Ecodesign and the Brussels effect: How the Development of European Union's Ecodesign Legislation Influenced China's Regulatory System

Article
Dissertation submitted by Lucrezia Signori
Supervisor: Anne-Lise Sibony
Reader: Edoardo Traversa
Academic Year 2022-2023
Master 120 in European Studies

I declare on my honour that this dissertation is my own work, completed without unauthorised external assistance, that it has been submitted to no another institution for assessment, and that it has never been published, either in whole or in part. All the information (ideas, sentences, graphs, maps, tables, etc.) taken from or referring to primary or secondary sources are properly referenced using the current university method.

I declare that I have taken note of and adhere to the Code of Ethics for students with regard to borrowing, quoting from and using various sources, and am aware that plagiarism is a serious offence.

Acknowledgements

I would like to express my deepest gratitude to the following people who have been essential in completing this thesis and throughout my academic career.

I am grateful to my promotor, Professor Anne-Lise Sibony, for her guidance, expertise, and support throughout this research journey. I am truly honoured to have had the opportunity to work under your supervision.

I am indebted to my friends and family for their constant support and understanding during these challenging years. Their encouragement, love, and patience have been constant sources of motivation, helping me navigate through the ups and downs of this academic path. Their belief in my abilities has been a driving force behind my accomplishments.

More than anybody else, this thesis is dedicated to you, *Nonna*. In the end, you were right, *a tutto c'è rimedio*.

Introduction

With the increasing global concerns over the environmental consequences of production models, the urgent need to protect the environment has become central in the international discourse[1]. The impact of industrial activities on the Earth's ecosystems has far-reaching implications and underscores the importance of exploring innovative approaches for more sustainable products.

As China emerges as a global economic powerhouse and a key player in international trade, its role in protecting the environment has consequently increased. As the world's largest manufacturer and exporter[2], China's manufacturing system has a significant impact on global environmental outcomes. In understanding the Chinese stance regarding environmental protection with a specific focus on product regulations, it was decided to structure this thesis by focusing on the potential impact of EU laws in shaping Chinese legislation. The influence of the European normative power on foreign legislations takes the name of *Brussels Effect*. By investigating the dynamic relationship between the EU's environmental regulations and China's regulatory landscape, this thesis aims to shed light on the extent to which the Brussels Effect has impacted Chinese environmental laws.

This thesis aims, therefore, at finding an answer to the following research question: “has the European Union, through its normative power, influenced the Chinese environmental legislation through the promotion of norms at the Member States level?”. In structuring the analysis, it was decided to divide the observations into two main chapters. With the aim of giving the reader a deeper understanding of the two main concepts on which this thesis is based, Ecodesign and the Brussels Effect, the first chapter will focus on defining the EU’s approach to Ecodesign as well as the mechanisms that have led to the extension of the European legislation at a global level. The Brussels Effect will furthermore be explained through its connection with Ecodesign.

Once the role of the EU in these concepts is explained, as well as how these concepts are interconnected to each other, the second chapter will shift its focus to the Chinese environmental protection law. By first explaining the importance of China in international trade, and its size as a

---

[1] Leipold, S., Feindt, P. H., Winkel, G., & Keller, R. (2019). Discourse analysis of environmental policy revisited: traditions, trends, perspectives. *Journal of Environmental Policy & Planning*, *21*(5), 445–463. https://doi.org/10.1080/1523908x.2019.1660462.

[2] For the WTO Total merchandise, Exports of 2022, China ranks first in exports https://stats.wto.org/dashboard/merchandise_en.html. The same result has been provided by the The World Bank taking into account the goods export https://data.worldbank.org/indicator/BX.GSR.MRCH.CD?most_recent_value_desc=true as well as from the United Nations Statistics Division through its list of exporters for the selected product in 2022, taking into account all products https://www.trademap.org/Country_SelProduct.aspx?nvpm=1%7c%7c%7c%7c%7cTOTAL%7c%7c%7c2%7c1%7c1%7c2%7c1%7c1%7c2%7c1%7c1%7c1.

manufacturer, the thesis aims at emphasizing the importance of understating the applicability of the Brussels Effect. It was decided to structure the Chapter into two paragraphs. The first paragraph will analyse the evolutions of Chinese legislation compared to its European counterpart. It will also focus on the differences in the approach to the rule of law and to law enforcement. Understating the role of laws and the capacity of the state to enforce them can be helpful to have a deeper understanding of the way the populations and, more in general the states, approach those laws. In the specific case of Ecodesign, it was deemed important to understand the approach of both the EU and China to the relevant regulations and, more in general, the field of environmental protection.

The second paragraph of this second chapter will gather the findings of the previous paragraph and will apply them to existing research. A research composed of interviews of Chinese enterprises concerning the implementation of Ecodesign has been used to be able to observe the concrete impact of the differences found in the previous paragraph. The observation of the implementation of Ecodesign legislation in smaller and larger domestic enterprises, which serve different markets and have different reasons for implementing or not those rules, will enable to obtain a deeper understating of those differences.

Finally, the conclusions will gather the finding of the research, following its development, and will propose the final answer to the research question. Moreover, through the conclusion a possibility for further research will also be illustrated.

Due to the nature of this study, a literature review-based methodology was employed to explore and synthesize existing research on the topic and apply the findings to a specific research context. It furthermore included a rigorous analysis of relevant laws and regulations. In order to analyse Chinese laws, given the lack of available translations, it was decided to resort to academic articles that provided explanations and comparisons of these laws.

This approach allowed for a comprehensive understanding of the current state of knowledge in the field and facilitated the identification of gaps, trends, and key research themes.

A systematic and comprehensive search was conducted across various academic databases, such as Google Scholar, and relevant institutional repositories.

The search terms and inclusion/exclusion criteria were carefully defined to ensure the retrieval of relevant research articles. The data obtained from the literature review were analysed, identifying recurring themes and patterns, and synthesizing the findings among the reviewed papers. The synthesized findings from the literature review, were then applied to existing research concerning data obtained by interviews with several Chinese industries. This was done with the aim of

building, upon the existing knowledge, new insights or perspectives on the topic. Critical reflection was used throughout the entire process to ensure the validity and reliability of the findings.

By adopting a literature review-based methodology, it was therefore possible to conduct a rigorous analysis of the literature, identifying research gaps, and the integration of existing knowledge to advance the current study.

To initiate the analysis and seek answers to the research question posed above, the upcoming chapter will focus on defining the European Union's role in the two central concepts crucial to this thesis, Ecodesign and the Brussels Effect, and how they relate to each other.

Chapter 1: The EU Approach to Ecodesign and the Brussels Effect: Paving the Path

Over the years, the European legislation on Ecodesign has steadily evolved and influenced the production processes of companies operating in the Internal Market. This influence extends beyond the borders of the Union, affecting all those sectors that wish to operate inside the market and generating what has been defined as the Brussels Effect. In the next paragraphs will be provided an analysis of the European approach to Ecodesign and of the mechanisms that have led to the extension of the European legislation at a global level.

1.1: Shaping Sustainable Practices: The EU's Ecodesign Approach

Ecodesign can be defined as a tool used to include environmental requirements and considerations in the product development process[3], with the aim of "minimize negative and maximize positive sustainability impacts - economic, environmental, social and ethical - throughout and beyond the life-cycle of existing products or solutions"[4]. To do so, "products, services, hybrids or systems"[5] are scrutinized in order to propose more sustainable options for their production. The results of this analysis can therefore allow to set environmental priorities through the introduction of product oriented law[6], a relatively new field within environmental law[7]. At the same time, "Ecodesign and environmentally related knowledge is also in a company's internal business interest for use as guidance and a method to develop smarter, more effective product system solutions"[8]. Research in the field have shown that "the development of environmentally sustainable products offers

---

[3] Karlsson, R., & Luttropp, C. (2006). Ecodesign: what's happening? An overview of the subject area of Ecodesign and of the papers in this special issue. *Journal of Cleaner Production*, *14*(15–16), 1291–1298. https://doi.org/10.1016/j.jclepro.2005.11.010 , p. 1292.

[4] Karlsson, R., & Luttropp, C. (2006). Ecodesign: what's happening?… *ibidem*.

[5] Karlsson, R., & Luttropp, C. (2006). Ecodesign: what's happening?… *ibidem*.

[6] Karlsson, R., & Luttropp, C. (2006). Ecodesign: what's happening? … *op cit.,* p. 1292.

[7] Dalhammar, C. (2014). Promoting energy and resource efficiency through the Ecodesign Directive. *Scandinavian Studies in Law*, *59*(59), 147–179. https://dialnet.unirioja.es/servlet/articulo?codigo=4743507 , p. 178.

[8] Karlsson, R., & Luttropp, C. (2006). Ecodesign: what's happening? … *op cit.,* p. 1292.

advantages to companies"[9]. These advantages have a positive impact on "influencing operational performance"[10] as well as on innovation and on market performance. Innovation, potential market opportunities and increased product quality are other possible desirable effects that have been noticed since the introduction of Ecodesign processes[11].

Among the methods and tools developed in academia to support Ecodesign, many are based on Life Cycle Analysis (LCA)[12]. LCA refers to the *ex ante* implementation of this analysis in the design stage of a product to ensure that it fully complies with established standards. When applied to the environmental sector, it can be defined as a "straightforward methodology for assessing all the environmental impacts of a product (or service)"[13]. Strategies involving the application of an LCA fall under a category of policies called "Extended Producer Responsibility" (EPR), defined by the Organisation for Economic Co-operation and Development (OECD) as "an environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle"[14].

The implementation of LCA in the design phase of a product relies, therefore, on holding manufacturers accountable for such products at the end of their life cycle through financial incentives and economic regulation that incentivizes the producers to efficiently undertake Ecodesign[15].

However, other methods not only want to keep producers accountable for what happens to their products at the end of their life cycle, but they also advocate the "product lifetime extension", which is central in traditional Ecodesign. By extending the life of a product, the need for new resources could be reduced, as those already in the market will be used longer. This also has a positive impact

---

[9] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies in Europe. In *Sustainable production, life cycle engineering and management* (pp. 187–198). Springer Nature. https://doi.org/10.1007/978-981-15-6779-7_14 , p. 2.

[10] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies… *ibidem.*

[11] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies… *ibidem.*

[12] Stevels, A. (2009). *Adventures in Ecodesign of Electronic Products: 1993-2007*. http://repository.tudelft.nl/assets/uuid:c7223473-bedb-4b01-a99e-b05865071acd/stevels.pdf , p. 9.

[13] Ayres, R. U. (1995). Life cycle analysis: A critique. *Resources, Conservation and Recycling*, *14*(3–4), 199–223. https://doi.org/10.1016/0921-3449(95)00017-d.

[14] Behrisch, J., Ramirez, M., & Giurco, D. (2011). Representation of Ecodesign Practice: International Comparison of Industrial Design Consultancies. *Sustainability*, *3*(10), 1778–1791. https://www.mdpi.com/2071-1050/3/10/1778.

[15] Karlsson, R., & Luttropp, C. (2006). Ecodesign: what's happening? … *op cit.*, p. 3691.

on waste, since those materials will be used longer, their end as waste will be postponed[16]. To better understand this concept, it is possible to use the explanation given by professor Ab Stevels, Professor in Applied Ecodesign at Delft University of Technology: "Keeping products in the hands of their 'first owner' is thought to be 'green' because the materials (and components) remain in the 'techno sphere' longer so that the depletion of resources (the 'ecosphere') is at least postponed."[17]. This can be achieved through many ways, some of the most common are: Upgradeability, that refers to the possibility of adding "more functions to keep up with increasing requirements"; Investing in attractive designs, so to encourage the users to keep them longer; investing in products that can be easily repaired when they break down[18].

Through the analysis proposed it is therefore possible to summarize Ecodesign as composed of three central aspects: "It refers to the design and development of products; […] it is aimed at reducing the environmental impact of these products; and […] it takes the complete product life cycle into account"[19].

Ecodesign is a relatively new field. Academic studies on this matter increased in the 1990s, but only by the 2000s did research begin to focus on the political and strategic issues related to the implementation of the process. However, Ecodesign is currently considered a mature area of research[20]. Analysis in this field can be found in many states around the world, but publications in Europe outnumbered the others. More specifically, France, the United Kingdom, Italy, and Germany are the countries with the biggest amount of research on the continent[21]. Other states, such as the United States, China, Japan, and Brazil, also have a significant amount of research on the matter[22].

In the case of the European Union, implementation of Ecodesign standards and requirements for products is present in secondary legislation, but their adoption is based on the competencies granted

---

[16] Stevels, A. (2009). *Adventures in Ecodesign… op cit.*, p. 182.

[17] Stevels, A. (2009). *Adventures in Ecodesign… ibidem.*

[18] Stevels, A. (2009). *Adventures in Ecodesign… ibidem.*

[19] Schäfer, M., & Löwer, M. (2020). Ecodesign—A Review of Reviews. *Sustainability*, *13*(1), 315. https://doi.org/10.3390/su13010315, p. 7.

[20] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies… *op cit.,* p. 2.

[21] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies… *ibidem.*

[22] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies… *ibidem.*

by the Member States to the EU through Article 114 of the Treaty on the Functioning of the European Union (TFEU). Paragraph 1 of Article 114 TFEU states: “Save where otherwise provided in the Treaties, the following provisions shall apply for the achievement of the objectives set out in Article 26. The European Parliament and the Council shall […] adopt the measures for the approximation of the provisions laid down by law, regulation or administrative action in Member States which have as their object the establishment and functioning of the internal market”[23] [24]. In fact, to avoid barriers to trade, national environmental legislation had to be harmonized within the EU[25].

The Directives regulating the production process through Ecodesign are inscribed and complement a wide set of product oriented environmental laws, creating rules for specific product groups[26]. Similarly, Ecodesign requirements are complemented by other policies such as the EU energy label or the EU ecolabel[27]. The first Ecodesign directive came into force in 2005, however the first measures were published only in 2008 and 2009[28], and their existence is closely connected to the structure of the EU itself. As a consequence of the single market, products are regulated at the EU level[29], while the enforcement of the Ecodesign regulations is under the responsibility of the 27 Member States, which must cooperate with each other and with the Commission to ensure the correct enforcement of the measures[30]. Products that do not comply with the standard set by the EU can be withdrawn from the market while the producers can be penalized[31].

---

[23] Article 114, paragraph 1, TFEU.

[24] Article 16, paragraph 1 of the TFEU states that “The Union shall adopt measures with the aim of establishing or ensuring the functioning of the internal market, in accordance with the relevant provisions of the Treaties”.

[25] Amory, G., (2021) "Effet Bruxelles" et développement durable : l' Union européenne peut-elle utiliser l'effet Bruxelles pour inciter le reste du monde à la rejoindre sur sa trajectoire vers un développement durable ?. Faculté de droit et de criminologie, Université catholique de Louvain, Prom. : Anne-Lise Sibony. http://hdl.handle.net/2078.1/thesis:32848 , p. 45.

[26] Dalhammar, C. (2014). Promoting energy and resource efficiency… *op cit.,* p. 155.

[27] Siderius, P., & Nakagami, H. (2013). A MEPS is a MEPS is a MEPS: comparing Ecodesign and Top Runner schemes for setting product efficiency standards. *Energy Efficiency*, *6*(1), 1–19. https://doi.org/10.1007/s12053-012-9166-6 , p. 8.

[28] Siderius, P., & Nakagami, H. (2013). A MEPS is a MEPS… *ibidem.*

[29] Siderius, P., & Nakagami, H. (2013). A MEPS is a MEPS… *ibidem,* p. 5.

[30] Siderius, P., & Nakagami, H. (2013). A MEPS is a MEPS… *ibidem,* p. 8.

[31] Siderius, P., & Nakagami, H. (2013). A MEPS is a MEPS… *ibidem.*

The EU Ecodesign regulation aims at keeping the market competitive while "improving the energy efficiency and sustainability of products"[32]. This is done by eliminating "the least performing products" identified taking into account a wide range of variables such as "[presence and level of] chemicals in products, [efficiency in the] collection and recycling of used products and energy efficiency of products."[33]. At the same time, the EU wishes to support industrial competitiveness and innovation by promoting better environmental performance of products throughout the internal market[34].

To understand the European Union's approach towards Ecodesign is also important to assess the increasing role of the ethical aspect that defines organizations' and stakeholders' preferences and tends to lead to the inclusion of Ecodesign in project management[35]. Consultation with organizations and stakeholders plays an important role in the creation of Ecodesign legislation in the Union. When new standards are created, the first step is to conduct an LCA which will help identify the technical, environmental and economic aspects that need to be settled. Consultations with stakeholders and organizations are the following step before the official implementation by the Member States[36].

Overall EU Ecodesign directives provide a framework for establishing minimum requirements on significant environmental aspects for products placed on the EU market. These standards are established for several product groups, for instance household, commercial and industrial sectors[37], and consider the environmental impact of the products as well as their energy efficiency. These standards are then complemented by technical specifications in the form of harmonized mandatory requirements. Only products, whether produced inside the Union or imported from third countries, that comply with these standards obtain the possibility to circulate inside the single market[38].

---

[32] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies… *op cit.,* p. 187.

[33] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies… *ibidem.*

[34] *Sustainable product policy & Ecodesign*. (n.d.). Internal Market, Industry, Entrepreneurship and SMEs. Retrieved May 24, 2023, from https://single-market-economy.ec.europa.eu/industry/sustainability/sustainable-product-policy-Ecodesign_en.

[35] Dalhammar, C., Milios, L., & Richter, J. L. (2020). Ecodesign and the Circular Economy: Conflicting Policies… *op cit.,* p. 2.

[36] Siderius, P., & Nakagami, H. (2013). A MEPS is a MEPS… *op cit.,* p. 5.

[37] Siderius, P., & Nakagami, H. (2013). A MEPS is a MEPS… *ibidem,* p. 16.

[38] *Sustainable product policy & Ecodesign*. (n.d.). Internal Market, Industry, Entrepreneurship and SMEs. Retrieved May 24, 2023, from https://single-market-economy.ec.europa.eu/industry/sustainability/sustainable-product-policy-Ecodesign_en.

After the analysis proposed in this first paragraph, it is possible to state that EU's Ecodesign standards have an impact on both imported and domestic products. In fact, to secure the place of their products on the internal market, firms have to comply with EU rules. This translates into the need to modify and adapt the production process from the design phase to ensure compliance with European standards in order to launch the product on the Internal Market.
The size of the Internal market attracts foreign firms that adapt their production process in order to benefit from business opportunities and consequently may influence the foreign nations' legislation. To better understand this process, the following paragraph will focus on the normative power of the Union.

1.2: Understanding the Brussels Effect: Ecodesign's Transnational Impact

The term the "Brussels Effect" was first created in 2012 by Anu Bradford, Professor at Columbia Law School and author of "The Brussels Effect: How the European Union Rules the World". It refers to the EU's ability to shape global regulatory standards and policies through its economic and regulatory power.
This occurs because of the European Union's "unilateral ability to regulate the global marketplace"[39]. This ability is due to the importance of the European Single Market that has motivated many companies, operating globally, to comply with EU standards and regulations, in order to be eligible to operate in the European Single Market, regardless of whether or not they are based inside the EU's borders. Therefore, EU's regulations are transmitted through markets "to both market participants and regulators outside the EU"[40]. As a result, EU regulatory standards, sometimes unintentionally, become *de facto* global standards, leading to the harmonisation of regulations among different countries and regions.
The Brussels Effect can be divided into two variants: the *de facto* and the *de jure*. While the *de facto* variant represents "how global corporations respond to EU regulations by adjusting their global conduct to EU rules"[41], the *de jure* variant refers to "the adoption of EU-style regulations by foreign

[39] Bradford A., The Brussels Effect. How the European Union Rules the World, New York, Oxford University Press, 2020, p. 1.

[40] Bradford A., The Brussels Effect… *ibidem*.

[41] Bradford A., The Brussels Effect… *ibidem,* p. 2.

governments"[42] and represents a possible successive evolution of the *de facto* effect. This is based on the idea that foreign firms, which have adopted EU regulation, would lobby national governments to align their national legislation to EU standards. In this way, firms aim to avoid possible disadvantages in competing with other firms inside the national and other foreign markets and therefore have no need to comply with EU rules[43].

As illustrated in Bradford's book, the Brussels Effects finds its theoretical foundations in five elements, essentials for it to occur: market size, regulatory capacity, stringent standards, inelastic targets, and non-divisibility[44] .

The first element that must be taken into consideration is the importance given in the global economy to the size of markets. When a market is large enough, compared to the others, it gains the power to impose standards to regulate the type of product that will or will not be accepted[45]. This happens because the size of the market is directly proportional to the business opportunities for those firms whose product is in the market. Since these opportunities in a large foreign market outweigh the cost to the enterprise of adapting to these rules, firms are willing to adapt to the rules in order to maintain their place in the market[46].

In the case of Ecodesign, EU legislation regulates the production process of numerous products. With the being an important market for countries such as China, the United States, India, and Brazil[47] it should not be surprising that all these countries, excluding India, have legislations similar to the EU's[48].

As the second element, the "regulatory capacity refers to a jurisdiction's ability to promulgate and enforce regulations"[49]. This is done by enforcing severe restrictions, such as excluding products not complying with the rules so to "force regulatory adjustments and incentivize compliance"[50]. An example of these elements can be found in the requirements set by the EU through the Ecodesign

---

[42] Bradford A., The Brussels Effect… *ibidem.*

[43] Bradford A., The Brussels Effect… *ibidem.*

[44] Bradford A., The Brussels Effect… *ibidem,* p. 25.

[45] Bradford A., The Brussels Effect… *ibidem,* p. 26.

[46] Bradford A., The Brussels Effect… *ibidem,* p. 29.

[47] Bradford A., The Brussels Effect… *ibidem.*

[48] *Sustainable product policy & Ecodesign*. (n.d.). Internal Market, Industry, Entrepreneurship and SMEs. Retrieved May 24, 2023, from https://single-market-economy.ec.europa.eu/industry/sustainability/sustainable-product-policy-Ecodesign_en.

[49] Bradford A., The Brussels Effect… *op cit,* p. 31.

[50] Bradford A., The Brussels Effect… *ibidem.*

directives. As illustrated in the previous paragraph, products that do not comply with the standards set by EU's secondary legislation regarding the production process are excluded from the market by the Commission and the produces risk to be sanctioned.

The application of stringent standards is the third element described by Bradford as necessary for the occurrence of the Brussels Effect. The promulgation of stringent standards is connected to the regulatory capacity, since the effectiveness of the second depends on the political will to promulgate rigorous regulatory standards[51].

The directive governing the production process through Ecodesign sets strict standards for products by establishing requirements for each product group it concerns. This is done by providing detailed information to structure the manufacturing process of products to comply with these rules, such as design requirements and energy efficiency standards.

The fourth element concerns inelastic targets. Inelastic targets are those products that are not mobile and can not be easily moved to another jurisdiction, in opposition to elastic targets that can be more easily moved to another jurisdiction[52]. To better understand this concept the example proposed by Anu Bradford in her book may help, while maintaining the focus on Ecodesign. An example of inelastic targets are products covered by EU's regulation of Chemicals that, as previously stated in this chapter, is part of EU Ecodesign regulations. When regulating the access of products to the Internal Market, products that do not comply with EU legislation will see their access denied. EU's regulation is "indifferent as to which company produces a restricted chemical or where the chemical is produced: as long as a chemical product is sold on the European market"[53] the regulation concerned, applies.

The fifth element, non divisibility, is strictly connected to the practice of standardization of products, as opposed to the practice of customization of products[54]. In fact, products that can be standardized, once adapted to the requirements of the EU internal market, will be able to be exported to other markets while maintaining these requirements met. On the contrary, products subject to customization will not maintain these changes towards all other markets. Non divisibility concerns therefore those products that, when exported across different markets and jurisdictions, will maintain the "production or business practices […] and hence [will apply] a uniform standard

---

[51] Bradford A., The Brussels Effect… *ibidem,* p. 37.

[52] Bradford A., The Brussels Effect… *ibidem,* p. 48.

[53] Bradford A., The Brussels Effect… *ibidem,* p. 49.

[54] Bradford A., The Brussels Effect… *ibidem,* p. 54.

to govern the corporation's global conduct"[55]. In this way non divisibility ensures "that the stringent jurisdiction is able to regulate extraterritorially"[56].

Considering that the EU Ecodesign standards affect the production process from the design phase, it implies that for a company to keep their product divisible would need to differentiate the production process since the initial phases of production, which would imply high additional costs for the development of two or multiple parallel production processes. Because of these higher costs this choice could be unlikely. Firms could find it more convenient to invest in a standardization process based on the requirements and standards set by the market they are the most interested in selling in without further differentiations of the production process for those goods that do not inherently need customization.

After having analysed the five elements on which the Brussels Effect is based, it is important to consider the concrete application of this phenomenon in the environmental field, the focus of this thesis.

The Brussels Effect is a phenomenon that has been observed across various areas, such as consumer protection, data confidentiality and environmental standards[57]. Among these, the presence of the Brussels Effects in the area of environmental protection law is of particular interest. EU's pro-environmental attitude began in parallel with the interest shown by the citizens in the 1970s[58] and its strong development led the EU to be considered as a "leader on international environmental affairs […] since the 1980s"[59]. The creation of environmental standards is therefore inscribed in the EU's role as a global environmental leader and can be defined as legal requirements that set limits on the environmental impacts of products or processes, regulating "the use of resources to ensure minimal impact on the environment and human health"[60]. These standards cover a wide range of areas, including Ecodesign, that aims to integrate environmental considerations and requirements into product design and development.

---

[55] Bradford A., The Brussels Effect… *ibidem,* p. 53.

[56] Bradford A., The Brussels Effect… *ibidem.*

[57] Bradford A., The Brussels Effect… *ibidem,* p. 95.

[58] Bradford A., The Brussels Effect… *ibidem,* p. 208.

[59] Keukeleire, S., & Delreux, T. (2022). The Foreign Policy of the European Union (3rd ed.). Bloomsbury, p. 256.

[60] Liu, A., Ren, F., Lin, W., & Wang, J. (2015). A review of municipal solid waste environmental standards with a focus on incinerator residues. *International Journal of Sustainable Built Environment*, *4*(2), 165–188. https://doi.org/10.1016/j.ijsbe.2015.11.002 , p. 166.

In this field, the EU's regulatory power has had the capacity to "reshape the EU's economies to incorporate environmental and health concerns, but also to lead the development of sustainable global product standards by using its market power wisely"[61]. Even though this process had an impact on several legislations across the globe, as it is for South Korea or the US[62], a clear example is the case of Taiwan. In fact, the EU's product-based environmental requirements, which restrict access to the market to compelling products only, pushed the Taiwanese government to "implement legal and industrial adaptation measures in order to maintain its global competitiveness in the field of the electronic manufacturing components supply chain"[63], particularly in the field of transport operations. As previously illustrated, industries play a strong role in influencing legislation changes in a country, as a consequence of the importance of the EU Single Market. Even in the proposed case, the Taiwanese industries, while recognizing the high investments cost required to comply with EU law, decided to adapt to EU standards to maintain their role as "key suppliers to global supply chain and adherence to multinational clients' demands to export products to the EU market"[64]. Considering the important role of these companies in the Taiwanese economy, the Taiwanese government deemed essential to provide legal, financial and economic assistance, in order to facilitate their transition while maintaining their role in the global supply chain[65].

This highlights the EU's ability both to take a leading role in promoting sustainable practices in global corporations and to influence third countries in implementing Ecodesign regulations. It emphasizes the strong opportunity for the EU to lead the way in creating a more sustainable future. It must be in fact understood that the Brussels Effect "do not necessarily protect the EU's trade interests but rather to promote public interests such as environmental or human rights protection at the global scale […] [and] may lead to the globalization of rules and standards to reach internationally agreed policy objectives"[66].

---

[61] Wu, H. (2020). Territorial Extension of the EU Environmental Law and Its Impacts on Emerging Industrial Economies: A Taiwan Case. *China and WTO Review*, *6*(2), 325–350. https://doi.org/10.14330/cwr.2020.6.2.04 , p. 343.

[62] Bradford A., The Brussels Effect… *op cit.,* p. 223.

[63] Wu, H. (2020). Territorial Extension of the EU… *op cit.,* p. 343.

[64] Wu, H. (2020). Territorial Extension of the EU… *ibidem,* p. 342.

[65] Wu, H. (2020). Territorial Extension of the EU… *ibidem.*

[66] Wu, H. (2020). Territorial Extension of the EU… *ibidem,* p. 327.

This first chapter focused on the analysis of the European approach to eco-design and the mechanisms that led to the extension of the European legislation at a global level. The first paragraph focused on the notion of Ecodesign, defining it, its evolution in academia and how it has been applied inside the European Union. Furthermore it emerged that, while setting standards and requirements for products that aim to gain access to the internal market, the EU can influence foreign firms to adapt the production process so that the product complies with EU regulations. The second paragraph focused on the Brussels Effect and a specific attention was given to how it relates to Ecodesign. The Brussels Effect was first defined, than its five elements that constitute its theoretical foundations were illustrated, with a specific focus on how they relate to EU's regulations on Ecodesign. It was also emphasized the EU's role as a global leader in the field of environmental protection, with its impact on foreign jurisdictions.

Taking into consideration the aforementioned information, the following chapter will shift focus towards the main topic of this thesis. More precisely, the analysis will examine the potential applicability of the Brussels Effect in relation to Ecodesign within the context of China.

Chapter 2: Assessing the Brussels Effect on Chinese Ecodesign Legislation: A Comparative Study

Over the past few decades, China's role as a global market competitor and exporter has grown at an unprecedented pace. With a rapidly expanding economy and a large manufacturing base, China has become one of the world's largest exporters of goods, including electrical and electronic equipment (EEE) products. However, the connection between environmental protection and the sustainable production of goods has become increasingly relevant in recent years. China accounts for 20.8 % of EU imports of goods, placing itself as the first trading partner for EU imports in 2022, followed by the United States, the United Kingdom, Russia and Norway, with a difference of 8,9 percentage points between China and the United States[67]. China, with its production system, has become the largest emitter of Carbon emissions, followed by the US and lastly by the EU. In fact, China emits 25.7% of the world's total carbon emissions, followed by the US, accounting for 12.8% and the EU accounting for 7.8%[68]. All together they are responsible for around 46% of today's carbon emissions[69].

China's role in the EU's markets seems destined to grow. Research show that "In the long term, Chinese ICT producers are expected to expand trade opportunities to the EU instead of the US market"[70]. When the European Union implemented stringent standards for EEE products entering its market, including Ecodesign regulations aimed at reducing the environmental impact of products, this had an impact on those foreign firms that aim is export their product in the European Single Market. It is possible therefore to imagine the importance of EU legislation in affecting the market choices of Chinese companies. In fact, the lack of compliance with this standard would have important effects on the Chinese firms, momentarily or permanently suspending their possibility to do business within the border of the Union.

Furthermore, the introduction of new standards set by the European Union could have an impact on the value chain as a whole, possibly causing a drop in exports towards Europe, leading to an

---

[67] China-EU - international trade in goods statistics. (2023, February). Eurostat. Retrieved May 22, 2023, from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=China-EU_-_international_trade_in_goods_statistics#Recent_developments.

[68] Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance: How Policies Are Made and Implemented at Different Levels. *Social Science Research Network*. https://doi.org/10.2139/ssrn.4017427 , p. 5.

[69] Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance…, *ibidem*.

[70] Wu, H. (2020). Territorial Extension of the EU… *op cit.,* p. 339.

“increase in costs accompanied by a reduction of competitiveness of Made in China ITC products” as well as “a drop in exports due to a failure to adapt to a change in the system of sales and marketing”[71]. To give a clear example of the EU’s role in influencing foreign economies, particular importance must be given to the field of ICT. When “in 2002, the EU announced the implementation of the WEEE and ROHS directives, which directly influence the import of ITC products [,] the Chinese commercial chamber for the exportation of electrical and mechanical products has estimated that the financial volume directly influenced by the two regulations on Made in China electrical and electronic products amounted to 31,717 billion US$, that is to say 71,55% of the total exports of the sector towards Europe”[72].

Given China's status as one of the EU's major trading partners, it is important to analyse the potential effects that these regulations may have had on Chinese industries and legislative efforts in this area.

The chapter aims to explore the possibility of the "Brussels Effect" in the context of Ecodesign regulations and their potential influence on Chinese industries and legislative efforts. The evidence that deal with the impact of the European Ecodesign regulations on China, both industries and legislation, will be presented in two paragraphs. The first one will analyse the evolutions of Chinese legislation compared to its European counterpart.

The second paragraph will consider the analysis proposed in the research “Extended producer responsibility and eco-design changes: perspectives from China”[73] and, in the light of what was discussed in the first paragraph, will analyse the concrete impact of the differences previously enumerated in the Chinese approach to Ecodesign, through the implementation of those regulations in the Chinese industries.

2.1: Contrasting EU and Chinese Approaches to Ecodesign

In the context of this thesis' case study, examining the presence of the Brussels Effect on Ecodesign policies in China requires an understanding of the role of legislation in China and the reason for its implementation. With this aim, the first paragraph will deal with the application of production

---

[71] Puel, G., Liu, C., & Huang, D. (2012). The Emergence of Eco-Design in China in the ICT Sector. *Advanced Materials Research*. https://doi.org/10.4028/www.scientific.net/amr.524-527.3688 , p. 3690.

[72] Puel, G., Liu, C., & Huang, D. (2012). The Emergence of Eco-Design in China … *ibidem*, p. 3688.

[73] Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes: perspectives from China. *Corporate Social Responsibility and Environmental Management*, *15*(2), 111–124. https://doi.org/10.1002/csr.168.

process regulations aiming at environmental protection in both countries, the scope of these regulations and the capacity of enforcement and the different approach to the rule of law.

In this first paragraph three main concepts will be analysed while comparing the EU and China. The first comparison concerns the historical evolution of the Ecodesign regulations both the EU and China. This will highlight how the two countries approach this process as well as their perception of environmental protection. While examining the evolution, the first subparagraph will also examine the scope of application of the legislation.

The second subparagraph will focus on the approach of in both the EU and China to the rule of law. This subparagraph will explore the different perceptions shared by the two populations towards legislation and examine their correlation with environmental protection laws.

The third and last subparagraph will focus on the difference between the enforcement methods. Enforcement methods play a crucial role as they reflect a state's commitment to safeguarding particular legislation.

2.1.1: Parallel Paths: Evolution of Ecodesign Legislation in China and the EU

The historical evolution of the Ecodesign legislation in both China and the EU can reveal some important differences in the approach both counties have towards environmental legislation. As previously presented, the European interest in environmental protection policies started in the 1970s and developed quickly, parallel with the rising importance of the EU as a global environmental leader. These developments led the EU's positions on the matter to be considered "among the most ambitious compared to other international actors"[74].

By the 1990s, the EU published its first directive concerning "indication by labelling and standard product information of the consumption of energy and other resources by household appliances"[75], that requested certain household appliances to carry an energy label so to inform consumers about their energy efficiency. This directive set the base for future developments in the Ecodesign field. In fact, by 2005 The Ecodesign Directive[76] was published, "establishing a framework for the setting of Ecodesign requirements for energy-using products and amending Council Directive 92/42/EEC and

[74] Keukeleire, S., & Delreux, T. (2022). The Foreign Policy of… *op cit.*, p. 256.

[75] Directive 92/75/EEC of 22 September 1992 on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances.

[76] Directive 2005/32/EC of 6 July 2005 establishing a framework for the setting of Ecodesign requirements for energy-using products and amending Council Directive 92/42/EEC and Directives 96/57/EC and 2000/55/EC of the European Parliament and of the Council.

Directives 96/57/EC and 2000/55/EC of the European Parliament and of the Council"[77]. The directive was then revised in 2009 in order to expand its scope to cover additional product categories such as computers and commercial refrigeration[78].

The same development happened in China but with some years of delay. In fact, before the 2000s the Chinese environmental law was purely formal[79]. The first mandatory energy efficiency standards for household appliances started to characterize Chinese environmental law only in 2008 as part of the Circular Economy Promotion Law[80]. Therefore when the European Ecodesign law saw its scope being broadened, the Chinese law was instead put in place for the first time.

The following years were characterized by the further development of EU environmental legislation, more specifically in the field of Ecodesign, updating and expanding EU's energy labelling scheme to cover more product categories and introduce new labelling classes[81]. On the contrary, the Chinese have not developed as quickly and as consistently in the field of Ecodesign as the EU.

A clear example of this difference in development is the state of the scope of application in 2012. This year, China released its first Five-Year Plan for Energy Conservation and Emission Reduction, which includes goals for improving energy efficiency and reducing emissions across various

---

77 Directive 2005/32/EC of 6 July 2005.

78 Directive 2009/125/EC of 21 October 2009 establishing a framework for the setting of Ecodesign requirements for energy-related products.

79 Van Rooij, B. (2006). Implementation of Chinese Environmental Law: Regular Enforcement and Political Campaigns. *Development and Change*, *37*(1), 57–74. https://doi.org/10.1111/j.0012-155x.2006.00469.x , p. 60.

80 Xie, Z. (2020). China's historical evolution of environmental protection along with the forty years' reform and opening-up. *Environmental Science & Ecotechnology*, *1*, 100001. https://doi.org/10.1016/j.ese.2019.100001.

81 The evolution of the legislation developed over the years as follows: 1992: Directive 92/75/EC on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances; 2002: Directive 2002/96/EC on waste electrical and electronic equipment (WEEE); 2005: Directive 2005/32/EC establishing a framework for the setting of Ecodesign requirements for energy-using products and amending Council Directive 92/42/EEC and Directives 96/57/EC and 2000/55/EC; 2009: Directive 2009/125/EC establishing a framework for the setting of Ecodesign requirements for energy-related products; 2012-2014: adoption of the Ecodesign Working Plan 2012-2014 on the indication of labelling and standard product information of the consumption of energy and other resources by energy-related products, which identified priority product groups for Ecodesign regulation, including boilers, water heaters, and professional refrigeration. 2013: The Ecodesign Regulation for Vacuum Cleaners (Regulation (EU) No 666/2013) was introduced, setting minimum energy performance standards and other environmental requirements for vacuum cleaners; 2019: The Ecodesign and Energy Labeling Regulations for Lighting Products (Regulation (EU) 2019/2020 and Regulation (EU) 2019/2015) were introduced, setting new minimum energy efficiency requirements and introducing new labeling classes for lighting products. 2022: through the Ecodesign and energy labelling working plan 2022-2024 a proposal for a new Ecodesign for Sustainable Products Regulation was published on 30 March 2022. On the 22nd of May 2023 the Council has adopted its position on the proposal.

sectors. However, up to that year, China has published eleven energy efficiency standards that applied for nine categories[82]. The directive 19 of 2012[83] includes categories of EEE in Annex I and Annex II. As an extension of the previous legislation, the directive proposes ten categories of EEE products[84], mostly additional to the Chinese legislation since those categories were already covered by previous legislation in the field.

In general, the findings of this analysis indicate that the Chinese government has tended to develop Ecodesign regulations at a later stage than its European Union counterpart. Furthermore, the analysis reveals notable differences in the overall scope of the directives between the two jurisdictions. The evolution of Ecodesign policy in the EU has been characterized by a gradual expansion of the regulatory framework, encompassing a growing number of electrical and electronic equipment (EEE) products and increasingly stringent standards. The growth of Ecodesign regulations in China, instead, has been less expansive and more hesitant, focusing mostly on energy-using household appliances. Specifically, the coverage of Ecodesign regulation in China has not kept pace with the proliferation of EEE products in the market, and the standards established by Chinese regulations have not been as stringent as those developed by the EU.

2.1.2: Rule of Law Perspectives: Contrasting EU and Chinese Practices

When dealing with the implementation of these legislations in firms, an important disclaimer must be done. As these regulations are part of the national legislation system, it is important to keep in mind that not all countries might approach the national legislative framework in the same way. In this sense, it is important to shed light on the different approach that China has to its rule of law system when confronted with its European counterpart.

---

[82] The nine categories that concern: refrigerators; air conditioners; electric washing machines; electric rice cookers; electric fans; water heater induction cookers; microwave ovens and domestic solar water heating systems. For more information see Energy efficiency standards_Energy Efficiency. (2020, October 21). Shenzhen Institute of Standards and Technology - 深圳市标准技术研究院. Retrieved May 22, 2023, from https://tbt.sist.org.cn/mbsc_106/chinamarketaccess/householdappliances/energyefficiency/201301/t20130105_173895.html.

[83] Directive 2012/19/EU of 4 July 2012 on waste electrical and electronic equipment (WEEE).

[84] These ten categories concern: Large household appliances; Small household appliances; IT and telecommunications equipment; Consumer equipment and photovoltaic panels; Lighting equipment; Electrical and electronic tools (with the exception of large-scale stationary industrial tools); Toys, leisure and sports equipment; Medical devices (with the exception of all implanted and infected products); Monitoring and control instruments; Automatic dispensers. For more information see Directive 2012/19/EU.

On one side, the rule of law in the EU, as for more in general Western countries, is considered "a set of general rules that apply to all its citizens, particularly the State and ruling elite, and which covers nearly all areas of life. Such rules are always enforceable by a court of law, according to legal procedures, free from any interference from other sources of behavioral rules - such as tradition, politics, religion, or administrative praxis"[85]. On the other hand, when considering the Chinese approach, a strong difference characterizes the way the rule of law is perceived. China seems to declare the rhetorical importance of the rule of law while however maintaining a "bureaucratic target restorability system" at the centre of the Chinese "governance apparatus [,] especially when it comes to climate change and energy-related issues"[86]. Through this approach, legislation takes a secondary role[87].

This approach towards the legislative system takes the name of "socialist legality" and can be understood as a heritage of the communist history of the country[88]. Socialist legality can be defined as "the 'oriented' application of relatively few, generally drafted legal rules according to the policy needs of the political authority, to which the law should be subordinated according to the principles of 'political flexibility' rather than those of strict legality"[89]. In other words, the Chinese government's actions are more important than the laws implemented. This is because many areas concerning private economy or market institutions, even more those highly politicized, are considered administrative matters[90]. This allows the government to maintain flexibility in setting and changing targets while at the same time not being accountable for those targets, since they are not elected officials[91]. Another reason that explains why this system has still not lost power compared to the national legislation could be understood as a strategic choice of the elite of governance. Giving up power in favour of laws raises a political concern: losing control of the courts, as well as the possibility of a "negative foreign influence on the legal system" or the fear

---

[85] Castellucci, I. (2007). Rule of Law with Chinese Characteristics. *Annual Survey of International & Comparative Law*, *13*(1), 4. https://digitalcommons.law.ggu.edu/cgi/viewcontent.cgi?article=1112&context=annlsurvey , p. 35.

[86] Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance…, *op cit,* p. 18.

[87] Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance…, *ibidem,* p. 19.

[88] Castellucci, I. (2007). Rule of Law with Chinese Characteristics… *op cit,* p. 37.

[89] Castellucci, I. (2007). Rule of Law with Chinese Characteristics… *ibidem*.

[90] Castellucci, I. (2007). Rule of Law with Chinese Characteristics… *ibidem*, p. 88.

[91] Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance…, *op cit,* p. 19.

that the courts might become "a focus of citizen 'rightful resistance'"[92] reduces the possibility of any development that would reduce the power in the hands of the ruling elite, shifting it to the population.

Through the information presented, it is therefore possible to notice that China is in a stagnating situation: its communist history created a system of socialist legality, assigning the biggest power of action to the hand of the ruling elites, and these ruling elites prevent any change that may lead to a western approach to the rule of law while diminishing the power in their hands.

This is particularly visible in the environmental protection field. Environmental protection is considered a sensitive field that can have an impact on many aspects of the life of the country, such as "economic development, protection of environment and future generations, health, civil and military security"[93]. Considering this filed as a socio-political issue sets the base for laws that follow a "classical" socialist model, since their evolution is based on the general environmental protection law of 1989[94].

From this analysis it is therefore possible to shed light on the important difference in the approach of the EU and of China towards the rule of law. If in the EU laws have a strong role and are considered as instruments to implement the priorities, "laws in China can be viewed more as an expressive statement of the priorities and values that the party and the state cares about"[95].

The perception of the rule of law in a country can provide insight into the effectiveness of legislation implementation. If Ecodesign laws are implemented in China, but the country's approach to the rule of law suggests that legislation does not hold much value, questions arise as to why these laws were implemented and if they are enforced in practice. In order to further comprehend the last question, the following section will analyse the distinctions in the enforcement of environmental protection laws between the EU and China.

2.1.3: Enforcement Methods: Analysing EU-China Discrepancies in Ecodesign Implementation

---

[92] Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance…, *ibidem,* p. 18.

[93] Castellucci, I. (2007). Rule of Law with Chinese Characteristics… *op cit*, p. 89.

[94] Castellucci, I. (2007). Rule of Law with Chinese Characteristics… *ibidem*, p. 87.

[95] Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance…, *op cit,* p. 18.

The enforcement of the Ecodesign regulations is another field where the two countries are quite different.

In the previous subparagraph, it was highlighted how the evolution of the legislation concerning Ecodesign has been quite different in the two cases taken into consideration. While the European Union has enlarged the scope of its Ecodesign legislation towards multiple products, China seems to have broadened its regulations at a slower paste. However, it is interesting to notice how China, while slowing down the proliferation of legislation on the matter, has undergone a process of campaigns to strengthen the enforcement of its environmental laws.

To better understand the differences between the two approaches, it is useful to understand that the problem Chinese government in enforcing Ecodesign legislation is expressed in a wider range towards environmental protection laws as such.

In the case of the European Union, Regulation (EU) 2019/1020 can be used to express a clear example of a regulation concerning market surveillance and product conformity, therefore a regulation that aims to ensure the enforcement of environmental protection legislation produced in previous years. To better understand the chosen example in light of environmental protection, some relevant provisions have been selected.

As previously explained, the Union has the power to scrutinize a product in order to ensure its compliance before it enters the market or when it has already been placed on the market[96]. More specifically, Article 16 of the Regulation refers to the role of market surveillance measures in ensuring products that have or aim to have access to the European Internal market comply with all the requirements and standards set by the Union. These authorities can act by taking "appropriate and proportionate corrective action to bring the non-compliance to an end or to eliminate the risk within a period they specify"[97].

Moreover, as specified in Chapter VII of the regulation regarding products entering the Union market, Article. 26 sets out the cases of suspension of release for free circulation. Interesting are paragraph 1(b), which sets out that the competent authorities shall suspend the release of a product for free circulation in the event that "the product is not marked or labelled in accordance with the Union law applicable to it", and paragraph 1(e) "for any other reason, when there is cause to believe

---

[96] Cited *supra* chapter 1, paragraph 1.

[97] Article 16, paragraph 2, Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019 on market surveillance and compliance of products and amending Directive 2004/42/EC and Regulations.

that the product does not comply with the Union law applicable to it or that it presents a serious risk to health, safety, the *environment* or any other public interest referred to in Article 1"[98].

This concept was furthermore enhanced through the creation of a specific network to coordinate the enforcement of these decisions. In Chapter VIII the "Union Product Compliance Network" is established through Article 29 and refers to coordinated enforcement and International cooperation. It also specifies the role of each body in enforcing the law[99].

When comparing the enforcement methods of the European Union and China in the field of Ecodesign, a big difference can be found in the way in which the two states approach environmental protection laws. While the EU has a clear legal strategy to deal with non-compliance, studies show that the Chinese enforcement system is characterized by a structural problem, present in the way itself the judicial enforcement takes place. Many times, in fact, judicial enforcement is not applied by the relevant judicial organs but is "overridden by some other kind of administration and/or political action"[100]. As previously explained in the section concerning the different perceptions of the rule of law, Chinese law is inscribed in a political context whose actions are considered more relevant than the laws implemented on the same issue. This context makes it easier for the political elite to "under-enforce or over-enforce [a law] according to policy needs"[101]. By doing so, the ruling elites can therefore prioritize the enforcement of some laws over others. This often results in a lack of enforcement[102].

The case of environmental protection is particularly complex. As previously explained, the role of Chinese environmental laws was purely formal until the early 2000s, leading to an increasing "legal discretionary power"[103] of those authorities in charge of ensuring the enforcement of those laws. The little importance given by the government and the enforcing authorities to these laws allowed for the lack of legitimacy of these rules by local actors[104].

To solve this problem, during the first half of the 2000s, the Chinese government started a process to enhance the enforcement of those laws. Practices such as statements on strict law enforcement, agent training, stricter legislation, enhancing public awareness and participation in enforcement

---

[98] Article 26, paragraph 1, Regulation (EU) 2019/1020.

[99] Article 29, Regulation (EU) 2019/1020.

[100] Castellucci, I. (2007). Rule of Law with Chinese Characteristics… *op cit*, p. 58.

[101] Castellucci, I. (2007). Rule of Law with Chinese Characteristics… *op cit*, p. 59.

[102] Castellucci, I. (2007). Rule of Law with Chinese Characteristics… *ibidem.*

[103] Van Rooij, B. (2006). Implementation of Chinese Environmental Law: … *op cit*, p. 60.

[104] Van Rooij, B. (2006). Implementation of Chinese Environmental Law: … *ibidem.*

work, prioritization of enforcement work and installing and strengthening internal reporting and disciplinary systems[105], have become an important part of the functioning of the state when dealing with environmental protection. These campaigns had however contradictory results: on one side, they raised the number of inspections carried out by the authorities in charge of the enforcement of those laws, on the other however, they did not solve the difficulties of citizens in complying with these rules. In fact, the more rural zones of the country perceived these rules as created without taking their needs into account. For Chinese citizens, especially those living in rural areas, the compliance of local firms with these regulations can have a direct impact on their daily lives. For rural areas where only one major company is present, and the primary natural resource is the basis of the local economy, the closure of such companies could be catastrophic for the local population, leading to job losses and having a ripple effect on the entire community[106]. These concerns have led local actors, that do not share the environmental concerns of national regulation, to stop regular enforcement as "governments [are] blamed for protecting their own economic interests rather than the environment"[107]. It is possible to state therefore that the strict enforcement, foreseen by these campaigns, has not been capable of solving "the underlying conflict of interests that [could] cause relapse"[108].

Overall it is possible to see a clear structure in EU enforcement methods, supported by market surveillance authority that, together with the institutions, work to prevent non-compliant products, that might be dangerous for the environment, from entering or remaining on the market. This has been possible through a legislative evolution that took into account the interest of the citizens for environmental protection[109]. It is possible to state after this analysis that it was not the same for China. Although enforcement campaigns had a positive effect on people's awareness concerning the importance of environmental protection, its legislative evolution is still considered by the citizens as a choice made by the government, that did not take into account the wishes of the people. Moreover, even after these campaigns, the enforcement of environmental protection laws still

---

[105] Van Rooij, B. (2006). Implementation of Chinese Environmental Law: … *op cit*, p. 65.

[106] Van Rooij, B. (2006). Implementation of Chinese Environmental Law: … *ibidem*, p. 61.

[107] Van Rooij, B. (2006). Implementation of Chinese Environmental Law: … *ibidem.*

[108] Van Rooij, B. (2006). Implementation of Chinese Environmental Law: … *ibidem,* p. 68.

[109] The great upsurge of Western popular concern about "environmental pollution and the depletion of national resources that gave birth to the modern environmental movement and pushed environmental issues high up on Western political agenda" dates back to the 1960s. For more information see Brenton, T. (1994). The Greening of Machiavelli: The Evolution of International Environmental Politics. https://openlibrary.org/books/OL830375M/The_greening_of_Machiavelli p. XIII.

struggles to obtain the expected results. China's progress and efforts "in building a system of environmental law and in enforcing environmental regulations [are undeniable]; nevertheless, problems of non-compliance and imperfect enforcement of these laws and regulations remain"[110].
As for the comparison of the rule of law approaches proposed in the previous subparagraph, China's and the EU's approach to law enforcement provides insight into the importance attributed to the issue of environmental protection. China's demonstrated lack of enforcement and the Chinese government's implementation of laws while presenting indifference towards the public's perception of environmental protection, shed light on the overall lack of interest in the internal implementation of those laws.

The present paragraph focused on providing an in-depth analysis of the Chinese approach towards Ecodesign legislation. Other than the evolution and the scope of the laws, it was also decided to provide a better understanding of two fundamental concepts, the approach to the rule of law and to law enforcement, necessary to understand the government and the public perception of environmental protection. The results of this analysis will be needed to understand the concrete application of Ecodesign through its implementation in the production process of Chinese industries. The analysis of the implementation status while considering these findings will be useful for understanding the motivations behind firms' decisions, as industries are a crucial factor in determining the existence of the Brussels Effect.

2.2: Unraveling the Brussels Effect in China: Insights from Enterprise Research

As discussed in the previous chapter, industries play a significant role in advocating for the implementation of regulations[111]. Large exporting Industries first adhere to the foreign jurisdiction requirements to further their own economic interests. Then, to avoid any potential disadvantage compared to domestic companies, larger industries often pressure the government to implement the same foreign regulations they have started to comply with. Due to their economic influence, larger companies often have considerable leverage over the government and by pushing for the implementation of foreign regulations they have already adopted, they can ensure the integration of

[110] Van Rooij, B. (2006). Implementation of Chinese Environmental Law: … *ibidem*, p. 58.

[111] Cited *supra* chapter 1, paragraph 2.

those requirements and standards into domestic legislation[112]. With the aim of understanding the influence of Chinese enterprises in promoting the implementation of Ecodesign regulation in the Chinese legal framework, in this paragraph a research concerning the implementation of Ecodesign by Chinese enterprises will be proposed and observed in the light of the theoretical findings of the first paragraph of this chapter.

The research that will be used as a base for applying the findings of the previous analysis, concerns 36 questionnaires and in-depth interviews with China's electrical and electronic (EE) manufacturers.

The first important finding of the research was that the enterprises that implemented Ecodesign the most in their production process were larger companies, whose main targets were foreign markets. At the same time, the companies that had the most difficulties implementing this tool in their production process, were smaller firms whose main target was the domestic market. In light of these information the research highlights both the main drivers that led the larger industries to implement Ecodesign, as well as the main hindering factors, that prevented or did not encourage smaller companies to integrate Ecodesign in their production process. The research has found that the main drivers for industries to comply with Ecodesign standards are: market/customer demand, environmental regulations and competitive advantage[113]. In contrast, the main hindering factors have been: high costs of implementation, lack of market demand and lack of pressure from regulations[114].

It is possible to notice how these factors, even if positioned in a different order, are opposites for small and big firms. While big firms have implemented the new production process after a considerable market demand, smaller firms' implementation suffers from the lack of demand from the national market. While big firms, that deal with regulations in foreign markets, consider environmental regulations an important positive factor, smaller firms that are in contact with only the regulations of their own country, consider the lack of pressure from regulations a hindering factor. Lastly, while big firms gain competitive advantages from the implementation of this new way of production, smaller firms suffer from the high costs that these implementations come with.

---

[112] Cited *supra* chapter 1, paragraph 2.

[113] Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes:… *op cit*, p. 118.

[114] Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes… *ibidem*, p. 119.

In light of the information provided throughout these chapters and the premises given at the beginning of this paragraph, it is interesting to explore these factors in more detail. To do so, it was decided to follow the three contrasting categories just described, so to highlight the role of the Chinese legislation in promoting Ecodesign as a more sustainable way of production as well as the role of big firms in influencing the Chinese legislation.

2.2.1: The Role of the Market: Ecodesign Adoption in Small and Large Chinese Enterprises

As previously stated, the firms that implemented the most Ecodesign are the larger ones whose main goal is to export towards foreign markets. Therefore when considering the first factor that encouraged enterprises to incorporate this tool, market customer demands, the market must be understood as a foreign market. Moreover, as previously stated, the EU single market is the most important market for Chinese enterprises aiming to export their products, therefore the presence of a market customer demand should be understood as the requirements or standards put forwards, especially by the EU, to access the market. On the contrary, when considering the lack of market demand for smaller firms, it needs to be taken into consideration that smaller firms produce mainly for the national market. Although the Chinese government has implemented regulations that set environmental standards for the production process, the lack of interest from the domestic market highlights the importance attached to these changes. This lack of interest can be easily connected with the Chinese history of environmental protection legislation. As previously stated, the Chinese population has recently developed a stronger interest in environmental protection due to the campaigns put into place during the early 2000s by the government. However, these feeling is still not strong enough in the population to allow for the domestic market to implement the same standards and requirements as the EU's single market.

2.2.2: Regulatory Pressures: the Perception of Ecodesign Legislation among Small and Large Chinese Enterprises

The second factor, environmental regulation, shows an interesting correlation between the firm size and the importance given to environmental protection law. Bigger firms, seem to be more concerned by those legislations that ensure the well-being of the environment. On the contrary, smaller firms

point to the lack of pressure from local regulations as one of the reasons that prevented them from implementing Ecodesign. This is related to what has been explained in the previous paragraph. Even if the campaign that fostered law enforcement in the early 2000s had the effect of increasing inspections, on the other hand it was not strong enough to force compliance on the population. The same research states that this lack of pressure in enforcing the regulation led to a lack of impact of the regulation itself[115]. The lack of enforcement reduces the attractiveness of the implantation for smaller firms, since the non-compliance will not allow them to sell their product on the domestic market, as is the case for firms that aim to export to the EU's market. Moreover, the lack of pressure from the regulations and thus their low impact is part of a deeper problem of perception of laws. As illustrated in the previous paragraph, the role of legislation in China is significantly low compared to its European counterpart. This has the effect of hindering the compliance of those smaller industries that do not aim to export their product towards foreign markets, because of the widespread perception among the population of the insufficient consideration of domestic law compared to government action.

2.2.3: Cost-Benefit Analysis: Ecodesign Economic Implications for Small and Large Chinese Enterprises

The last of the three categories concerns the competitive advantage gained by the larger firms compared to the high costs unsustainable for smaller firms. As stated in the previous chapter, the implementation of Ecodesign in the production process can have a positive impact not only on the environmental impact of the product during and after its life cycle, but can also bring economic benefits to the firms that implement it[116]. However, It is common knowledge that an initial investment is required to change a company's production process and restructure the product from the design phase. It is therefore easier to understand that bigger firms, which can rely on a larger market and have therefore a bigger capital can more easily invest to comply with those standards, gaining not only access to foreign markets but also the economic benefits that come with the implementation of the production style. Smaller firms on the contrary have to deal with the cost of implementing these upgrades on their own, while having less capital, and with the knowledge that even complying they will not gain access to a larger market, nor will they be able to keep on selling

---

[115] Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes… *op cit*, p. 121.

[116] Cited *supra* chapter 1, paragraph 1.

their product on the domestic market since the lack of enforcement does not prevent them from selling without complying.

From these three categories of opposite perceptions it is possible to notice that, while for bigger firms that are in contact with foreign markets, the implementation of Ecodesign in their production process is seen as an opportunity that could grant them access to larger market and comparative advantages, smaller companies that produce for the domestic market see it as a burden, if applied, or show no interest, because of the lack of pressure from regulations.

The different approach to Ecodesign by large and small companies is more evident when the author that conducted the interview explains that few companies have incorporated Ecodesign in a systemic way, and this is not the case for smaller industries. It has been identified a lack of knowledge concerning Ecodesign, as it has been disseminated by the competent authorities. In fact the majority of smaller companies that claim to comply with the Ecodesign regulation and have incorporated Ecodesign "does not have a specific policy written about it. For those companies with written documents, the most common action they took was to add some sentences to a booklet of the company's product design guidance"[117]. This lack of information, more difficult to achieve for local firms, results in a decrease in efficiency in implementing measures. In fact, it has been shown that the majority comply with the reduction of toxic materials in the production process, but pay less attention to other aspects[118]. On the contrary, it has been shown that companies that better comply with Chinese regulations on the matter, are larger export companies that complied with EU legislation first. Considering the diffusion of knowledge on the matter by the Chinese government, companies trading with the EU have been able to develop a deeper commitment to the creation of a sustainable production process because of the need to comply with EU standards and requirements.

This further facilitates the understanding of why larger enterprises adhere more effectively to Chinese standards. Since Chinese standards are less stringent than those of the EU, once these companies have already complied with EU rules, compliance with the Chinese standards is a less demanding task for them[119].

Overall this chapter contributed to understand China's approach to Ecodesign as a tool to promote environmental protection. Both the analysis proposed in the first paragraph and the concrete

---

[117] Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes… *ibidem*, p. 120.

[118] Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes… *ibidem*, p. 118.

[119] Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes… *ibidem*, p. 120.

application examined in the second, shed light on the Chinese government's lack of interest in the compliance of domestic firms, as well as for the correct understating of this new sustainable production process by national enterprises.

The dearth of interest shown in regulating products that do not meet environmental standards in the domestic market indicates that the implementation of this legislation was primarily motivated by the need of large firms to comply with EU regulations. In fact, compliance with EU Ecodesign directives "has largely paved the way for companies to fulfill the requirements"[120] of Chinese legislation.

In the conclusion, all the findings of this research will be collected, and analysed in the light of the five factors necessary to assess the presence of the Brussels Effects in a specific field, as explained by Anu Bradford, and illustrated in the first chapter[121]. The conclusions will thus provide a conclusive answer to the research inquiry on which this thesis is based.

[120] Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes… *ibidem*, p. 122.

[121] Cited *supra* chapter 1, paragraph 2.

Conclusions

This thesis aimed to answer the following research question: “Has the European Union, through its normative power, influenced the Chinese environmental legislation through the promotion of norms at the Member States’ level?”. In order to find an answer to this question, it was decided to structure the thesis into two main chapters.

The first chapter focused on describing the EU’s approach to Ecodesign and the Brussels Effect. With this aim, the chapter was furthermore subdivided into two paragraphs. The first paragraph focused on defining Ecodesign and the EU’s approach to it. Through the analysis proposed in the first paragraph, Ecodesign was, in fact, defined as a tool used to include environmental requirements and standards in the production process since the design phase of a product. It was also highlighted the important role of an LCA in highlighting environmental priorities that need to be implemented through the introduction of product oriented laws. It was then explored the role of the EU in the development of academic studies concerning Ecodesign, and the importance of many European countries in observing the larger amount of academic research on the matter was highlighted. It was then observed the role of secondary legislation in regulating the implementation of Ecodesign in the production process as well as the growing role of the ethical aspect that defines organizations’ and stakeholders’ preferences in defining the Union’s priorities. Finally, the paragraph highlights the role of these Ecodesign standards in allowing or withdrawing access to the single market for products that fall in the scope of the legislation.

Through the analysis proposed in the first paragraph, it was possible to analyse the approach of the EU to Ecodesign. This paragraph highlights the role of the EU in environmental protection through product oriented law, through the significant amount of academic research on the topic and the legislation put in place. Furthermore, an important finding of this analysis is the impact of Ecodesign standards established by the EU. The impact of the legislation can be seen in both domestic and imported products. As shown at the beginning of this chapter, compliance with EU standards is necessary for companies’ products to maintain their market position. Consequently, this necessitates changes and adaptations in the production process, to ensure compliance with European standards and facilitate the successful introduction of the product into the Internal Market.

Once this tendency was observed, it was useful to question how this initial impact on the large enterprises’ production process might translate into a foreign country’s legislation. In order to deepen the analysis in this regard, the second section focused on highlighting how European

legislation has, in fact, affected the standards of many nations, especially those that have greater trade relations with the Union, creating a phenomenon referred to as the Brussels Effect. in particular, a specific focus was given to how Ecodesign is an area particularly connected by this phenomenon.

The concept of the Brussels Effect has been defined as the capacity of the EU to shape global regulatory standards and policies through its economic and regulatory power. The paragraph then highlights how the Brussels Effect is effective through two different channels of influence the *de facto* variant and the *de jure* variant. In addition, the five theoretical foundations that characterize the application of the Brussels Effect are presented. The analysis therefore focused on how these five fundamentals are related to the product regulation of Ecodesign. It was possible to highlight the capacity of Ecodesign to meet the five fundamental elements that are at the base of the Brussels Effect. With the confirmation of these five elements forming the foundation of the Brussels Effect, it was possible for the research to progress to a more focused investigation of the specific case of China.

Starting the analysis of the specific application of the Brussels Effect to the Chinese market with particular regard to regulations concerning to Ecodesign, all five of the key elements identified can be identified. The size of the European Union's market, and specifically its importance for the trade of the products regulated by the Ecodesign legislation with China, shows that the first element has been satisfied. In the case of Ecodesign, the regulatory capacity, as well as the presence of stringent standards, has been evidenced by the capacity of the EU to exclude non compliant products from the market and the strict product requirements and standards that characterize every product covered by the directives. This represents clear evidence of the applicability of the second and third elements. Lastly, the fourth and the fifth element, respectively the inelastic targets and the non divisibility, define the characteristics of the products covered by the analysed legislation. It has been shown that both characteristics apply to the products to which the EU's Ecodesign legislation refers.

Therefore, in this chapter, it was seen how inherent European legislation has a strong influence on the legislation of states outside the Union to the extent that it can partially condition their legislative framework. This effect has been called the Brussel Effect and has specific characteristics through which it exerts its influence. In particular, it has been shown how Ecodesign is to all intents and purposes part of the phenomenon and how it manages to influence even large producer countries.

After proposing this analysis, the second Chapter focused on examining how EU law, through the "Brussels Effect", may have influenced Chinese Ecodesign regulations. With this aim, the Chapter was divided into two paragraphs.

The first paragraph, which aimed at providing a comparison between EU's and China's Ecodesign regulation, was divided into three subparagraphs dealing respectively with the historical evolution of the Ecodesign legislation, the approach to the rule of law and, lastly, the enforcement of those standards.

This analysis showed that the EU's Ecodesign legislation had grown rapidly over the first decade of the XXI century and it inscribed itself in a cultural context in which the European population attached greater importance to environmental protection. The analysis highlighted the opposite findings for the Chinese counterpart. Chinese regulations concerning environmental protection were implemented by the government later than those in the EU and did not grow as rapidly in scope. Furthermore their implementation was not based on popular concerns for the protection of the environment, leading to dissent and a lack of interest in their application.

The first paragraph also analyses the different approaches towards the rule of law of the EU and of China, since understanding this difference is crucial in understanding the perception of laws by the local population. The main difference concerned the role of laws and their perception within the state. As analysed in the paragraph, while laws in the EU are widely considered instrumental in implementing priorities, laws in China are perceived as an "expressive statement of the priorities and values that the party and the state cares about"[122]. It was found that laws in China have a limited role in the implementation of state priorities. This role was mostly covered by the action of the governments, whose power derives from the historical evolution of the country's political system.

In the same paragraph has been also analysed the different approaches to law enforcement. Enforcement practices in the case of Ecodesign legislation are strongly connected to the population's perception. Through this analysis it was possible to observe the lack of interest of the population in environmental protection. This feeling of disinterest was aggravated by the Chinese government's implementation of laws that do not reflect the population's wishes. These laws have led the citizens to perceive their government's actions as detached from their reality and concerns. The analysis highlighted this dissent among the citizens that, added to the lack of enforcement by the relevant authorities, shows a general disinterest in the internal implementation of these laws.

After providing a theoretical analysis of China's approach towards Ecodesign and, more in general, environmental protection laws, the second paragraph analysed the application of these findings through the implementations of Ecodesign regulations by Chinese enterprises. The research highlighted the strong role that Ecodesign regulations have for large exporting companies have,

---

[122] Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance…, *op cit,* p. 18.

compared to smaller companies that serve the domestic market. Three main differences were observed: the role of market demand, the role of environmental regulations and the costs and benefits of the implementation of this new production process. These three differences have suggested that larger companies, engaged in foreign trade, see the integration of Ecodesign into their production processes as an opportunity to secure access to larger markets and to gain competitive advantages. In contrast smaller companies that serve the domestic market perceive this new production process as a burden when enforced, or display apathy due to the absence of regulatory pressure. In fact, smaller companies reported more difficulties in implementing Ecodesign into their production process because of the initial investment required. Furthermore, it was observed a lack of government interest in providing assistance to smaller enterprises when dealing with the changes needed in order to comply with Ecodesign standards.

The general lack of interest of the Chinese government towards the implementation of Ecodesign standards and requirements in domestic firms emphasizes the role of foreign legislation in creating domestic regulations.

After the analysis proposed throughout this thesis, it is possible to provide an answer to the research question. Is it possible to affirm the applicability of the Brussels Effect in China's Ecodesign legislation? To ensure an accurate answer to this question, an additional distinction must be taken into account. As previously highlighted, the two variants of the Brussels Effect, *de facto* and *de jure* play an important role in defining the applicability of the Brussels Effect. For this reason the question must be split into two sub questions: Is it possible to affirm the applicability of the *de facto* Brussels Effect in China's Ecodesign legislation? And, Is it possible to affirm the applicability of the *de jure* Brussels Effect in Chinese Ecodesign legislation?

As defined in the first chapter, the *de facto* variant represents "how global corporations respond to EU regulations by adjusting their global conduct to EU rules"[123]. In the case studied in this thesis therefore, the questions refers to wether or not Chinese corporations have modified their production process to comply with EU Ecodesign rules. As presented in the second Chapter, Chinese firms aiming to export their product towards the European Union comply with the standards set by the Union, furthermore, they comply with the Chinese Ecodesign standards since they had already implemented changes in the production process in order to meet the European standards. It is therefore possible to affirm that the *de facto* Brussels Effect is applicable in China's Ecodesign legislation.

[123] Bradford A., The Brussels Effect… *op cit.,* p. 2.

Once again referring to the first Chapter of this thesis, the *de jure* variant can be defined as "the adoption of EU-style regulations by foreign governments"[124]. In the case studied in this thesis therefore, the question is whether or not China has implemented Ecodesign legislation based on EU Ecodesign regulation. As presented in the second chapter, the Chinese legislation on the matter has developed later compared to the EU and follows a similar, even if more limited, scope. It is therefore possible to affirm that the *de jure* Brussels Effect is applicable to Chinese Ecodesign legislation.

After confirming the presence of both the *de facto* and the *de jure* variant of the Brussels Effect in the case of the Chinese Ecodesign legislation, it is possible to answer the research question of this thesis. It is, in fact, possible to affirm that the Brussels Effect can be observed in China's Ecodesign legislation. The European Union, through its regulatory power, has influenced Chinese environmental legislation through the promotion of norms at the Member States' level.

An interesting point that could be the subject of further research concerns the reasons behind the implementation of the Chinese Ecodesign legislation. Through the research made in order to provide an answer to the research question of this thesis, an interesting characteristic of the Chinese Ecodesign law implementation at the national level was observed: the limited adoption of Ecodesign regulations by smaller Chinese companies, accompanied by the lack of enthusiasm shown by the Chinese government in ensuring the effective enforcement of these laws. Anu Bradford's analysis, as presented in the first chapter of this thesis[125], explains the role of larger corporations in influencing the government to establish national laws. Companies' lobbying has the aim of maintaining domestic competition. Smaller enterprises are not required, in fact, to comply with foreign markets' standards since they serve the domestic market. These companies, therefore, do not have to face the costs of implementing those rules. It is interesting to notice that, as it has been shown during the second chapter, smaller Chinese companies barely comply with regulations set by Chinese law. At the same time, the lack of interest shown by the Chinese government in enforcing requirements was evident. These two characteristics raise the question of the reasons behind the implementation of those laws. In fact, if the government has no interest in enforcing Ecodesign requirements on its domestic enterprises that refuse or simply do not have the mean to comply with those laws, this should raise concerns and complaints with larger enterprises, for the

[124] Bradford A., The Brussels Effect… *ibidem.*

[125] Cited *supra* chapter 1, paragraph 2.

competition in their domestic market. This issue, however, is beyond the research question of this thesis, and specific additional research would be required to evaluate this anomaly.

Bibliography

Secondary Sources

Books

Bradford, A. (2020). The Brussels Effect. Oxford University Press.

Brenton, T. (1994). The Greening of Machiavelli: The Evolution of International Environmental Politics.

Jordan, A., & Gravey, V. (2021). Environmental Policy in the EU: Actors, Institutions and Processes. Routledge.

Keukeleire, S., & Delreux, T. (2022). The Foreign Policy of the European Union (3rd ed.). Bloomsbury.

Legrand, P., 'Comparative Law' in David S Clark, *Encyclopedia of law and Society*, vol 1 (Sage Publishing 2007).

Academic Articles

Ayres, R. U. (1995). Life cycle analysis: A critique. *Resources, Conservation and Recycling*, *14*(3–4), 199–223. https://doi.org/10.1016/0921-3449(95)00017-d.

Behrisch, J., Ramirez, M., & Giurco, D. (2011). Representation of Ecodesign Practice: International Comparison of Industrial Design Consultancies. *Sustainability*, *3*(10), 1778– 1791. https://doi.org/10.3390/su3101778.

Bundgaard, A. M., Mosgaard, M. A., & Remmen, A. (2017). From energy efficiency towards resource efficiency within the Ecodesign Directive. *Journal of Cleaner Production*, 144, 358–374. https://doi.org/10.1016/j.jclepro.2016.12.144.

Castellucci, I. (2007). Rule of Law with Chinese Characteristics. *Annual Survey of International & Comparative Law*, *13*(1), 4. https://digitalcommons.law.ggu.edu/cgi/viewcontent.cgi?article=1112&context=annlsurvey.

Charter, M., Min, J., En Rui, Z., O'Connor, F., & Cirillo, D. (2021). EC-China eco-design and standards cooperation project. *ECORYS Consortium*. https://cfsd.org.uk/wp-content/uploads/2022/01/China_EU-ecodesign-Key-findings-policy-recommendations-China-GDP-GP-EL-English.pdf.

Dalhammar, C. (1994). Promoting Energy and Resource Efficiency through the Ecodesign Directive1. *Scandinavian Studies in Law*, *59*. https://www.scandinavianlaw.se/pdf/59-4.pdf.

Eberle, E. J., 'The Methodology of Comparative Law' (2011) 16 Roger Williams University Law Review- Symposium: Methodological Approaches to Comparative Law.

Gu, Y., Wu, Y., Xu, M., Wang, H., & Zuo, T. (2017). To realize better extended producer responsibility: Redesign of WEEE fund mode in China.

Hey, E., & Mak, E., 'Introduction: The Possibilities of Comparative Law Methods for Research on the Rule of Law in a Global Context' (2009) 02 Erasmus Law Review.

Journal of Cleaner Production, *164*, 347–356. https://doi.org/10.1016/j.jclepro.2017.06.168.

Karlsson, R., & Luttropp, C. (2006). EcoDesign: what's happening? An overview of the subject area of EcoDesign and of the papers in this special issue. *Journal of Cleaner Production*, 14(15–16), 1291–1298. https://doi.org/10.1016/j.jclepro.2005.11.010.

Khanna, N., Liu, X., & Zhou, N. (2020). International review of ecodesign programs for products and lessons learned for China. *China Economic Journal*. https://doi.org/10.1080/17538963.2020.1751449.

Lickova, M. (2008). European Exceptionalism in International Law. *European Journal of International Law*, 19(3), 463–490. https://doi.org/10.1093/ejil/chn028.

Lindahl, M. (2008). The State of Eco-design in Asian Electrical and Electronic Companies: A Study in China, India, Thailand and Vietnam. *LCE 2008: 15th CIRP International Conference on Life Cycle Engineering: Conference Proceedings*, 160. https://search.informit.com.au/documentSummary;dn=561610107716437;res=IELENG.

Liu, A., Ren, F., Lin, W., & Wang, J. (2015). A review of municipal solid waste environmental standards with a focus on incinerator residues. *International Journal of Sustainable Built Environment*, *4*(2), 165–188. https://doi.org/10.1016/j.ijsbe.2015.11.002.

Lu, X., Zhu, E., Campbell, L., Hafner, M., Noussan, M., & Raimondi, P. P. (2021). Comparison between China, the EU and the US's Climate and Energy Governance: How Policies Are Made and Implemented at Different Levels. *Social Science Research Network*. https://doi.org/10.2139/ssrn.4017427.

Luiz, J., Jugend, D., Jabbour, C. J. C., Luiz, O. R., & Souza, F. G. (2016). Ecodesign field of research throughout the world: mapping the territory by using an evolutionary lens. *Scientometrics*, *109*(1), 241–259. https://doi.org/10.1007/s11192-016-2043-x.

McDowall, W., Geng, Y., Huang, B., Barteková, E., Bleischwitz, R., Türkeli, S., Kemp, R., & Domenech, T. (2017). Circular Economy Policies in China and Europe. *Journal of Industrial Ecology*, *21*(3), 651–661. https://doi.org/10.1111/jiec.12597.

Molenbroek, E., Cuijpers, M., & Blok, K. (2012, April). Economic benefits of the EU Ecodesign Directive - Improving European economies (No. BESNL11688). Ecofys.

Naveiro, R. M., & de Medina, H. V. (2009). Eco-design practices in Europe fostering automotive vehicles recyclability in Brazil. *Center for Mineral Technology Federal.*

Odgaard, O., & Delman, J. (2014). China′s energy security and its challenges towards 2035. *Energy Policy*, *71*, 107–117. https://doi.org/10.1016/j.enpol.2014.03.040.

University of Rio de Janeiro, *7*, 81–89. https://app.periodikos.com.br/article/586fc520f7636eea018b45ef/pdf/pmd-7-1-81.pdf.

Plouffe, S., Lanoie, P., Berneman, C., & Vernier, M. (2011). Economic benefits tied to ecodesign. *Journal of Cleaner Production*, *19*(6–7), 573–579. https://doi.org/10.1016/j.jclepro.2010.12.003.

Puel, G., Liu, C., & Huang, D. Y. (2012). The Emergence of Eco-Design in China in the ICT Sector. *Advanced Materials Research*, *524–527*, 3688–3691. https://doi.org/10.4028/ www.scientific.net/amr.524-527.3688.

Roy, R. (1994). The evolution of ecodesign. *Technovation*, *14*(6), 363–380. https://doi.org/10.1016/0166-4972(94)90016-7.

Schäfer, M., & Löwer, M. (2020). Ecodesign—A Review of Reviews. *Sustainability*, 13(1), 315. https://doi.org/10.3390/su13010315.

Seaman J., "China and the New Geopolitics of Technical Standardization", *Notes de l'Ifri*, Infra, January 2020.

Siderius, P. J. S., & Nakagami, H. (2013). A MEPS is a MEPS is a MEPS: comparing Ecodesign and Top Runner schemes for setting product efficiency standards. *Energy Efficiency*, *6*(1), 1–19. https://doi.org/10.1007/s12053-012-9166-6.

Stevels, A. (2009). *Adventures in Ecodesign of Electronic Products: 1993-2007*. http://repository.tudelft.nl/assets/uuid:c7223473-bedb-4b01-a99e-b05865071acd/stevels.pdf.

Van Rooij, B. (2006). Implementation of Chinese Environmental Law: Regular Enforcement and Political Campaigns. *Development and Change*, *37*(1), 57–74. https://doi.org/10.1111/j.0012-155x.2006.00469.x.

Wu, H. (2020). Territorial Extension of the EU Environmental Law and Its Impacts on Emerging Industrial Economies: A Taiwan Case. *China and WTO Review*, *6*(2), 325–350. https://doi.org/10.14330/cwr.2020.6.2.04.

Xie, Z. (2020). China's historical evolution of environmental protection along with the forty years' reform and opening-up. *Environmental Science & Ecotechnology*, *1*, 100001. https://doi.org/10.1016/j.ese.2019.100001.

Young, A. R. (2015). The European Union as a global regulator? Context and comparison. *Journal of European Public Policy*, 22(9), 1233–1252. https://doi.org/ 10.1080/13501763.2015.1046902.

Yu, J., Hills, P. J., & Welford, R. (2008). Extended producer responsibility and eco-design changes: perspectives from China. *Corporate Social Responsibility and Environmental Management*, *15*(2), 111–124. https://doi.org/10.1002/csr.168.

Yu, L., He, W., Li, G., Huang, J., & Zhu, H. (2014). The development of WEEE management and effects of the fund policy for subsidizing WEEE treating in China. *Waste Management*, *34*(9), 1705–1714. https://doi.org/10.1016/j.wasman.2014.05.012.

Zeng, X., Li, J., Stevels, A., & Liu, L. (2013). Perspective of electronic waste management in China based on a legislation comparison between China and the EU. *Journal of Cleaner Production*, *51*, 80–87. https://doi.org/10.1016/j.jclepro.2012.09.030.

Online sources

China: Environmental Protection Law Revised. (2014, June 6). The Library of Congress. https://www.loc.gov/item/global-legal-monitor/2014-06-06/china-environmental-protection-law-revised/#:~:text=(June%206%2C%202014)%20On,effect%20on%20January%201%2C%202015.&text=This%20was%20the%20first%20time,its%20enactment%20in%20December%201989.

Circular Economy Promotion Law of the People's Republic of China. | UNEP Law and Environment Assistance Platform. (2008). https://leap.unep.org/countries/cn/national-legislation/circular-economy-promotion-law-peoples-republic-china.

Circular Economy Promotion Law of the People's Republic of China (Chinese and English Text) | Congressional-Executive Commission on China. (n.d.). https://www.cecc.gov/resources/legal-provisions/circular-economy-promotion-law-of-the-peoples-republic-of-china-chinese.

Dezan Shira & Associates. (2022, July 26). China Standards 2035 Strategy: Recent Developments and Implications for Foreign Companies. *China Briefing*. Retrieved March 22, 2023, from https://www.china-briefing.com/news/china-standards-2035-strategy-recent-developments-and-their-implications-foreign-companies/.

Ecodesign for sustainable products - The new regulation will improve EU products' circularity, energy performance and other environmental sustainability aspects. (n.d.). European Commission. Retrieved May 29, 2023, from https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products_en#:~:text=The%20proposal%20for%20a%20new,only%20covers%20energy%2Drelated%20products.

Ecodesign regulation: Council adopts position. (2023, May 22). European Council - Council of the European Union. Retrieved May 29, 2023, from https://www.consilium.europa.eu/en/press/press-releases/2023/05/22/ecodesign-regulation-council-adopts-position/ .

Energy efficiency standards_Energy Efficiency. (2020, October 21). Shenzhen Institute of Standards and Technology - 深圳市标准技术研究院. Retrieved May 22, 2023, from https://tbt.sist.org.cn/mbsc_106/chinamarketaccess/householdappliances/energyefficiency/201301/t20130105_173895.html.

Goods exports (BoP, current US$) - International Monetary Fund, Balance of Payments Statistics Yearbook and data files. (2023). The World Bank - Data. Retrieved May 29, 2023, from https://data.worldbank.org/indicator/BX.GSR.MRCH.CD?most_recent_value_desc=true.

List of exporters for the selected product in 2022 Product : TOTAL All products. (2022). ICT Title - Trade Map Trade Statistics for International Business Development. Retrieved May 29, 2023, from https://www.trademap.org/Country_SelProduct.aspx?nvpm=1%7c%7c%7c%7c%7cTOTAL%7c%7c%7c2%7c1%7c1%7c2%7c1%7c1%7c2%7c1%7c1%7c1.

R. D. Andersen, & A. Remmen, (2011). Implementing Measures of the Ecodesign Directive: Potentials and Limitations. In Proceedings of the 6th International Conference on Energy Efficiency in Domestic Appliances and Lighting European Commission, *Joint Research Centre, Institute for Energy and Transport*. http://re.jrc.ec.europa.eu/ energyefficiency/EEDAL/index.htm
Shedding light on energy in the EU: From where do we import energy ? (2020). Shedding Light on Energy in the EU. https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html.

Sustainable product policy & Ecodesign. (n.d.). Internal Market, Industry, Entrepreneurship and SMEs. Retrieved May 24, 2023, from https://single-market-economy.ec.europa.eu/industry/sustainability/sustainable-product-policy-Ecodesign_en.

The ecodesign and energy labelling working plan 2022-2024. (2022, April 6). European Commission. Retrieved May 29, 2023, from https://commission.europa.eu/news/ecodesign-and-energy-labelling-working-plan-2022-2024-2022-04-06_en.

Total merchandise, Exports, 2022. (2022). World Trade Organization - WTO Stats Dashboard. Retrieved May 29, 2023, from https://stats.wto.org/dashboard/merchandise_en.html.

PhD Thesis

Amory, G.. "Effet Bruxelles" et développement durable : l' Union européenne peut-elle utiliser l'effet Bruxelles pour inciter le reste du monde à la rejoindre sur sa trajectoire vers un développement durable ?. Faculté de droit et de criminologie, Université catholique de Louvain, 2021. Prom. : Anne-Lise Sibony. http://hdl.handle.net/2078.1/thesis:32848.

First-hand Sources

Treaties

Treaty on the functioning of the European Union (TFEU).

Commission Staff Working Documents

Commission Staff Working Document Evaluation of the Energy Labelling and Ecodesign Directives Accompanying the document Report from the Commission to the European Parliament and the Council on the review of Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication of labelling and standard product information of the consumption of energy and other resources by energy-related products, SWD/2015/0143 final.

Directives

Council Directive 92/75/EEC of 22 September 1992 on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances, O. J., L 297 , 13/10/1992.

Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) (recast) Text with EEA relevance, O. J., L 197, 24.7.2012.

Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 establishing a framework for the setting of ecodesign requirements for energy-using products and amending Council Directive 92/42/EEC and Directives 96/57/EC and 2000/55/EC of the European Parliament and of the Council, O. J., L 191, 22.7.2005.

Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (recast) (Text with EEA relevance), O.J., L 285, 31.10.2009.

Regulations

Commission Regulation (EU) No 666/2013 of 8 July 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for vacuum cleaners Text with EEA relevance, O.J., L 192, 13.7.20.

Commission Delegated Regulation (EU) 2019/2015 of 11 March 2019 supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of light sources and repealing Commission Delegated Regulation (EU) No 874/2012 (Text with EEA relevance.), C/2019/1805, O.J., L 315, 5.12.2019.

Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019 on market surveillance and compliance of products and amending Directive 2004/42/EC and Regulations (EC) No 765/2008 and (EU) No 305/2011 (Text with EEA relevance.), PE/45/2019/REV/1, O.J., L 169, 25.6.201.

Commission Regulation (EU) 2019/2020 of 1 October 2019 laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012 (Text with EEA relevance.), C/2019/2121, O.J., L 315, 5.12.2019.