noted that the data reported in this Impact Assessment differs slightly from the data reported in the Have Your Say platform mainly due to a different approach to moderation and campaigns (59 286 contributions¹⁶, with 64 contributions moderated¹⁷ and a lower number of campaigns considered). However, these differences are not leading to significant differences in the statistical analysis performed¹⁸.
- **Evidence provided by stakeholders during interviews:** for reasons of trade secrecy and a lack of pan-European data, stakeholders were not always in a position to share detailed information on their sector’s business activities and market share. As a result, the consultation activities produced limited evidence as regards the costs of compliance with some of the options examined in the Impact Assessment, or about the economic

¹⁶ The difference of 5 contributions in Have Your Say is not impacting the number of valid contributions analysed, as these 5 contributions had to be moderated due to technical errors.

¹⁷ In the have Your Say platform, a total of 64 contributions were moderated, due to additional 51 contributions moderated as not respecting the feedback rules and the 5 contributions mentioned above.

¹⁸ The 51 moderated contributions represent 0.09% of the valid individual contributions analysed. The difference of 271 campaigns considered represent 0.47% of the valid individual contributions analysed.

benefits of certain measures. In addition, where professional stakeholders indicated estimations of costs of some of the options, they often were not able to substantiate how the estimate was calculated and on what basis, making it difficult to check its solidity and reliability. However, this was to some extent compensated by the data gathered by the external contractor, experts, or by the Commission through desk research.

The challenges emerging from the public and targeted consultations were addressed by discussing the impact assessment findings with scientific experts and stakeholders, among others during the focus groups and workshop.

6. OUTCOMES OF THE CONSULTATION ACTIVITIES

National Competent Authorities (NCAs)

An important problem highlighted by NCAs is the unclear or unspecific text in the Transport Regulation itself. The Regulation is not specific about the sanctions either and this should be addressed. Furthermore, they see a lack of coherence in enforcement and implementation across the EU. One NCA referred to the need of further clarity and clear guidance on temperature requirements and on overhead space for animals. Another one mentioned that the main problem is the inconsistencies between the time limits in the Transport Regulation and the requirements of the social legislation related to road transport. Also, it was added that the Regulation should be more specific also for non-commercial transport and define better what is a commercial or a private purpose.

According to one NCA, the Transport Regulation is outdated and there is a lack of rules/requirements concerning the commercial transport of pets, some agricultural animals (e.g. rabbits, birds/poultry and fish), chinchillas or even exotic animals, which should be included and clarified in the revised Transport Regulation. Another NCAI mentioned the export by sea of unweaned calves as a major problem because of the length of the journey. Furthermore, what is lacking is a legal basis to ensure responsibility of the journey organizer.

Specific concerns were highlighted by Ireland and the Irish dairy sector, since any limitation has important economic consequences for the sector, which relies on transport of calves by ferry based on roll-on roll-off, which takes more than 19 hours. In addition to Ireland who may not be able to reach continental Europe within 19 hours, some other Member States like Spain and Italy, who are amongst the main beneficiary countries of calves transported on long journeys, would also be impacted as their farming sector could not satisfy the national market demand. Member States and business stakeholders from southern Member States are generally more concerned by restrictions on hot temperatures as they will be more impacted. They often flag the logistical challenges linked to transporting live animals by night.

Some NCAs mentioned that they would like to see a more nuanced approach as to the type of transport used as some MS have invested more in specific infrastructure, which should be taken into account. Moreover, according to some NCAs, journey times of less than 8 hours are unacceptable and any journey time under what is currently allowed, would have significant impacts.

In terms of exports to third countries, one NCA expressed their support for a total ban of live animal exports outside the EU, however it stated that it is not necessary to completely ban sea

transport but to limit it to a maximum journey time. Another NCA mentioned that if the EU adopts the Irish ship standards, there would be huge improvements for animal welfare. Generally, they were not in favor of replacing transport of live animals by transport of carcasses only, as it is not possible to automatically replace the transport of live animals with transport of carcasses as the demand for meat is not equivalent to the demand of live animals. Furthermore, if EU exports are banned, North African countries will simply replace their imports with imports from other countries, likely with lower welfare standards. It would be more appropriate for the EU to help improve conditions in e.g. slaughterhouses in destination countries.

NCA's agreed that the Transport Regulation needs to provide specific rules for unweaned and vulnerable animals. One NCA even agreed that it is better not to transport them at all. However, one NCA addressed the importance of the transport of young calves, if transport is not possible, they would be slaughtered soon after birth. The NCA's generally welcomed provisions on the commercial transport of cats and dogs.

Regarding improving monitoring and enforcement, several suggestions were made by NCA's. For example, to create an EU-wide electronic journey log, an app that the driver can fill and check-in at different points (loading, arrival etc.) and those logs can be verified, or compulsory GPS on the truck. Compliance and enforcement costs would depend on the already existing rules in the MS. They did not comment on other impacts of the policy options.

Non-Governmental Organisations (NGOs)

NGOs highlighted the need for deep revision in order to reflect scientific findings and that a ban on sea transport is needed which is not provided by current legislation. Furthermore, there is a lack of controls at departure, during the travel and at arrival and no authorities check when and how animals arrive at the slaughterhouse. They also agreed that the Transport Regulation is outdated and pointed to the lack of rules concerning the transport of specific animals.

NGOs agreed that all aspects of the current legislation need to be updated. Particularly, one NGO stated in this regard that all of the aspects need to be species-specific as well as category specific.

NGOs generally supported a total ban of live animal exports outside the EU as European welfare standards could not be guaranteed in third countries. Instead, animal transport outside the EU should be moved towards export of carcasses. Importantly, moving to slaughtering in the EU (stunning) would actually give more business to EU slaughterhouses with a potentially positive economic impact. The impact of such a policy change would be improved animal welfare and state of the environment as well as a boost of EU business.

NGOs supported specific rules for unweaned and vulnerable animals and further stressed that it is better not to transport them at all. Furthermore, they were in favour of implementing specific rules for cats and dogs.

Considering improved monitoring and enforcement, one NGO mentioned the need for more sanctions as only few Member States are complying with existing rules, and consequently they have disadvantages in terms of competition. They also addressed the lack of exchange of data between Member States. It was suggested to introduce an EU independent authority for

monitoring and checking Member States' compliance with the law. One of the NGOs stated that these measures are only mitigating and stressed that live animals should not be transported at all.

In terms of costs, one NGO mentioned that the biggest impact in the value chain would initially be on farmers and subsequently on the transport company (technology). However, ultimately, it should be the responsibility of the Member States and the EU to enable policy changes to be made since in the end it is the consumer who receives higher-quality products. Prices of animals would also go higher if slaughtered in the EU bringing another potential economic benefit. This would all be feasible but there is apprehension of changes even if there would be little economic impact.

Furthermore, according to NGOs, enhanced legislation would lead to a reduction of the current overproduction of meat and animal products as prices would increase, which would be beneficial for the environment. Currently, the low cost of meat does not incentivize consumers to make the right choice, maintaining the overconsumption of meat in the EU. Less animal transport together with less animal product production would result in less pollution by meat industries. Another option raised by these NGOs is to move slaughterhouses or to construct them at a closer distance to the farms in order to avoid long transports. This would also have a positive impact on local economies. Additionally, one NGO highlighted the current sea pollution due to carcasses that are discarded in the sea during sea transport.

Business and professional organisations

Business organisations also highlighted the lack of coherence in enforcement and implementation across the EU. According to business organisations, the current requirements regarding animal welfare are sufficient, and the most problematic thing is reloading and unloading. Shorter journeys and more frequent resting times can be attractive but loading and unloading is very problematic for the welfare of animals. If travel times are reduced, more loading and unloading would be necessary. Furthermore, as regards space, the stakeholders pointed to the right balance as animals might fight, they will not have stability during transport and can get hurt under too much space. Stakeholders generally supported measures regarding the weight and minimum age of the animals, although some of them flagged the economic and logistical challenge (e.g. trucks with two decks instead of three have to be used).

Regarding exports to third countries, the organisations stated that if those are banned, third countries will most likely replace these EU imports with imports from other countries with lower animal welfare standards (e.g. longer journey times). However, suggested improvements of exports include improved border checks or conducting pre-assessments of the welfare, so that paperwork can be transferred to border controls in advance.

According to these stakeholders, the replacement of live animal transport with transport of carcasses may not be feasible because:

- The transport of animals to the Middle East/Africa is not always for slaughter.
- The transportation of carcasses over long journeys would require more energy due to the requirement for refrigeration.
- There might be specific conditions for religious slaughter in some destination countries that favours the import of live animals.

The replacement of live animals by the transport of carcasses also depends highly on the willingness of the importing country to accept such a replacement. If there is no acceptance, there will only be substitution of EU animals with imports from other parts of the world (likely subject to longer journeys and less strict animal welfare regulations than in the EU).

This category of stakeholders generally supports that the Transport Regulation needs to provide specific rules for cats and dogs as well as for unweaned and vulnerable animals. However, a complete ban would mean that farmers have to keep all animals, which is not realistic and farmers will not do that, they will reduce the overall number of herds. Furthermore, they pointed out the necessity of defining the term “unweaned” within the Regulation.

According to the organisation, the biggest costs were administrative processes which could be simplified through new technology such as apps or automatic transfer of notifications between countries, so that checks happen faster at the border. Furthermore, the biggest impacts in the value chain would be on the farmers who might lose the market; for the transporters, they are already starting to transport other goods instead of live animals. In some countries there is already a shortage of drivers.

Academic experts and institutions

Compared to other stakeholder groups, the academic experts and institutions commented relatively little. The issue of diseases spreading due to animal transport was brought up by academics. They stressed the importance of checking the animal prior departure: check whether animals are able to be transported or not, if they are affected by diseases or injuries. Poor transport conditions can worsen present diseases or lead to transmission to other animals. Veterinary inspection should be expanded to all animals and not only be limited to the vulnerable ones. If welfare is poor, there is a higher chance to develop illnesses. The academics also supported a total ban of live animal exports outside the EU as it would be difficult to guarantee the welfare standards in non-EU countries.

They also favoured the provision of transport regulations on unweaned and vulnerable animals as well as on cats and dogs. Furthermore, with regards to fish, the academic interviewee stated that fish transport requires more control and monitoring (e.g. salmon fish are transported in “sea cages”). It is in the interest of producers to decrease the number of mortalities.

International and EU organisations

The EU organisation explained some of the reasons for the ongoing revision Council Regulation (EC) No 1/2005 on the protection of animals during transport (referred to as “Transport Regulation” in short) – while the Farm to Fork Strategy provides political platform, the objective is also to reflect the latest scientific evidence (i.e. EFSA opinions) in order to ensure that animal welfare is not compromised and to respond to EU citizens calls for a greener Europe, as transport is also an environmental issue. Public acceptance and attitudes (e.g. trends favouring local production and consumption, calls for more sustainable food production chains) are also shaping the revision process.

The issue of problems at borders and exports outside the EU was particularly highlighted as a concern by the EU organisation as feedback is rarely received, especially when it comes to

third countries. The international organisation further stressed the issue of information flows and gave the Australian system as an example of more advanced monitoring. Another major problem pointed out by the EU organisation is long distance transport by any means – but particularly challenging is the transport by sea. According to the international organisation, the lack of coherence in enforcement and implementation across the EU is crucial. In order to improve animal welfare, implementation of current rules, collaboration and communication between authorities must be improved and feedback from the destination must be provided.

In terms of the ban on transport of live animals and the possible replacement by the transport of carcasses, the international organization highlighted the need for a cooling infrastructure (such as refrigerators) in the EU, which currently does not exist.

The stakeholder group supported specific rules for the transport of unweaned and vulnerable animals and cats and dogs. Moreover, the international organisation advised that young animals should be transported only if the conditions in the vehicles/vessels meet their specific needs and supports the options for the stricter rules. If there was a total ban on transport, however, the breeding system would be affected. According to the international organisation, there is also a need to regulate the transport of horses, fish and laboratory animals.

Regarding improved monitoring, it was mentioned that strengthened collaboration is necessary and needs improvement. This should be achieved through the same level playing field for all businesses and exchange of information. In terms of expected costs, the European organisation stressed that audits and subsequent infringement procedures require a lot of time and resources, e.g. the ability to conduct multiple checks, to ensure follow-up to determine non-compliance and measuring the progress made. For the moment, there is no expectation to change the number/frequency of audits for any of the options although it would be better to have more audits. The stakeholders did not elaborate on other policy impacts.

EU and non-EU citizens

The views of this stakeholder group were mainly assessed through a public consultation on animal welfare focusing on the issue in general and covering different aspects of animal welfare. It contained three questions specific to animal welfare during transport and a general open question. The vast majority of the respondents were EU citizens (54 600 contributions or 92.12%). Non-EU citizens contributed to a lesser extent (2 817 contributions or 4.75%).

The majority of respondents supported the introduction of stricter requirements on the transport of live animals and bans on the transport of vulnerable animals and live animals outside the EU. Between 94-96% of the sample of non-campaign respondents supported maximum journey times, more specific requirements for different animal species and technical requirements for the means of transport used for long journeys. Between 83-94% of the non-campaign respondents supported a ban on live animals to non-EU countries for both breeding and slaughter. 49-54% favoured a limitation of the exports to those non-EU countries where requirements on animal welfare are at least equivalent to standards within the EU or favoured transport under stricter conditions. 94% of the non-campaign respondents supported a ban of the transport of vulnerable animals and only 44-45% supported transport under stricter requirements or limited to 8 hours. Amongst the responses to the open question, the most frequent statements (made by at least 10% of the sample) were: “define limit for long distance

transport'; “ban live animal exports outside the EU, “ban all live animal transport”, “stricter requirements for live animal transport conditions”, “reduce need to transport animals for slaughter”, “ban transport of vulnerable animals”, “more transparency / label covering transport conditions”. These views were predominantly shared by citizens as the overall number of other stakeholders who contributed was significantly lower

Campaigns

In the context of the external study, the analysis of the contributions to the IIA and to the PC led to the following conclusions:

IIA: four campaigns were identified as part of 110 contributions:

Campaigns	Total number of contributions	Main issues identified related to the protection of animals during transport
1.	65	The stakeholders call for: <ul style="list-style-type: none"> • A ban on long-distance transport of animals • A ban on exports of animals outside the EU • A system of sanctions for breaches of these prohibitions and for EU mechanisms to oversee the enforcement of these sanctions
2.	24	The stakeholders call for: <ul style="list-style-type: none"> • ‘stopping long-distance transport of animals to countries outside the EU’
3.	11	The stakeholders support: <ul style="list-style-type: none"> • ‘a ban on the transport of animals outside the EU’
4.	10	The stakeholders call for: <ul style="list-style-type: none"> • ‘a ban on the transport of animals’

PC: 10 campaigns were identified as part of 1 546 contributions:

Campaigns	Total number of contributions	Contributions relevant to transports	Main issues identified related to the protection of animals during transport
1.	755	23	<ul style="list-style-type: none"> • Nearly all of the respondents refer to a general ban of transport and/or exports. • Five respondents refer specifically to defining stricter requirements and limiting the transport of all animals to eight hours.
2.	337	22	<ul style="list-style-type: none"> • Nearly all of the respondents refer to a ban of transport (only a few specify that this should cover exports outside the EU, transport over long journeys or transport of unweaned animals). • One respondent proposed limiting all transport to four hours.

3.	227	2	<ul style="list-style-type: none"> • Two respondents call for including information about transport in an animal welfare label.
4.	60	39	<ul style="list-style-type: none"> • The majority of the respondents call for a limitation of transport to 8 hours. • Some respondents refer to a ban of transport outside the EU or in extreme heat.
5.	49	48	<p>The majority of respondents call for:</p> <ul style="list-style-type: none"> • “replacing the transport of live animals to third countries with the transport of meat, carcasses and genetic material of the animal; • no more animal transports by sea; • transport to the nearest suitable slaughterhouse; • maximum temperatures for transport (no transport below +5°C and above +25°C)”.
6.	43	0	<i>No concerns were specifically related to transport.</i>
7.	34	0	<i>No concerns were specifically related to transport.</i>
8.	25	24	<p>All respondents call for:</p> <ul style="list-style-type: none"> • a complete ban of EU exports to non-EU countries • a ban of the transport of vulnerable animals.
9.	8	7	<p>The majority of respondents call for:</p> <ul style="list-style-type: none"> • maximum transport time of 4 hours for poultry and rabbits • 8 hours for other animal species • monitoring of animal transport with surveillance cameras; • specifications for the space/conditions on transport vehicles; • extension of controls beyond the reliability of the transport company: • the actual conditions during transport must be checked; ban on live exports.
10.	8	8	<i>No concerns were specifically related to transport.</i>

ANNEX 3: WHO IS AFFECTED AND HOW?

1. PRACTICAL IMPLICATIONS OF THE INITIATIVE

Road transporters will need to reorganise their journey planning and contracts to comply with the new requirements on journey times (including for exports), vulnerable animals and hot temperatures. They might need more trucks and drivers to comply with the requirements of increased space allowances. Transporters involved in exports outside the EU will need to contract an independent auditor from the International Federation of Auditors to carry out on-the-spot checks to verify that the EU transport rules are complied with until destination. Occasional additional costs may incur to transporters for the measure on limitations of transport during hot weather, as drivers will need to work during the night. In addition, while almost all trucks already have a GPS system installed, certain administrative steps will be needed to provide authorities real-time access to this data. To a considerable extent, however, the overall administrative burden is expected to decrease by a further use of digital communication tools.

Some **sea transporters** will have to upgrade or replace their vessels and register these under another flag, to meet updated requirements. Sea transporters will also need to train a member of the crew as an animal welfare officer, to take appropriate measures to safeguard the welfare of animals.

Slaughterhouses may be affected by the measure on transport during hot weather events, as staff may have to work at night, or they will have to invest in a larger space to keep the animals until resuming the slaughter activities in the morning.

Breeding and fattening farms may be affected by the measure on the limitation of journey times. A certain share of current route patterns will have to change due to the limitations, which may lead to the re-localisation of some farms.

Cat and dog professional breeders will have to ensure transporters adapt to the requirement for veterinary checks for cats and dogs.

2. ADMINISTRATIVE AND ADJUSTMENT COSTS (ONE-IN, ONE-OUT)

As regards the administrative costs and adjustment costs imposed on the respective groups of stakeholders, the situation could be summarised as follows:

For **transport by road, total costs amount to EUR 2 884 million annually** over 5 years. This includes, thanks to the introduction of new technologies such as GPS and a centralised database, a **EUR 71 million reduction in administrative burden**.

For export via sea of beef and sheep, **the administrative burden would be EUR 195 000 for the one-off registration of vessels to a white or grey flag and EUR 21 208 annually for the training of a certified animal welfare officer for each vessel**. Additionally, the adjustment cost of upgrading vessels to meet new requirements would cost EUR 380 million overall (one-off cost).

Regarding the welfare of cats and dogs, transporters of puppies and kittens would face a **reoccurring administrative cost of EUR 94.5 million and a single adjustment cost of EUR 7.5 million**.

SUMMARY OF COSTS AND BENEFITS

I. Overview of benefits (total for all provisions) – Preferred option		
Description	Amount	Comments
<i>Direct benefits</i>		
	<p>Animals: higher welfare both for animals currently regulated and expansion of standards for cats and dogs. In particular, animals are better able to express their natural behaviour when transported; suffer less from health problems; having more positive experiences.</p> <p>Operators: some measures lead to increased productivity (less animal mortality, less injuries, higher yields); higher quality products; level playing field in the EU internal market; better image and reputation of the sector (thus better economic sustainability); less transmissible animal diseases and zoonoses (and related savings); higher job satisfaction.</p> <p>Citizens: animal transport ensures animal welfare in line with citizens' expectations; rules that address citizens' expectations so exports align with EU animal welfare standards.</p>	<p>A description of benefits is included in section 6.1.2. of the main document.</p> <p>Increased space allowance reduces aggression and risks of diseases spread in animals that may also have an impact on human health. This also reduces the need for antimicrobials.</p> <p>Animal welfare during transport is expected to improve significantly, but there is no robust methodology to quantify or monetise such benefits.</p>
<i>Indirect benefits</i>		
	<p>Public health: contributes to reducing zoonosis risks.</p> <p>Economy: enhanced consumer trust in livestock transport; smoother internal market.</p>	<p>Indirect benefits to society are difficult to quantify systematically or with certainty but are expected to be significant.</p> <p>As detailed in section 6.2.1. of the main document and Annex 4 to this report, a quantification is proposed for some of these indirect benefits.</p>
	<p>Environment: reduced emissions.</p>	
<i>Administrative cost savings related to the 'one in, one out' approach*</i>		
(direct/indirect)		

II. Overview of costs – Preferred option							
		Citizens/Consumers		Businesses		Administrations	
		One-off	Recurrent	One-off	Recurrent	One-off	Recurrent
New welfare rules on transport of animals.	Direct adjustment costs	n/a	n/a	<p>Cats/ dogs breeders: upgrading of transport vehicles to meet new requirements.</p> <p>Transporters: costs related to the adaptation to new transport patterns.</p> <p>Vessels: cost of adapting the vessels.</p>	<p>Transporters: costs related to less activity as a result of journey time restriction (but very limited considering the additional activity triggered by new space allowance).</p>	<p>Public authorities (EU institutions):</p>	<p>Public authorities (EU institutions): Audits (in non-EU countries).</p>

				<p>Slaughterhouses: potential cost from having to slaughter at night or increase the capacity of waiting areas.</p> <p>Farmers and breeders: costs may arise from having to keep animals on farm longer. Costs may also arise from the need to source animals at higher price, or to sell at lower price.</p>			
Direct administrative costs	n/a	n/a	<p>Transporters: costs related to the registrations under white or grey flag (for vessels).</p>	<p>Cats/dogs breeders: veterinary checks prior to transport.</p> <p>Transporters: costs related to the training of an animal welfare officer on vessels.</p>	<p>Public authorities (EU and national): n/a</p>	n/a	
Direct regulatory fees and charges	n/a	n/a	n/a	n/a	n/a	n/a	
Direct enforcement costs	n/a	n/a	(Depends on the situation in each MS)	(Depends on the situation in each MS)	(Depends on the situation in each MS)	(Depends on the situation in each MS)	
Indirect costs	n/a	n/a	n/a	n/a	n/a	n/a	

III. Application of the 'one in, one out' approach – Preferred option(s)			
[M€]	One-off (annualised total net present value over the relevant period)	Recurrent (nominal values per year)	Total
Businesses			
New administrative burdens (INs)	EUR 195 000 to transporters exporting by sea.	EUR 21 208 to transporters exporting by sea. EUR 94.5 million to transporters of cats and dogs.	
Removed administrative burdens (OUTs)		EUR 71 million from the introduction of mandatory GPS and real-time tracking software for operators transporting by land.	
<i>Net administrative burdens*</i>	EUR 195 000	EUR 24.5 million	
Adjustment costs**	EUR 7.5 million to transporters of cats and dogs. EUR 380 million to transporters exporting by sea.	EUR 2.88 billion to transporters of live animals by road.	
Citizens			
New administrative burdens (INs)	n/a	n/a	
Removed administrative burdens (OUTs)	n/a	n/a	
<i>Net administrative burdens*</i>	n/a	n/a	
Adjustment costs**	n/a	n/a	
Total administrative burdens***	EUR 195 000	EUR 24.5 million	

(*) *Net administrative burdens = INs – OUTs;*

(**) *Adjustment costs falling under the scope of the OIOO approach are the same as reported in Table 2 above. Non-annualised values;*

(***) *Total administrative burdens = Net administrative burdens for businesses + net administrative burdens for citizens.*

3. RELEVANT SUSTAINABLE DEVELOPMENT GOALS

III. Overview of relevant Sustainable Development Goals – Preferred Option(s)		
Relevant SDG	Expected progress towards the Goal	Comments
SDG 3 - Good health and well-being	Improving animal welfare during transport will contribute to combat AMR in both humans and animals, in line with the One Health approach, therefore contributing to better public health.	There is some link to target 3.D ('strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks'), especially indicator

		3.D.2 (percentage of bloodstream infections due to selected antimicrobial-resistant organisms).
SDG 12 - Responsible consumption and production	The revision will contribute to easing the pressure on food systems and the intensity of their production, thus contributing to a more sustainable food system and consumption patterns.	The revision will have both a direct and indirect impact to encourage companies to adopt sustainable practices.

ANNEX 4: ANALYTICAL METHODS

1. BASELINE

The baseline against which the impacts are assessed is set at 2031 (including adoption rates of the measures based on national legislation in place and costs). The aggregated costs are provided against the 2031 baseline.

2. METHODOLOGY AND MODELS

As a first step, the animal welfare, economic, social and environmental impacts of the respective policy options as well as their distribution across stakeholders were analysed and scored through a Multi-Criteria Decision Analysis (MCDA), using triangulated evidence (evidence from stakeholder consultation, from desk research and quantitative analysis where available), based on the external study and additional evidence collected.

Secondly, an assessment of the cumulative impacts of the two proposed packages of measures and options was made based on a supply chain analysis.

Thirdly, the impact assessment analysis compared the different options as regards their effectiveness, efficiency and coherence, as well as their compliance with the proportionality principle.

Fourthly, the outcome of the supply chain analysis on impact on production costs was used to model impacts on production levels, consumer prices, exports and imports (performed by the Commission's Joint Research Centre), and additional analyses were performed (by the Commission's Joint Research Centre) to assess the impacts of the two packages on food security and food affordability.

2.1. Identification of potential impacts and indicators used

The main impacts identified by the Commission, to be considered in this impact assessment, were the following:

- Animal welfare impacts
- Economic impacts
- Social impacts (including the extent to which societal expectations are met)
- Environmental impacts

As improving the level of **animal welfare** is one of the general objectives of this revision, it should be noted that the impact on animal welfare is considered as a separate impact and is not analysed under the environmental impact (as can be the case in other impact assessments).

In addition, the assessment of **economic impacts** gives specific attention to the impacts on competitiveness, on SMEs and on administrative burdens on businesses which are reflected in the list of selected indicators.

The assessment of **territorial impacts** has also been performed in the supporting studies where relevant, for instance as regards the specific situation of islands and remote, mountainous areas.

The revision is not expected to have any impacts on fundamental rights. Provisions on real-time positioning of vehicles were designed to ensure that the protection of personal data is safeguarded, in compliance with the General Data Protection Regulation.

For each category of impact, indicators were developed by the external contractor and submitted to the Commission for approval. Further details on the indicators used and how these were measured are available in the supporting study¹⁹.

2.2. Multi-Criteria Decision Analysis (MCDA)

Given the plurality of policy objectives, a large range of assessment criteria was needed. For this, a MCDA was considered to offer a comprehensive and transparent model, allowing for non-quantifiable impacts to be measured qualitatively (and quantified impacts to be measured in different units). This MCDA has been performed as part of the supporting study. The method was applied as follows:

Each impact of each option was scored using the following scale and point of reference:

- **Scale used:**
 - In the external study: Policy options were assessed in a consistent way using a scale from 1 to 5 (5-point Likert scale). In this case, the highest score is given to the most desirable option towards 5 (i.e. less costly or administratively burdensome, or best for animal welfare), 3 corresponds to a neutral score and the lowest score corresponds to the least desirable option (towards 1).
 - In the Impact Assessment report: The 5-point Likert scale was converted into a **-2 to +2 scale** (i.e. with 0 being neutral). In this case, the highest score is given to the most desirable option towards 2, 0 corresponds to a neutral score and the least desirable option is scored towards -2.
 - The conversion does not change outcomes of the MCDA.
- **Point of reference:**
 - Impact on animal welfare: Given that improving the level of animal welfare in the EU is a general objective of the revision, the latest EFSA recommendations serve as reference for this assessment. The options that are the closest to the recommendations / to the desired level of animal welfare are scored highest on the animal welfare impacts. The ones diverging the most from the recommendations / the desired level of animal welfare are given the lowest score. Thus, the current situation does not serve as a reference for the impact on animal welfare
 - Environmental, economic, social impacts: The current situation serves as a reference. These impacts were scored neutral when no changes were expected. However, when changes were assumed, positively or negatively, the score was reflecting this change.

Each impact of each option was scored using the following approach:

- **For the impact on animal welfare:** Although the impact on animal welfare was not quantified, the changes in terms of welfare were measured and therefore scored using the EFSA recommendations as reference for the desired level of animal welfare, which

¹⁹ Transport study, Annex X (see note 5, page 8).

- are based on the latest available scientific evidence. Where relevant the impacts were broken down by type of animal concerned (e.g. slaughter and non-slaughter animals).
- **For the economic, environmental and social impacts:** All costs and benefits covered by the indicators listed were taken into account in the analysis. In the impact assessment, the outcomes of the cost benefit analysis, when available, were taken into account when assigning scores to the economic, environmental and social impacts, respectively. It should also be noted that in the external study, although the impacts were broken down by type of stakeholder groups concerned when relevant, the average score per category of impacts was estimated giving indicators an equal importance. The impact assessment report deviates from this approach as the relative importance of the different indicators is reflected in the aggregated score of each impact.
 - **Scoring the dynamic baseline:**
 - In the external study and in the preparation of this impact assessment, the No Policy Change (i.e. the dynamic baseline) has been scored as any other option, in order to show with robust data and in a consistent manner the assumed changes in the baseline as well as the cost of inaction. This also allows to give a clear picture of the evolution of the situation over the long period assessed and considering the number of different species impacted by the revision. This method has been implemented in both the supporting study and the Impact Assessment Report ('step 1').
 - However, as a second step, these scores of all options were converted to a baseline that is scored as 0 ('step 2') so that the baseline serves as the benchmark against which the policy options are compared (i.e. showing the net differences). The impact assessment report only includes tables presenting the results of the second step.

The multi-criteria impact matrix synthesises the performance of each option according to each impact, based on the following approach:

- **A total score was given to each respective policy option, aggregating the scores of the categories of impact considered** (animal welfare, economic, social and environmental). The score 0 applies absence of impacts or the current situation.
- **The total score is based on the weights allocated to each category of impact** (i.e. higher weights indicate the most important factors). The weights have been developed from a need for a balanced approach that strikes a compromise between animal welfare and economic impacts, taking into account the already existing economic pressure on transporters, but also the dual objective of ensuring higher welfare and contributing to sustainable food operations.
 - Taking into consideration the recent geopolitical developments and the current economic situation, in this impact assessment, the same weights are applied to all impact categories: Animal welfare (25%), Environment (25%), Economy (25%) and Social (25%).
 - In the supporting study, several approaches were considered, including one where focus was mainly put on the animal welfare impacts²⁰.

²⁰ The supporting study primarily applied the following weighting: animal welfare (35%), environment (25%), economy (20%) and social (20%).

A sensitivity and robustness analysis was performed to check if the ranking of policy options is stable, including making changes to the weight of the dimensions/criteria, to improve the transparency on the assumptions made in the impact assessment. The outcomes of the analysis are presented under point 5 of this Annex.

Summary of the conversions applied to the scores of the MCDA as described above for the purpose of the impact assessment:

Scale used: The 5-point Likert scale used in the supporting studies (i.e. 1 to 5, with 3 being neutral) was converted into a **-2 to +2 scale in the impact assessment report** (i.e. with 0 being neutral). The conversion however does not change outcomes of the MCDA and the comparison of the options.

Two-step approach of the analysis of the baseline: As mentioned, first the No Policy Change has been scored in order to fully reflect the cost of inaction and the assumed changes in the baseline ('step 1). **As a second step, these scores of all options were converted to a baseline that is scored as 0 ('step 2')** so that the baseline serves as the benchmark against which the policy options are compared (i.e. showing the net differences). The impact assessment report only includes tables presenting the results of this second step.

2.3. Supply chain analysis²¹

Based on the results of the separate study supporting the impacts assessment, the policy options were arranged in two packages (1 and 2) for which cumulative impacts have been assessed in an external study, by using the following methodology.

The purpose of the supply chain analysis was to estimate the cumulative economic impacts along the value chain (pigmeat, broiler meat, beef, eggs, milk). The following process was followed to quantify the joint costs of legislative packages to the actors of the value chain. These actors included farmers, breeders, processors, input suppliers, retailers and consumers, and the public sector. These joint or cumulative impacts of all measures are dependent on several factors. These include particularly 1) impacts of measures to operators who need to adjust their operations because of new regulations, 2) impacts on operators who do not need to adjust their operations, and 3) proportion and type of operators who are affected in different ways.

Step 1: Identification of options

The cumulative impacts were assessed through several steps. First, changes considered in the regulations were reviewed. This included that information provided in separate study were reviewed and summarised to identify qualitatively what kind of effects the measures were

²¹ Economic impacts of the measure on exports and cats and dogs could not be analysed by the supply chain analysis nor the agricultural commodity market model. Instead, compliance costs have been calculated using the Standard Cost Model. Relevant parameters for the price, time and unit variables have been extrapolated based on triangulation in the supporting study.

expected to have. The most important stakeholder groups to be considered, i.e. farmers, breeders, processors, transporters, retailers, consumers, public authorities (e.g. administrative costs), and animals, and possible subgroups that need to be considered for the purposes of robust calculations were identified and inputs to them were described based on the four IA reports.

Step 2: Quantification of economic impacts of measures

Second step focused on quantifying the most significant impacts that regulatory changes can have on productivity and production costs of each individual change as reported by the separate studies, EFSA data and other data and previous studies. In practice, quantitative information was not available on the impact to all stakeholder groups mentioned above, and the impacts focused mainly on impacts to farmers, slaughterhouses, breeding sector and transporters. Because the separate reports did not provide detailed or consistent information for all relevant measures, additional data were searched from scientific publications, reports and other sources that were considered useful and robust to provide additional data. During this step, the impact of each measure was quantified in euros for each type of animal and operator that it was applicable. Additional variable costs, possible savings in variable costs, changes in market revenues, possible investments needed to comply with the measures and possible reductions in the number of animals that can be kept, transported or processed were quantified at farm, firm or animal level (euro per animal or euro per kilogram of output). Measures which were found to require investments or renovations in the current housing were annualised by using 5% interest rate and 15-30 years lifetime of an investment (30 years for buildings, 20 years for renovations, 15 for machinery):

$$\text{Annual cost} = C \frac{r}{1-(1+r)^{-t}}$$

where C is the cost of initial investment, r is the interest rate, and t is the duration of the investment. The annual cost was then divided by the production quantity that a given invest was estimated to produce annually. The external study²² provides information on the literature and cost parameters used in the supply chain analysis.

Step 3: Normalising impacts

Third step was to quantify economic impacts to actors in a consistent manner so that the impacts of separate measures could be counted together. For this purpose, it was decided to summarise aggregate impacts per stakeholder group by using standard cost calculations that reflect the current relative change of production costs. The costs and revenues before and after adopting each regulatory change that were calculated at step two were transformed to a figure that describe the net impact per kilogram of output (e.g. €/kg meat produced). The net impacts were normalised to the production cost of one kilogram of meat, milk or eggs (depending on the stakeholder, costs to farmer, transporter or slaughterhouse) and then converted into a percentage change in production costs per unit of output and calculated on the condition that an actor must implement a change. Because the models operate with net economic impacts, in practice this meant that a cost elasticity estimate (∂C) was calculated for the case where specific measure is affecting economic operators in the sector. In general form, this cost elasticity estimate represented the relative change of production costs as follow:

²² Transport study (see note 5, page 8).

$$\partial C = \frac{C_{\text{current}} + C_{\text{additional}}}{C_{\text{current}}},$$

where C_{current} is the current cost of production, transport or slaughtering associated with one kilogram of meat, milk or eggs and $C_{\text{additional}}$ is additional net cost that is caused by the implementation of the new policy measure. $C_{\text{additional}}$ were obtained from the results of step two above. While prices were normalised according to the ‘current’ level of production costs, anticipated future prices were used to determine the baseline level of production costs for the cost calculations of 2031. The information on the net cost impacts was delivered to JRC’s Agricultural Commodity Market Model as an input. The elasticity estimate was applied to the 2031 baseline of costs in step 6.

Step 4: Joint impacts when adopting measures

Fourth step was to aggregate impacts across the supply chain by applying the results from the previous step’s micro-level calculations. Dynamic impacts and interactions were taken into account where possible. This implied in broiler for example, that the aggregate impact of slower growth rate and increased space allowance (i.e. more space needed for a longer time period per bird) was considered instead of considering these separately. Because the Agricultural Commodity Market Model (see section 3.3.2) modelling work was designed to assess food affordability, market prices and supply and demand were considered static in this step. In this step it was assumed that, for example, increased space allowance could be compensated only by increasing the housing capacity so that the current amount of meat or eggs can be produced. Possible changes in the total supply, demand and market clearing prices were considered later in step 6 by incorporating results from the modelling work conducted by Agricultural Commodity Market Model team through a feedback-loop to the cost calculations. For example, if Agricultural Commodity Market Model’s results suggested that a policy package would reduce aggregate supply and increase the market price, then the aggregate supply in the cost calculation was reduced according to the modelling result and aggregate costs were re-calculated and the total additional market revenues were also calculated for the new quantity that would be supplied.

Step 5: Determining the proportion of supply that still must adopt changes in the baseline year

Fifth step focused on identifying which proportion of animal population, farm population or livestock sector professionals would be required to implement the change. The proportions of population that would need to adopt measures were based on estimated share of populations that would not have adopted the measures by the end of the transition period. Hence, the baseline represents the proportion of population that has not adopted the measures by year 2031. Where possible, adoption rates were defined for each member state individually. Information about the total population of both farms and animals in the EU were obtained from Eurostat statistics and the supporting study for transport. Information about the current and anticipated adoption rates of each measure were searched from the supporting study, European statistics, scientific publications and from additional data provided by the European Commission. Complementary information was searched from reports and scientific publications and obtained from the European Commission. Cumulative economic impacts to different stakeholders were interpreted as percentage increases in production costs and revenues in each production line and as absolute impacts (euros) to different actors. Further details on the proportion of production that needs to adopt each measure in the baseline year is

provided in the Annex.

Step 6: Cumulative total impacts at the EU-level and for example farms and volumes of supply

Finally, the aggregated, cumulative impacts were represented at the EU-level as well as for a representative small, medium-sized and large farms by using the equations that can be presented in general form as follows:

$$\text{Impact}_{\text{EU in total}} = (((\partial C - 1) \cdot C_{\text{baseline}}) \cdot \Delta A) + \Delta P) \cdot Q \cdot (1 + \Delta Q),$$

where C_{baseline} is the baseline production cost per kg output in 2032 estimated by using cost data obtained from CAPRI model of the above-mentioned cost figures for slaughter and transportation, ΔA is the percentage of actors to adopt a change in the target population (defined for the EU or MS level and for a given group of actors), ΔP is estimated change in the producer price obtained from the Agricultural Commodity Market Model and converted to €/per kilogram, Q is the baseline annual production quantity of commodity in the EU in 2032, and ΔQ is estimated policy-induced change in the quantity traded obtained from the Agricultural Commodity Market Model.

Limitations

Although the models operate at net impacts level, both benefits and costs of each measure and regulatory package were identified. The quantification of costs and benefits is constrained by the information that was available from the supporting study, scientific literature, statistics and other sources. In some cases, the source publication did not provide detailed information about the costs and benefits, and this limits the possibility to report such impacts in detail. The impacts were considered at the member state level. Member state level data were utilised to the extent that is was available. Because no member state level (or regional) data on the impacts was available for many measures, EU-level data or data reported and extrapolated for other countries was used. This concerned especially impacts faced by farms and other operators when they adopt a new measure, but to some extent also data concerning the proportion of population that needs to adopt the measure (e.g. the proportion of production that is already applying a measure).

2.4. Assessment of cumulative impacts on production levels and consumer prices with the Agricultural Commodity Market Model (by JRC)

Animal and egg production in the Agricultural Commodity Market Model

The EU module of the Agricultural Commodity Market Model calculates endogenously the production of beef and veal (*BV*), dairy, poultry (*PT*), eggs (*EG*), pigmeat (*PK*). The following paragraphs detail how the Agricultural Commodity Market Model represents animal and eggs production. The description starts with beef and veal as one of the most complex modelling approaches. Quantity produced of beef and veal is a function of the following elements:

- i. weighted average of the returns (present year and past two years) in the form of a gross margin: producer price ($PP_{l,r,t}$) plus subsidy ($EPQ_{l,r,t}$) divided by the cost of production commodity index ($CPCI_{l,r,t}$);

- ii. weighted average of feed costs during the last three years in the form of a feed cost index ($FECI_{l,r,t}$) divided by a cost of production commodity index;
- iii. the previous year's production quantity ($QP_{l,r,t-1}$);
- iv. a time trend (T);
- v. the beef cow inventory from previous two years ($CI_{BV,r,t-p}$) and the dairy cow inventory from the previous year ($CI_{MK,r,t-1}$)

The structure of the equations in the model for the production of beef and veal livestock (BV) is:

$$\log QP_{BV,r,t} = \alpha + \sum_{p=0}^2 \left(\beta_p \log \frac{PP_{BV,r,t-p} + EPQ_{BV,r,t-p}}{CPCI_{BV,r,t-p}} \right) + \sum_{p=1}^3 \left(\gamma_p \log \frac{FECI_{RU,r}}{CPCI_{MK,r}} \right) + \sum_{p=1}^2 (\delta_p \log CI_{BV,r,t-p}) + (\eta \log CI_{MK,r,t-1} + \theta \log QP_{BV,r,t-1}) + \zeta * t \quad (1)$$

In the case of poultry (PT) production, the equation for determining production is simplified, given that the influence on present production choices from past years is limited. The growth cycle of typical commercial poultry is just few months. Poultry quantity produced is modelled as follows:

$$\log QP_{PT,r,t} = \alpha + \left(\beta \log \frac{PP_{PT,r,t} + EPQ_{PT,r,t}}{CPCI_{PT,r,t}} \right) + \left(\gamma \log \frac{FECI_{NR,r,t}}{CPCI_{PT,r,t}} \right) + \delta \log QP_{PT,r,t-1} + \log (R_{PT,r,t}). \quad (2)$$

In the case of pigmeat, the quantity of pigmeat produced is the sum of net trade in live animals (NTL) and the quantity produced from slaughtered animals (QPS):

$$QP_{PK,r,t} = QPS_{PK,r,t} + NTL_{PK,r,t} \quad (3)$$

The quantity produced from slaughtered animals represents the net production and is endogenously calculated. Production depends on the number of animals slaughtered (SLH) and the carcass weight (CW):

$$QPS_{PK,r,t} = SLH_{PK,r,t} * CW_{PK,r,t} / 100 \quad (4)$$

Slaughtered animal head numbers (SLH) depend on a producer gross margin (revenues and feed cost index). Decisions on how many animals are slaughtered in a year depend on the economic revenue returns of the previous year. The number of animals slaughtered in the current year also depends on the number of slaughtered animals in the previous year to model persistence in production. The equation is as follows:

$$\log SLH_{PK,r,t} = \alpha + (\beta \log \frac{PP_{PK,r,t-1} + EPQ_{PK,r,t-1}}{CPCI_{PK,r,t-1}}) + (\gamma \log \frac{FEI_{NR,r,t-1}}{GDP_{ME,r,t-1}}) + \delta \log SLH_{PK,r,t-1} + \log (R_{PK,r,t}) \quad (5)$$

Pork carcass weights are modelled following a similar formula as the one used for calculating supply of other meats but carcass weight (CW) depends on revenue gross margin and the feed cost margin of the current year:

$$\log CW_{PK,r,t} = \alpha + (\beta \log \frac{PP_{PK,r,t} + EPQ_{PK,r,t}}{CPCI_{PK,r,t}}) + (\gamma \log \frac{FEI_{NR,r,t}}{GDP_{ME,r,t}}) + \delta * T + \log (R_{PK,r,t}) \quad (6)$$

If producer prices increase more than costs, then producers will become less reluctant to sell their animals and carcass weight would decrease.

The egg production modelling has been improved from the usual Agricultural Commodity Market Model. Egg products are also modelled with a similar formula to the one used for poultry, for each of the regional blocks (EU-14 and EU-13):

$$\log QP_{EG,r,t} = \alpha + (\beta \log \frac{PP_{EG,r,t}}{CPCI_{EG,r,t}}) + \gamma \log QP_{EG,r,t-1} + \log (R_{EG,r,t}) \quad (7)$$

For the Member States that entered the EU before 2004, the egg market price clears the whole European market while the producer price in the Member States that entered afterwards is modelled as a fixed proportion of the other one, based on historical price differences.

Costs of production commodity index

The Agricultural Commodity Market Model represents costs through a univariate cost of production commodity index (or $CPCI$), in accordance with a univariate input-output profit model. That means that costs are represented by an index of the costs per unit of a composite input. The cost index is constructed as a weighted average of three cost sub-indices representing important input cost categories: energy (e.g. electricity and fuels), tradable (e.g. crop protection products, other specific crop costs, veterinary costs and other specific livestock costs, machinery, and buildings) and other non-tradable inputs (e.g. contract work, other farming overheads, depreciation, wages and own work).

The main equation for the cost of production commodity index for livestock products is defined as follows:

$$CPCI_{l,r,t} = SHEN_{l,r,t} \times \frac{XP_{OIL,t} \times XR_{r,t}}{XP_{OIL,2008} \times XR_{r,2008}} + SHTR_{l,r,t} \times \frac{GDP_{USA,t} \times XR_{r,t}}{GDP_{USA,2008} \times XR_{r,2008}} + SHNT_{l,r,t} \quad (8)$$

where

- $CPCI_{l,r,t}$ is commodity production cost index for livestock commodity (beef and veal, pigmeat, poultry, sheep) l , in region r , in year t ;
- $SHEN_{l,r,t}$ is the weight of energy inputs in total base year commodity production costs;
- $SHTR_{l,r,t}$ is the weight of tradable inputs in total base year commodity production costs;

- $SHNT_{l,r,t}$ is the weight of non-tradable inputs in total base year commodity production costs;
- $GDPD_{r,t}$ is the Gross Domestic Product Deflator in region r in year t ;
- $XR_{r,t}$ is the nominal exchange rate in region r in year t with respect to the US Dollar;
- $XP_{OIL,WLD,t}$ is the World Crude Oil price in year t .

According to the OECD/FAO model framework, each of the 3 cost sub-indices are calculated as deflated indices of livestock commodities representing the cost sub-indices indicated: a deflated (to 2008) world crude oil price for the cost of energy in local currency, a deflated (to the US index in 2008) world consumer price index as proxied by the US GDP Deflator for the tradable inputs, and a deflated (to 2008) consumer price index in each country proxying for local price movements of non-tradable inputs.

The weights of the various cost categories (e.g. $SHEN_{l,r,t}$) are region specific. They were estimated based on historical cost structures in regions. They are weights to aggregate, from different cost sub-indices, a univariate input cost index. This cost index moves up and down depending on the price movement of each input and on the region-specific weights. The cost index represents a unitary cost of all the inputs used to produce that commodity.

The feed costs are endogenous to the model, and therefore they are not considered in these weights. The total cost of labour is included. Thus, own labour is accounted for at its opportunity cost. Land and capital costs are not included except for depreciation.

Animal welfare regulation presumably affects production costs, so the model for the ‘commodity production cost index’ (CPCI) is augmented by $A_{CPCI,t}$ to follow equation (9):

$$CPCI_t = [SHEN \times \Delta XP_{OIL,t} + SHTR \times \Delta GDPD_{USA,t} + SHNT \times \Delta GDPD_t] \times (1 + A_{CPCI,t}/100), \quad (9)$$

where $A_{CPCI,t}$ is a ‘production cost’ adjustment factor and the Δ is an operator deflating prices and translating into national currencies. The $A_{CPCI,t}$ variable is used to model higher or lower production costs or cost-increasing/decreasing productivity changes.

Consumer prices

In each of the regions considered in this exercise (EU-14 and EU-13), consumer prices (CP) differ from producer prices (PP) as they include taxes (TAX) and retail margins (MAR):

$$CP_{l,r,t} = (PP_{l,r,t} + MAR_{l,r,t}) \times (1 + TAX_{l,r,t}/100) + ADDTAX_{l,r,t}, \quad (20)$$

where $ADDTAX_{l,r,t}$ stands for an additional tax. The retail margins are modelled as

$$\log(MAR_{l,r,t}) = \alpha + \beta \times \log(GDPD_{r,t}) + \log(R_{MAR_{l,r,t}}). \quad (31)$$

Consumer prices at the aggregate EU level are a weighted average of the regional ones (weighted by population, POP , in each of the regional blocks):

$$CP_{EUN} = (CP_{EU14} \times POP_{EU14} + CP_{EU13} \times POP_{EU13}) / (POP_{EU14} + POP_{EU13}) \quad (42)$$

Scenario shocks

The measures proposed represent a change in costs. We assume that the producer price shocks impact the cost of production commodity index *CPCI*, while the consumer price shocks affect the consumer price retail margins *MAR*. The presented analysis only considers pigmeat, eggs, poultry production and dairy cows and beef & veal cattle, including direct/indirect and feed market interactions. The shocks for consumer prices are applied to a proportion of consumer price margins affected by the cost categories. For the purpose of calculating the proportions, consumer price margins are from the 2023 baseline in the Agricultural Commodity Market Model.

To illustrate the impact of a production cost increase, we consider the EU market effects in 2031 of cost shocks for each animal product, all starting in 2025. Table 1 shows the percentage shocks as percentage increases in consumer price margin (Kill and Transport category).

Table 1: Percentage changes to cost of production commodity index (Kept) and consumer price (Kill and Transport) margins

Percentage change (%)		Option I	Option II
Poultry	Kept	0.00	0.00
	Kill & Transport	8.06	7.88
Eggs	Kept	0.00	0.00
	Kill & Transport	0.25	0.25
Pork	Kept	0.16	0.05
	Kill & Transport	1.46	1.43
Dairy	Kept	0.00	0.00
	Kill & Transport	0.19	0.19
Beef	Kept	0.35	0.10
	Kill & Transport	8.55	8.37

How to incorporate the scenario shocks into the model

In order to implement producer shocks, we change the $A_{CPCI,t}$ term in equation (9) for the increases/decreases in producer costs. Kept animal rules affect producer costs and are thus entered as shocks in the $A_{CPCI,t}$ variable from 2025 onward.

Regarding consumer shocks, we increase the retail margin $MAR_{l,r,t}$ in equation (10) with the cost increases provoked by the new transportation rules. These changes are introduced exogenously on the residual term $\log(R_{MAR_{l,r,t}})$ in equation (11).

We model two different policy packages with regard to the duration of transport of animals and journey times. The first scenario corresponding to Policy Option I entails reduced journey times. The second scenario reflects a policy option that allows for longer journeys, while still limiting journey times. We take into account the fact that different journey times affect not only consumers through the prices they are willing to pay, but also but also the farmers.

Model limitations

The Agricultural Commodity Market Model can only depict European and global agricultural markets in a simplified manner. A model is a simplified approximation of reality and cannot fully capture the behaviour of all agents involved. Consequently, several limitations of this analysis should be mentioned. Most importantly, lack of data is the main limitation to acknowledge. Information on regional transport practices and the costs attached to them is difficult to obtain. It is also difficult to assess the potential for implementation of each measure in each region.

A differentiation of market impacts by Member State would have been desirable, instead of only having EU14 and EU13 regional aggregates. This limitation is due to the global templated structure of the model and cannot be easily overcome in the short term. However, this limitation is not so important in a situation of a well-functioning EU common market.

The basic assumption in the model is that of perfectly competitive markets and homogenous goods. In reality, there are many market imperfections, and goods are often differentiated with respect to their quality and/or other attributes. The latter aspect could be important with regards to the animal welfare at transport regulation. Some consumers might be willing to pay extra for animal products produced in the EU, if the new transport regulation is passed. However, the model does not differentiate between goods from different countries. Therefore, the simulation results might overstate the negative impacts on domestic EU production and EU trade, but the extent of this overstatement is difficult to evaluate.

With respect to costs, the model lacks an explicit representation and separation of the different transportation cost elements involved.

Last but not least, in the presented ex-ante analysis it is not possible to capture all underlying interlinkages with other parallel policy proposals (e.g. Farm to Fork or Biodiversity strategy). The magnitude of the scenario shocks (i.e. distance from baseline values) needs also to be considered since the model is calibrated to a common vision of the future and the precision of measured marginal changes may be decreased when extreme changes are predicted.

Nevertheless, even though limitations to this modelling framework exist, no better alternatives for the analysis of these future policy scenarios exist in the timeframe allowed. Although the current modelling framework has not been developed to analyse the animal transport sector and present limitations, because it is an aggregated agricultural commodity market model and

market impacts are close to negligible, the economic analysis performed can be identified as robust and transparent.

2.5. Costs and benefits

The source and base for the cost calculations can be found in the external study supporting this impact assessment²³. The benefits for society of improving animal welfare are expected to be greater than the costs but it is difficult to monetise them. While for some, the relationship is clearly established (poor animal welfare associated with increased risks of zoonosis and antimicrobial resistance) and has clear economic implications (diseases are a tremendous economic burden to society), there are major limitations when attempting to provide a price tag, due to the many different and unknown variables affecting this relationship. Other benefits simply cannot be expressed in monetary terms (animal welfare from the animal's point of view).

2.6. Assessment of food affordability

The impact of the **policy packages** for improved animal welfare legislation during the transport phase on final consumer prices for animal-based products, **considering an endogenous trade response**, has been estimated as summarised in Table 2. We distinguish between direct impacts on retail prices due to the changes in animal welfare requirements (pigs, poultry and eggs, cattle) and indirect impacts due to the new equilibrium in the agricultural sector following the implementation of those requirements (sheep and goat).

Table 2. Impacts on consumer prices of enhanced animal welfare legislation for transport by product in percentage

Product	Retail price increase by 2030 (%)			
	Package 1		Package 2	
	AW shock ¹	Market feedback impacts ²	AW shock ¹	Market feedback impacts ²
	<i>Endogenous imports</i>	<i>Endogenous imports</i>	<i>Endogenous imports</i>	<i>Endogenous imports</i>
Beef and Veal	4.45		4.37	
Sheep and Goat		0.18		0.17
Pig	1.15		1.12	
Poultry	2.77		2.70	
Eggs	0.20		0.20	
Fresh Dairy products	0.17		0.17	
Cheese	0.06		0.06	
Butter	0.08		0.08	

Note: 1) impacts derived from the application of new AW requirements; 2) impacts from the endogenous response in the model to (1).

Source: Agricultural Commodity Market Model simulations described above

In order to get an idea of how much would the price increases identified would affect food affordability of European citizens of different income groups, data is needed about four main concepts:

- a. Share of food in total expenditure

²³ Transport study, p. 22 (see note 5, page 8).

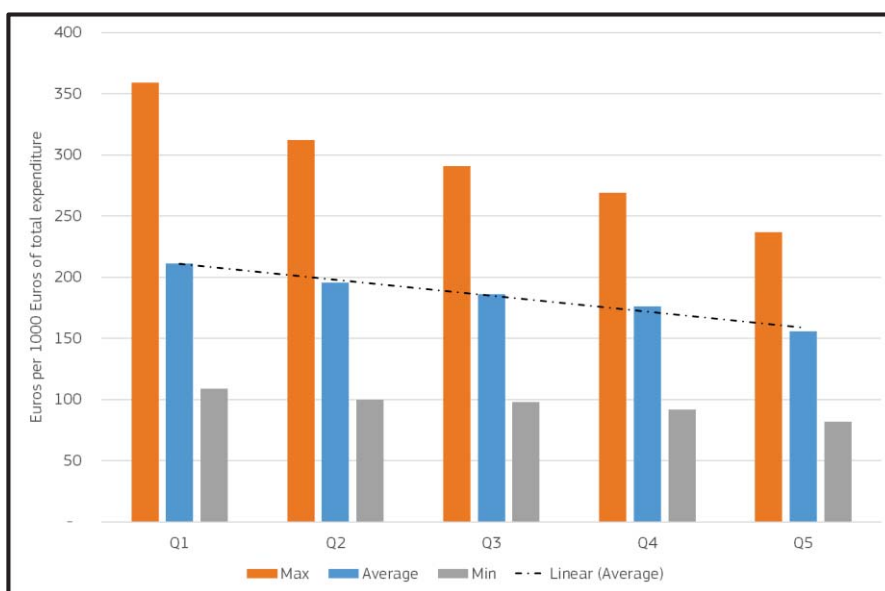
- b. GDP growth to 2030
- c. Share of products affected by animal welfare legislation (PAWL) in total food expenditure
- d. Expected changes in diets

Considering these three aspects, we can project to 2030 the relative share of different meat products in food and total expenditure. We describe below each of the steps taken to do so.

Share of food expenditure in total expenditure

The first data source we use is that of **share of food expenditure in total expenditure** reported by Eurostat in its Harmonised Index of Consumer Prices data set²⁴. Data is available for different aggregates following the Classification of individual consumption by purpose (COICOP) and split for different income quintiles. Data is reported every 5-years and the last available data is for 2020. On average the share of total expenditure on food ranges from 21.1% for the lowest income quartile to 15.6% to the highest one (Figure 1). Member State specific data is reported in annex 1.

Figure 1. Share of food expenditure in total expenditure by income quintile in the EU (2020).

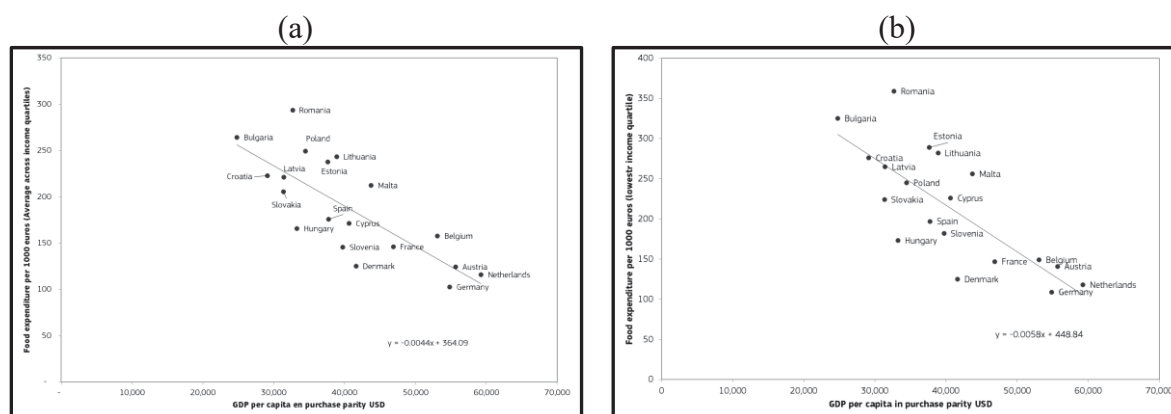


Source: Eurostat and own elaboration

These averages hide quite some heterogeneity across countries even within income groups, with the share of food on total expenditure reaching 36% of total expenditure for the lowest income group in Romania and just 11% in Germany. However, what can be seen from the inspection of the data is that the share of food in total expenditure falls with increasing income across income quartiles, confirming Engel’s law. This is also the case when we inspect that across countries, in particular for the lower income quartile, even when taking into account differences in purchase power parity (Figure 2).

²⁴ Data extracted from [Eurostat](#).

Figure 2. Relationship between GDP and food expenditure share for EU countries in 2020 on average (a) and for the lowest income quintile (b).



Source: Eurostat, World bank and own elaboration

The impact of economic growth on the share of food expenditure in total expenditure

Based on the negative relationship observed between GDP and share of food in total expenditure, we need to update the shares of food expenditure on total expenditure incorporating the growth in GDP that is expected from 2020 to 2030. These growth rates are taken from the macro assumptions of the mid-term outlook for the European agricultural sector²⁵ with real GDP per capita growing on average by 24%, with a minimum of 14% for Luxembourg and a maximum of 55% for Croatia.

We need to take into account the decreasing share that food will have on total expenditure by 2030 assuming current growth rates. For this, we fit a fixed year and country effects panel data model with the shares of food expenditure in total expenditure per income quartile as dependent variable and GDP per capita as independent variable taking logs in both sides of the equation. Results of these regressions are shown in Table 3 with each additional 100 euros in GDP per capita reducing the share of food in total expenditures from 0.39 percentage points in the lowest income quintile to 0.68 percentage points in the highest one.

Table 3. Panel regressions for log food expenditure shares on GDP per income quartile

	Income quintiles				
	Q1	Q2	Q3	Q4	Q5
Constant	9.339063	10.14851	11.21318	10.99409	11.82129
Log(gdp)	-0.3986765	-0.4866958	-0.5991989	-0.5849352	-0.6836224
Observations	98	98	98	98	98
R-squared	0.9717	0.9652	0.9687	0.9640	0.9560
Country fixed effects	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES

Source: own elaboration

²⁵ European Commission, Directorate-General for Agriculture and Rural Development, *EU agricultural outlook for markets, income and environment 2022-2032*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2762/29222>.

We use the parameters obtained from the panel regressions to project the share of food expenditure in total expenditure taking into account the increased GDP. In order to avoid implausible results, if the share obtained in this way is above the 2020 share in the dataset we use the 2020 share. For the three cases studies selected below, this is the case for Germany in the lowest income quintile and for Portugal in both highest and lowest quintile.

We do the analysis for 2030 even when the cost shocks are for 2031 as there are no reliable GDP growth projections to 2031. Assuming that GDP would continue growing from 2030 to 2038 this means that our estimates are higher bounds as the higher the GDP the lower the share of food on total expenditure.

Share of food affected by animal welfare legislation in total food expenditure

Information regarding the **share in value of products affected by animal welfare legislation (PAWL)²⁶ in total food consumption** is only available at the aggregated level (e.g. not by income quintile). This data comes from the GTAP database²⁷ and on average for the EU 34.2% of total food expenditure is related to this group of products (Table 4). Country specific figures are provided in Annex 2.

Table 4. Shares of expenditure in products affected by animal welfare legislation on total and food consumption in the EU

Expenditure Category	Share in total (food) consumption (%)		Share in total (food) consumption (%)
	Maximum	Minimum	EU Average
Sheep and goats, horses	0.15 (0.75)	0.00 (0.00)	0.00 (0.01)
Pig	0.38 (2.29)	0.01 (0.12)	0.05 (0.50)
Raw milk	1.27 (5.28)	0.06 (0.30)	0.17 (1.55)
Other red meat products	0.46 (2.35)	0.04 (0.36)	0.12 (1.10)
Pork	3.00 (15.67)	0.29 (3.45)	0.94 (8.60)
Dairy products	3.70 (20.70)	0.27 (6.09)	1.21 (11.06)
Live Chicken	0.38 (2.37)	0.01 (0.08)	0.05 (0.43)
Poultry	1.91 (10.65)	0.02 (0.25)	0.50 (4.51)
Live cattle	0.42 (2.14)	0.00 (0.00)	0.00 (0.04)
Beef	1.18 (10.61)	0.10 (1.33)	0.71 (6.49)
TOTAL	8.94 (54.49)	1.33 (23.98)	3.76 (34.2)

Source: GTAP database

Changes in diets

Another aspect to take into account to see the affordability of these price increases relates to the changes in diets. According to the latest mid-term outlook for the European agricultural sector consumption of food affected by animal welfare legislation is expected to fall by 2030 compared to 2020 for beef, pork, fresh dairy products and butter, while it will increase for sheep, poultry, eggs and cheese Table 5.

²⁶ Including sheep and goat, pig, raw milk, other read meat products, pork, dairy products, live chicken, poultry, live cattle and beef.

²⁷ Aguiar, A. et al., 'The GTAP Data Base: Version 10', *Journal of Global Economic Analysis*, Volume 4, 1, Purdue University, 2019.

Table 5. Per capita consumption of products affected by animal welfare legislation (kg)

	2020	2030	% change 2030-2020
Beef and Veal	10.4	9.7	- 6.6
Sheep and Goat	1.3	1.3	+ 0.6
Pig	32.1	31.3	- 2.5
Poultry	23.6	24.0	+ 1.5
Eggs	13.5	14.3	+ 5.4
Fresh Dairy products	82.9	77.4	- 6.6
Cheese	21.0	21.3	+ 4.0
Butter	4.8	4.7	- 0.7

Source: DG AGRI Mid-Term Outlook 2022

Dealing with aggregation for impacts on eggs

We have no data on expenditure for eggs as a standalone product in the sources focusing on expenditure, as the expenditure on eggs is reported aggregated with dairy.

Therefore, to include the impact on eggs we need to weight changes in eggs consumption and expenditure in relationship with the other product groups included in the dairy aggregate. As our focus is changes in expenditure, we use this concept to construct weights. For this, we use the data from the Agricultural Commodity Market Model baseline, which does split consumption in all of the components of the dairy product group.

	Share of total expenditure	Share of expenditure in group	Change in price		Change in quantity	
			<i>Package I</i>	<i>Package II</i>	<i>Package I</i>	<i>Package II</i>
			<i>Endogenous imports</i>	<i>Endogenous imports</i>		
Cheese	8.832	71	0.06	0.06	4.0	
Butter	1.369	11	0.08	0.08	-0.7	
Eggs	2.252	18	0.20	0.20	5.4	
Total for group	12.453	100	0.09	0.09	3.74	

Note: Total for group calculated as sum for first two columns and as weighted average by share of expenditure for the last five columns.

Source: Agricultural Commodity Market Model database, Agricultural Commodity Market Model modelling results, DG AGRI Mid-Term Outlook 2022 and own calculation.

Conclusions

In summary, the assumptions for our affordability calculations of the packages of options for revised animal welfare legislation considering endogenous trade response and keeping imports at baseline level are as follows:

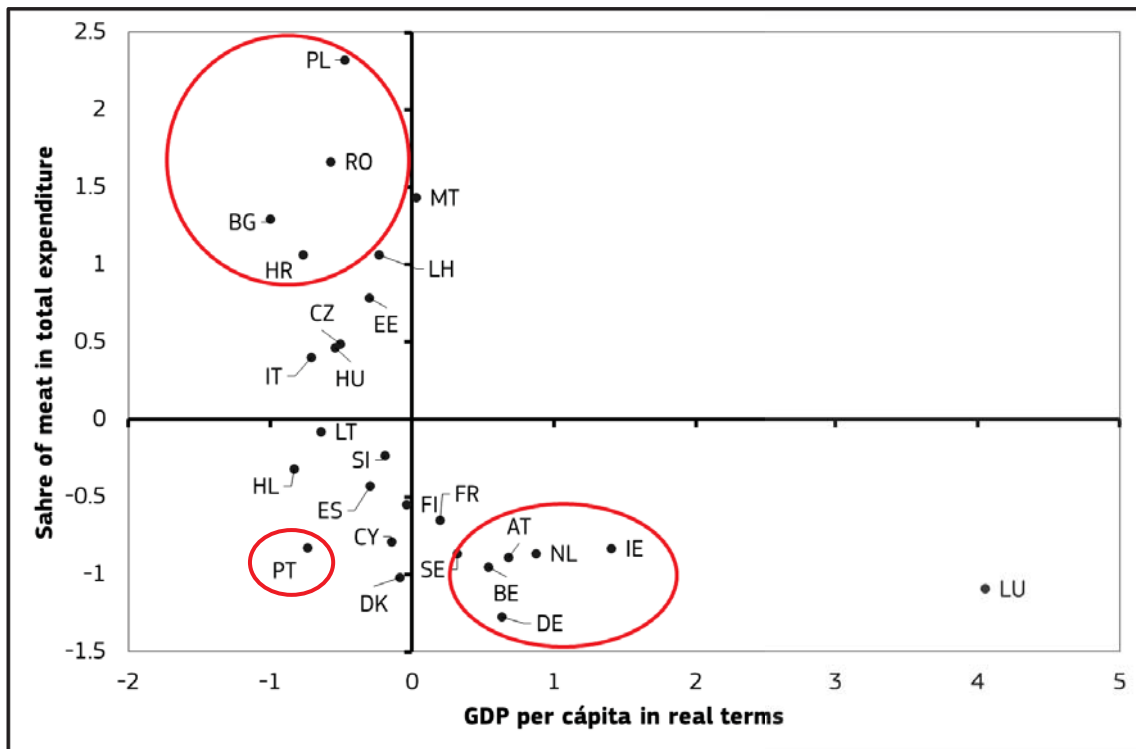
- a. Share of food expenditure in total expenditure falls with GDP growth as observed during the period 2005-2020 during the period 2020-2030.
- b. GDP in EU countries grows as in the macro assumptions of the MTO 2022.
- c. Quantity of products affected by animal welfare legislation changes homogenously across income quartiles as projected in MTO 2022.
- d. Share of different components of food expenditure is the same across income quartiles and remains stable until 2030 except for changes in consumption.
- e. PAWL prices increase as per the Agricultural Commodity Market Model simulations

The impact on affordability is calculated as follows:

- a. We calculate the total expenditure on FAWL products that is expected in 2030 using the modified quantities and the baseline prices.
- b. We calculate the total expenditure on FWAL products that is expected in 2030 using the modified quantities and modified prices.
- c. The difference between (a) and (b) is the impact on affordability of the change in animal welfare legislation keeping the same level of FAWL consumption.

The impact is reported as additional expenditure in euros per year and as share of total income. To show case the diversity of impacts we select three countries to taking into account differences in meat expenditure and GDP (Figure 3). As it can be seen in Figure 3 the relationship between expenditure and GDP shown for overall food expenditure also holds for expenditure on foods affected by animal welfare legislation. The wealthier the country the less importance expenditure on PAWL on total expenditure. We choose one country with a low GDP and high share of FAWL on total food expenditure (PL), one with low GDP and low share of FAWL on total food expenditure (PT) and one with high GDP and low share of FAWL on total food expenditure (DE).

Figure 3. Intensity of expenditure in foods affected by animal welfare legislation and GDP for EU MS (2020)



Note: figures normalised.

Source: GTAP and Agricultural Commodity Market Model.

Taking all this together the expected impacts in terms of additional food expenditure is reported in Table 6. We can see that the increase in price of animal products due to enhanced animal welfare requirements in package I will represent at most EUR 14.38 per person and year (highest income group in Portugal) a minimum of EUR 2.87 per person and year (lowest income group in Germany). When package II is chosen, the expected costs is reduced on average by 2.15%; with the highest cost being EUR 14.09 per person a year (also for the highest income group in Portugal) and the lowest EUR 2.81 (again for the lowest income group in Germany).

In terms of impact on total expenditure, the figures are very small, with a maximum of 0.096% of total expenditure for the lowest income group in Poland a minimum of 0.035% of total expenditure for the richest income group in Germany in package I. In package II, these shares are reduced to 0.094% and 0.034% respectively.

Table 6. Change in expenditure (euros per person and year) in FAWL in 2030 due to package I and package II measures for new AW transport legislation with endogenous trade response

	Poland				Germany				Portugal			
	Poorest Quintile		Richest Quintile		Poorest Quintile		Richest Quintile		Poorest Quintile		Richest Quintile	
<i>Option</i> <i>Product</i>	1	2	1	2	1	2	1	2	1	2	1	2
Sheep and goat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pig	0.10	0.09	0.33	0.32	0.04	0.03	0.17	0.17	0.02	0.02	0.08	0.08
Raw milk	0.02	0.02	0.08	0.08	0.03	0.03	0.13	0.13	0.01	0.01	0.03	0.03
Other read meat	0.10	0.10	0.34	0.34	0.17	0.16	0.83	0.81	0.16	0.16	0.76	0.75
Pork	0.74	0.72	2.54	2.47	0.64	0.63	3.18	3.10	0.47	0.46	2.25	2.19
Dairy	0.06	0.06	0.22	0.22	0.05	0.05	0.23	0.23	0.05	0.05	0.24	0.24
Live chicken	0.30	0.30	1.04	1.02	0.04	0.04	0.20	0.20	0.03	0.03	0.13	0.13
Poultry	1.23	1.19	4.22	4.11	0.65	0.63	3.22	3.14	0.48	0.47	2.29	2.24
Live cattle	0.00	0.00	0.02	0.02	0.01	0.01	0.06	0.06	0.00	0.00	0.01	0.01
Beef	0.48	0.47	1.66	1.63	1.25	1.23	6.22	6.10	1.81	1.78	8.58	8.43
Total	3.03	2.96	10.45	10.20	2.87	2.81	14.24	13.94	3.04	2.98	14.38	14.09
Share of total income (%)	0.096	0.094	0.074	0.073	0.038	0.037	0.035	0.034	0.072	0.071	0.072	0.071

Source: own calculations

Table 7. Share of food and non-alcoholic beverages in total expenditure by income quintile and Member State (euros per thousand euros)

	Latest year available	Q1	Q2	Q3	Q4	Q5
Austria	2020	141	127	128	118	107
Belgium	2020	149	157	160	158	164
Bulgaria	2020	325	284	267	243	202
Croatia	2020	276	236	221	198	183
Cyprus	2020	226	198	170	146	117

Czechia	2015	237	232	227	208	187
Denmark	2020	125	132	129	125	115
Estonia	2020	289	252	238	224	185
Finland	2015	128	122	129	123	110
France	2020	147	150	154	150	128
Germany	2020	109	104	103	103	93
Greece	2020	222	227	211	197	176
Hungary	2020	173	169	171	163	152
Ireland	2015	137	133	118	112	101
Italy	2005	282	236	212	187	133
Latvia	2020	265	238	218	217	167
Lithuania	2020	282	242	238	242	213
Luxembourg	2020	123	100	98	92	82
Malta	2020	256	251	207	186	161
Netherlands	2020	118	115	117	116	114
Poland	2020	245	259	263	255	225
Portugal	2015	183	168	156	144	116
Romania	2020	359	312	291	269	237
Slovakia	2020	224	214	206	199	185
Slovenia	2020	182	158	141	130	116
Spain	2020	197	188	177	170	147
Sweden	2015	122	119	124	118	109

Source: Structure of consumption expenditure by income quintile and COICOP consumption purpose [HBS_STR_T223_custom_4982177]

Table 8. Shares of expenditure in products affected by animal welfare legislation on total (food) consumption for each Member State

	Sheep and goat		Pig		Raw milk		Other read meat		Pork		Dairy		Live chicken		Poultry		Live cattle		Beef		Total	
	Total	Food	Total	Food	Total	Food	Total	Food	Total	Food	Total	Food	Total	Food	Total	Food	Total	Food	Total	Food	Total	Food
Austria	0.00	0.01	0.08	0.91	0.14	1.65	0.06	0.74	0.63	7.46	0.84	9.89	0.06	0.68	0.37	4.33	0.00	0.04	0.49	5.78	2.67	31.47
Belgium	0.00	0.00	0.09	0.70	0.12	0.90	0.14	1.09	0.45	3.45	1.40	10.77	0.03	0.24	0.24	1.84	0.00	0.02	0.64	4.95	3.11	23.98
Bulgaria	0.00	0.00	0.19	0.95	0.99	4.89	0.37	1.81	3.00	14.85	1.36	6.72	0.28	1.40	1.18	5.82	0.00	0.01	0.33	1.64	7.70	38.10
Croatia	0.15	0.75	0.20	1.01	0.07	0.34	0.15	0.76	2.88	14.53	2.59	13.09	0.17	0.87	0.84	4.24	0.42	2.14	0.67	3.37	8.15	41.09
Cyprus	0.00	0.03	0.28	2.29	0.12	0.99	0.19	1.56	1.38	11.12	1.11	8.99	0.24	1.93	0.86	6.93	0.00	0.01	0.20	1.60	4.39	35.45
Czech R.	0.00	0.01	0.07	0.55	0.17	1.24	0.08	0.61	1.78	13.19	1.36	10.07	0.08	0.58	0.66	4.91	0.00	0.00	0.58	4.26	4.78	35.43
Denmark	0.00	0.01	0.04	0.42	0.12	1.40	0.07	0.80	0.64	7.59	1.05	12.33	0.01	0.10	0.14	1.63	0.00	0.03	0.54	6.32	2.60	30.63
Estonia	0.00	0.00	0.38	2.04	0.58	3.11	0.08	0.43	1.16	6.25	3.58	19.22	0.15	0.80	0.48	2.56	0.00	0.01	0.48	2.58	6.89	37.01
Finland	0.00	0.00	0.01	0.12	0.07	0.81	0.11	1.24	0.92	10.47	1.45	16.49	0.01	0.08	0.45	5.11	0.00	0.01	0.87	9.89	3.90	44.24
France	0.00	0.00	0.02	0.14	0.10	0.85	0.19	1.65	0.68	5.91	1.49	12.94	0.02	0.19	0.67	5.84	0.00	0.01	1.18	10.22	4.34	37.77
Germany	0.00	0.00	0.04	0.42	0.22	2.22	0.05	0.54	0.76	7.69	0.65	6.62	0.02	0.19	0.31	3.10	0.00	0.04	0.40	4.05	2.45	24.88
Greece	0.00	0.01	0.07	0.45	0.16	1.09	0.29	1.91	0.54	3.62	1.87	12.48	0.09	0.62	0.53	3.54	0.00	0.01	0.38	2.56	3.93	26.29
Hungary	0.00	0.02	0.14	1.02	0.13	0.94	0.05	0.36	2.20	15.67	1.60	11.40	0.15	1.07	1.49	10.65	0.00	0.02	0.22	1.55	5.99	42.70
Ireland	0.00	0.01	0.07	1.62	0.20	4.62	0.04	0.93	0.29	6.68	0.27	6.09	0.07	1.60	0.29	6.63	0.01	0.14	0.10	2.19	1.33	30.51
Italy	0.00	0.00	0.06	0.59	0.09	0.89	0.12	1.19	1.07	10.70	1.31	13.13	0.04	0.36	0.33	3.36	0.00	0.02	1.06	10.61	4.07	40.85
Latvia	0.00	0.00	0.07	0.36	0.66	3.36	0.09	0.45	1.41	7.14	1.47	7.46	0.14	0.70	1.08	5.50	0.00	0.02	0.26	1.33	5.19	26.33

Lithuania	0.00	0.00	0.10	0.52	0.06	0.30	0.08	0.40	1.90	9.46	3.70	18.49	0.08	0.42	1.23	6.12	0.00	0.01	0.36	1.78	7.51	37.50
Luxembourg	0.00	0.00	0.01	0.12	0.07	0.75	0.23	2.35	0.75	7.60	1.78	18.18	0.01	0.12	0.02	0.25	0.00	0.00	0.30	3.02	3.18	32.40
Malta	0.00	0.00	0.19	1.68	0.14	1.24	0.19	1.67	1.61	14.04	2.38	20.70	0.14	1.20	0.62	5.41	0.00	0.01	0.98	8.55	6.26	54.49
Netherlands	0.00	0.00	0.03	0.34	0.10	1.11	0.11	1.21	0.79	8.73	1.34	14.94	0.02	0.28	0.27	3.02	0.00	0.02	0.55	6.16	3.22	35.80
Poland	0.00	0.00	0.30	1.88	0.50	3.12	0.08	0.52	2.33	14.46	2.43	15.03	0.38	2.37	1.55	9.58	0.00	0.02	0.41	2.54	7.99	49.52
Portugal	0.00	0.00	0.04	0.28	0.09	0.74	0.09	0.73	1.00	7.91	1.27	10.02	0.02	0.19	0.41	3.22	0.00	0.01	1.03	8.16	3.96	31.26
Romania	0.00	0.01	0.14	0.58	1.27	5.28	0.46	1.92	2.87	11.89	1.66	6.89	0.17	0.69	1.91	7.92	0.00	0.01	0.45	1.87	8.94	37.05
Slovakia	0.00	0.00	0.14	0.96	0.08	0.56	0.09	0.63	1.66	11.07	2.18	14.57	0.17	1.12	0.90	6.02	0.00	0.02	0.58	3.86	5.81	38.81
Slovenia	0.00	0.00	0.03	0.20	0.46	3.05	0.10	0.68	1.42	9.43	1.56	10.38	0.11	0.76	1.26	8.36	0.00	0.03	0.89	5.94	5.85	38.82
Spain	0.00	0.00	0.02	0.21	0.11	1.09	0.11	1.17	0.96	9.87	0.94	9.66	0.01	0.12	0.40	4.14	0.00	0.02	0.48	4.96	3.04	31.24
Sweden	0.00	0.00	0.02	0.19	0.08	0.80	0.13	1.39	0.84	8.77	1.26	13.09	0.02	0.21	0.37	3.87	0.00	0.01	1.00	10.46	3.72	38.79

Source: GTAP

2.7. Comparison of the options and of the packages of options

Section 7. of the main report and Annex 9 include a systematic comparison of the options, as well as of the two packages of options considered, according to criteria of *effectiveness*, *efficiency*, *coherence* and *proportionality*.

This comparison is presented in the format of a narrative underpinning comparison tables using qualitative scores (using the --- to +++ scale²⁸) and is based on the analysis performed in section 6., including the MCDA and cost-benefit analysis.

In particular, the comparison of options and packages in terms of *effectiveness* is based on the assessment of the animal welfare impact in the MCDA in section 6, when linked to animal welfare objectives only²⁹. The comparison of the specific objective 5 on enforcement is based on the overall assessment of the options in section 6.

With regards to *efficiency*, this criterion has been assessed based on a cost-benefit analysis. For the options, a cost-benefit analysis has been integrated in the comparison tables, qualitatively assessing the total costs and the total benefits (i.e. qualitative scores), based on the analysis of section 6 (including the MCDA, which is based on quantitative data whenever possible)

The comparison of the packages is also based on the analysis performed in section 6 (including the MCDA) as well as a cost-benefit analysis of the packages presented in section 6.2.1..

3. SOURCES AND CHALLENGES

Multiple data sources and related analytical methods were applied to provide evidence for the impact assessment of the policy elements and options:

- **Literature and document review**
- **Comparative legal analysis**
- **Secondary data analysis**
- **Case studies**
- **Stakeholder consultations**

Evidence - including stakeholders' views – has mostly been gathered within the framework of the external study. The Commission has performed additional desk research and undertaken additional stakeholder consultation activities³⁰, including through a thematic subgroup that was established for this purpose under the EU Animal Welfare Platform³¹, and which have held in

²⁸ The scores are given on the expected magnitude of impact: + + + being strongly positive, + + positive, + moderately positive, 0 neutral, – moderately negative, – – negative and – – strongly negative.

²⁹ Specific objectives 1, 2, 3, 4, 6 and 7.

³⁰ Between July 2021 (publication of the Inception Impact Assessment) and March 2023, DG SANTE has held 72 such dedicated meetings with stakeholders, as an additional means to gather their views and data.

³¹ European Commission, [Thematic sub-groups](#).

total, 10 meetings (with minutes publicly available) since March 2022 as part of the consultation strategy.

All methods applied encountered a varying degree of difficulty in relation to lack of quantitative data. Despite a growing body of relevant literature and evidence, not enough data was found to quantify all relevant impacts of every policy measure discussed in the policy options for the future of the legislation. Whenever possible, reasonable assumptions were made to assess the impacts, but this lack of quantitative data is a key limitation to the analysis.

Limitations of the approach

- Scale used for the scoring in the MCDA

To note is that the scale used for the scoring of impacts and options does not possess cardinal properties as the distance between the score values is not uniform. For example, the distance between score 2 (“desirable”) and score -2 (“not desirable”) cannot be interpreted as score 2 being “twice as good” as score -2. Hence, the impact scores only allow for an ordinal ranking of the policy options.

- Data limitations

The supporting study animal welfare during transport, reported challenges related to data availability or reliability.

Data for specific indicators to build the baseline (and thus assess the impacts of the proposed policy options against the baseline) are limited, particularly quantitative data on certain aspects. The gaps were completed with qualitative data from stakeholders (the data collection activities were designed to provide multiple sources for triangulation of findings), detailed analysis in the case studies, and expert judgement. Specific data availability limitations were:

While TRACES was used to map the current trends in animal transport as a basis for the analysis of the options, it has some gaps, including:

- data on transports within Member States are not included;
- limited detail to distinguish specific groups of animals, such as unweaned calves or piglets;
- not all relevant data are routinely recorded in TRACES (e.g. the actual arrival time of a transport was missing in a large number of cases) – as a mitigation measure other data (e.g. the estimated arrival time, average journey times) was used to perform the analysis;
- the data received did not include data on export to third countries;
- data from countries that export without transiting through other Member States are not included - therefore the analysis of the impact of the options on export was based on Comext data.

In addition, availability of data on costs to transporters, industry and national authorities (e.g. adjustment costs, administrative and enforcement costs) is variable and, when available, can be qualitative only or lack detail. Information on these costs was collected through the stakeholder consultations (e.g. questions about the perceived significance of such costs in the survey; in-depth questions in the case study interviews). Information about other economic impacts (e.g. on the impact of a ban on long journeys, on exports of live animals outside the EU) was extrapolated from statistical data on trade (e.g. Comext) showing the impacts in terms of number of journeys impacted, as it was not possible to quantify the indirect economic impact on operators other than transporters.

Furthermore, information on environmental impacts linked to the transport of live animals (environmental impacts per transport of different types of animals, transport means, etc.) is not available. Thus, the survey and interview questions were used to collect stakeholder feedback on these environmental impacts. General data on transport's environmental impacts (e.g. GHG emissions, air pollutants, soil pressure) from existing statistical sources (e.g. European Environment Agency, Eurostat) and the number of transport kilometres were used as proxies for environmental impacts.

The study also reported that the assessment of impacts on animal welfare was also limited. Despite large numbers of indicators to measure potential changes in welfare, no harmonised animal welfare indicators are in place at European level. In addition, that measurement is complex, the indicators can only measure a certain degree of change implied by the policy options and leads to difficulties to measure the gain in terms of welfare of one option against another. Regarding transport, quantitative data (e.g. on mortality or injuries) are generally perceived to be insufficiently sophisticated to measure the animal welfare impact of transport. There is no general consensus on acceptable thresholds for animal welfare related to transport, nor on maximum transport distances or duration that can be used as a generally accepted standard. Accordingly, the analysis of these impacts is qualitative and reliant on the EFSA opinions on requirements that may reduce risks to animal welfare, as well as stakeholders' perceptions and experts' judgement.

- **Challenges related to large scope of impacts assessed**

The study also faced several challenges given its large scope. First, many types of animals and means of transport needed to be considered: the type of animals transported varies from day-old chicks (DOC), small fish to mature cattle, while the means of transport varies from climatized trucks and airplanes to large livestock vessels. As collecting information for each situation was impossible, the impacts are described in more general terms (e.g. general animal welfare impacts rather than per species, general economic impacts rather than per country/region). However, a more detailed analysis of the impacts in specific situations is provided through the case studies, which cover specific animal transport aspects, animal species and geographical regions.

Second, animal transport is part of a larger value chain of food production ranging from agriculture/farm level, through transport, slaughter and processing to retail. The Transport Regulation regulates the transport part of the value chain and directly impacts only the stakeholders directly involved in moving animals i.e. transporters and public authorities who carry out official controls. Other stakeholders in the value chain such as farmers, breeders,

exporters, slaughterhouses, retailers or consumers may experience indirect impacts. Considering the broad scale of the topic (animals and modes of transports concerned) together with the complexity of the value chain and impossibility to account for all potential indirect impacts along it, the assessment in this study is focused on the direct impacts of animal transport and the stakeholders directly concerned by this activity. For example, the analysis of economic impacts focuses on impacts to the transporters and competent authorities and the analysis of environmental impacts focuses on the impacts of transport. Indirect impacts such as the environment consequences of animal production or the economic impacts on farmers, slaughterhouses, exporters or other stakeholders are discussed only where they are expected to be significant and where information is available.

- **Challenges related to timeline restrictions**

In regard to animal welfare during transport, expert judgement and analysis of TRACES data was used to complement the information gathered from stakeholders and, to the extent possible, assess the detailed options.

4. CORRELATION TABLES WITH EXTERNAL STUDY FOR THE MCDA

One major source for the performance of policy options within the MCDA were the scorings provided by the external study accompanying the Impact Assessment.

The study contains impact scores for certain policy options in the four dimensions (animal welfare, economic, social and environmental impacts). While the scores are based on a methodology provided by the European Commission, the presentation of the policy options are in some cases somewhat different. Some policy options are not at all (or only partially) addressed in the supporting study. This is because some of the policy options have been fine-tuned in the process of preparation of the impact assessment. In such cases, the Commission has made use of other, triangulated evidence as a basis for the scoring of the options in this assessment. That evidence, which includes academic literature and stakeholders’ views gathered in the thematic subgroup under the EU Animal Welfare Platform, has also been used to generally complement and qualify the scoring suggested in the supporting study. Hence, the scoring of options in this assessment sometimes differs from the scoring suggested in the supporting study.

The following tables indicate the correspondence of the examined policy actions in the external study with the policy options mentioned in section 6. on the impacts of the policy options **in the main document** as well as in Annex 9 of this impact assessment. Where there is no corresponding option in the supporting study, the tables summarise the main considerations taken into account for the scoring.

Section 6.1.1 “Journey times and space allowance during transport” of the main document

Policy code SWD	Policy option in study
1.O.1A + 1.O.2A + 1.O.3	Partially corresponding to Option A of journey time + the Option on space allowance. Deviation for the social score as

	the combined effects of reducing journey times and increasing space allowance leads to a neutral impact.
1.O.1A + 1.O.2B + 1.O.3	Partially corresponding to Option B/C + the Option on space allowance. Deviation for the social score as the combined effects of reducing journey times and increasing space allowance leads to a limited impact.
1.O.1B + 1.O.2B + 1.O.3	Partially corresponding to Option D + the Option on space allowance. Deviation for the social score as the combined effects of reducing journey times and increasing space allowance leads to a very limited impact.

Section 6.1.2. “Export of live animals” of the main document

Policy code SWD	Policy option in study
2.O.1A + 2.O.2A	Option A, with more negative economic impact due to the importance of the direct impact of the ban on operators.
2.O.1B + combination of 2.O.2C (animal welfare officer) and 2.O.2E (white and grey flag)	Option B/C
2.O.1B + combination of 2.O.2B (vet on board) and 2.O.2D (white flag)	<p>No corresponding option in the supporting study. The following considerations were taken into account for the scoring:</p> <p>Animal welfare impacts: slightly higher impact compared to 2.O.1B + 2.O.2C and 2.O.2E due to the requirement of only white flag for sea transports and the requirement of a vet on board.</p> <p>Environmental and social impacts: same as in 2.O.1B + 2.O.2C and 2.O.2E.</p> <p>Economic impacts: more severe economic impacts compared to 2.O.1B + 2.O.2C and 2.O.2E due to the requirement of a veterinarian on board and of white flag only.</p>

Section 6.1.3. “Transport of unweaned calves” of the main document

Policy code SWD	Policy option in study
3.O.1	Option C

Section 6.1.4. “Transport in hot temperatures” of the main document

Policy code SWD	Policy option in study
4.O.1	<p>No corresponding option in the supporting study. The following considerations were taken into account for the scoring:</p> <p>Animal welfare impacts: Positive impacts as less animals will suffer from hot temperatures.</p> <p>Environmental impacts: same as in the baseline.</p> <p>Economic and social impacts: Some negative impacts due to the logistical challenges of organising journeys at night or rerouting journeys, with economic and social consequences.</p>

Section 6.1.5. “New technologies” of the main document

Policy code SWD	Policy option in study
5.O.1A + 5.O.2	<p>Option A/B with deviations for economic and social impacts:</p> <ul style="list-style-type: none">- Economic: the reduction of administrative burden for operators will bring economic benefits. This, combined with the need for more staff in public administrations results in a neutral impact overall.- Social: Due to expected increase in staff needed in administrations, a slight positive social impact could be

	expected in terms of employment. Furthermore, for operators, the simplification thanks to digitalization will mean improved working conditions.
5.O.1B	Option D

Section 6.1.6. “Transport of cats and dogs” of the main document

Policy code SWD	Policy option in study
6.O.1A	Option C with some adaptations: Slight negative economic impact due to the additional costs associated with the option.
6.O.1B	Option D with some adaptations: Positive animal welfare score but slightly lower than 6.O.1A due to the animal welfare benefits associated with an age limit. Slight negative economic impact due to the additional costs associated with the option, however to a lesser extent than 6.O.1A. Positive social impact due to the benefits of the vaccination requirements for human health, as well as positive social impacts for pet buyer to be able to buy puppies and kittens at a younger age and socialise them at home.

5. SENSITIVITY ANALYSIS

In addition to Scenario 1 being presented in the main document to this impact assessment, the following scenarios that differ in the weighting of the four impact dimensions of interest (animal welfare, economic, social, and environmental impacts) have been taken into account in a sensitivity analysis of the scorings provided by the multi-criteria analysis. In order to ensure better compatibility with the external study, the original scale was retained for the sensitivity analysis.

Scenario	Relative weight of criteria			
	Animal welfare	Environmental	Economic	Social
Scenario 1 – No weight	0,25	0,25	0,25	0,25
Scenario 2 – Study scenario	0,35	0,25	0,20	0,20
Scenario 3 – Animal welfare	0,40	0,20	0,20	0,20
Scenario 4 – Economic	0,20	0,20	0,40	0,20
Scenario 5 – Environment	0,20	0,40	0,20	0,20

Measure 1: Journey times and space allowance

Scoring Option	Scenario/Policy	Baseline scenario	1.O.1A + 1.O.2A+ 1.O.3	1.O.1A + 1.O.2B+ 1.O.3	1.O.1B + 1.O.2B +1.O.3
S1		0	0.18	0.25	0.18
S2		0	0.47	0.48	0.39
S3		0	0.54	0.58	0.5
S4		0	-0.22	0.08	0.02
S5		0	0.24	0.16	0.06

Measure 2: Exports

Scoring Option	Scenario/Policy	Baseline scenario	2.O.1A 2.O.2A	+2.O.1B + combination of 2.O.2C (animal welfare officer) and 2.O.2E (white and grey flag)	+2.O.1B + combination of 2.O.2B (vet on board) and 2.O.2D (white flag)
S1		0	-0.3	0.2	0.08
S2		0	0.09	0.43	0.35
S3		0	0.16	0.5	0.42
S4		0	-0.64	0.04	-0.18
S5		0	-0.12	0.22	0.12

Measure 3: Transport of unweaned calves

Scoring Option	Scenario/Policy	Baseline Scenario	3.O.1
S1		0	0.33

S2	0	0.59
S3	0	0.66
S4	0	0.12
S5	0	0.36

Measure 4: Hot temperatures

Scoring Option	Scenario/Policy	Baseline Scenario	4.O.1
S1		0	0.25
S2		0	0.5
S3		0	0.6
S4		0	0.1
S5		0	0.2

Measure 5: New technologies

Scoring Option	Scenario/Policy	Baseline Scenario	5.O.1A + 5.O.2	5.O.1B
S1		0	0.5	0
S2		0	0.65	0
S3		0	0.8	0
S4		0	0.4	0
S5		0	0.2	0

Measure 6: Transport of cats and dogs

Scoring Scenario/Policy Option	Baseline Scenario	6.O.1A	6.O.1B

S1	0	0.68	0.75
S2	0	0.84	0.89
S3	0	0.94	0.98
S4	0	0.48	0.58
S5	0	0.54	0.6

As can be inferred from the tables, for most of the examined options, the chosen option continues being scored highest across all considered scenarios. The options within measure 3 (unweaned calves) and measure 4 (hot temperatures) score higher than the baseline in all scenarios. The preferred option under measure 2 (exports), measure 5 (new technologies) and measure 6 (cats and dogs) is unchanged under all scenarios.

In the case of measure 1, however, the highest scored option changes in scenario 5 which gives a higher weight to the environmental impact. Scenario 1 was given precedence in this situation due to the already existing economic strain on farmers as well as the dual objective of providing higher welfare while contributing to sustainable agriculture and food production.

ANNEX 5: COMPETITIVENESS CHECK

1. OVERVIEW OF IMPACTS ON COMPETITIVENESS

Dimensions of Competitiveness	Impact of the initiative (++ / + / 0 / - / -- / n.a.)	References to sub-sections of the main report or annexes
Cost and price competitiveness	0	Section 6. of main report, and Annex 9
International competitiveness	-	Section 6. of main report, and Annex 9
Capacity to innovate	+	Section 6. of main report, and Annex 9
SME competitiveness	0	Section 6. of main report, and Annex 9

2. SYNTHETIC ASSESSMENT

2.1. Cost and price competitiveness

Moving towards higher animal welfare standards is **in the strategic long-term interest of operators concerned** in order to maintain their competitiveness. In the absence of such changes, consumer demand for animal products, in particular red meat, is likely to further decrease, notably as a result of reputational damage for the sector. There is a large body of evidence of high willingness to pay on the part of European consumers for products associated with high animal welfare standards.

In addition, there is evidence that countries which adopt higher welfare standards for transporting animals, even where competitors do not follow the same standards, are able to maintain or enhance the **competitiveness and profitability of their sector**. This is the case of Germany, who recently implemented a minimum age of 4 weeks for the transportation of unweaned calves. This decision was supported by transporters who stated that animals were better fit for transport at that age, more stable, which resulted in fewer death and damaged animals at arrival which translated in a higher value³².

The cost of livestock transportation depends on several factors such as the type of animal and the distance travelled³³. Labour costs account for a significant part of the total transport costs,

³² Based on stakeholder interview.

³³ Van Wagenberg, C., *The economics of animal transport – long distance animal transport in the EU*, Wageningen University and Research, 2019, p. 14; European Commission, Directorate-General for Health and Food Safety, *Study on shifting from transport of unweaned male dairy calves over long distance to local rearing and fattening – Final report*, Publications Office of the European Union, 2022, p. 39, <https://data.europa.eu/doi/10.2875/072915>; European Commission, Directorate-General for Health and Food Safety, *Welfare of animals exported by road – Overview report*, Publications Office, 2020, p. 5, <https://data.europa.eu/doi/10.2875/946999>.

as well as fuel, equipment, animal health checks and tolls³⁴. It is therefore very difficult to estimate and generalise transport costs.

However, transport costs represent a small share of the total costs of animal products production and an even smaller share of the final retail price. One study informs that the transport costs of transporting live lambs from Hungary to Italy represents 11% of the value of the animals, while transporting spent hens (very low value animals) from the Netherlands to Poland represent 16% of the value of those animals (to be noted that the value of animals is less than the value of retail meat)³⁵. In terms of retail value, a study estimated that for breast fillets from EU producers sold in Germany, transport costs account for an average of two cents per kilogram, i.e. less than 1 % of the total price for the meat³⁶.

As a result, even the costliest measure, the increase in space allowance (which indirectly limits the number of animals which can be transported in a trucks) will have a minor impact. This is confirmed by the Agricultural Commodity Market Model, which predicts a minimal impact on producer price and limited increase for the consumer (between 0.08 and 4.37%). The limited impact on production also indicates that most operators will be able to make the necessary investments. No data exists regarding the extent to which costs will be passed on through the supply chain, as those could be absorbed by retailers.

The cost of transporting animals representing a marginal component of the animal value, and it is part of the reason why it has become economically feasible to transport animals over long distances. The development of competitive integrations benefits from the economies of scale by sourcing animals from other Member States. These efficiency gains outweigh the additional transport costs for long journeys. Therefore, limiting journey time has an impact on the total production costs for farmers, as i.e. fattening farms which are sourcing their animals at a cheaper price at a distance exceeding the proposed new journey limitation will have to source their animals at a closer distance, which may come at a higher price. In addition, the measures on unweaned calves and hot temperatures may also impact fattening operations and slaughterhouses respectively. Whereas the former bear the responsibility to ensure operators respect rules on the fitness for transport at loading they may thus need to keep their animals longer on their establishment, the latter may to switch to slaughtering during the night, which is likely to result in higher labour costs, or they will have to increase the capacity of waiting areas since the whole day production will arrive during nighttime. Those impacts are difficult to quantify, however, as demonstrated in the analysis in annex 9, only 16% of bovines and of sheep and 9% of pigs are currently above proposed limitations and are therefore expected to be affected by the measure.

Finally, improving transport conditions leads to a reduced share of transported animals with lameness, injuries, or infection decreased and reduced animals reported 'dead on arrival'. Such issues have financial consequences for operators. Operators are therefore expected to see a

³⁴ The economics of animal transport – long distance animal transport in the EU, p. 6. (see note 33, page 61).

³⁵ The economics of animal transport – long distance animal transport in the EU, p. 6 (see note 33, page 61).

³⁶ Van Horne, P. L. M., *Competitiveness of the EU poultry meat sector, base year 2017 - International comparison of production costs*, Wageningen University and Research, 2018, p. 6.

reduction in veterinary costs linked to a decrease in infection and wounds, a reduction in costs due to less carcass to discard, and higher revenues due to increased yields and meat quality.

2.2. International competitiveness

The selection of the preferred options has taken into account impacts on international competitiveness and how to mitigate these. As demonstrated below, the value of exports is not impacted by the measures assessed in the supply chain analysis exercise. However, the measure concerning exports is excluded by this exercise. This measure, which aims at improving conditions for live animals at export by imposing stricter transport conditions, is not expected to impact the value of EU export significantly as the main commercial partners of the EU for live animals have limited opportunities to import live animals from other partners. Where geography does not create a natural limitation, other partners can not import from Australia and New-Zealand as these have recently proposed a ban on the export of live animals.

Trade and Production Impacts from Animal Welfare Reform on Transportation

The proposed EU legislation is projected to increase or decrease the costs for transporting and, in some case, producing animals. A change in the production costs of meat or other products of animal origin may have an impact on the producer³⁷ and consumer prices, but also on the quantities produced and consumed, as well as the quantities imported and exported. There is therefore a direct relationship between the analysis of competitiveness impacts and the analysis of cost changes through the supply chain analysis. Those effects on prices and quantities, resulting from a change in cost, can be assessed with the help of an agricultural economic model. The model used here is Agricultural Commodity Market Model, and the main results are described below.

For poultry, this cost increase is projected to minimally affect the producer's margin, because it would decrease demand and reduce producer prices. An increase in consumer price will drive down demand and lead to a decrease in domestic production. For the beef and veal market, the effects are similar but slightly higher in percentage terms.

Poultry meat is a heavily traded commodity in both directions (imports and exports). Having said that, the EU produces more than it consumes in the internal market (i.e. there is a surplus of approximately 1.2 Mt in 2022). Given an increase in poultry consumer price (+ EUR 180/175, +2.8/2.7³⁸%, for option I and II), the animal transportation reform would imply a slightly lower level of domestic production (-92/90 kt, -0.68/0.66%, for option I and II). The drop in domestic production and consumption (-134/130.5 kt, -1.1/1.07%, for option I and II) would imply a slight increase in exports (+29/28 kt, for options A and B 1.23/1.20%), given also that internal producer price (EUR 2029) would be lower than the baseline (EUR 2036, -0.3%) but higher than the world market price (expressed in Euro EUR 1020 in the baseline in 2031). The drop in consumption, coupled with a lower drop in production, increases exports.

³⁷ The producer's price is the price received by the producer in exchange for a good.

³⁸ The values of options I and II are reported separated by a slash sign (/) both for percentages and absolute values, if there is a relevant change between options.

At present, the EU has a tariff rate quota on poultry product imports (809kt in 2022) that is binding (imports are 920kt in 2022).

Just over half of the value, but less than a quarter of the volume, of EU poultry exports in 2020 are high-value boneless meat exports to the UK and Switzerland sold at high prices, namely EUR 2.87 per kg carcass weight equivalents (cwe) and EUR 4.97 per kg cwe, respectively. In the medium-term, it is possible that similar animal welfare legislation will be adopted in those countries or that consumers in these countries may have a preference for high standards of animal welfare in their products. Moreover, most other EU poultry exports consist of meat sold at very low prices. This includes bone-in meat (almost all frozen) where the average price is below EUR 1.60 per kg cwe for every significant market (excluding Switzerland and Canada), and often below EUR 1.00. Most boneless poultry meat exported to partners other than the UK, Switzerland and Canada sells on average for less than EUR 1.00.

EU poultry exports are highly segmented, consisting of two kinds of products. On the one hand, fresh boneless cuts are essentially sold to the UK and Switzerland, where consumers are willing to pay high-animal welfare products at a premium over standard products. On the other hand, frozen bone-in cuts and low-value boneless cuts are sold to partners that do not necessarily require such high animal welfare, nor are inclined to pay a premium for those product characteristics. These cheap exports are essentially poultry brown meat, a by-product of chicken breast production.

However, in the Agricultural Commodity Market Model, this segmentation is not included. The model treats poultry as a homogenous commodity, thus, it may overstate the negative impact on international competitiveness from the proposed animal welfare legislation because more exports of high-value cuts (to countries with a higher propensity to pay for high animal welfare) will be preserved in the future than low-value cut ones.

In the case of **pigmeat**, the EU is mainly an exporter country (4 Mt exported in 2022) with low pork imports (126kt) and a production of 22.5 Mt. Given an increase in EU consumer price (+ EUR 108/106, +1.15/1.12% in 2031) and in producer price (+ EUR 3.6/3.2, +0.25/0.22% in 2031), there is a slightly higher production (+12/15kt, +0.06/0.07% 2031) but also consumption (+51/50kt, +0.29/0.28% in 2031) due to cross-price elasticity effects. This implies slightly lower exports (-39/35kt, -1.16/1.05%) given the export price increases less than the domestic price (+ EUR 2.7/2.4, +0.16/0.15%). The lower increase in EU pork export price compared to the increase in domestic producer prices implies a lower demand toward export markets.

Pork exports are less segmented than poultry. By far, the largest market by both volume and value is China (slightly more than half of the total) with limited evidence of willingness to pay for animal welfare improvements. Moreover, China is increasingly growing its capacity to produce pigmeat domestically for an increasing middle class. The 2023 OECD-FAO Agricultural Outlook projects a drop of 16% in the next ten years (between 2031 and 2022). However, almost a third (30.6%) of EU exports by value and a quarter (24.8%) by volume go to English-speaking or EFTA partners known to potentially be willing to pay an animal welfare premium. In the case of pigmeat, the EU has a tariff rate quota (at 212kt in 2022) but it is not binding, meaning that imports are lower (at 126 kt in 2022). If the imports were projected to increase beyond the tariff rate quota, then imports would be protected more than they are now,

by a high out-of-quota tariff. However, imports increase only very slightly (+0.23/0.2%, +0.26/0.23kt) reaching approximately 115.5kt, but not reaching the tariff rate quota limit.

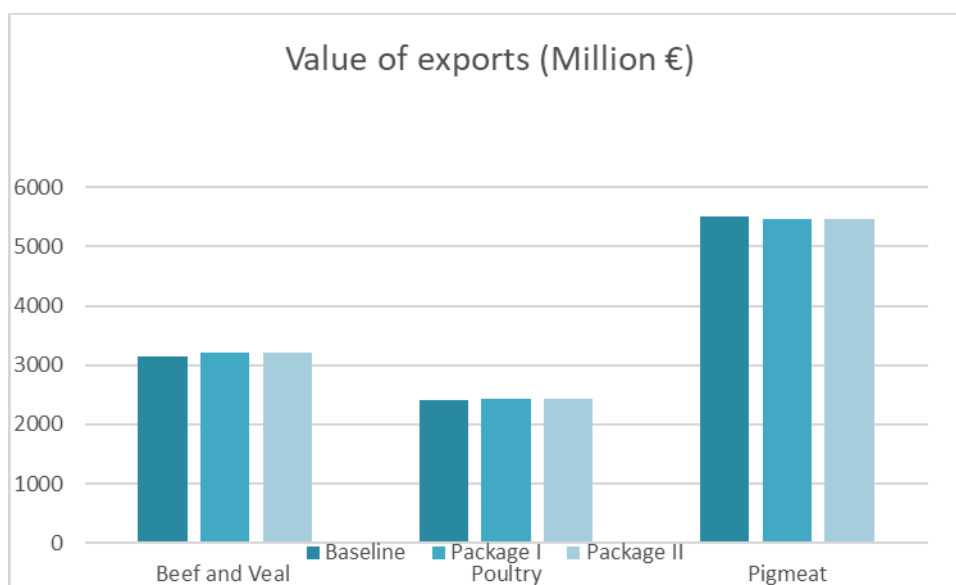
In the case of **beef and veal**, the EU baseline exports in 2022 (744 kt) are around 10.5% of what is produced (7 Mt) and imports approximately 5% (355 kt) of production. In the scenario, given an increase in EU consumer price (+ EUR 624/612, +4.45/4.37% in 2031), there is a drop in quantity demanded (consumption drops by -94/92kt, -1.54/1.51% in 2031), production (-44/42kt, -0.7/0.64% in 2031) and producer price (- EUR 68/-70, -1.67/1.73% in 2031). Exporters sell at a price that is only marginally decreasing (- EUR 9.6/9.75, -0.244/0.247%). Given the lower drop in exporter price, these changes imply a slight increase in exports (+18.6/19.2kt, +2.33/2.4%).

The EU beef and veal production is comparatively more competitive than pigmeat in the EU in terms of costs (lower cost of production index in 2022). Domestic (both consumer and producer) prices are also expected to be higher in absolute terms for beef and veal than for pigmeat. However, the EU produces more than three times more pigmeat than beef and veal. The EU beef and veal market is protected by a tariff rate quota (in 2022 at 324kt), which is more than filled by imports (at 356kt in 2022). This higher amount means that the tariff rate quota is binding effectively protecting the EU from (much) higher imports. The out-of-quota tariff rate for high-quality bovine meat is set to a high equivalent ad-valorem rate. In comparison, the EU exported 744 kt of beef and veal in 2022.

Value of Exports

The value of exports is reported below in Million Euro. On average, beef and veal value of exports will increase between baseline and package I and II (+EUR 65/68M going from EUR 3145M in the baseline to EUR 3210/3213M in the packages I and II) while pigmeat value of exports will decrease from EUR 5510M in the baseline to EUR 5456/5461M in the packages I and II by EUR -54/49M and poultry value of exports will grow by EUR 27/26M going from EUR 2400M in the baseline to EUR 2427/2426M in the packages I and II. All taken into consideration, there is a negative impact on pork value of exports that is more than offset by the increases in poultry and beef and veal values of exports in either package. Compared to the baseline values, the drop in value of exports of pork is lower than the increases for poultry and beef and veal.

	Beef and Veal	Poultry	Pigmeat
Baseline	3145	2400	5510
Package I	3210	2427	5456
Package II	3213	2426	5461



2.3. Capacity to innovate

The measure restricting transport of unweaned calves is expected to trigger further research on innovative means to feed animals during transport.

In addition, measure 5 on the use of real-time positioning and a digital application is expected to increase the use of digital technologies, creating opportunities for transporters to better use proprietary data to improve operations.

2.4. SME competitiveness

Over 98% of transporters are SMEs. The impact on the competitiveness of SMEs of the preferred package is considered proportionate. In some cases, the preferred option is positive for SMEs, such as the introduction of real-time positioning which will reduce the administrative burden for SMEs. The impact on SMEs is described in Annex 6.

ANNEX 6: SME TEST

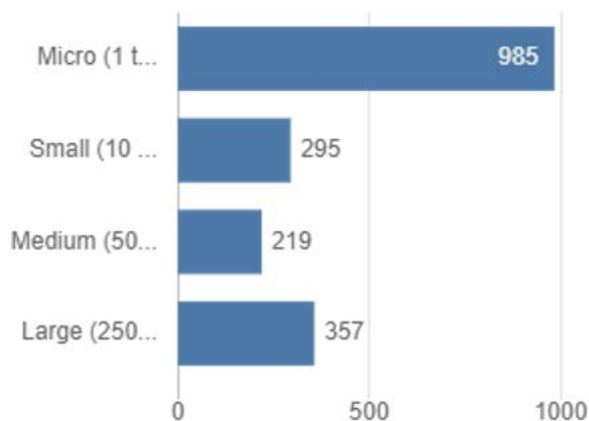
1) Identification of affected businesses

The overwhelming majority of companies transporting live animals in the EU are small³⁹. With SMEs defined as enterprises with less than 250 employees, nearly all transporters in the EU are SMEs, with at least 98.5% of the approximately 1.3 million enterprises active in the transport sector (2020) being SMEs.

As described in section 6. of the Impact Assessment, measures on transport also affect other operators of the chain such as slaughterhouses and farmers. Although the large majority of those operators are also SMEs, there has in the later decades been a clear trend towards greater concentration, with fewer but larger farms and slaughterhouse, and this trend is expected to continue. As described above, this concentration is one of the reasons for long distance transport of animals.

2) Consultation of SME stakeholders

The public consultation captured the input from SMEs. Of the respondents, 985 (1.66%) identified themselves as micro companies (1 to 9 employees), while 295 (0.5%) identified themselves as small companies (10 to 49 employees) and 219 (0.37%) as medium-sized companies (50 to 249 employees):



Of these SMEs, 2.13% (32 out of 1 499) were transporters. In most cases (63%, 945 out of 1499), no information on the category of SMEs were provided. SME respondents mainly came from Germany (14.94%), France (13.21%), Spain (11.27%), Sweden (8.67%), Hungary

³⁹ For instance, in 2016 the vast majority of the farm labour force (on average 90% of the roughly 20 million persons employed regularly at the farms) in the EU were the farm holders and their family members (data extracted from [Eurostat](#)).

(6.67%) and Czechia (4.87%). Views from transport SMEs were also collected from the feedback received on the Inception Impact Assessment.

In addition, the external study performed in support of the impact assessment has paid particular attention to the impacts on SMEs. Among the businesses that responded to the targeted survey, half represented large enterprises and half represented SMEs. The umbrella organisations consulted through the other channels also represent the SMEs in their respective sector. For instance, interviewed farmers' organisations have argued that the cost increase for farmers caused by increased space allowances on trucks would have a larger impact on SMEs since the overall value chain is sender – trader – buyer.

In general, however, there were no considerable differences in the positions stated compared to those of larger companies and organisations.

3) Assessment of the impacts on SMEs

The options have been designed to contribute to a smoother functioning of the internal market. As any other company, SMEs will face fewer barriers to trade and will operate in a clearer and harmonised regulatory environment.

As described above, the agri-food sector is becoming increasingly concentrated and specialised, with some regions specialising in a part of the production (e.g. dairy cows), some in other (e.g. fattening of calves), and finally some in other part of the supply chain (e.g. slaughterhouses due to lower labour costs in some regions). Long distance transport of animals is a result of this concentration. By limiting journey time, as under measure 1, to an extent that still allows most animals to be transported through current routes, the preferred option contributes to limiting this concentration effect. This encourages small enterprises to remain anchored or be created locally within regional supply chains. Clients and suppliers will be found more regionally, which will ensure their survival.

The costs on SMEs would in general be the same as for large companies, while remaining proportional to the size of the business. This is for instance the case under measure 3 on the transport of unweaned calves, where feeding systems are required. Large companies with a high number of livestock trucks will need to upgrade more trucks than a smaller company. In addition, the cost for installing a feeding system in an existing truck is proportionate (see Section 6.1.3 of the main report). Only the cost of a new truck may be important for SMEs.

Measure 5 introducing real time positioning of the trucks and a central database will reduce the administrative burden for SMEs thanks to automation.

Finally, in the case of transport of cats and dogs (measure 6), most transporters are SMEs. However, the costs of veterinary checks and of vehicles replacements are proportionate. The same conclusion applies to the cost on breeders to keep animals longer.

It can therefore be concluded that no impacts on SMEs could be identified as disproportionate.

The choice of the preferred option also takes into account the impact on companies including SMEs. In the case of measure 2 for instance, imposing a veterinarian on board of vessels would have represented a massive burden to companies, due to the struggle to find veterinarians

willing to embark for the journey without a massive financial compensation. Instead, the option on training a member of the crew as animal welfare officer has been retained. Similarly, imposing on livestock vessels to upgrade to reach the low risk assessment would impose a disproportionate burden on those carriers, while standard risk is sufficient to ensure maritime and livestock safety.

4) Minimising negative impacts on specific vulnerable segments of the different sectors

The preferred options take into account the costs for operators and therefore foresee transition periods when relevant. These transition periods have been defined to allow operators to adapt to the new requirements in a reasonable period.

ANNEX 7: EFSA OPINIONS

Used in tables: nr = not relevant, na = not available

EFSA'S MAIN RECOMMENDATIONS ON THE WELFARE OF ANIMALS DURING TRANSPORT:

To measure the level of animal welfare the experts recommend to develop and validate thresholds for animal based measures (ABM)s as indicators for animal welfare. When the animals are properly inspected, ABMs can be utilised, these could include behavioural and physiological indicators. It is essential that the staff is well educated and trained. There is a general understanding that animals should not be transported in the latest stages of their pregnancy.

EFSA found that a maximal journey time of **12 hours** was the least intervening journey time for the majority of the farm animals. At a journey time beyond 9 hours the animals showed physiological changes indicative for thirst and beyond 12 hours the animals showed physiological changes indicative for hunger.

If weather forecast is between 25°C and 30°C, only short journeys (max 8 hours) should be allowed, with access to water for the animals. In general if the weather forecast is higher than 30°C only transport at night (i.e. between 21h00 and 10h00) should be allowed).

EFSA found needed space allowance by using the Allometric equations ($A = kW^{2/3}$) for the respective species (The equations provide estimates of space requirements rather than definitive calculations of areas).

Lying is considered a behavioural need of cattle, sheep, goat and pigs the deprivation of which leads to stress responses and development of abnormal behaviour over time. The result of the allometric equation would secure sufficient space for the animal to lay down and to be able to perform movement to lay down and stand up again.

Space allowance during transport	Pigs (=minimum space to lie down semi recumbent)	Cattle	Not weaned calves	Ovine/ Goats	Not weaned lambs	Horses
K value to be used in the allometric equation (Areal = kWeight ^{2/3})	0,027	0,034	0,027	0,037	0,027	Equation cannot be used see 2) under this table.
Horned animals	nr	5–10% more space.	nr	5–10% more space.	nr	nr
Vertical space need	Pigs 10–25 kg: 62 cm, Pigs 100–120 kg: 88 cm, Pigs >120 kg: 100 cm.	40 cm above the withers for adult cattle.	nr	15 cm above the highest point of the animal in vehicles with mechanical ventilation and 30 cm in naturally ventilated vehicles.	nr	Minimum internal height of the compartment should be the height of the withers of the tallest animal in a compartment + 75 cm. 40 cm more in total than the width of the widest point of the horse transported. 40 cm of free space in addition to the body length of the horse (measured from the tail to the nose while the neck is parallel to the ground) plus 50 cm if feed in a hay net is provided in transit. For unhandled horses, a stocking density of no greater than 200 kg/m ² . Unhandled horses should be transported loose in a small group of familiar conspecifics (Max 4 horses).

Age at transport	nr	nr	Calves should be at least 5 weeks of age and of 50 kg weight when transported. The temperature inside vehicles should not exceed 25°C. Maximum journey duration should not exceed 8 h taking into account the last feeding of the calf. And allow a 3-h post-meal rest.	nr	For not weaned lambs, procedures of unweaning and prolonged transport immediately after are stressful and exhaust body reserves. From an animal welfare point of view, weaning lambs sometime before transport would be advantageous.	nr
Microclimate	Thermal comfort zone, temp for sows is 20°C and upper critical temperature estimated to be 22°C. For finishing pigs temp is 22°C and max 25°C and for weaners of ~ 30 kg., temp is 25°C and max. 30°C. Pigs are more vulnerable to heat stress.	Upper critical temperature is estimated to be 25°C.	Thermal comfort zone, temp is 25 °C.	Thermal comfort zone, temp is 25 °C and temp. max is 28°C for fleeced sheep /goat and 32 °C for shorn sheep/ goat .		Thermal comfort zone, temp is 20 °C and temp. max is 25°C.

Feed	The tendency for pigs to develop motion sickness when fed just before a journey meant that in-transit feeding was not considered an option.	Not possible to feed during transport. Feed and water should be provided during transport break, sufficient time to drink, eat and ruminate needed before reloading.	See under calves on farm.	Not possible to feed during transport. Feed and water should be provided during transport break, sufficient time to drink, eat and ruminate needed before reloading.	See under lambs on farm.	During transport, horses should be provided with feed and water ad libitum or at least at regular intervals (of no more than 4 h) for a period of 30 min while the vehicle is stationary.
Water	Access to provide water during journeys. Extra space required for provision of nipple drinkers, along with the ability for pigs to manoeuvre to access these.	Thirst after 9 h of transport.	See under calves on farm.	Thirst after 12 h of transport.	See under lambs on farm.	
Transport time	Maximum 12 hours transport time.					
Bedding	Sufficient bedding (in terms of quality and quantity) should be provided for the journey, made of adequate materials such as sawdust. In addition, without adequate bedding (type and/or quality and/or quantity) animals will be less motivated to rest lying down during journeys and may be exposed to slips, falls and weakness.					
Unloading	24 hours rest and feed and water supply and resting time as well as time to ruminate.					

Milking	Sows should not be transported before after a sufficient time after weaning the piglets.	Lactating cows should be milked every 12 h.	nr	Lactating sheep/goats should be milked every 12 h.	nr	Horses should not be transported before after a sufficient time after weaning the foal.
Pregnant animals	There is a general understanding that animals should not be transported in the latest stages of their pregnancy.					
Cull animals	If these animals are fit for transport, the journey to a slaughterhouse should be kept to a minimum, be direct and not involve any unloading and reloading at any interim premises. If these animals are not fit for transport and are without the prospect of recovery in a reasonable period of time, they should be killed on farm as soon as is possible.					
Control post (CP) requirements	Individual divided pens so that animals can be kept in the same groups as in the vehicle avoiding mixing animals, milking equipment. Sufficient bedding should be provided for the transit stage, made of adequate materials such as straw for young cattle, straw for adult cattle in winter and straw or sawdust for adult cattle in summer. During cold weather conditions, CPs should provide indoor heating, and/or sufficient quantity of bedding and shelter so pigs can bury themselves into the bedding.					

- 1) The Allometric equation however does not take into account that there might be other needs for space such as vertical space and width space, max height and space for moving and it does not comply for all animal species. It does also not consider the need for transport of animals loose in smaller groups.
- 2) The allometric equation does not work for calculation of needed space for horses during transport. Horses seldom lay down during transport, but they need some extra space to move as well as space to keep different head postures to be able to keep balance during transport.

Transport Poultry:											
To calculate space allowance for birds this equation was used: space allowance (cm ² /bird) =k x W ^{2/3} , (where k is a constant varying for different livestock and postures and W represents live weight in kilograms (Petherick and Phillips, 2009).) Very feathered birds might need more space.											
Recommended space allowance (cm²/kg) and related stocking density (kg/m²) for different bird categories at different live weights during transport					Poultry are very sensitive towards the combination of temperature and the relative humidity.						
Bird category	Day old chicks	Quails	Pullets, gamebird	End-of-lay hens (average feather cover)	Broilers, end-of-lay hens (poor feather cover)	Broilers, end-of-lay breeders, Ducks	Broilers, end-of-lay breeders, Ducks	Broilers, Ducks, Geese	Turkeys, Geese	Turkeys, Geese	Turkeys, Geese
Live weight of bird (g or kg)	nr	250g	Up to 1,5kg	Up to 2,0 kg	Up to 2,0 kg	2-3 kg	3-4 kg	4-5 kg	Up to 9 kg	9-15 kg	15-22 kg
Space allowance (cm²/kg) (calculated with the allometric equation)	nr	458	310*	268*	231	202	184	171	140	119	105

Recommended Height of cages (cm)	nr	-	25	25	25	25	25	25	-	40-45	-
Microclimate poultry Apparent equivalent temperature (AET)	nr	Safe zone below 40,0 Alert zone 40,0-65,0 Danger zone above 65,5 Broilers and end of lay hens are very sensitive to the combination of humidity and change in temperature.									
Bird category	Day old chicks	Quails	Pullets, gamebird	End-of-lay hens (average feather cover)	Broilers, end-of-lay hens (poor feather cover)	Broilers, end-of-lay breeders, Ducks	Broilers, end-of-lay breeders, Ducks	Broilers, Ducks, Geese	Turkeys, Geese	Turkeys, Geese	Turkeys, Geese
Feed and water	Day-old chicks subject to feed and water deprivation longer than 48 h (from hatching to access to feed and water at placement) will experience prolonged hunger and thirst which is detrimental to their welfare.	na	na	Laying hens with access to water should be feed no later than 4 hours prior to transport and not later than 10 hours prior to slaughter.	Broilers and Turkeys with access to water should be fed no later than 6 hours prior to transport and not later than 12 hours to slaughter.						

Transport time	Do not transport day-old chicks that prevents prolonged hunger and thirst, change to transport of fertilised eggs and use on farm hatching.	Should not exceed 12 Hours.			

*: This is instead calculated with the planimetric equation because pullets require more space than that resulting from the allometric equation.

Transport Rabbits:										
Weight class ± 0,25 kg	Not weaned rabbits	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Space allowance cm²/kg(position 1) allometric equation*	nr	270	236	215	200	188	179	171	164	159
Height of cage	nr	40 cm (Inability to stretch their ears can reduce their ability to cope with heat stress).								
Microclimate temperature–humidity index'(THI) calculation: THI=db°C-((0:31-0:31RH)(db°C-14:4))	nr	Safe zone below 27,8 Alert zone 27,8-28,9 Danger zone above 28,9								

Transport time	Not weaned rabbits should not be transported.	12 hours
Pregnant animals	nr	There is a general understanding that animals should not be transported in the latest stages of their pregnancy.
Feed and water	<p>After 12 hours they will experience thirst and hunger.</p> <p>No feed withdrawal periods longer than 6 h.</p> <p>Withdrawal periods longer than 12 h will results in weight loss and experiences of prolonged hunger.</p> <p>No water deprivation periods longer than 12 h.</p>	

*: Space allowance (cm²/kg) = (270×live weight (kg)^{2/3}). (Batchelor, 1999).

Specific means of transport:	
Transport with livestock vessel	Due to the similarity in the Welfare concerns and hazards alignment with the recommendations for road transport is recommended. (space allowance, microclimate, etc.). Sufficient ventilation on the deck where the animals are located. Contingency plans in case of emergencies e.g., disease outbreaks, fire, refusal to unload at port of destination. Animals should be transported in their thermal comfort zone. Sufficient space to allow all the animals to have access to troughs and drinkers without competition.
Transport with Roll on roll of ferries	<p>Animals on a roll on roll ferries also experience long journeys as they are not unloaded from the truck during sailing. Due to the similarity in the welfare consequences (WC) and hazards, alignment is recommended with the recommendations for road transport.</p> <p>Sufficient ventilation on the deck where the animals are located should be ensured. Due to the exposure to the hazards generic to road transport plus the additional concerns listed, voyage duration should not be considered resting time.</p>

	<p>Transporters must ensure that they have contingency plans in case of emergencies are in place e.g., ferry disruptions. No transport if the weather forecast predicts improper weather conditions for ship journeys.</p> <p>The driver or animal attendant must be able to have access to the animals at regular intervals during the voyage in order to check and care for them.</p>
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Used EFSA opinions:

EFSA Panel on Animal Health and Welfare (AHAW), [‘Welfare of cattle during transport’](#), *EFSA Journal*, Vol. 20, Issue 9 (e07442), 2022.

EFSA Panel on Animal Health and Welfare (AHAW), [‘Welfare of pigs during transport’](#), *EFSA Journal*, Vol. 20, Issue 9 (e07445), 2022.

EFSA Panel on Animal Health and Welfare (AHAW), [‘Welfare of equidae during transport’](#), *EFSA Journal*, Vol. 20, Issue 9 (e07444), 2022.

EFSA Panel on Animal Health and Welfare (AHAW), [‘Welfare of small ruminants during transport’](#), *EFSA Journal*, Vol. 20, Issue 9 (e07404), 2022.

EFSA Panel on Animal Health and Welfare (AHAW), [‘Welfare of domestic birds and rabbits transported in containers’](#), *EFSA Journal*, Vol. 20, Issue 9 (e07441), 2022.

ANNEX 8: OTHER EU LEGISLATION AND POLICIES

Other EU legislation of relevance for welfare during transport

Other pieces of EU legislation with indirect relevance for animal welfare, and which have been taken into account in this impact assessment, are:

- Regulation (EU) 2017/625 on official controls along the agri-food chain (OCR). The EU rules on official controls, which are risk based, provide the main framework for ensuring compliance with the EU animal welfare requirements, including EU legislation on the protection of animals during transport.
- Regulation (EC) No 561/2006 on driving times, breaks and rest periods for truck drivers. The rules on resting times for drivers are currently different from the ones provided in the current Council Regulation (EC) No 1/2005. While being legally compatible with each other, the current requirements are difficult and costly to reconcile. The preferred option on journey times proposed in this impact assessment eliminates this inconsistency and reconciles the two Regulations.
- Directive 2010/63/EU on the protection of animals used for scientific purposes. The welfare of animals used for scientific purposes are covered by the EU legislation on animal welfare during transport, and consistency with the principles and requirements in Directive 2010/63/EU must be ensured.
- Regulation (EU) 2016/429 on transmissible animal diseases (Animal Health Law). This legislation regulates the conditions for trade of live animals (and animal products) in the EU internal market when it comes to contagious animal diseases, in order to avoid the spread of such diseases in the EU. Therefore, it sets conditions also affecting the transport of animals. The Animal Health Law and legislation on the protection of animals during transport are therefore strongly inter-related and designed in a way that both animal health and animal welfare requirements can be implemented simultaneously by operators. Furthermore, animal welfare requirements, by reinforcing the general health status of animals, ensuring that they are less exposed to stress and injuries, supports the objectives of the Animal Health Law.
- Regulation (EU) 2019/6 on the authorisation and use of veterinary medicinal products (VMP Regulation). It follows from Article 107(1), that antimicrobial medicinal products may not be applied routinely nor used to compensate for poor hygiene, inadequate animal husbandry or lack of care or to compensate for poor farm management. The revised rules on the protection of animals during transport will facilitate operators' compliance with the VMP Regulation since better welfare standards reduces the need for medication, including use of antimicrobial products (since risk factors of disease transmission may be improved due to the measures).
- Regulation (EU) 2019/1715 for the functioning of the information management system for official controls and its system components (IMSOC Regulation) has been

considered and is consistent with option related to new technologies and in particular related to the real-time tracking of trucks with animals.

- Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation) has been taken into account under the new technologies and real-time tracking option.

Other EU policy initiatives

Trade policy

The EU's trade policy also plays a role to promote higher welfare standards. This is mainly done via provisions on animal welfare in trade agreements with third countries and bilateral cooperation.

The proposal includes new and clearer provisions on animal welfare rules applicable for the transport of live animals from a third country into the Union, as well as provisions on animal welfare rules applicable for the transport of live animals from the Union to a third country of destination. In both cases (imports and exports), operators are to ensure that EU animal welfare rules are complied with from the point of departure to the point of destination. A transition period of 5 years is provided in both cases allowing operators to adapt.

When it comes to export, the European Court of Justice ruled in 2015 that the current Regulation on animal transport requires EU operators that EU rules on the protection of animals during transport are applied also for animals exported from the EU, until the point of destination in the non-EU country. Measures 2.O.1B, 2.O.2B, 2.O.2C, 2.O.2D and 2.O.2E of this impact assessment aim at introducing additional tools and mechanisms to improve the implementation of this rule.

The Commission's work to promote animal welfare at international level will continue, both in multilateral fora as well as in bilateral relationships with non-EU countries. The enhanced cooperation with the World Animal Health Organisation (WOAH) to develop and adopt international standards for animal welfare will remain a priority with a potential to grow based on the latest scientific and technological progress.

The Commission will continue to encourage having more free trade agreements with animal welfare provisions. Existing dialogues with the EU trading partners will be used to promote a common approach to animal welfare, in particular animal welfare rules during transport.

Environmental policy (emissions)

In addition, the Commission is revising the Regulation (EU) 2019/1242 on CO2 emission standards for heavy-duty vehicles⁴⁰, including trucks used for animal transports. The Regulation, which requires manufacturers to reduce the average CO2 emissions of their fleet by 15% as from 2025 and by 30% as from 2030, includes a review clause. On 14 February 2023, the Commission tabled a legislative proposal (COM(2023) 88 final) to revise that Regulation. This objective of reducing emissions is therefore fully coherent with the objective of this animal welfare initiative to reduce journey times for the transport of live animals.

⁴⁰ Regulation (EU) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO2 emission performance standards for new heavy-duty vehicles and amending Regulations (EC) No 595/2009 and (EU) 2018/956 of the European Parliament and of the Council and Council Directive 96/53/EC, OJ L 198, 25.7.2019, p. 202–240.

ANNEX 9: DETAILED IMPACT ASSESSMENT

1. JOURNEY TIMES AND SPACE ALLOWANCE

The current EU animal welfare legislation (Council Regulation 1/2005) establishes an eight hour limit for short journeys, but also allows long journeys (above eight hours) under certain conditions (e.g. journey log, additional provisions for the means of transport and conditions on watering, feeding, ventilation etc.), with different journey time limits depending on the species (i.e. up to 24 hours in the case of pigs and horses and up to 29 hours for large and small ruminants), after which animals need to be rested 24 hours at a control post. Then, the journey may resume again, without a limit in the number of subsequent long journeys.

Current rules on space allowance provide a specific number of m² by category of animals according to their species, weight or age, mainly provided in the form of tables in the Annex to the Regulation. They do not provide a formula covering all specific cases, thus leaving the rules unclear in certain circumstances.

The measure proposed are:

1. Journey times and space allowance	Journey time for slaughter (5 years transition period): 1.O.1A: 9 hours	1.O.1B: 12 hours
	Journey time for other journeys (5 years transition period): 1.O.2A: 12 hours	1.O.2B: 21h + 24h rest + 21h
	Space allowance (5 years transition period): 1.O.3: Space allowance according to EFSA opinions	

The space allowances introduced for each specie follow the EFSA recommendations, which provide the k-value for each specie, allowing to determine the space allowance for each animal based on its live weight. Space allowance for transport by road, by rail, by roll-on-roll-off or by livestock vessels is therefore calculated using the following allometric equation:

$$A = kW^{(2/3)}$$

whereby: A=area per animal [m² for free transport, cm² for transport in containers], W=live weight [kg], k= k-value (specific to species/category, as laid down in tables below).

The space allowance in area per animal [m²] during transport by road, by rail, by roll-on-roll-off and by livestock vessel, proposed are:

	A	B	C	D
Average live weight [kg]	Pigs k=0,027	Equidae k=0,029	Bovine animals k=0,034	Sheep and goats k=0,037
25	0,23			0,32
50	0,37	0,40	0,46	0,50
75	0,48	0,52	0,60	0,66
100	0,58	0,63	0,73	0,80
125	0,68	0,73	0,85	
150	0,76	0,82	0,96	
175	0,84	0,91	1,06	
200	0,92	1,00	1,16	
225	1,00	1,08	1,26	
250	1,07	1,16	1,35	
275	1,14	1,23	1,44	
300	1,21	1,31	1,52	
325	1,28	1,38	1,61	
350	1,34	1,45	1,69	
375	1,40	1,52	1,77	
400	1,47	1,59	1,85	
450		1,71	2,00	
500		1,84	2,14	
550		1,96	2,28	
600		2,08	2,42	
650		2,19	2,55	
700		2,30	2,68	
750		2,41	2,81	
800		2,52	2,93	
850			3,05	
900			3,17	
950			3,29	
1000			3,40	

	E
approximate live weight	poultry k=290
1	290
1,5	380
2	460
2,5	534
3	603
3,5	669
4	731
4,5	790
5	848

1.1.1. Background and non-action scenario

Animals are transported for different reasons, such as slaughter, breeding, and production.

Given the high number of transports with a journey time exceeding twelve 12 hours (347 746 journeys in 2020)⁴¹, large numbers of animals experience fatigue, prolonged hunger and thirst. Currently, **more than 32 000 animal transports per year occur between Member States with a journey time which is even longer than 21 hours**⁴².

Without an EU intervention, the welfare of the animals transported will continue to be compromised. Without stricter rules, transport over multiple journeys (so called ‘journey hopping’) will continue, **resulting in stress and health risks for the animals**.

A decrease in the number of animals to be transported until 2038 is expected (e.g. by 11% in the total number of bovines and 13% in the total number of pigs) due to an overall reduction of the EU livestock population⁴³. Although the extent of the changes would differ per animal specie⁴⁴, this is expected to represent an overall decrease in the number of transports, distance travelled, transport costs and emissions compared to the current situation.

1.1.2. Animal welfare impacts

All policy options would present an improvement compared to the current situation.

Options 1.O.1A for journeys to slaughterhouses and 1.O.2A for all other types of journeys are expected to have a high positive impact on animal welfare, as they provide for a much shorter journey duration of respectively 9 hours and 12 hours. A journey time of maximum 12 hours prevents animals from suffering of hunger during the journey. In terms of thirst, EFSA reported that behavioural and physiological signs of thirst can be present after between 8 and 12 hours depending on the species. This option also does not imply any stop in a control post where animals are exposed to various welfare consequences (**such as group stress, handling stress, heat stress, injuries, prolonged hunger, prolonged thirst, restriction of movement and resting problems**)⁴⁵.

⁴¹ Transport study, p. 335, table 127, (see note 5, page 8).

⁴² Transport study, p. 72, table 14 (see note 5, page 8).

⁴³ Transport study, p. 84 (see note 5, page 8).

⁴⁴ No change is expected in the number of poultry being transported, while a 9% increase in the total number of sheep and goats is expected.

⁴⁵ EFSA Panel on Animal Health and Welfare (AHAW), ‘Welfare of cattle during transport’, *EFSA Journal*, Vol. 20, Issue 9 (e07442), 2022; EFSA Panel on Animal Health and Welfare (AHAW), ‘Welfare of pigs during transport’, *EFSA Journal*, Vol. 20, Issue 9 (e07445), 2022; EFSA Panel on Animal Health and Welfare (AHAW), ‘Welfare of equidae during transport’, *EFSA Journal*, Vol. 20, Issue 9 (e07444), 2022; EFSA Panel on Animal Health and Welfare (AHAW), ‘Welfare of small ruminants during transport’, *EFSA Journal*, Vol. 20, Issue 9 (e07404), 2022; EFSA Panel on Animal Health and Welfare (AHAW), ‘Welfare of domestic birds and rabbits transported in containers’, *EFSA Journal*, Vol. 20, Issue 9 (e07441), 2022.

Alternative option (1.O.1B) for journeys to slaughterhouses, limiting them to 12 hours, would also represent a major improvement in terms of animal welfare compared to the current legislation.

For other type of journeys, **option 1.O.2B proposes a maximum journey time of 21 hours, followed by a mandatory resting period of 24 hours in a control post, before allowing the journey to resume for a maximum of 21 hours.** While stopping in a control post exposes animals to the hazards mentioned above, setting a maximum duration for the whole journey is an improvement for animal welfare.

In terms of space allowance, option 1.O.3A proposes to follow the EFSA recommendations defined for each species. Insufficient and vaguely defined norms regarding space for the animals is one of the major shortcomings of the current Transport Regulation. Both in the public consultation as well as in the Inception Impact Assessment Feedback, there was support from respondents of industry, NGOs and Competent Authorities for improved animal transport conditions. They also emphasised the need for more specific rules with regard to requirements for different animal species during transport⁴⁶. The recommendations take the minimum space allowance set by the first factor reducing the ability of the animals to undertake relevant biological functions during transport. Providing animals with this space during transport will allow them to adjust their posture in response to acceleration and other events related to driving, and to rest in a normal position, including room to lie-down and get up⁴⁷, which will substantially improve their welfare compared to current conditions.

1.1.3. Economic impacts

The restrictions to the journey times coupled with the projected reduction of most of the livestock species in the EU are expected to result in a decrease of the number of transport hours with associated decreases in the number of kilometres travelled and the transport costs. However, increasing the space allowance for animals will increase the number of kilometres travelled to transport animals, as more trucks will be needed. As a result, the measures will affect transport costs for transporters, but the limitations on journey time will mostly affect the rest of the supply chain (farmers, slaughterhouses, control posts and assembly centres operators).

Most stakeholders involved in long-journey transport (including farmers, transporting companies and most slaughterhouses) are small⁴⁸. In 2020 there were approximately 1.3 million enterprises in the transportation and storage sector in EU-27 countries (of which 98.5% were SMEs)⁴⁹.

Impacts on transporters:

⁴⁶ Transport study, consultation activities (see note 5, page 8).

⁴⁷ Transport study, p. 92 (see note 5, page 8).

⁴⁸ Recent data from Eurostat shows that nearly all companies in the transport sectors (and especially land transport) have fewer than 250 employees.

⁴⁹ Transport study, p. 67 (see note 5, page 8).

Transporters charge their customers a price based on the number of kilometres a journey takes. Implementing the restricted journey times (number of kilometres decreases) and the increased space allowances (number of kilometres increases) in the different alternatives impacts the total number of kilometres travelled.

Impacts on other operators:

While it is difficult to precisely quantify the economic impacts on the rest of the production chain⁵⁰ due to the high complexity of the factors involved, the impacts can be estimated by looking at the number of livestock that would be affected by a limitation on journey time.

In the case of animals sent for slaughter within the EU, none of the options have major impact, as shown in the table below. While data is available only where there is a cross-border movement within the EU (i.e. no data available for transports within a Member State, even if EU transport rules also apply to such journeys), it can be assumed that the impact is close to that shown in the table. Few journeys to a slaughterhouse within a Member State are expected to take more than 9 hours, mainly in some remote regions in Sweden and Finland. For those remote regions, the Regulation would foresee a derogation where no slaughterhouse is available within the allowed journey time.

Table 16: Transport of animals (within the EU, with a cross-border movement) for slaughter by journey time, expressed as a percentage of the animals slaughtered in the EU (source: TRACES)

Species	>9h	>12h
Bovine	0.3%	0.2%
Pigs	0.5%	0.4%
Sheep and goats	3.4%	3.0%
Poultry	0.1%	0.1%

In the case of animals transported for the purpose of fattening or further production (e.g. milk production), **option 1.O.2A** would impact 4.2% of bovines and 4% of pigs which are currently transported more than 12 hours. The **option 1.O.2B** would impact 1.4% of bovines and 0.2% of pigs which are currently transported for more than 42h (21h + 21h).

Table 17: Transport of animals (within the EU, with a cross-border movement) for fattening by journey time, expressed as a percentage of the animals slaughtered in the EU (source: TRACES)

⁵⁰ Farmers, slaughterhouses and retailers.

Species	>12h	>21h	>42h
Bovine	4.2%	1.7%	1.4%
Pigs	4.0%	1.1%	0.2%
Sheep and goats	1.4%	0.8%	0.1%
Poultry	0.2%	0.0%	0.0%

In the case of animals transported for breeding, when looking only at transports within the EU involving a cross-border movement, the impact is more significant. Under option 1.O.2A, 49% of bovines and 47% of sheep would be impacted as they are currently transported for more than 12 hours, while under **option 1.O.2B**, 16% of bovines and of sheep and 9% of pigs would be affected (as they are currently transported for more than 42h).

Table 18: Percentage of animals transported between MS for breeding by journey time, expressed as a percentage of the animals transported between MS for this purpose (source: TRACES)

Species	<12h	12-21h	>21h	>42h
Bovines	49%	27%	8%	16%
Goats	58%	15%	17%	10%
Pigs	54%	22%	15%	9%
Poultry	80%	14%	5%	0%
Sheep	47%	24%	14%	16%

Journey time limitations would have an impact on all **primary producers/farmers** of slaughter and production animals in an area. Since more animals need to be sold in a more regional market, prices for all producers will be affected, irrespective of whether they used to sell animals that were on long journeys or not. The more limited the journey is, the higher is the impact.

Due to production specialisation in different areas of the EU, prices and production costs differ between regions. For example, purchasing piglets in another Member State to fatten them locally could be cheaper than local sourcing, transport cost included. Regional specialisation has led to a limited local capacity in some region for specific parts in the production chain, resulting in a surplus of production animals and the need for a substantial movement of animals between Member States. Reduced ability to sell this local surplus due to journey time limitation is likely to have significant consequences on the regional market and market prices. The impacts on farmers' income will depend on the regional reorganisation of those markets. This

effect will be very important for option 1.O.2A but limited for 1.O.2B as it concerns a fewer number of transports and animals.

As mentioned above, **slaughterhouses** would be marginally impacted as very few animals are transported to slaughterhouses for a longer period than 9 or 12 hours⁵¹. However, reorganisation of regional productions due to the limitations for other types of journeys will have an impact on slaughterhouses, as local supply may increase or decrease. Given the limited gross margins of slaughterhouses⁵², a decrease of supply can have impact on the profitability.

Control posts (meaning control posts as referred to in Regulation (EC) No 1255/97) would be differently affected depending on the options. Currently, within the EU, 141 control posts are registered and those are privately owned⁵³. However, the number of control posts differs substantially between Member States, some Member States having none, as well as the size and facilities available. Options 1.O.1A, 1.O.1B and 1.O.2A would make the control posts redundant. Option 1.O.2B foresees a mandatory rest for animals after 21 hours, which would not impact the existing control posts.

Overall, at EU level, the yearly net costs incurred by implementing option 1.O.1A combined with 1.O.2B and 1.O.3 could amount to, for all stakeholders, EUR 642 million for the pig sector, EUR 35 million for the laying hen sector, EUR 914 million for the broiler sector and EUR 1 069 million for the cattle sector. Implementing option 1.O.1A combined with 1.O.2A and 1.O.3 would amount to EUR 695 million for the pig sector, EUR 35 million for the laying hen sector, EUR 944 million for the broiler sector and EUR 1 194 million for the cattle sector⁵⁴.

Public authorities

None of the options would have a major impact on public authorities. The enforcement and administrative costs of public authorities are to some extent determined by the number of transports checked (sample size). Due to the combination of limiting journey time and increasing space allowance, the overall number of transports is expected to increase but to a limited extent.

As regards to administrative costs tied to control posts, options 1.O.1A, 1.O.1B and 1.O.2A would greatly limit the need to use control posts and therefore limit their checks and subsequent costs. Option 1.O.2B would have no impact, or a marginal increase in costs in case the number of control post increases due to the needs.

Internal market

⁵¹ Transport study, p. 78 (see note 5, page 8).

⁵² Data from the Netherlands and Belgium indicates that for large scale slaughterhouses these margins are between 2% and 3%, and for smaller slaughterhouses these margins are expected to be even lower.

⁵³ European Commission, [List of approved control points](#), 2022.

⁵⁴ *Modelling of policy options to support the Impact Assessment accompanying the revision of the EU legislation on the welfare of animals during transport*, 2023, doi: 10.2875/061480

The limitation of journey times will have more consequences in the Member States with the largest number of animals transported on journeys time exceeding those foreseen by the respective options.

As mentioned above, currently, due to production specialisation in different areas of the EU, prices and production costs differ between regions which leads to substantial animal movements. A limitation in those movements would lead to a geographical reorganisation of the supply chain, which would be more pronounced under option 1.O.2A. Options 1.O.1A, 1.O.1B and 1.O.2B would have a limited effect in that regards due to the relatively low percentage of animals affected.

Finally, common rules will improve the level playing field for operators, which will be also helped by the clearer rules, facilitating enforcement by all national competent authorities.

Trade

While a reorganisation of the supply chains may lead to an increase in prices, this is not expected to affect trade.

See measure 2 on exports of live animals, and analysis of competitiveness in Annex 5.

Consumers

Where the restriction of journey times results in oversupply or shortage of locally slaughtered animals, transport of meat instead of live animals may occur. This would better meet consumers' (and citizens') expectations, who are in favour of limiting long journeys of live animals and prefer the transport of meat and genetic materials instead (for breeding)⁵⁵.

It is difficult to estimate whether the options will impact consumer price and to what extent. This will depend on the extent to which the supply chain is reorganised, but research shows that a difference in production costs (of which transport costs are part) only to a small extent determines the differences in consumers' price⁵⁶.

Supermarkets are important buyers of meat and meat products to slaughterhouses and cutting plants. They implement their own pricing policy, influenced to a limited extent by the purchase price. Many factors such as the price at competitors, promotional campaigns and the role of meat in the total product range of supermarkets also play a role. Annual contracts are used for trade between slaughterhouses and supermarkets, and operators have to compete in these markets with suppliers from the whole EU, making it difficult to pass on cost increases to consumers⁵⁷. As a result, price movements of industry have a limited correlation with the consumer price. Therefore, if the policy options would result in higher production costs, this does not necessarily translate to higher costs for consumers.

⁵⁵ Transport study, consultation activities (see note 5, page 8).

⁵⁶ Agrimatie, [Prijns varkensvlees weer gestegen](#), Wageningen University and Research; Transport study p. 104 (see note 5, page 8).

⁵⁷ Transport study, p. 104 (see note 5, page 8).

1.1.4. Social impacts

Employment

There is currently a shortage of truck drivers in the EU⁵⁸. The options on restricting journey times would likely reduce the number of drivers needed, however increasing space allowances (option 1.O.3) will increase the numbers of trucks needed and therefore the number of drivers.

The combined effect of option 1.O.1A and 1.O.2A with 1.O.3 would lead to a decrease in the number of drivers needed of 613 drivers⁵⁹. This would have a negative effect on employment but given the shortage of truck drivers, this should not pose an issue. The combination of options 1.O.1B and 1.O.2B with 1.O.3 would lead to a need increase of 404 drivers⁶⁰, which would be positive for employment but may pose an issue due to the shortages of drivers. Given the very little differences in terms of number of transports affected between 1.O.1A and 1.O.1B, the impact is expected to be similar.

1.1.5. Environmental impacts

FAO indicates that post farmgate emissions (transports, slaughter etc.) account for only 2.8% of the emissions from livestock supply chains⁶¹. The direct environmental impact of transport is related to emissions from fuel use – particularly CO₂ and NO_x emissions⁶².

Reduced journey times would result in a reduction of distance travelled and thus a decrease of fuel use and as a consequence also a reduction of CO₂ and NO_x emissions. **Option 1.O.1A** for slaughter transport and **option 1.O.2A** for other types of journeys are estimated to have the largest reduction of CO₂ and NO_x emissions from transport, while **option 1.O.1B and option 1.O.2B** have intermediate reduction compared to the current situation. For other journeys, options 1.O.2A has the largest reduction of CO₂ and NO_x emissions⁶³. Combined with the increase in space allowance, The combination of options 1.O.1A with 1.O.2A and 1.O.3 is estimated to have the largest reduction of CO₂ and NO_x emissions from transport, as despite the additional number of trucks required, the total number of kilometres travelled would be lower compared to today. With the 1.O.1A, 1.O.2B and 1.O.3 combination, and the 1.O.1B, 1.O.2B and 1.O.3 combination, the increase in the number of trucks needed is expected to see a marginal increase in emissions.

1.2. EXPORTS

The exports of animals to third countries are currently allowed by the EU animal welfare legislation, but operators are responsible to ensure that EU welfare rules are followed until the

⁵⁸ Transport study, p. 107 (see note 5, page 8).

⁵⁹ Transport study, p. 108, table 41 (see note 5, page 8).

⁶⁰ Transport study, p. 108, table 41 (see note 5, page 8).

⁶¹ Food and Agriculture Organization of the United Nations (FAO), [Global Livestock Environmental Assessment Model \(GLEAM\)](#).

⁶² Transport study, p. 109 (see note 5, page 8).

⁶³ Transport study, p. 110, table 43 (see note 5, page 8).

final place of destination in third countries (as established by the European Court of Justice⁶⁴). Exports should respect the same time limits as those journeys within EU territory, i.e. the animals should rest for 24 hours at a control post after a journey of e.g. 29 hours in the case of cattle, after which the journey can continue following the same pattern of journey and resting periods until the place of destination is reached. A significant share of the exports occurs through sea transport. The journey of animals exported by livestock vessels begins with a road trip from their place of origin to the EU exit port. Considering the existing definitions for ‘journey’ in the Transport Regulation, both the road (from the place of origin to the departing port, and from arrival at receiving port to destination) and the sea transport are **parts of a single journey**.

The measures proposed are:

2. Exports	Road (5 years transition period):	2.O.1B: Limit journey time and limit transport in hot temperatures.
	2.O.1A: Ban exports of ruminants	
Ship (5 years transition period):	2.O.2A: Ban exports of ruminants	2.O.2B: Improved conditions: vet on board
		2.O.2C: Improved conditions: only white flag
		2.O.2D: Improved conditions: animal welfare officer on board
		2.O.2E: Improved conditions: white and grey flags

1.2.1. Background and non-action scenario

The overall extra-EU trade is significantly smaller than the intra-EU trade for most species, except for sheep and goats. The total value of the EU export of animals to third countries is more than EUR 3 749 million. The largest share is related to the export of bovines (nearly one million animals per year) and sheep and goats (3.2 million animals per year)⁶⁵.

EU exports to third countries take place by road and by sea, often both. Of all bovines, 60% are exported by sea and 39% by road, with the main countries of origin as Portugal, Romania, Spain and Croatia, and the main destination as the Middle East. 92% of the sheep are exported by sea and only 8% by road⁶⁶, with more than half originating from Romania, and Middle East for main destination.

The rules at exports have been proven very difficult to enforce.

Currently, 88 livestock carriers are EU-approved⁶⁷. Most of the livestock vessels transporting livestock from an EU port sail under a grey or black flag under the Paris Memorandum of Understanding on maritime safety (i.e. are considered as posing a risk or a high risk in relation to maritime safety), something which raises high concerns. Only 6 of the currently listed vessels are flagged under the “white list”.

⁶⁴ Judgment of the Court of Justice of 23 April 2015, *Zuchtvieh-Export GmbH v Stadt Kempten*, C-424/13, EU:C:2015:259.

⁶⁵ Transport study, p. 82 (see note 5, page 8).

⁶⁶ European Parliamentary Research Service, *Protection of animals during transport: Data on live animal transport*, PE 690.708, 2021.

⁶⁷ Data extracted from the THETIS database.

Without an intervention at EU level, the export of live animals to third countries will continue without safeguards for the animals' welfare once they leave the EU territory or on board of vessels.

A decrease in the number of animals exported can be expected in the coming years, especially regarding cattle and pigs. On the other hand, a slight increase in the number of sheep transported is anticipated as their population is expected to grow due to increased demand, while the export of poultry should remain stable⁶⁸. Overall, the current transport and trade patterns are expected to remain the same. Consequently, the trends in transport costs in the context of exports – including the administrative costs, and enforcement costs of public authorities – are expected to follow the same pattern as the overall trends regarding costs for transports described in the section on intra-EU transport above, which shows a slight decrease over the years.

1.2.2. Animal welfare impacts

The ban of export of large and small ruminants envisaged under **options 2.O.1A for road transport and 2.O.2A for sea transport** would fully prevent the **risk of death of some animals due to heat stress, prolonged hunger and thirst and disease**. It would also fully prevent the **risk of injuries** due to handling stress, motion stress and low space allowance. Finally, it would prevent the death of thousands of animals due to livestock vessels hazards occurring regularly⁶⁹. It would also avoid difficulties to guarantee **compliance** with the EU welfare standards in third countries until destination⁷⁰. However, the impact on the overall welfare of animals transported internationally may be more limited as it is likely that importing countries would instead import animals from some other countries, to the extent that their animal welfare standards are lower than the ones in the EU.

For road transport (and if a journey includes a transport by vessel, the legs of that journey on the road), option **2.O.1B** proposes to establish the same rules regarding journey time, space allowance and travel under hot temperatures which would mitigate hazards for the animals and reduce the **risk of injuries and death on arrival**, due to the reduced journey times.

For transport on vessels (which include the legs of the journey on the road, before and after the leg on sea), limits regarding journey time would apply.

On board of the vessels, options **2.O.2B** proposes to impose the presence of a veterinarian on board, an option which would greatly improve the welfare of animals as welfare hazards would be limited due to the presence of a professional. Alternatively, option **2.O.2D** proposes the presence of an animal welfare officer on board, an improvement compared to the situation of today as such a person would be trained to identify welfare issues.

Option 1.O.2C proposes to only allow white flag carriers to transport animals of low or standard risks, which would be a great improvement for their safety at sea, and **1.O.2E** would

⁶⁸ Transport study, p. 112 (see note 5, page 8).

⁶⁹ European Parliament, Directorate-General for Internal Policies, Policy Department for Structural and Cohesion Policies, [Animal welfare on sea vessels and criteria for approval of livestock authorisation - PE 690.876](#), 2021, p. 15.

⁷⁰ Welfare of animals exported by road – overview report (see note 33, page 61).

allow white and grey flags carriers to transport livestock (of low or standard risks), which would still improve their safety and welfare by decreasing the chances of hazards.

1.2.3. Economic impacts

Business operators

The largest economic impact of an export ban or increase of restrictions would be the loss of revenues from exported animals both for primary producers as well as for transporters. The largest loss would be expected from a ban.

The total value of EU exports of bovines and sheep and goats to third countries is just below EUR 1.5 billion (more than EUR 1 billion for bovines and almost EUR 0.4 billion for sheep and goats)⁷¹. Given the size of the economic value of EU exports of live animals, the export ban would have important impacts on the EU economy. Live animal exports account for 3.3% of gross indigenous production in the bovine sector, and 10% for sheep and goats⁷². Thus, the impact on both sectors, but in particular sheep and goats would be substantial as this quantity would have to be diverted either to meat exports or be sold on the EU market. Evidence suggests that the export of live animals can only partly be replaced by the export of meat⁷³. Since demand for food tends to be price inelastic, the downward impact on prices (due to more meat having to be sold on the EU market) would likely be considerably higher than those percentages. It is estimated that an export ban would increase the supply of beef by 2.3% (i.e. by 162 713.88 tonnes). The supply of sheep meat would increase by 7.5% (i.e. by 39 298 tonnes)⁷⁴.

The overall short-term effect is estimated to be a loss of EUR 1.9 billion per year⁷⁵. Losses due to reduced export would affect only stakeholders (farmers, traders) that export live animals, while losses due to a price decrease would affect all beef and sheep producers in the EU.

Under the options limiting journey time and generally imposing stricter conditions, export of livestock can continue as long as the journey duration stays within the authorised limits, effectively limiting some exports. For road journeys, a journey time of maximum 9 hours would be allowed for slaughter, while for other types of journey a leg of 21 hours followed by a mandatory rest in a control post of 24 hours, and a final leg of 21 hours would be authorised. For sea transport, the leg by road would be limited to 21 hours, followed by a transport on vessel without time limit which can be followed by one more road journey of 21 hours.

⁷¹ Transport study, p. 120, table 48 (see note 5, page 8).

⁷² Calculated as a percentage of meat production in carcass weight equivalent (EU agricultural outlook for markets, income and environment 2022-2032 (see note 25, page 41)).

⁷³ Transport study, section 5.3.2.3. (see note 5, page 8). Based on evidence related to the Australian ban on export of live animals to the Middle East. After the Australian ban, the gap in the markets was quickly filled by Europe. Therefore, it is expected that most of the products originating from the otherwise exported animals would need to be absorbed by the EU market.

⁷⁴ Transport study, p. 120 (see note 5, page 8).

⁷⁵ Transport study, p. 120 (see note 5, page 8). This estimate is calculated based on the values of exports of sheep, goats and cattle, the additional sales of meat (instead of live animals), and the price effect due to increased supply on the EU market.

This would imply that an important proportion of ruminants cannot be exported anymore since the travel time for slaughter of animals would be limited, except for those destinations where export by livestock vessel is an option.

For **bovines**, as the table below shows, the transport by road of roughly 190 000 animals for breeding or fattening and 53 550 animals for slaughter (243 550 animals in total, i.e. around 24% of exported bovines) would be impacted. This figure assumes that the controls on journey times after crossing the EU border will be correctly applied, which in practice will be difficult to ensure with certainty. In addition, part of these exports might be redirected towards transport by sea, thus resulting in a lower impact.

Table 20: Bovines exported to third countries by road with breakdown by purpose and by journey time (Source: TRACES)

	<9h	9-12h	12-21h	21-42h	>42h	Total
Breeding	11% (25 630)	8% (18 640)	15% (34 950)	18% (41 940)	47% (109 510)	100% (233 000)
Production	27% (51 840)	8% (15 360)	5% (9 600)	16% (30 720)	43% (82 560)	100% (192 000)
Slaughter	49% (51 450)	17% (17 850)	16% (16 800)	9%	9% (9 450)	100% (105 000)
Grand Total	25% (132 250)	10% (52 900)	12% (63 480)	16% (84 640)	38% (201 020)	100% (529 000)

For **sheep and goats**, road transport accounts for a far smaller share of third country exports, with 94% by value and 96% by volume taking place by sea⁷⁶.

Regarding upgrading the conditions on board of vessels, under option 2.O.2B exporters would need to make sure a veterinarian is on board the vessel. However, discussions with stakeholders and Member States showed⁷⁷ that such a requirement would be extremely challenging to implement due to the shortage of veterinarians available and the low interest to work on livestock vessels due to poor and unsafe conditions, rendering the option very costly to attract veterinarians. Option 2.O.2D foresees the presence of an animal welfare officer, who would be a member of the transport crew specifically trained on animal welfare issues. The average cost

⁷⁶ Data extracted from Comext.

⁷⁷ Data extracted from Comext.

of training per person per year is estimated to EUR 241⁷⁸. Since 88 vessels are currently approved at EU level, the cost at EU level would be EUR 21 208 per year.

Finally, **in both options 2.O.2C and D** some livestock vessels would have to be upgraded to comply with the stricter and higher maritime safety and welfare standards. Based on an extract from the THETIS database, the situation regarding EU approved livestock vessels can be summarised as follows:

White flag:

- Low risk: 2 vessels
- Standard risk: 6 vessels
- High risk: 0

“Grey” flag:

- Low risk: 0
- Standard risk: 41 vessels
- High risk: 0

Black flag:

- Low risk: 0
- Standard risk: 23 vessels
- High risk: 16 vessels

Under the option of “white or grey flag”, 16 vessels which are currently high-risk ships flying a black flag would be required to make investments in order to obtain a standard or low risk status of a white or grey flag State. Upgrading existing vessels would cost around EUR 20 million per vessel⁷⁹. Building new vessels to meet the new standards would require between EUR 50 and 100 million per vessel⁸⁰. Of the 23 vessels of the category “standard risk” under a black flag, it is estimated that most vessels would only need to register under another flag State, without major investment. In total it is estimated that around 19 vessels would have to upgrade their vessels at a cost of around EUR 20 million.

Under the option of “white flag”, it can be estimated that the 39 vessels currently under a black flag and some of the 41 vessels currently under the grey flag would be required to make similar investments. Overall, the estimation is that 44 vessels would need to make such investments.

The cost for the flag registration is a one-off cost of EUR 5000. Under the white flag option, the 39 black flags and 41 grey flags would face costs of new registration. Under the white and grey flags option, only the 39 black flags would need to register under a new flag.

⁷⁸ In consultation with national authorities.

⁷⁹ Transport study, p. 117 (see note 5, page 8).

⁸⁰ Transport study, p. 117 (see note 5, page 8).

Since only a limited number of exports are registered in Traces⁸¹, there is no available data regarding the current volume of journey plans and journey logs submitted by transporters to the competent authorities of the Member States. However, under **the main options** it is likely that the current administrative costs of businesses to arrange animal transports would be saved compared to today, as intra-EU trade is regulated within a single set of EU rules, as opposed to varying requirements that need to be applied depending on the third country crossed and reached, which are likely to incur in addition to EU administrative costs. As for **the alternative option for sea transport**, since the total number of vessels allowed to undertake transports for exports would substantially decline, it is likely that the costs of businesses to arrange transports for exports would be lower than the current situation.

Internal market

Increasing the requirements and upgrading and clarifying the standards of all transport would ensure a better level playing field among **transporters**, as there would be less additional national measures and less divergent enforcement.

Banning or limiting the export of live animals may result in a decrease of revenues for **farmers**. The decrease in prices is most likely to have the largest effect on farms that are currently less competitive (smaller farms, farms in less favoured areas or new Member States)⁸². On the other hand, slaughtering locally instead of exporting animals might support local economies. For example, according to a Romanian study, Romanian farmers would profit significantly from a shift from transporting live animals to transporting meat, as, by transporting meat, the by-products would stay in the country, which could lead to an economic benefit (e.g. sale of high value leather products)⁸³. However, that study assumes that the export of live animals can to a large extent be replaced by the export of meat and that the price of the meat and other products are competitive. This assumption may be debatable under the current market circumstances.

Export companies are likely to be seriously affected by a ban (**main options**) or stricter requirements (**alternative options**) on export, as it would de facto end some – or all – of their activities in that area. This would mostly affect companies based in the major exporting Member States.

Trade

A ban on exports will have a negative effect on trade. While part of those exports of live animals will be replaced by exports of meat, this will still result in a net loss. Enforcing limitations on journey time will have a negative effect on export, as some destinations will be out of reach. In this option, landlocked export destinations like central Asia are most affected, especially since the largest part of the animals transported to these countries are for slaughter.

⁸¹ Only those that start in a different Member State than the Member State from which they leave the EU are registered in TRACES.

⁸² European Parliament, Directorate-General for Internal Policies, Policy Department for Structural and Cohesion Policies, Hill, B. and Bradley, D., *Comparisons of Farmers' Incomes in the EU Member States - Study for the European Parliament*, IP/B/AGRI/IC/2014-68, 2015.

⁸³ Cazacu, C., *Romanian livestock industry - a comparison study on the impact of replacement of live exports of bovine and ovine with refrigerated/frozen meat* Bucharest, Original Media, Bucharest, 2018.

Public authorities

The ban on exports would result in a decrease of the enforcement and administrative costs of public authorities related to inspections of vehicles and vessels for export, which is onerous for the competent authorities (e.g. loadings on livestock vessels have an inspection rate of 100%). On the other hand, the number of transports between Member States of the otherwise exported animals might increase⁸⁴.

Upgrading transport conditions on road and sea will see an increase of the enforcement costs. There is also a risk of fraud (by the misdeclaration of animals as breeding animals instead of slaughter animals), which might lead to additional enforcement costs. However, the costliest measure is expected to be the requirement of having an official veterinarian (or animal welfare officer) present on the vessels. Estimates by the industry suggest that this cost could amount between EUR 5 000 and 20 000 euro per journey⁸⁵.

Consumers

Under a **ban of exports**, consumer prices of beef and mutton would likely decrease⁸⁶ as described above. In addition, the social expectations regarding animal welfare would be met. The options on limiting journey time and upgrading transport conditions are not expected to have an effect on consumer price.

1.2.4. Social impacts

The transport of animals to third countries by **trucks** is partly done by EU registered companies, which would therefore be negatively impacted by a ban. However, no data on the number of registered companies in or outside the EU performing export and their employees has been identified to allow quantification of these impacts. Primary producers will also abandon their export activities, which will have a negative impact on them.

In the short term, the slaughter animals that are currently transported to third countries would need to be transported to slaughterhouses within the EU, still generating demand for transport services but for different routes. Most of the **livestock vessels** are registered outside the EU and employees also mostly come from outside the EU⁸⁷. For **the options on implementing stricter transport conditions and reducing journey time**, the negative impact on drivers of significantly limiting, or even de facto preventing, the export of live animals would be limited.

1.2.5. Environmental impacts

A ban on export would reduce the distance travelled. In addition, emissions by livestock vessels would be significantly reduced. Hence, a reduction in emission of CO₂/NO_x caused by EU

⁸⁴ Transport study, p. 118 (see note 5, page 8).

⁸⁵ To note that the presence of an official veterinarian on board a livestock vessel during the entire first voyage of the vessel is required by Commission Implementing Regulation (EU) 2023/372 of 17 February 2023 laying down rules on the recording, storing and sharing of written records of official controls performed on livestock vessels, on contingency plans for livestock vessels in the event of emergencies, on the approval of livestock vessels and on minimum requirements applicable to exit points, OJ L 51, 20.2.2023, p. 32–39.

⁸⁶ Transport study, p. 121 (see note 5, page 8).

⁸⁷ Transport study, p. 124 (see note 5, page 8).

transporters is to be expected. If a ban of exports would result in a decline of production of especially sheep (since a large part of this production is exported to third countries), also a reduction of other GHG emissions could be expected. This environmental benefit may however be unchanged if third countries are importing live animals from other third countries.

Under the option limiting journey time, the emissions by trucks and livestock vessels would remain, though they could to some extent be reduced compared to the current situation.

Some evidence suggests that dead bodies of animals that die during sea transport are thrown in the Mediterranean Sea because they are considered high-risk waste and there is not an adequate system in place for accepting the dead bodies at the arrival ports (even in the EU), creating water pollution issues⁸⁸. However, with better animal welfare conditions on board of the vessel due to the presence of qualified personnel, and improved vessels safety, less animals would be expected to die during transport. As the measure also foresees stricter conditions for livestock vessels which would greatly increase safety and compliance, the illegal disposal of carcasses in waters may also be reduced along with other illegal practices having negative environmental impacts (illegal disposal of fuel, etc).

1.3. TRANSPORT OF UNWEANED CALVES

Current EU animal welfare legislation (Council Regulation 1/2005) establishes a minimum age for unweaned calves to be transported: At least 10 days old for journeys over 100 km and at least 14 days old for long journeys without being accompanied by their mothers. Unweaned calves must also, after 9 hours of travel, be given a rest period of at least 1 hour for them to be given liquid and if necessary, to be fed. After this rest period, they may be transported for a further 9 hours. The maximum journey time is up to 19 hours before resting for 24 hours and again 19 hours without any limitation if the same pattern for journey and resting periods is respected.

The measures proposed are:

3. Transport of unweaned calves	3.O.1: Max journey times and minimum age and weight (2 years transition period for weight and age, 5 years for journey times)
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1.3.1. Background and non-action scenario

Unweaned calves belong to the group of vulnerable animals and are especially exposed to animal welfare and animal health risks during transport activities.

Most of the approximately 20 million unweaned non-replacement dairy calves born each year in the EU enter into beef or veal beef production systems in the Member States in which they were born. Still, substantial numbers of these animals are transported to other Member States. In the period 2015 to 2020, **each year around 1.4 million unweaned calves (7%) were moved across Member State borders, of which 42% (578 000 animals) on long journeys** (i.e.

⁸⁸ Transport study, p. 125 (see note 5, page 8).

journeys beyond eight hours)⁸⁹. These long journeys represent a higher risk for the welfare of animals than shorter journeys, and, because there is currently no system allowing to feed calves with milk or milk replacers while on the journey, EFSA recommends a maximum 8 hour journey duration for unweaned calves after which calves should be unloaded, fed, and rested for three hours⁹⁰.

The most important Member States of destination of unweaned calves for long journeys are Spain, the Netherlands, Italy and Belgium, accounting for over 93% of the animals. The most important Member States of origin for long journeys are France, Ireland and Germany^{91,92}. The calf herd is expected to decrease by 10% by 2032, due to a reduction in the dairy herd⁹³.

At present, several Member States have already decided to limit long-journeys of unweaned calves and to increase their minimum age. This is either based on legislation (e.g. Sweden) or voluntary measures taken by operators (e.g. the Netherlands). The Dutch voluntary ban on long-journeys resulted in a replacement of the long-journeys from Eastern Member States by short-journeys originating in neighbouring Member States, especially Germany, within a few years⁹⁴.

Under a no-action scenario, it is expected that the overall number of transports of animals, including the transport of calves, will slightly decrease due to the expected changes in livestock numbers over the coming years⁹⁵. In addition, the restrictions adopted by certain Member States regarding the transport of unweaned calves, as indicated above, will also result less calves transported in the long term. However, provided that such national measures will remain limited to a few Member States, such a decrease should not be significant⁹⁶.

The policy option to assess is the following:

Provided that a system allowing to effectively feed calves with milk replacers on the truck is approved based on a technical assessment at EU level during the transition period, unweaned calves would be transported for a maximum of 19 hours (9 hours – 1 hour rest – 9 hours), a minimum age of 5 weeks and minimum weight of 50kg. In the case of transport by roll-on roll-off (trucks loaded on vessels), the leg of the journey on board is not included in the 19 hours limitation. If there is no system allowing to effectively feed calves with milk replacers on the

⁸⁹ Transport study, p. 126 (see note 5, page 8).

⁹⁰ Welfare of cattle during transport (see note 45, page 86).

⁹¹ Transport of unweaned calves between Member States is mainly destined for veal production (in the Netherlands and Italy) and young beef productions (Spain). Veal production in the Netherlands and Italy is organised in highly integrated value chains. The total production value of the veal calf sector in the Netherlands was EUR 6.2 billion in 2019, with veal calf farms accounting for EUR 2.3 billion, or 38% of the total, and supply and processing jointly for EUR 3.7 billion. In 2019, the added value realised in the veal calf complex amounted to EUR 1.8 billion, of which the primary sector contributed EUR 200 million, or 9% of the total. The total economic value of the 700 000 veal calves that are produced annually in Italy is approximately EUR 600 million (transport study, p. 135, (see note 5, page 8).

⁹² Transport study, p. 126 (see note 5, page 8).

⁹³ Agricultural outlook for markets, income and environment 2022-2032 (see note 25, page 41).

⁹⁴ Transport study, p. 135-136 (see note 5, page 8).

⁹⁵ Transport study, pp. 84-85 (see note 5, page 8).

⁹⁶ Transport study, p. 132 (see note 5, page 8).

truck, the EFSA recommendations would be followed and the maximum journey time for unweaned calves would be 8 hours.

1.3.2. Animal welfare impacts

The main welfare concerns during transport of unweaned calves are **reduced immunity, handling difficulties, transport stress and health issues, prolonged thirst, hunger and challenges to feed calves in certain situations**. Those risks are aggravated by the very young age (14 days) and low weight of the calves transported⁹⁷.

Option 3.O.1 proposes to reduce long journeys for unweaned calves, which would reduce the risks of welfare consequences such as **immunosuppression, prolonged hunger and thirst, handling stress and restriction of movement that might lead to injuries and death**⁹⁸. The option also proposes to increase the transport age to 5 weeks, and a minimum weight of 50kg, which would further reduce the welfare risks mentioned above.

The option is in line with the EFSA recommendations, as regards the age and weight requirements⁹⁹.

1.3.3. Economic impacts

In absence of approval of effective feeding solutions during the transition period, a ban of journeys of more than 8 hours for unweaned calves without a decrease in veal calf production in the Netherlands, Italy and Spain, would create a strong incentive for veal calf or beef integrations to ensure the supply of unweaned calves. This entails that these Member States will need to import unweaned calves from Member States that are closer to ensure journey times of under 8 hours. Consequently, the number of long-journeys would decrease but the total number of animals transported on short-journeys will increase. For several Member States, the supply of unweaned calves from neighbouring Member States will be insufficient to meet their demand¹⁰⁰. However, as feeding systems are already being developed and reaching the market, those impacts will likely be avoided.

Businesses

If no effective on-truck feeding solution has been approved during the transition period, **transporters** would be mainly impacted with costs related to the increase in the space needed to transport older calves (minimum age requirement) and costs related to the 8 hours limitation. However, since feeding solutions are reaching the market already now, this is not expected to happen. The cost for installing a feeding system in an existing truck is estimated to be between EUR 25 000 – EUR 30 000, while a new truck equipped with such a feeding system is estimated to cost around EUR 500 000. Annual maintenance costs would be between 1000 and 2000

⁹⁷ Welfare of cattle during transport, pp. 72-81 (see note 45, page 86).

⁹⁸ Welfare of cattle during transport, pp. 72-81 (see note 45, page 86).

⁹⁹ Welfare of cattle during transport, p. 81 (see note 45, page 86).

¹⁰⁰ Transport study, p. 136 (see note 5, page 8).

EUR¹⁰¹.

Since calves would be transported at a higher age and weight than today, a lower number of calves will fit in the truck. An increased number of journeys or trucks to transport the same number of calves will be needed, however this increase is expected to be limited due to the forecasted reduction¹⁰² in the number of calves. It should be noted that while the measure on space allowance applies to calves, the difference between the previous requirements and the new requirements for a calf of 50kg is a 5% increase in space allowance. The measure is therefore not expected to substantially affect transport capacity.

For **dairy farmers**, it is estimated on the basis of data provided by the sector in Germany, that keeping calves on the dairy farm for the additional weeks will cost approximately EUR 4.20 per calf per day¹⁰³. In addition, having the animals longer at the dairy farm means that the number of animals on the farm is higher. This may have consequences for environmental permits that, in a number of Member States (e.g. the Netherlands and Germany) limit the number of animals present. Updating such permits can come with substantial costs and time¹⁰⁴.

Keeping calves longer on dairy farms means that the calves would be kept for a shorter amount of time at the fattening farm, incurring savings for **veal calves and beef producers**. Overall, the extra costs of dairy farms may be reflected in the selling price of calves to fattening farms.

For dairy farmers in Member States where calves on journeys over 19 hours originate, a lack of alternatives to fatten unweaned non-replacement calves locally or within the 19 hours may result in substantially lower prices of all unweaned non-replacement calves. Prices might even become so low that taking care of these animals might be jeopardized, resulting in welfare problems or killing of these calves on dairy farms¹⁰⁵.

Due to the increased resilience and overall better health of calves¹⁰⁶, fewer losses paired with lower costs related to the disposal of carcasses and decreased veterinary costs are expected for veal and beef producers¹⁰⁷. A Belgian study showed that those calves that have suffered from bovine respiratory diseases or diarrhoea have a considerably lower body weight (up to 9.2 kg less) than calves that remained healthy¹⁰⁸. Thus, there is a clear link between the growth of calves and disease. A study from 2021 carried out in The Netherlands establishes 4 weeks as the most beneficial age to transport animals in terms of economic value, given their immunity at that stage, they are not as fragile and the price in the market for these animals is the most optimal.

Overall, the measure is expected to cost transporters around EUR 3 million per year.

¹⁰¹ Based on data provided by livestock truck manufacturer.

¹⁰² Transport study, p. 84 (see note 5, page 8).

¹⁰³ Transport study, section 5.4.2.3. (see note 5, page 8).

¹⁰⁴ Transport study, p. 134 (see note 5, page 8).

¹⁰⁵ These negative consequences would not be mitigated by the envisaged 8 year transition period, as most dairy farmers view non-replacement calves as a low-value by-product of their dairy production. This is unlikely to change unless alternatives are identified (transport study, p. 134 (see note 5, page 8)).

¹⁰⁶ Dutch Ministry of Agriculture, Nature and Food Quality, *Scenariostudie Kalverketen - Scenario's voor een andere inrichting van de keten*, the Hague, 2021, p. 33.

¹⁰⁷ Scenariostudie kalverketen, p. 40-41 (see note 106, page 103).

¹⁰⁸ Pardon, B. et al., 'Impact of respiratory disease, diarrhoea, otitis and arthritis on mortality and carcass traits in white veal calves', *BMC Veterinary Research*, Vol. 9, 97, BMC, 2013, <https://doi.org/10.1186/1746-6148-9-79>.

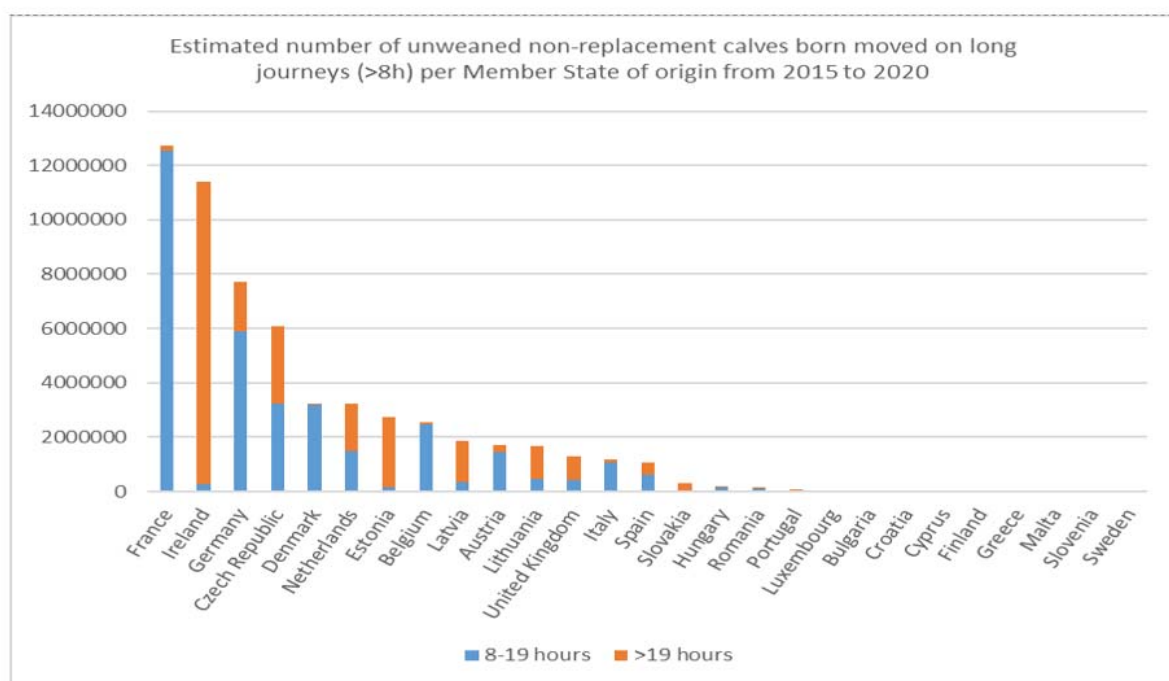
Public authorities

A limited increase of the enforcement costs may be expected compared to today if feeding systems are available on trucks, mainly related to inspection activities (planning, analysing data etc.) and the need for more veterinarians/inspectors to perform these inspections. In the situation that no effective feeding system has been approved yet and animals therefore need to be unloaded to be fed, there would be higher enforcement costs at the control post as more calves will need to rest and be fed. In this scenario, more control posts may have to be made available¹⁰⁹. As stated however, as feeding systems are already being developed and reaching the market, this is not likely.

Internal market and competitiveness

An 8 hour journey time limitation may be expected to result in some disruption in the trade of unweaned calves in a number of Member States that are impacted, as shown by the graph below.

Figure 1: Long journey transports of unweaned calves



If an effective feeding system is approved, and calves can be transported for 19 hours (excluding transport on vessels), three Member States will be more specifically affected: **Estonia, Lithuania and Latvia**. Due to their location, it will not be possible to either send unweaned calves to the usual customers in other Member States within a road journey time limit of 19 hours. A long transition period will therefore be necessary to allow for a restructuring in these countries.

¹⁰⁹ Transport study, p. 133 (see note 5, page 8).

In **Ireland** there are about 18 000 dairy farmers that produce the non-replacement calves¹¹⁰, transporting 114 000 unweaned calves per year¹¹¹ to other Member States to be fattened, mainly the Netherlands, Italy and Spain. Irish calves spend a leg of the journey on board of vessels, and this time is not included in the 19 hours limit, therefore most of the Irish calves will be able to travel the usual route and reach their destination.

1.3.3.1.Social impacts

Employment

There might be a shift of location of farms, which would impact **farmers**. Limiting the transport duration of unweaned calves might result in more local fattening of unweaned calves¹¹².

1.3.3.2.Environmental impacts

The more limited journey duration compared to today has the potential to reduce transport-related GHG emissions. Furthermore, if no effective feeding system is approved, in the case of Ireland these limitations may mean a de facto ban of the transports of unweaned calves, meaning that around 114 000 animals/year would not be transported. Assuming a current journey of calves from Ireland to a destination of approximately 1 200 km from Cherbourg, in total 1 522 000 litres of fuel will be saved reducing NOx emissions by 5 tonnes and CO₂ emissions by 1 362 tonnes (this reduction excludes the reduction of the emission by the Ro-Ro vessel for which no data was available)¹¹³.

Estimating the transport-related emissions for other Member States is less straightforward as the potential substitution effect (e.g. making more shorter journeys as a replacement for the previously longer journeys to keep trading the same number of animals) might offset the potential reduction in GHG emissions¹¹⁴. Additionally, increasing the number of journeys or truck needed, due to the higher age of the calves, would contribute to offset the potential reduction, while a reduction in the number of dead calves and higher yields would have a positive environmental impact.

There is no significant harm to be expected from implementing any of the options¹¹⁵.

1.4. HOT TEMPERATURES

Current EU animal welfare legislation (Council Regulation 1/2005) requires that the means of transport must be designed, constructed, maintained and operated so as to protect the animals

¹¹⁰ Transport study, p. 136 (see note 5, page 8).

¹¹¹ Transport study, p. 126 (see note 5, page 8).

¹¹² The alternatives are described in Study on shifting from transport of unweaned male dairy calves over long distance to local rearing and fattening: final report (see note 33, page 61).

¹¹³ Transport study, p. 139 (see note 5, page 8).

¹¹⁴ Transport study, p. 139 (see note 5, page 8).

¹¹⁵ Transport study, p. 139 (see note 5, page 8).

from extreme temperatures (Annex I, Chapter II, point 1.1.). Ventilation systems on means of transport by road must be capable of maintaining temperatures of no more than 30°C within the means of transport, for all animals, with a +/- 5 °C tolerance¹¹⁶.

The measures proposed are:

4. temperatures	Hot4.O.1: Additional criteria when approving transport on long journeys subject to weather forecasts
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1.4.1. Background and non-action scenario

One of the key animal welfare concerns during transport relates to animals being exposed to high temperatures. To protect animals from such “heat stress”, EFSA recommends, for different categories of livestock transported, upper critical temperatures. These vary between 22°C for sows, 30°C for piglets up to 30 kg and 32°C for shorn sheep¹¹⁷.

The Commission reminds Member States every summer to take the weather forecast into account before signing the journey log, when temperatures beyond 30°C are forecasted for the journey. As a result, combined with Commission audits and guidelines, the number of live animal transports by road to e.g. Turkey during summertime was reduced by 70% over two years¹¹⁸.

Temperatures as recommended by EFSA can only be stably maintained within the vehicles by means of requiring air conditioning systems, which are neither economically feasible nor desirable from an environmental point of view¹¹⁹. In any other scenario, if temperature limits are exceeded within the vehicle, there is no corrective measure available. This limits the possible solutions to decide whether or not to sign the journey log (and therefore, allowing the journey to happen) relying on the weather forecast.

Some Member States already restrict the transport of animals in high temperatures. In Germany, if outside temperatures are expected to be higher than 30°C during transport to slaughterhouses, the total transport time is maximum 4.5 hours. In the Netherlands, animals may not be transported if the outside temperature reaches 35°C or higher, regardless of whether the transport happens within the country or to another Member State¹²⁰.

Due to climate change, the spring and the summertime are increasingly confronted with extremely hot weather in the EU. As a result, there will be more tropical conditions (heat waves) occurring in countries with a temperate climate in northern and central Europe, and in particular in the southern European countries with a more subtropical climate. During these periods the temperature in animal transport vehicles rises above 30°C (or even 35°C)¹²¹. Based

¹¹⁶ Transport study, p. 56 (see note 5, page 8).

¹¹⁷ EFSA reports on animal welfare during transport (see note 45, page 86).

¹¹⁸ Welfare of animals exported by road - overview report (see note 33, page 61).

¹¹⁹ Transport study, p. 56 (see note 5, page 8).

¹²⁰ Transport study, p. 91 (see note 5, page 8).

¹²¹ Hoorweg, F. A., et al., *Metingen temperatuur tijdens diertransport, KD-2020-063*. Wageningen University and Research, 2021, <https://library.wur.nl/WebQuery/wurpubs/fulltext/559400>.

on EEA data¹²², in 2038 Southern Europe is expected to have an average of 50 days per year over 30°C, Central Europe 15 days, and Northern Europe 3 days.

Policy measure 4.O.1 would require that, when the outdoor temperature is between 25°C and 30°C, the journey may not exceed 8 hours and the animals should have genuine access to water during the transport. Where the outdoor temperature is forecasted to be higher than 30°C, live animal transport would only be allowed by night (i.e. between 21h00 and 10h00).

There exists very little information on how effectively different transport ventilation designs are able to keep the animals within the required temperature ranges¹²³. Furthermore, air cooling systems are often missing¹²⁴ or may cease to function due to electrical or technical problems. Hence, requirements are better based on outdoor temperatures.

1.4.2. *Animal welfare impacts*

Requiring that Member States should only grant approval of a journey, journey logs and travel plans when the outside temperatures are forecasted to be lower than the limits recommended by EFSA, would be beneficial for the welfare of the animals as it would allow them to avoid “heat stress”¹²⁵.

Transporting animals by night would require that slaughterhouses can either function during the night or can shelter all animals until slaughter resumes in the morning¹²⁶, with consideration for their welfare.

1.4.3. *Economic impacts*

Businesses

Restricting the journey duration and travel during night-time will likely increase also the administrative costs for **transporters**¹²⁷. Those related to higher wages for night-time driving and other higher administrative costs: trucks must meet customs officers, border controls, veterinary inspection appointments, which may be impossible (or expensive¹²⁸) to schedule at night. The extent of this increase depends on the number of days above 30°C, which will be dependent on the geographical location. The average wage per hour of a truck driver depends on the geographical location, ranging from EUR 4.26 in Eastern Europe to 18.43 in Western Europe¹²⁹. Assuming a 20%¹³⁰ bonus for night-time driving, the costs per hour would then

¹²² European Environment Agency, *Heat and cold – extreme heat*.

¹²³ Welfare of pigs during transport (see note 45, page 86).

¹²⁴ Welfare of animals exported by road - overview report, p. 8 (see note 33, page 61).

¹²⁵ EFSA reports on animal welfare during transport (see note 45, page 86).

¹²⁶ Transport study, p. 106 (see note 5, page 8).

¹²⁷ Transport study, p. 97 (see note 5, page 8).

¹²⁸ For the Netherlands, costs for Competent Authorities outside normal business hours are 30% higher than costs within business hours (source Dutch Competent Authorities).

¹²⁹ European Commission, Directorate-General for Mobility and Transport, *Assessment of the impact of a provision in the context of the revision of Regulation (EC) No 1071/2009 and Regulation (EC) No 1072/2009 – Stakeholder consultation summary*, Publications Office of the European Union, 2021, <https://data.europa.eu/doi/10.2832/993682>.

¹³⁰ Latvian Road Transport Directorate, *Guidance on level of remuneration for drivers in EU Member States*.

range from EUR 5.1 to EUR 22.1.

Due to their usual short duration, journeys to slaughterhouses are expected to be the least affected while other type of journeys may be more strongly affected if the temperature above 30°C continues for more than a day.

Overall, this option is expected to have a very limited impact on transporters.

Slaughterhouses will need to either perform their activities during the night, or to provide a space to keep the animals until slaughter resumes in the morning¹³¹. Given that temperatures above 30°C are expected to remain relatively occasional in most Member States, it is more likely that slaughterhouses will have the occasional night shift. Availability of Competent Authorities to perform ante mortem and postmortem inspections during night-time will need to be ensured.

Overall, the measure is expected to cost per year EUR 5 million for broiler transporters, EUR 3 million for pig transporters, EUR 2 million for beef transporters, and EUR 1 million for calf transporters.

Internal market

The European regions projected to be most affected by high temperatures are the Iberian Peninsula, central Europe, the eastern Adriatic seaboard, and southern Greece¹³². Those regions are expected to be the most affected by mandatory night-time transport in case of temperatures above 30°C. However, a majority of transports take place in northern and Central Europe¹³³.

In terms of regional differences, impacts would be associated with differences in the Member State rules on night-time driving. The implementation of the option may thus be difficult or impossible in certain Member States, resulting in animals not being transported during high temperatures event in those countries and transports from neighbouring countries being diverted to other routes.

1.4.4. Social impacts

Employment

If the new temperature requirements would lead to the rejection of certain journey plans, and consequently a reduction of journeys performed, this would reduce the need for drivers. However, most likely the journeys would simply be delayed or rerouted. Hence, this impact might be negligible.

Travelling by night would require both the transporters and slaughterhouses personnel, as well as official veterinarians, to be available during the night hours.

¹³¹ Transport study, p. 106 (see note 5, page 8).

¹³² European Environment Agency, *Global and European temperatures*.

¹³³ Transport study, p. 106 (see note 5, page 8).

1.4.5. Environmental impacts

The option is not expected to have a significant environmental impact. Night-time driving avoids traffic, which can reduce emissions, but the measure would still be applied on a limited number of days of the year.

1.5. NEW TECHNOLOGIES

Current EU animal welfare legislation (Council Regulation 1/2005, Article 6(9)) requires that transporters of domestic Equidae (except registered Equidae), and domestic animals of the bovine, ovine, caprine and porcine species over long road journeys must use a navigation system for all means of transport by road. They must keep the records obtained by such navigation system for at least three years and make them available to the competent authority upon request.

The measures proposed are:

5. New technologies.	(5 years transition period) 5.O.1A: Real-time positioning 5.O.2: A central database and digital application	5.O.1B: Retrospective checks tachographs based
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1.5.1. Background and non-action scenario

The Fitness Check of the current EU animal welfare legislation identified a lack of tools to properly monitor, measure and report the result and impacts of the legislation, in particular as regards animal transports. Currently, many of the checks are paper based. An electronic version of the journey log for animal transport was implemented in 2021 but is not yet commonly used¹³⁴.

To support the enforcement of current rules and to comply with the *digital by default* policy of the EU, several actions are considered for introducing new technologies in official controls¹³⁵.

The measure assessed is to allow for sample-based real-time control of transports through a central EU database covering all journeys (including short journeys). The main objective of the database would be to allow competent authorities to assess, through GPS tracking, in real time, where trucks are and how long they have been driving, in order to properly enforce a maximum journey time. The database would also be the central repository of all relevant transport documents (e.g. journey log, authorisations, certificates, etc.) and would then enable the development of a digital app which would facilitate implementation and enforcement for all actors along the chain (both at Competent Authority and operator level)¹³⁶.

¹³⁴ Transport study, p. 141 (see note 5, page 8).

¹³⁵ Transport study, p. 141 (see note 5, page 8).

¹³⁶ Transport study, section 5.5. (see note 5, page 8).

1.5.2. Animal welfare impacts

Real-time positioning systems would make it possible to check in real time whether operators/drivers **respect the maximum journey times and in particular the resting periods**. It also allows the official controls to be better targeted (i.e. knowing who will pass by where and when). This is likely to result in improved animal welfare. This aspect is conditional upon the resources of competent authorities and their abilities to dedicate enough staff to track and control the real-time data¹³⁷, sampled on a risk-based need.

This scheme would have the most positive impact on animal welfare as it requires the use of real-time positioning and sensors for all journeys, which means all animals transported would be covered. The use of a central EU database also has the highest potential to improve controls, which in turn would ensure the welfare needs of animals during transport are met.¹³⁸ Retrospective tachographs checks would not bring significant change compared to the current situation.

1.5.3. Economic impacts

Implementation of an IT infrastructure to make the described above operational by developing a new system, itself connected to TRACES, that supports the tasks described previously will require some budget at EU level. There is however a lack of current data giving an insight into the costs and time to develop and implement such a system. These costs are therefore left outside the scope of the analysis of the economic impact¹³⁹.

Business operators

Introducing new technologies may entail direct costs to transporters for upgrading the vehicles to the latest standards. Most of the current transport trucks (77%) are already equipped with a satellite navigation system¹⁴⁰, a proportion that is expected to increase by 2031. Only limited costs (if any) have to be made to convert vehicles to the new standards. For vehicles needing a full upgrade, a one-off investment cost of EUR 20 000 – EUR 30 000 per truck is expected¹⁴¹.

Limited evidence suggests that an automated IT platform would be estimated to save at least 30% of labour costs associated with administrative tasks (completing the journey log and submitting to the Competent Authorities). Therefore, it seems likely that the implementation of a digital application that is also available for the businesses to apply and report journeys will result in a decrease of administrative costs associated with journeys¹⁴².

This would result in a cost reduction of around EUR 71 million per year compared to the current

¹³⁷ Transport study, p. 142 (see note 5, page 8).

¹³⁸ Transport study, p. 143 (see note 5, page 8).

¹³⁹ Transport study, p. 143 (see note 5, page 8).

¹³⁸ Baltussen, W. H. M., Gebrens, G. and Roest, K., *Study on the impact of regulation (EC) No 1/2005 on the protection of animals during transport*, 2011. The study showed that in 2016, already 77% of the trucks were equipped with a satellite navigation system. Given the normal replacement rates, to date most if not all trucks for transport between Member States and to third countries are equipped with these systems.

¹⁴¹ Transport study, p. 144 (see note 5, page 8).

¹⁴² Transport study, p. 144 (see note 5, page 8).

situation¹⁴³. Retrospective tachographs checks would not bring changes to the costs.

Internal market and competitiveness

Improving the enforcement of the animal welfare requirements by making more use of new technology would contribute to a more level playing field. This is considered by stakeholders to have a positive effect on the competitiveness among operators and on the internal market related to the free movement of animals, as well on EU exports¹⁴⁴.

Public authorities

The direct costs (one-off) linked to the development of a central EU database would be incurred at the EU level by the Commission service or agency responsible for the development and maintenance of the system. Member State administrations may incur costs related to training of staff on how to use a new system (although these costs may also be borne by the EU if training is provided centrally). An exact estimate of these costs cannot be provided at this time as they would be highly dependent on the technical specifications for such a database, which are unknown at this point¹⁴⁵. However, since it will build on the existing TRACES system¹⁴⁶, costs would be limited.

In addition to the costs related to a central EU database, public authorities, especially at the Member State level, would also incur costs related to the processing of the data that would be generated by the sensors and real-time positioning¹⁴⁷.

Consumers

No significant impacts on consumers have been identified.

1.5.4. Social impacts

No significant impacts on working conditions, food security and food safety have been identified. The impact on the labour needs for transporters is related to the time saving for complying with the administrative procedures. The reduced administrative burden of transport companies related to filling in the journey log and submission to the competent authorities would result in a reduction of labour needs. On the other hand, labour needs of public administrations for processing the additional data collected and potentially perform more checks could increase¹⁴⁸.

1.5.5. Environmental impacts

Additional data will be stored in a central EU database. In case the paper trail will be replaced by a digital trail the use of paper and storage facilities will decrease and be replaced by data

¹⁴³ Modelling of policy options to support the Impact Assessment accompanying the revision of the EU legislation on the welfare of animals during transport, p. 145 (see note 54, page 90).

¹⁴⁴ Transport study, p. 144 (see note 5, page 8).

¹⁴⁵ Transport study, p. 146 (see note 5, page 8).

¹⁴⁶ Transport study, p. 146 (see note 5, page 8).

¹⁴⁷ Transport study, p. 146 (see note 5, page 8).

¹⁴⁸ Transport study, p. 147 (see note 5, page 8).

servers. It is expected that this would decrease the GHG emissions associated with paper use and storage facilities but increase the GHG emissions associated with the higher energy use of these systems compared to the current situation¹⁴⁹.

Generally speaking, it has been estimated that the share of global data centre electricity consumption will rise from about 1.15% in 2016 to 1.86% in 2030¹⁵⁰. Although it cannot be estimated to what extent environmental benefits would occur from the lower paper and storage facility use and to what extent emissions would increase from the higher energy use, it can be expected that this scheme would have a slight negative environmental impact¹⁵¹.

1.6. TRANSPORT OF CATS AND DOGS

Commercial transport of cats and dogs falls within the scope of Council Regulation (EC) No. 1/2005, but there are very few specific provisions. For journeys longer than 8 hours, an authorisation of the transporter is required. Dogs and cats of less than 8 weeks of age are not considered fit for transport, unless they are accompanied by their mother. Dogs and cats must be fed at intervals not exceeding 24 hours and watered at intervals not exceeding 8 hours. Moreover, cats and dogs must be given a rest period of at least one hour sufficient for them to be given liquid and, if necessary, fed. After this rest period, they may be transported for a further 14 hours. There are no requirements regarding the dimensions of the containers used for the transport¹⁵².

The measures proposed are:

6. Transport of cats and dogs	(3 years transition period): 6.O.1A: Requirements for the transport of cats and dogs for economic purposes, e.g. age limits and temperature conditions	6.O.1B: Lower age limit
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1.6.1. *Background and non-action scenario*

The options to be assessed are the following:

6.O.1A: Minimum age for transport fixed at 15 weeks. Clinical check before departure and additional vaccinations. Rules on temperature and humidity levels and technical conditions (specific conditions for brachycephalic breeds). Adult cats and dogs to be fed each 24 hours, and puppies each 8 hours. Watering to be continuous or provided at least every four hours. No muzzles allowed as they prevent thermoregulation. Approval of vehicles. Stricter rules on feeding (adults 1x/24h, puppies and kittens every 8h), continuous water availability.

¹⁴⁹ Transport study, p. 148 (see note 5, page 8).

¹⁵⁰ Koot, M. and Wijnhoven, F., 'Usage impact on data center electricity needs: A system dynamic forecasting model', *Applied Energy*, Vol. 291, 116798, 2021, <https://doi.org/10.1016/j.apenergy.2021.116798>

¹⁵¹ Transport study, p. 148 (see note 5, page 8).

¹⁵² Council Regulation (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97, OJ L 3, 5.1.2005, p. 1–44.

6.O.1B: as in 6.O.1A except for minimum age fixed at 12 weeks.

1.6.2. Animal welfare impacts

Transport poses risks for the health and welfare of animals transported, **due to potential exposure to and spread of infectious diseases. Immunity in puppies drops from 8 weeks of age as the immunity acquired through colostrum is fading away.** In parallel, immunity from vaccinations from 6 weeks on does not develop until around 16 weeks of age. Therefore, there is a **period of low immunity between weeks 8 and 16 when pups are susceptible to infection with infectious diseases. A similar process happens in kittens.** Moreover, an **early separation from a familiar environment and social groups and exposure to inappropriate circumstances of transport cause serious stress in animals.** Avoiding transport at a too early age will allow for a better development of immunity against infectious diseases in transported cats and dogs and consequently improve welfare of these animals.

Given that puppies and kittens have a critical period for socialisation (3-12 weeks for puppies, and 2-9 weeks for kittens¹⁵³) this recommended age limit on transporting them on long journeys should not and does not have to **impede normal socialisation.** Breeders must be required to ensure adequate socialisation opportunities for the animals. **The normal range of temperatures for cats and dogs in which they can maintain their body temperature, without expending energy to increase heat production or heat loss, is between 20°C and 30°C,** with variation depending on breeds¹⁵⁴¹⁵⁵. **Humidity seems to influence significantly dogs' ability to thermoregulate** and should be maintained between 30 and 70%. Special consideration is needed for dogs of brachycephalic breeds or types as their ability to thermoregulate can be significantly reduced due to the anatomical specifics of the upper respiratory tract. Muzzles impair dogs' ability to thermoregulate and should be banned in time of transport¹⁵⁶.

Setting temperature and humidity ranges in the new legislation will help improve the welfare of transported animals.

While a minimum of 12 weeks before transport should be sufficient to ensure immunisation, 15 weeks is preferable from the point of view of socialisation with the mother. Hence, option 6.O.1A would have a greater impact on animal welfare than option 6.O.1B. On the other hand, this option delays also socialisation with the owners compared to option 6.O.1B.

¹⁵³ Casey, R. A. and Bradshaw, J. W. S., 'The effects of additional socialisation for kittens in a rescue centre on their behaviour and suitability as a pet', *Applied Animal Behaviour Science*, Vol. 114, 1-2, 2008, pp. 196–205. <https://doi.org/10.1016/J.APPLANIM.2008.01.003>

¹⁵⁴ Jordan, M. et al., *Temperature Requirements for Dogs – Are They Tailored to Promote Animal Welfare?* Purdue University – Center for Animal Welfare Science, Purdue University, 2016. [://www.extension.purdue.edu/extmedia/VA/VA-16-W.pdf](http://www.extension.purdue.edu/extmedia/VA/VA-16-W.pdf)

¹⁵⁵ McNicholl, J., Howarth, G. S. and Hazel, S. J., 'Influence of the Environment on Body Temperature of Racing Greyhounds', *Frontiers in Veterinary Science*, Vol. 3, 53, 2021, Frontiers Media SA, 2016, <https://doi.org/10.3389/FVETS.2016.00053>.

¹⁵⁶ Arhant, C. et al., 'Owner reports on the use of muzzles and their effects on dogs: an online survey', *Journal of Veterinary Behavior*, Vol. 41, Elsevier, 2021, pp. 73–81. <https://doi.org/10.1016/J.JVEB.2020.07.006>

1.6.3. Economic impacts

Businesses

The commercial transport of dogs and cats is mostly done by the breeder or under the direct responsibility of the breeder. Consequently, the costs are to be borne by these business operators¹⁵⁷.

For option 6.O.1A, new requirements on temperature and humidity would increase the cost for transporters and breeders related to the improvement/replacement of current vehicles. To give an indication, commercially available new dog trailers without air conditioning but properly designed may cost between EUR 1 000 – EUR 3 000 for two to four dogs. Dog trailers with air conditioning may be five times as expensive, depending on the specifications, varying between EUR 5 000 – EUR 15 000, for two to four dogs¹⁵⁸.

Moreover, both options are likely to increase veterinary costs. A veterinary health check consultation may cost between EUR 10 and EUR 40, and additional vaccinations may cost between EUR 20 and EUR 70 euros per vaccination. The economic impact of the new requirements for feeding and watering are expected to be limited, since relatively similar rules apply already today¹⁵⁹.

Overall, under option 6.O.1B, it is estimated that, at EU level, transporters of puppies and kittens would face a reoccurring administrative cost of EUR 94.5 million and a single adjustment cost of EUR 15 million.

Public authorities

Enforcement and administrative costs of public authorities

It is expected that the introduction of more specific and detailed requirements will enable competent authorities to better enforce the rules. On the other hand, a prerequisite to putting in place proper checks is that sufficient staff (and budget) will be made available by the Member States to check compliance. In other terms, a greater number of inspections means more time needed to finalise the administrative checks, more administrative work and more personnel. Consequently, introducing more specific requirements for the commercial transport of cats and dogs will likely lead to an increase in enforcement costs and investments for authorities¹⁶⁰.

It should be specified that no specific data on the actual costs borne by the authorities have been identified; therefore, it is not possible to assess and calculate the variance of costs that may incur between the actual situation and the one created by the different options¹⁶¹.

SMEs

Most transporting companies are SMEs.

EU Single Market

¹⁵⁷ Transport study, p. 151 (see note 5, page 8).

¹⁵⁸ Transport study, pp. 151-152 (see note 5, page 8).

¹⁵⁹ Transport study, p. 152 (see note 5, page 8).

¹⁶⁰ Transport study p. 152 (see note 5, page 8).

¹⁶¹ Transport study p. 153 (see note 5, page 8).

The keeping, breeding, and trade of pets represent a major economic activity with the annual value of cat and dog sales in the EU estimated at EUR 1.3 billion and generating direct employment of 100 000 people¹⁶². One NGO estimates that the European online trade in puppies is worth almost EUR 1.5 billion per year and that almost 2.4 million dogs are traded each year across the major European classified sites that advertise dogs¹⁶³. In 2020, the number of dogs transported commercially intra-EU amounted to 283 145 (compared to 180 752 dogs in 2015), and the number of cats to 32 642 (compared to 20 355 in 2015)¹⁶⁴.

Transporters and breeders are expected to continue the trade even if more stringent requirements apply. The free movement of dogs and cats in itself would hence not be compromised, but more stringent transport rules might slightly impact the trade patterns (and lead to less availability of cats and dogs). Better enforcement expected thanks to the inclusion of more specific rules would contribute to reducing illegal transport, which will increase the level playing field among breeders and transporters¹⁶⁵.

Going from minimum 8 weeks to minimum 15 weeks (option 6.O.1A) would have more negative impact in reducing the number of transport of cats and dogs, than if the limit is set at 12 weeks (option 6.O.1B).

1.6.4. Social impacts

Employment

The impact on EU transporters, and consequently on their workforce, cannot be identified and assessed, given the scarcity of studies and data on cats and dogs transport¹⁶⁶.

Human health

The lack of vaccination results in animals being very susceptible to infectious diseases^{167,168}. Therefore, the additional vaccination requirements and the higher age at transport proposed in this measure may result in fewer sick animals after arrival. This would have a positive impact also on human health because it would reduce the need to use antibiotics to treat these animals and, consequently, contribute to reduce AMR and zoonotic diseases development and spread.

Other social impacts:

Social impacts are more positive in case of a 12 weeks limit than 15 weeks transport limit as pet buyers would be able to buy the puppies and kittens at a younger age and socialise them in their home rather than in the establishment of origin.

¹⁶² Schrijver, R. et al, [Study on the welfare of dogs and cats involved in commercial practices, SANCO 2013/12364](#), 2015, p. 6.

¹⁶³ FOUR PAWS International, [The illegal puppy trade](#).

¹⁶⁴ Transport study, section 5.6.2.3. (see note 5, page 8).

¹⁶⁵ Transport study, p. 153 (see note 5, page 8).

¹⁶⁶ Transport study, p. 58 (see note 5, page 8).

¹⁶⁷ Cocchi, M. et al., 'A Three-Year Biocrime Sanitary Surveillance on Illegally Imported Companion Animals', *Pathogens*, Vol. 10, 1047, MDPI, 2021, <https://doi.org/10.3390/pathogens10081047>.

¹⁶⁸ EU Dog & Cat Alliance, [Literature review: Welfare of dogs and cats during transportation](#), 2020.

1.6.5. Environmental impacts

No specific environmental impacts have been identified¹⁶⁹. If stricter rules would result in a decrease in trade and, consequently, in transport, this would lead to a decrease in CO₂ emissions. However, this impact cannot be quantified and is likely to be negligible.

¹⁶⁹ Transport study, p. 158 (see note 5, page 8).