DIFFERENT RULES FOR PLASTIC PACKAGES: COMPARING THE IMPLEMENTATION OF EU RULES IN SWEDEN AND DENMARK

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Policies targeting the reuse and recycling of plastic packaging have been central to the European Union's circular economy agenda on plastic packaging waste. Recent reforms have shaped a complex and multi-level policy framework that seeks to balance the common EU waste policy goals, the flexibility afforded to Member States in waste treatment, and the preservation of an effective single market for products.

This article examines the implementation of the minimum requirements for extended producer responsibility (EPR) in Sweden and Denmark, focusing on the introduction of eco-modulated fees. Using tools of comparative studies, the study identifies both similarities and differences in the implementation.

Contrary to the hypothesis derived from theories of differentiated EU policy implementation—which posits that institutionally well-prepared Member States would enact environmental regulations comprehensively and without significant restrictions—Sweden's approach was minimalistic. In contrast, Denmark, despite starting its EPR for packaging system from scratch, adopted a comprehensive implementation strategy. Various factors were found to explain these outcomes, including

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country-specific regulatory contexts and differing timelines in relation to broader EU packaging regulations.

The findings contribute to a deeper understanding of the complexities inherent in EU regulatory implementation processes, highlighting the interplay between national contexts and supranational policy frameworks.

1. SETTING THE SCENE

Global projections reveal that plastic waste will almost triple by 2060.[1] Policies to curb plastics demand, increase product lifespans through reuse, and improve waste management and recyclability are necessary ingredients to bend the curve. Against this backdrop, EU sets out a strategy for plastic, complementary to its agenda for circular economy, aiming for at least 10 million tonnes recycled plastic in annual use in new products in 2025.[2] Policies targeting plastic packages have been at the fore front. One example is the Directive on single-use plastics which requires incorporating 25 percent of recycled plastic in PET beverage bottles from 2025, and 30 percent in all plastic beverage bottles from 2030.[3]

This article aims to unpack regulatory challenges of EU circular economy agenda on plastic packaging waste. It does so by analysing, using tools of comparative studies, the Swedish and Danish implementation of the minimum requirements for extended producer responsibility (EPR) in EU Amending directive on waste in 2018[4], focusing on the introduction of eco-modulated fees for plastic packages.

EPR is an environmental policy instrument in which a producer's responsibility for a product is extended to the post-consumer stage of the product's lifecycle, and a cornerstone in EU circular economy policies. The importance of EPR is frequently highlighted in the ongoing negotiations for a global plastics treaty.[5] EPR extends producers' financial responsibility for the collection, sorting and treatment of end-of-life products. As such it corresponds to the Polluter Pays Principle because responsibilities are transferred from public authorities to producers. However, there is little evidence that EPR systems have had an effect

1 OECD, Global Plastics Outlook: Policy Scenarios to 2060, 2022.
2 EU, European Strategy for Plastics in a Circular Economy, 2018.
3 Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, OJ L 155, art 6(5)(a) and (b).
4 Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste, OJ L 150/109, art 8a. Hereafter Amending directive of waste.
5 Elin Dreyer et al, Towards a Global Plastics Treaty: Tracing the UN Negotiations Lund University, 2024.

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on environmental design of products[6], and it is debated if EPR could be a driver for making less waste overall, or less use of packages.[7] The responsibilities of the producer in EPR-systems can be transferred to special organizations, so called producer responsibility organizations (PROs). The PROs take on the EPR-obligations for an EPR-fee paid by the producer.

Economic theory projects so called eco-modulation of the EPR-fee to strengthens incentives for eco-design of products in EPR-systems.[8] This means waste fees which differentiate between plastic packages based on the products fulfilling of eco-design criteria such as reusability, recyclability and recycled content.[9] Although there is a lack of data to assess impacts of EPR schemes, differentiation of fees for plastic packages has shown to have some positive effect on the eco-design of packages in France.[10]

EU regulation on packages waste has been a balance between the EU policy direction of circular economy, Member State's independence to shape the local waste management system, and the protection of EU single market.[11] To deepen the circular economy and decrease plastic pollution EU has taken steps to further strengthen the regulation on plastic packages and waste management. EPR for plastic packages is today a widespread policy in Europe and it is made compulsory for EU-members from 2025.[12] The EU minimum requirement of EPR prescribes member states to ensure producer fees are modulated, taking a life-cycle approach.[13]

The commission may provide guidelines for member states EPR systems and there is a mandate for the commission to adopt implementing acts 'in order to lay down criteria with a view to the uniform application' of the eco-modulation of EPR fees.[14] The commission communicated a draft guideline on fee modulation in September 2020 but has not published a final version, thus

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6 OECD, Working Party on Resource Productivity and Waste Modulated Fees for Extended Producer Responsibility Schemes (EPR), 2021.

7 Eugénie Joltreau, Extended Producer Responsibility, Packaging Waste Reduction and Eco-Design (2022) 83(3) Environmental and Resource Economics 527–78; Sergio Rubio et al, Effectiveness of Extended Producer Responsibility Policies Implementation: The Case of Portuguese and Spanish Packaging Waste Systems (2019) 210 Journal of Cleaner Production 217–30.

8 OECD, 2021.

9 Anurodh Sachdeva, Ariel Araujo, and Hirschnitz-Garbers, Extended Producer Responsibility and Ecomodulation of Fees, Opportunity: Ecomodulation of Fees as a Way Forward for Waste Prevention (2021) Ecologic, www.ecologic.eu/18226.

10 Eunomia, Study to Support Preparation of the Commission's Guidance for Extended Producer Responsibility Scheme (April 2020) 59.

11 Ian Bailey, Flexibility, Harmonization and the Single Market in EU Environmental Policy: The Packaging Waste Directive (1999) 37(4) Journal of Common Market Studies 549–71.

12 European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste, OJ L 365/10, art 7(2).

13 Amending directive of waste, art 8a(4)(b).

14 Amending directive of waste, art 8(5) section 3.

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no harmonized criteria exist. Further, the new EU regulation on packaging and packaging waste (PPWR)[15] repealing the directive on the same area, again expresses the need to harmonise the criteria for the modulation of extended producer responsibility fees 'while not setting the actual amounts of such fees'.[16] PPWR delegate the power to decide on harmonized criteria for eco-modulated fees to the Commission, and prescribe for such decision by January 2028, at the same time as the Commission establishing detailed design-for-recycling-criteria per packaging categories.[17] Those criteria will trump any national regulation of such criteria according to the principle of EU law overriding member state law. The delayed timetable for harmonized criteria for eco-modulated fees has forced national legislators to act independently to set up national systems for eco-modulated EPR-fees. Thus, Sweden and Denmark have regulated their own eco-modulated EPR-fee-system for plastic packages, regulations that to some extent take different approaches.

2. AIMS AND METHODOLOGY

This article aims to unpack regulatory challenges of EU circular economy agenda on plastic packages waste, and at the same time contribute to the empirical knowledge of multilevel policy implementation. It does so by analysing the Swedish and Danish implementation of the minimum requirements for EPR in EU Amending directive on waste, focusing on the introduction of eco-modulated fees. It explores how the implementation of eco-modulation fees is formed to incentivize reuse, recyclability, and use of recycled materials in plastic packages in respective country. The research question is to what extent the pre-existing national legal context is decisive for how the EPR systems with eco-modulated fees are set up in the two EU member states. Based on this analysis, we discuss implications for the implementation process, the regulatory tensions between on one hand EU harmonization and EPR minimum requirements, and on the other hand member states' discretion and waste treatment regulations based on national principles for competition and constitutional powers.

A strand in Europeanization research and implementation studies focus on the diversity of member states use of discretion during EU policy implementation – differentiated EU policy implementation (DPI).[18] This research take interest in the role and effects of domestic politics on processes of implemen-

[15] Regulation (EU) 2025/40 of the European Parliament and of the Council of 19 December 2024 on packaging and packaging waste, OJ L 2025/40. Hereafter PPWR.
[16] PPWR Preamble no 35.
[17] PPWR Article 6(4)(b) and Article 64.
[18] Asya Zhelyazkova et al, Differentiated Policy Implementation in the European Union (2024) 47(3) West European Politics 439–65.

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tation of EU regulation going beyond the issue of mere compliance.[19] Instead of identifying so called gold plating, seeing regulation as additional to what is required for compliance with the EU regulation, actions of customization include investing the *density* (adding or taking away any piece of regulation) and degree of *restrictiveness* of the outcome of the legal transposition.[20] It has been shown that national customization strategies can follow specific EU regulatory logics in different integration contexts. A survey of 27 EU states' implementation of the directive on motor vehicles checks indicates that in environmental policy national implementation often adds more rules, more density, but seldom with the result of more restrictive outcomes in relation to the EU directive or regulation.[21] Similarly, a study of six EU states implementation of the renewable energy directive show that member states with a high level of institutional fit proactively went further than the EU minimally required.[22] According to these findings one hypothesis in our case is that Sweden, being 'pro'-EPR, would chose to customize the regulation and go further than what EU minimally requires, while Denmark, being forced to accept EPR, may choose to do a 'plain' implementation.

The analysis here is carried out with tools from comparative legal studies. Bakardjieva Engelbrekt[23] and others[24] advocating several steps of comparative methods in EU-integration law to use in an analysis of this kind. However, the field of comparative law methodology is wide-ranging. Our study does not elaborate on the various directions of the field but rather makes use of relevant concepts to guide the analysis which takes as a starting point the differences that can be seen in two rather similar systems. Based on the above-mentioned recommendations for a socially reflective comparative analysis the following elements are set for the analytic work, identifying methods of research and questions for the study:

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19 Ellen Mastenbroek, EU Compliance: Still a 'Black Hole'?, (2005) 12(6) Journal of European Public Policy 1103–20.

20 Eva Thomann and Asya Zhelyazkova, Moving beyond (Non-)Compliance: The Customization of European Union Policies in 27 Countries (2017) 24(9) Journal of European Public Policy 1269–88.

21 Ibid.

22 Viktoria Brendler and Eva Thomann, Does Institutional Misfit Trigger Customisation Instead of Non-Compliance? (2024) 47(3) West European Politics 515–42.

23 Antonina Bakardjieva Engelbrekt Comparative Law and European Law: The End of an Era, a New Beginning or Time to Face the Methodological Challenges? (2015) 61 Scandinavian Studies in Law 88–104.

24 Jaakko Husa, A New Introduction to Comparative Law, Bloomsbury Publishing, 2015; Jule Mulder, New Challenges for European Comparative Law: The Judicial Reception of Eu Non-Discrimination Law and Turn to Multilayered Culturally-Informed Comparative Law Method for Better Understanding of the Eu Harmonization (2017) 18(3) German Law Journal 721–70.

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1. Identifying the scope for the normative framework in which the comparison takes place, "*tertium comparationis*" or the common denominators between the objects of comparison.[25] In this case the scope is identified as the minimum requirements of EPR and aligned EU regulation to be implemented in Denmark and Sweden respectively.
2. Engaging in culture contexts, the national legal, institutional and culture context. In this case it means identifying characteristics and background of the packages waste treatment in Denmark and Sweden respectively, investigating involvements of actors and mandates of institutions through interviews and desktop studies.
3. Analyse national legal interpretation, how the EU regulation is interpreted in the national context. In this case it means analysing regulatory background and the structure of the regulation in Denmark and Sweden respectively through legal analysis.
4. Draw conclusions from recognizing the differences out of all similarities between the two.[26] This step includes the analysis of EU policy implementation in terms of density and restrictiveness in relation to the EU directive.

The main question in this case is what differs in implementation due to variation in the national legal context (constitutional tradition, rules of competence, adjacent legal areas as competition law and existing rules of EPR), rather than a variation of the two states' waste treatment practice or policy ambition.

3. ANALYSIS

The legal traditions in Denmark and Sweden show great similarities as both being part of the Nordic legal family, partly distinct from European continental legal discourse.[27] The characteristics of Nordic law are sometimes described as pragmatic, less keen on strong legal principles and preferring practical solutions, also with high degrees of trust in the legislator.[28] The Nordic countries has been characterized as 'the world of compliance' when it comes to implementing EU

[25] For critic of the concept see TP van Reenen, Major Theoretical Problems of Modern Comparative Legal Methodology (1): The Nature and Role of the Tertium Comparationis (1995) 28(2) The Comparative and International Law Journal of Southern Africa 175–99.

[26] Gerhard Dannemann, Comparative Law: Study of Similarities or Differences?, in Gerhard Dannemann, Mathias Reimann & Reinhard Zimmermann (eds), The Oxford Handbook of Comparative Law, Oxford University Press, 2019, 389–422.

[27] Husa, 2015; Ulf Bernitz, What Is Scandinavian Law? Concept, Characteristics, Future (2007) 50 Scandinavian Studies in Law 13–30.

[28] Henrik Wenander, Europeanisation of the Proportionality Principle in Denmark, Finland and Sweden (2020) 13(2) Review of European Administrative Law 133–53.

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policies.[29] However, a notable difference of administrative law exists between the West-Nordic states of Denmark and Norway and the East Nordic states of Sweden and Finland as the former organize its administration hierarchically under a minister in the government while the public bodies of the latter to a certain degree work independent of the ministry.[30] This difference results in eco-modulation criteria in Sweden being established through regulations by the Swedish Environmental Protection Agency, *Naturvårdsverkets föreskrifter*, while in Denmark the criteria are set by the Minister of Environment issuing a governmental ordinance, *Bekendtgørelse*.

Regarding the management of plastic packaging waste, both Denmark and Sweden are struggling as more waste is generated than current recycling practice can manage. The recycling rate of plastic packaging waste both in Sweden and Denmark is well below the EU average, less than 25 percent of generated plastic packaging were recycled in the two Scandinavian states in 2022.[31] In both countries most of the plastic packaging waste goes to incineration.

On the backdrop of all those similarities there is however one significant difference in waste treatment policy and producer responsibility. The two countries have historically taken opposite views on producer responsibility as part of their waste management. While Sweden for long time incorporated producer responsibility in its waste management system Denmark has until recently opposed. This means Sweden, to implement the minimum requirement of EPR, is reforming its existing system to introduce regulation for eco-modulation fees, while Denmark establishes EPR including eco-modulation of fees from scratch. However, in both Sweden and Denmark there are collective PRO-system for producer responsibility and competing private PROs for packaging waste.

3.1 Implementing EPR-minimum requirements in Sweden

Sweden has a long tradition of producer responsibility for packages and introduced a general national regulation 1994 (already before being a member of the EU) with the aim to apply the polluter pays principle and to increase reuse and recycling of packages. The system was further developed in accordance with EU regulations. Initially there was only one collective system for packages but since 2005 there are two private companies acting as PROs. Those organizations have taken on the producers' responsibilities to collect and recycle packages waste

[29] Oliver Treib, Implementing and Complying with EU Governance Outputs (2006) 1 Living Reviews in European Governance 1–30.

[30] Wenander, Europeanisation of the Proportionality Principle in Denmark, Finland and Sweden; Jan Darpö, Nordic Environmental Permitting Processes, TemaNord, Nordic Council of Ministers, 2023.

[31] EUROSTAT, News Article: EU Packaging Waste Generation with Record Increase, October 19, 2023.

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from households, which is carried out by more than 5 000 containers throughout the country (in cities, households may have up to a few hundred meters to a container while in areas with less dens building structure and countryside the distance may be far). Since January 1:st 2024 the responsibility for collection from households is transferred to the municipalities, however the producers are still responsible to pay for the collections and be responsible for recycling of the sorted packages waste.

The Swedish Environmental Protection Agency (EPA), *Naturvårdsverket*, is mandated some regulating authority and carries out supervision of the PROs. The EU EPR-reform meant that Sweden had to implement the EPR minimum requirements by January 2023.[32] To fulfill the directive and 'ensure' that the EPR fees are modulated regarding aspects of eco design, Sweden amended the Environmental Code (*Miljöbalken*) in 2021 giving a mandate for the government and national authority to set up criteria for eco-modulation of the EPR fees.[33] However, the mandate could only be given for regulating the criteria to be set, not to regulate the fees as such as the latter is a matter for the private company acting as PRO in relation to the producers who must pay the fees. Instrument of Government (*Regeringsformen*), part of Sweden's constitution, prohibits in chapter 8 § 3 the parliament, *Riksdagen*, to delegate matters regarding individuals' financial relationships.

Thus, if private subjects, as the PROs, are to apply a specific eco-bonus or malus for the packages this must be regulated directly by legal acts in *Riksdagen*. This being a more burdensome and lengthy process for the legislator, difficult to modify if the fees need to change. Together with the uncertainty of coming harmonized EU regulation from the Commission, this was a major concern during the implementation process, leading the Swedish EPA to form a national regulation of 'a basic nature with a relatively low level of detail'.[34] As of January 2023, PROs are prescribed to give a 'higher fee' to plastic packages which fulfil five general criteria on being difficult to recycle with high quality.[35] Thus, the regulation does not set any level of how much the fee shall differentiate between 'good' and 'bad' packages, or the amount of such categories, leaving to the PROs to decide for themselves.

Further, the regulation does not require a modulated fee to encourage design for reuse or recycled content. Reusable packages have not been in focus for the PROs and fees for such packages are paid by the producer/importer only when initially placing it on the market, while further use by consumers or recycling

[32] Amending directive of waste, art 8a(7).

[33] Swedish Environmental Code, Chapter 15 § 15 p 4; Governmental regulation (2022:1274) on producer responsibility for packaging, Chapter 5 § 30.

[34] Naturvårdsverket, Konsekvensutredning Gällande Föreskrift Om Differentierade Förpackningsavgifter, 2022, 5.

[35] The Swedish Environmental Protection Agency's regulations on determination of packaging charges regarding material recyclability, NFS 2022:11.

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systems do not demand additional fees. This is in line with the EC draft guidelines. *Naturvårdsverket* concluded further that it would not be appropriate to draw up regulations on differentiated compensation based on the criterion recycled content because there is still a lack of harmonized standards for how measurement and verification should be done.[36] The regulation is communicated to be 'the first step' and is expected to be more detailed when the agency learns by experience of the supervision.[37] Prior to the regulation the EPA had dialogue with PROs and other actors. In the ongoing dialogue at least one of the PROs argued for changing the regulation and setting a fix sum for the eco-modulated fee, and for more strict criteria on mixing with other material.[38]

It is notably that the Swedish PROs already before the introduction of the regulation applied differentiated EPR fees, giving reduced fees for packages that fulfilled PRO-specified criteria for good recyclability. Similar but not identical criteria were used by the two PROs. The differentiated fees were seen as effective by the PROs as they initially halved the volume of black plastic packages.[39]

The EPR-fees increased in 2024 when the biggest PRO started to apply a pricelist reflecting ReCyclass traffic light system with green-yellow-red categories for seven types of plastic and fixed price in every category.[40] However, the differentiation only results in EPR-fee in the list for 13 percent higher for packages in the 'red' box compared with the price for the 'yellow' box. The other PRO has followed with categorization and similar differentiation of fees.

The Swedish EPA regulation NFS 2022:11 aimed to fulfil the implementation of eco-modulated EPR-fees in January 2023, which was within the time set by the directive. The criteria set for modulated fees regard some aspects of recyclability but do not reward recycled content. The amount of modulation is not regulated due to the limited mandate given by law. Although the criteria are enforced through supervision the EPA cannot intervene on specific levels of fee-differentiation as the regulation does not include demand on the specific levels of the fee. It is notable that the eco-modulation of the EPR-fee did not increase in 2023 as Sweden went from a voluntary system to the regulatory regime. Furthermore, contrary to the EC draft guidelines for eco-modulation, there are two private PROs for packages waste which compete on their fees, including the eco-modulated part.

36 Naturvårdsverket 2022, 24.
37 Naturvårdsverket 2022, 27.
38 Swedish Producer Responsibility, Letter to Naturvårdsverket, May 15, 2023.
39 Mail correspondence from CEO of Swedish Plastic Recycling, October 25, 2022 (filed with the author).
40 NPA, Förpackningsavgifter, 2024.

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3.2 Implementing EPR-minimum requirements in Denmark

Denmark is one of few EU member states with no prior EPR on packaging, however, with the EU EPR reform in 2018 the country was obliged to establish a EPR scheme for packages by the end of 2024. Consequently, in June 2020, the Danish Environmental Protection Act (*Miljøbeskyttelselagen*) was amended to legally accommodate the introduction of an EPR on packaging.[41] This gave an extensive mandate to the minister of environment to regulate the responsibilities and economic transactions of the producers/importers of packages and the PROs in regard of the EPR, among those a mandate to regulate eco-modulation of the EPR-fees (§ 9z section 5). The detailed provisions of the EPR system, including the design criteria for modulated fees, were included in draft ordinance, and sent for a referral round by the Ministry of Environment (*Miljøministeriet*) in the autumn 2024. The date for when the producer responsibility comes into force in Denmark was postponed to October 1st, 2025, as EU has allowed for a new deadline.

EPR has been a controversial issue in Denmark. Ahead of the political negotiations on implementation, the Ministry of Environment initiated a stakeholder forum, consisting of representatives from the municipal waste sector, the municipalities and industry and business, which were tasked with developing recommendations on the set-up of the Danish EPR on packaging. In June 2021, the stakeholder forum published their recommendations[42], and in August 2022 most parties in the Danish parliament (*Folketinget*) reached a political agreement which set out the ambition and responsibility of the EPR scheme as well as stipulated guiding principles for the design criteria for modulated fees.[43] These guiding principles were: a) producers are only to pay once for packing reused multiple times on the market; b) the criteria and principles for modulated fees are to be determined centrally by the state and continuously revised to reflect development in reuse and recycling technology; c) modulated fees should encourage packaging that is either reusable or designed for easy, high quality recycling; d) modulated fees should encourage the use of recycled plastics in new plastic packaging, and e) principles and criteria for modulated fees should be determined with a focus on EU-harmonisation.

The stakeholder forum in 2021 recommended the criteria on eco-modulation to be few and not too detailed to avoid disorder on the waste market. Further, it recommended the eco-modulated fee to be set on the national level to avoid being a parameter for competition between the PROs. It also pointed

[41] Lov Om Ændring Af Lov Om Miljøbeskyttelse, Miljøministeriet, September 6, 2020.
[42] Samarbejdsforum, Samarbejdsforums Anbefalinger Til Producentansvar, 2021.
[43] Miljøministeriet, Aftale Om Udvidet Producentansvar for Emballage Og Engangsplastprodukter, 2022.

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out that it would be good to wait for the Commission guidelines on harmonisation of the criteria, if not:

> 'There is a great risk that the purpose of eco-modulation is lost if there are mixed signals, and that the internal market is fragmented if each member state creates its own system with own criteria.'[44]

Interviews in 2023 and 2024 confirms that representatives of the PROs withhold those views.

Five PROs have been established for packaging in Denmark. In 2024, the Danish EPR system started with an obligation for all producers to register and estimate the amount of packaging they introduce on the Danish market. Denmark also took the position that municipalities were to maintain responsibility for collection of packaging waste from households and needed to regulate how the cost of this collection and further responsibility to recycle the packaging waste is transferred and divided between the PROs. A draft ordinance regulating the eco-modulation of the EPR-fees was sent on referral round by the Ministry of Environment in autumn 2024.[45] This regulation sets criteria for packaging of four types of plastics; flexible plastics, hard plastics, hard PET and EPS. Depending on the fulfillment of the criteria the packaging is sorted in green, yellow and red level. Those levels lead to a modulated fee where the PRO needs to put an extra 35 percent on the fee for packaging in the red category and use that income to discount the fee in the green level.[46] Thus, for the producers, the system gives a price signal of how much more they need to pay when the criteria are not fulfilled, incentivizing producers to avoid the red category. In conjunction with the draft ordinance the Danish EPA (*Miljøstyrelsen*) published a guiding document on the eco-modulation paragraphs.[47]

The comparative analysis above is displayed in table 1.

[44] Samarbejdsforum, 2021.

[45] Miljøministeriet, Udkast til bekendtgørelse om visse krav til emballager, udvidet producentansvar for emballage samt øvrigt affald der indsamles med emballageaffald, 20 September 2024.

[46] Ibid Annex 14, Kriterier, metode og størrelsesforhold for graduering af bidrag for emballage.

[47] Miljøstyrelsen, Vejledning om fastsættelse og beregning af graduerede bidrag efter bekendtgørelse om emballage og emballageaffald, 1. udgave.

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Table 1. Comparison of Danish and Swedish implementation of EPR eco-modulated fees regarding plastic packages

	Denmark	**Sweden**
Regulatory background EPR/ eco-modulated fees	No, implementing EU-EPR rules fully in force by 2025	Yes, national PR-system since 1994, EU-obligation to further develop to EPR from January 2023. PROs voluntary applied eco-modulated fees in early 2020th
Legal basis for eco-modulated fees in national law	Environmental Protection Act (*Miljøbeskyttelseloven*) § 9z section 5 The Ministry of Environment, Draft Governmental ordinance (*Bekendtgørelse*) on certain requirements for packaging, extended producer responsibility for packaging and other waste that is collected with packaging waste, § 83	Environmental Code (*Miljöbalken*) Chapter 15 § 15 section 4 Governmental ordinance (*Förordning*) (2022:1274) onproducer responsibility for packaging Chapter 5 § 30
Regulation of the modulation criteria	The Ministry of Environment, Draft ordinance on certain requirements for packaging, extended producer responsibility for packaging and other waste that is collected with packaging waste, Annex 14, Criteria, method and size ratio for gradation of contribution for packaging	The Swedish Environmental Protection Agency's regulations (*föreskrift*) on determination of packaging charges regarding material recyclability, NFS 2022:11
System for collective producer responsibility	Competing private PROs • VANA Dansk Emballageansvar (non-profit), • Emballageretur (non-profit) • European Recycling Platform Denmark • Shenzhen Jixin Technology (operating from China) • LRG/RENE (operating from Germany)	Competing private PROs • Näringslivets Producentansvar NPA (non-profit) • TMR (since 2024 non-profit)

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Content of the national regulation for eco-modulation of EPR-fees		
Does it set the magnitude for the modulation?	Yes	No
Fee modulation for reusable packaging?	No, but fee only first time when set on the market	No, but fee only first time when set on the market.
Fee modulation for recycled content?	Yes, in all four types of plastics 20 percent recycled content is needed to fulfil criteria for 'green'.	No
Fee modulation for high quality recycling (easy to recycle)?	Yes National regulation requires fee-increase above the cost-neutral fee with 35 percent for packages not fulfilling detailed criteria (red) on *four types* of plastics, this is then divided as a bonus to those with full fulfilment (green).	Yes National regulation requires 'higher fee' for plastic packages difficult to recycle based on five general criteria. PROs own pricelist gives 13 percent higher fee for packages not fulfilling detailed criteria (red) on *seven types* of plastics compare to middle category (yellow).

4. RESULTS AND DISCUSSION

In this section we conclude the result of the comparison and discuss how the differences in implementation between Sweden and Denmark can be understood in the perspective of EU multi-level governance.

We concluded above that the economic incentives for packaging producers to prioritize design for recyclability and use of recycled content in packages differ between Denmark and Sweden.

In addition, the differentiated implementation in Sweden and Denmark results in a higher administrative burden for producers understanding the regulatory context for market in different EU-states. However, although substantial variations in the regulation of the PROs in Sweden versus Denmark, the structure of the EPR-fees facing the individual producers show great similarities in the two countries. The traffic light system distinguishing categories of detailed criteria on recyclability, specified on different types of plastics has its back-

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ground in plastic industry standardization work.[48] Thus, the industry itself contributes to eco-modulation fees being more alike in different EU member states.

In Denmark the implementation of EPR on packaging in the amendment of the waste directive activated a broad political debate and ultimately an agreement by a vast majority of the parties in parliament on goals and purposes of producer responsibility.[49] In Sweden the amendment of the waste directive did not lead to much debate, as producer responsibility was already generally applied in the waste law. Internal analysis at the Ministry of Environment led to the limited mandate for national regulation of eco-modulated EPR-fees, only covering the criteria and excluding any absolute or relative sum for the fee by.[50] This choice was based on constitutional principles on national regulation concerning matters of individuals' financial relationships must be carried out directly by law, as an act of parliament which cannot be delegated. Such discussion on constitutional principles did not appear in Denmark although a similar situation in waste management with collective EPR-regime and private PROs. In Denmark, the motivation to the legislation only noted that ensuring eco-modulated fees were included in the minimum requirement of EU-EPR for packages.[51]

By taking the view that the amount of eco-modulation is the decision of the PROs, Sweden restricts the EU-EPR reform. The restriction goes against the recommendation of the commission draft guidelines, which stated that the member states should decide the amount of the eco-modulation fee.[52] The draft guidelines reflected economic literature arguing that PROs should not compete on these fees.[53] Thus, in Sweden the constitutional tradition and rules of competence seemed, at this stage, to have overridden the EU-arguments and economic theory.

Further, Swedish regulation sets a short list of criteria for the modulation of EPR-fees for plastic packages. The criteria only covered recyclability and not recycled content. Denmark on the other hand included detailed criteria in several categories of plastic packages, and as part of the 'green' category, at least 20 percent recycled content was demanded. The result of the implementation shows that Sweden makes a less dense and more restrictive national regulation than Denmark. Considering the hypothesis drawn from DPI-research it was

48 European Commission. Joint Research Centre., Support to the Circular Plastics Alliance in Establishing a Work Plan to Develop Guidelines and Standards on Design-for-Recycling of Plastic Products, Publications Office, 2020.
49 Miljøministeriet, 2022.
50 Swedish Government, Prop. 2020/21:198, 2020, 40–41.
51 Miljøministeriet, Skriftlig Fremsættelse (20. Februar 2020) L 112.
52 Commission Guidelines on the general minimum requirements for extended producer responsibility schemes set out in Article 8a of the Waste Framework Directive 2008/98/EC, (draft version 18 September 2020).
53 OECD, 2021.

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expected that Sweden, being 'pro'-EPR, would use the discretion to go further than what EU minimally requires, and Denmark, being forced to accept EPR, do a 'plain' implementation. However, this analysis shows rather the opposite. In terms of *density* and *restrictiveness* the Swedish implementation was minimalistic, adding no more than what was necessary to comply with the directive. Denmark on the other hand, introducing the EPR from scratch, embraces the use of the eco-modulation fees from start and puts full flesh criteria.

This result, divergent to the suggested hypothesis, indicates that the pre-existing national legal context to great extent may have influenced the implementation process. Answering the research question, however the result calls for wider discussion on why the implementation of the EU-rules divagated.

First, recapturing the format of the EU regulation that the member states needed to implement. Eco-modulated fees are minimum requirements for EPR in accordance with the legal basis for the waste directive being article 192 TFEU, which allows the EU to take action to achieve the objectives of protection of the environment and human health, and the "prudent and rational utilization of natural resources" but leaving to member states the right to set a more ambitious environmental standard. The obligation for the member states is to take necessary measures to ensure that EPR-fees are modulated.[54] As it stands, the directive gives member states the discretion to decide how to regulate the PROs and the criteria for the fees, as well as the magnitude for modulation of the fees.

The waste directive also states that the commission may adopt implementing acts in order to lay down criteria for the uniform application of modulated fees, adding 'however excluding any precise determination of the level of the contributions'.[55] Importantly, the new PPWR is *lex specialis* in relation to the waste directive regarding recyclability criteria for plastic packages.[56] The PPWR includes a direct mandate for the commission to decide on delegated acts on criteria for the eco-modulated fee, based on the packaging recycling performance grade and after taking into consideration standards developed by the European standardization organizations.[57]

The forthcoming decision by the commission, set before January 2028, on delegated act for eco-modulated fees will be based on article 290 TFEU, together with articles 6(4)(d) and 64 of PPWR. The aim of delegation of certain decisions to the commission is an effective implementation of EU rules by having a simpler procedure for non-essential elements of the legislation.[58] In environmental legislation there are often a need to set down a more detailed

[54] Amending directive of waste, art 8a(4)(b).
[55] Amending directive of waste, art 8(5).
[56] PPWR preambel no 128.
[57] PPWR art 6(4)(d) and art 64.
[58] Robert Schütze, 'Delegated' Legislation in the (New) European Union: A Constitutional Analysis (2011) 74(5) The Modern Law Review 661–93.

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set of standards in delegated acts, for example concerning the methodology to be used to measure or assess emissions or environmental effects. In this case the details of sustainability criteria, per type of packages, also have a clear connection to the function of the internal market as the same packages are sold in several countries. In contrast to the waste directive, PPWR has article 114 TFEU as legal basis, which marks that harmonisation for the functioning of the internal market is a key objective. Thus, with PPWR in place the commission will decide on both eco-design requirements for plastic packages and at the same time set criteria for the eco-modulated EPR-fees.

The aspects of recyclability are key to eco-design standards and those instruments need to be considered in parallel.[59] While the eco-design requirements will prescribe minimum standards, the eco-modulated EPR-fee can then serve as an incentive for improving design of plastic packages above the minimum. Notably, the PPWR harmonized eco-design requirements, when in place in 2028, will change the function of the eco-modulated fees for plastic packages. Those fees must then incentivize for higher sustainability ambitions for packages design than what is basically needed for recyclability of scale, as the latter will be provided by binding eco-design requirements. For PET beverage bottles and recycled content this is already the case as the Single-use plastics directive require 25 percent recycled content as a requirement. Further attention to the interactions between EU policies which form the conditions for the circular plastic packaging chain has been suggested to better understand and guide how the legal framework can be more coherent.[60]

Thus, the national implementation of eco-modulated fees is a piece in a puzzle as EU developing its sustainable product regulation to serve the circular economy agenda and its plastic strategy. The development includes various policy instruments and uses various levels of governance in the EU. In this complex policy landscape, the conditions for implementation in Sweden and Denmark were different in a way which might explain some of the difference. In terms of the deadline date for implementation of the EU-rules Sweden and Denmark had different scope for the implementation process. The Danish implementation became synchronized with the EU decisions on the PPWR, while the Swedish implementation was forced to be carried out before it had become clear how the new package regulation would set its standards. Lastly, as Sweden already applied producer responsibility, and the PRO-fees were differentiated regarding recyclability of plastic packaging waste, it is possible that the legislator lacked a sense of necessity to be more active.

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[59] PPRW preambel no 35.

[60] Ida Mae de Waal, The Legal Transition Towards a More Circular Plastic Packaging Chain A Case Study of the Netherlands, (2023) European Energy and Environmental Law Review 226–247.

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