Journal of Economics, Finance and Management Studies

ISSN (print): 2644-0490, ISSN (online): 2644-0504

Volume 09 Issue 10 October 2026

Article DOI: 10.47191/jefms/v9-i10-45, Impact Factor: 8.735

Page No: 5707-5720

To What Extent Does EPR Compliance Cost Act as a Barrier to Entry for Small and Medium Enterprises in the Packaging Industry?

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ABSTRACT: Extended Producer Responsibility (EPR) is an important environmental policy instrument in tackling the problem of packaging waste. With EPR systems, producers are held accountable for the environmental consequences of their products, especially at the end-of-life stage, such as collection, recycling and proper waste disposal (OECD, 2016). EPR can help to create sustainable packaging design and resource efficiency as well as the development of circulareconomy systems, but it can also generate financial, administrative and technological expenses for companies. The cost implications can be especially large for small and medium enterprises (SMEs), which typically do not have the financial, technical and human resources of a large corporation to cover these costs. The essay discusses how costs of EPR compliance are a barrier to entry for the SMEs in the packaging industry, especially in the context of India. It emphasizes direct financial costs, administrative costs and requirements, reporting costs, costs of recycling, packaging redesign and economies of scale. The essay suggests that when the cost of compliance is high, the administrative burden is cumbersome, and the technology or product packaging redesign is a significant investment, EPR can be a potential barrier for SMEs to enter the market. But SMEs are not excluded from the packaging industry because of EPR. Inefficient EPR systems can hinder innovation, sustainable packaging, recycling services and businesses based on the circular economy. The size of the barrier will thus greatly depend on the design and implementation of EPR, the size of the enterprise, availability of collective compliance mechanisms, and recycling infrastructure. Reducing the need for compliance unnecessarily while maintaining the environmental goals of EPR can be achieved through the implementation of proportionate obligations, simplified reporting requirements and targeted support for SMEs.

Abstract: The Extended Producer Responsibility (EPR) scheme was introduced as a measure to combat plastic waste and promote the circular economy in the packaging industry. Extended Producer Responsibility (EPR) has been implemented to address the issue of plastic waste and encourage the circular economy in the packaging sector.

1. INTRODUCTION

As packaging consumption has risen, so have the amounts of municipal and industrial waste. The packaging has important economic roles for product protection, extending shelf life and information to the consumers, as well as in the transportation. But the life time of many packaging materials is relatively short with regards to their environmental persistence, especially for plastics. This has caused governments, companies and waste-management systems major challenges as the volume of packaging waste is on the rise. Traditional waste-management strategies have tended to assign municipalities and public authorities the task of gathering and disposing of waste, while producers' financial liability for waste after use has been limited. Extended Producer Responsibility (EPR) is another step forward in this strategy by moving producers' responsibility to the end of the product life cycle (OECD, 2016).

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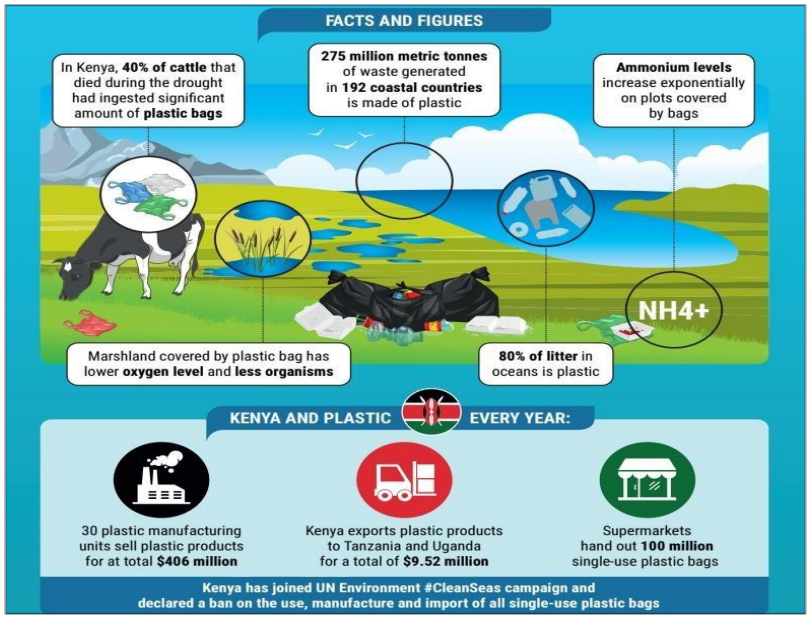


Figure 1: Environmental Externalities of Plastic Waste and Policy Interventions in Developing Economies.
Source: *United Nations Environment Programme (UNEP), Plastic Management Infographic (2018).*

According to OECD, EPR is an environmental policy measure that places a responsibility on a producer for the product after it has been used. This is based on the idea that producers should take responsibility for or contribute to the management of waste products (OECD, 2016). EPR aims to do more than enhance waste collection and recycling efforts – it also seeks to incentivise producers to take environmental factors into account when creating products and packaging. EPR can establish economic and financial incentives for producers to reduce material use, increase recyclability and include recycled materials in production by allocating a portion of waste management expenses to producers.

Packaging is especially important for EPR since producers and brand owners have significant influence on their packaging. The amount and types of waste generated may be influenced by the material, weight, design, reusability, and durability of packaging. As a result, different countries have started to use EPR in various areas of packaging waste. Packaging is a key sector in which EPR systems are currently in place (OECD, 2016).

EPR is also being implemented in India as a part of India's plastic waste management strategy. The Plastic Waste Management Rules and the subsequent amendments laid down responsibility for producers, importers and brand owners on plastic packaging and plastic waste management. The EPR policy in India aims at boosting accountability for plastic packaging placed on the market and improve collection, recycling and recovery systems (CPCB, 2022). The implementation of this framework has significant implications for businesses in the packaging industry in India.

EPR has definite environmental goals, but it costs businesses to implement. These costs may cover registration and record keeping, reporting, recycling and recovery payments,

Producer Responsibility Organisations (PROs), auditing, certification, monitoring and investment in packaging redesign. In a large company these expenses are likely to be a small percentage of overall turnover for the company, since they can be spread over high volumes of production. However, small and medium enterprises typically allocate limited financial resources and manpower, thus having a more significant proportionate burden.

In recent years, OECD has acknowledged

that SMEs may be subject to disproportionate regulatory and administrative costs when compared to larger businesses, as they typically have fewer resources than larger companies to comply with regulations (OECD, 2023). EPR is especially important since compliance may involve specialized equipment and knowledge along with monetary investment. An SME may require external advice from consultants, buying compliance services, or manager time to gain an understanding of and meet the needs of regulatory requirements. Such costs can affect the profit of the established business and the entrepreneurial decision to enter the packaging business.

The tie-in between EPR and market entry is consequently complicated. The industry's basic operating costs can increase with compliance requirements on one hand. These costs may be prohibitive for new companies until they reach their point of economies of scale and that may make it less appealing. At the same time, EPR can boost demand for environmentally friendly packaging,

recycling technologies and waste management services, offering new opportunities for SMEs. EPR can thus act as a regulatory cost and as an incentive for innovation.

The main research question for this essay is: In what ways is compliance with EPR costs becoming a barrier to entry for SMEs in the packaging industry? The question should not only be considered from the absolute monetary point of view of the cost of EPR but also from the relative, i.e. the SMEs, point of view. Administrative complexities, technological requirements, economies of scale, and availability of the recycling infrastructure and the competitive landscape also must be evaluated.

The main point of this essay is that EPR compliance costs may be substantial though contingent on the requirements.The aim of this essay is to state that compliance costs of EPR may be a substantial barrier to entry for SMEs as long as it is subject to the requirements. Compliance with the barrier is especially difficult when there are significant fixed costs, complicated reporting demands, lack of technical expertise, and high packaging redesign costs. But EPR must not be seen as an impediment to SME development. Just as with any other aspect of business, the regulatory structure can make compliance a burden or a manageable part of the business. Requirements can be proportionate, compliance arrangements can be collective, the digital system can be simplified and the regulation can be effective, all while eliminating needless costs, and ensuring the environmental goals of EPR are met.

The following discussion, therefore, reflects a consideration of the costs and possible benefits of EPR. It takes into account the conceptual link between environmental regulation and barriers to entry, discusses the particular compliance costs that SMEs experience, explores the Indian packaging situation and assesses whether or not EPR has an adverse impact on smaller businesses. The essay eventually explores the design of EPR that can meet environmental goals while not setting bounds on entrepreneurship and competition in the packaging industry.

2. CONCEPTUAL FRAMEWORK

2.1 Extended Producer Responsibility as a Regulatory Concept

The key concept of EPR is used as the central theme for exploring the barriers to entry of small and medium enterprises (SMEs) in the packaging industry due to EPR compliance costs. Environmental policy approach that aims to shift the responsibility away from the public sector for the environmental effects of products, specifically at the post-consumer phase. It is based on the principle that producers should at least share the responsibility for the collection, recycling, recovery or environmentally sound disposal of products and packaging that they put on the market (OECD, 2001). For the packaging industry, it is especially applicable as it relates to the materials, design, weight, recyclability and environmental attributes of packaging that can be controlled by the packaging producer, importer, and brand owner. EPR is an approach that moves waste management responsibility from governments or municipalities and instead places it on producers, in an effort to shift the environmental cost of waste to the producers. OECD (2016) suggests that if properly designed, EPR can lead to better waste management outcomes and ensure that producers take into account environmental considerations when designing products and packages.

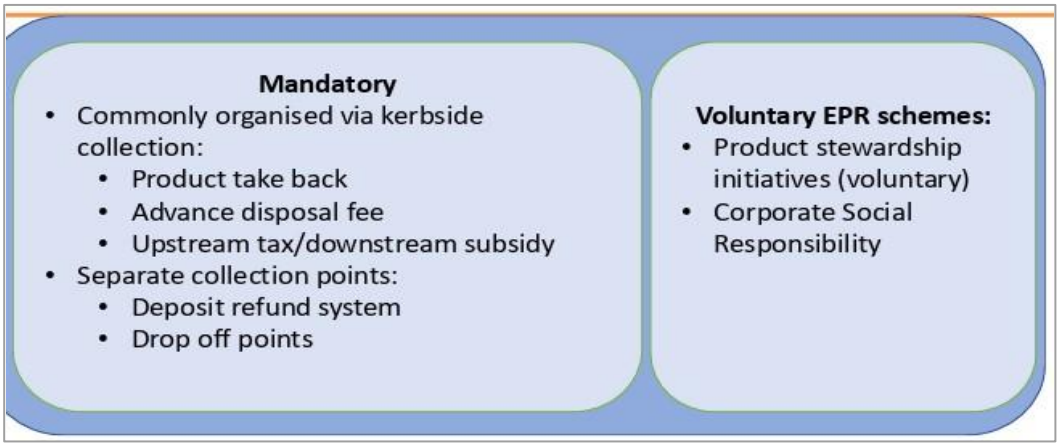


Figure 2: Typology of Extended Producer Responsibility (EPR) Policy Instruments: Mandatory vs. Voluntary Schemes.
Source: Adapted from OECD (2024), *Extended Producer Responsibility: Basic facts and key principles, OECD Publishing.*

2.2 EPR Compliance Costs and the Economics of Entry

Compliance cost is a key concept in comprehending the potential impacts of EPR on SME market participation. Compliance costs are not just those for the direct payment for waste collection, recycling, recovery or for joining Producer
Responsibility Organisations (PROs). They could involve record keeping, reporting, auditing, certification, monitoring, employee training, legal and consultancy services, data management, and tracking the packaging placed on the market and the related waste-management duties. In some cases, companies may also have to adapt
packaging, invest in new technologies, or switch suppliers or gain new technical knowledge to meet environmental demands (OECD, 2016; Laubinger et al., 2021). The costs are also important for market entry as new companies need to have adequate financial, administrative and technical capacity to be able to enter the market competitively. As a result EPR compliance can be an extra business cost and could result in a higher base level of resources that is needed for access to the packaging market.

2.3 Fixed Costs, Economies of Scale and SME Disadvantage

When assessing SMEs it is especially important to differentiate between fixed and variable compliance costs. There are some EPR related costs that are not significantly dependent on the amount of packaging produced, including registration, setting up compliance mechanisms, employee training, consultancy, and administrative procedures. These fixed costs can be spread across a significant amount of production, as is the case in large enterprises, but are invariably spread over smaller volumes of production in SMEs. This provides potential economies-of-scale opportunities as compliance may be a more significant portion of revenue or production cost of a small company versus a large one. OECD studies (2019, 2023) point to structural barriers such as finance, managerial capability, skills and administrative resources, which tend to be greater for SMEs and thus affect their relative impact of regulatory requirements. Thus, when an EPR requirement is the same across all companies, its impact on the economics of companies can differ.

2.4 Administrative Capacity and Regulatory Complexity

Another key aspect of the conceptual framework is the Administration capacity of SMEs. Compliance with an EPR system may involve businesses knowing and adhering to the rules and regulations, gathering accurate data on what and how much is being used, keeping track of the data, reporting and communicating with regulators, recyclers or compliance bodies.
Adaptation workers are more likely to be found in larger companies where there is a specific environmental, legal or regulatory department or worker, or in smaller companies if tasks need to be done by current workers. This opportunity cost may be substantial as compliance time will eat into the time available for managing the business for production, marketing, innovation, and business development. Moreover, uncertainty of regulation or regulatory requirements could raise
information costs, especially for firms not well-versed in the regulations. The complexity of EPR requirements can
increase in situations when businesses use multiple channels and regulatory structures. (Hilton et al., 2019)

2.5 EPR, Innovation and Market Opportunities

EPR does create compliance costs, but is not the only obstacle to participation in business. EPR can also provide an incentive for innovation, resource efficiency, packaging for reuse, recycled materials, recyclable systems and better waste management technologies. Modulated EPR fees, for instance, could be structured to consider environmental attributes of packaging products to incentivize producers to minimize the environmental impacts of their packaging products (Laubinger et al. 2021). Growth of EPR systems could then create new markets for recycling businesses, collection services, compliance businesses, environmental consultants and sustainable packaging manufacturers. Technological and/or organisational capabilities in these areas may thus be beneficial for SMEs, who are likely to benefit from the growth of demand for EPR.

2.6 Overall Conceptual Relationship

Conceptually, the link between EPR and SME entry is therefore not automatic and is multidimensional. EPR can increase the financial burden, administrative burden, information burden, burden of redesigning packaging, and need for technological investment for entry and operation in the packaging industry. But the size of these impacts is dependent on the design and operation of the regulatory system.The effects of costs are more likely to be a real barrier to entry where costs are high, largely fixed, complex or uncertain, or difficult to manage for SMEs. On the other hand, the barrier can be lowered when compliance is proportionate to the size of a business, digital systems make reporting easier, collective compliance mechanisms decrease administrative burden and regulators offer accessible technical guidance. EPR is thus a conditional potential barrier to entry whose impact will be shaped by the interplay of regulatory design, firm size, economies of scale, administrative capacity, and
availability of infrastructure and expertise
(OECD, 2016; OECD, 2024).

3. EPR COMPLIANCE COSTS FOR SMALL AND MEDIUM ENTERPRISES

EPR introduces a set of financial, administrative and operational responsibilities for the companies working in the packaging sector. While the obligations are designed to make producers take some responsibility for managing packaging waste, they also have the potential to disproportionately affect small and medium enterprises (SMEs). These costs are significant depending on the size of the enterprise, the number and type of packaging being put on the market, and the complexity of regulations and recycling/compliance infrastructure.

The most direct cost of EPR is the monetary payment that needs to be made for the collection, recycling and recovery of packaging waste. Producers can meet its obligations either individually or via Producer Responsibility Organizations (PROs) or other recognised waste management systems, depending on the regulatory system. These payments are an extra cost of the business that could have a final impact on the prices of products. When the production quantity is big, a big amount of products can share the cost. The same type of compliance cost may be a more significant share of an SME's turnover if it is smaller in size. This is because the cost of regulation may be evaluated both by its absolute monetary costs and by its relative costs in terms of the firm's resources.

Administrative Costs are also a significant factor for EPR compliance. The producers might need to register with the relevant regulatory bodies, keep records of packaging placed on the market, keep records of recycling activities and submit information at regular intervals and keep evidence of compliance. These activities involve employees' time and organisation. The specialized staff in large companies can take charge of environmental compliance, environment/sustainability and regulatory affairs. SMEs on the other hand, have limited manpower and the same people are engaged in production, financial, procurement, and sales and regulatory activities. This can cause a diversion of managerial and employee time from core business activities due to compliance activities.

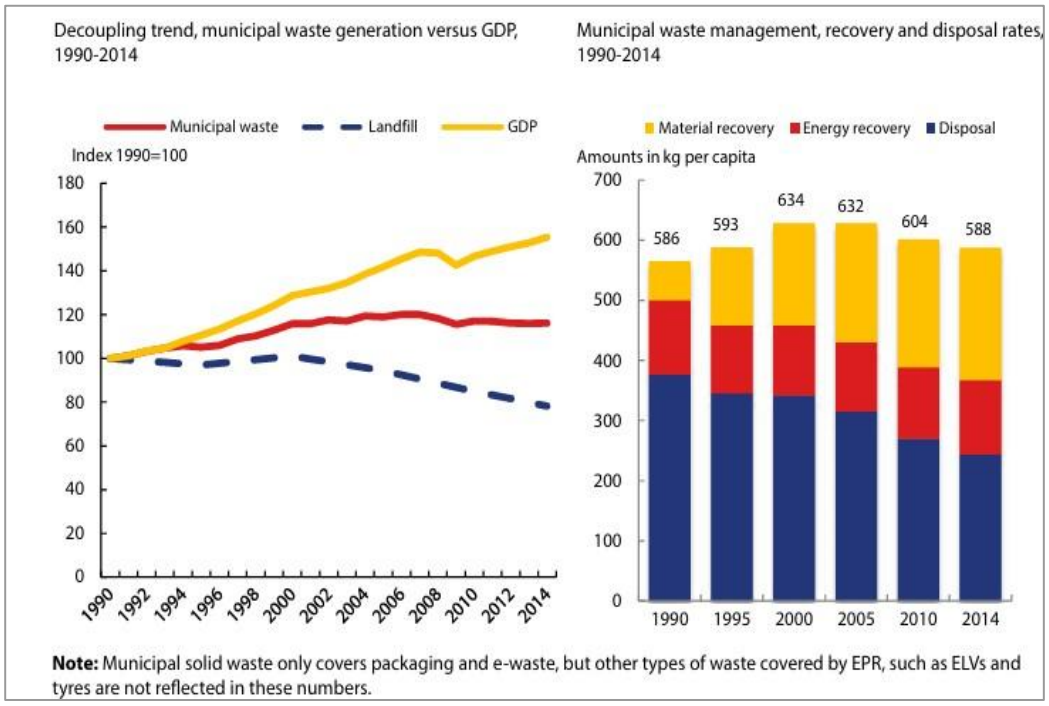


Figure 3: Structure of EPR Markets and Cost Distribution Across Operational Actor

Source: OECD (2016), "Municipal waste generation and treatment", OECD Environment Statistics (database).

The OECD has noted that smaller businesses are typically less prepared to deal with regulatory and administrative obligations, as they lack financial and human resources to comply with regulations (OECD, 2023). This issue is especially prominent in the field of EPR if there are complex reporting structures or changes in technical packaging-related definitions that refer to recycling processes or waste categories. The large organisation may be able to take these requirements on board via specialised departments, while a small organisation could be required to have external consultancy services.

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Another important cost arises from packaging redesign. EPR systems can provide incentives to producers to use materials that can be more easily collected, sorted and recycled. This is significant environmentally since the design of packaging affects the quantity and quality of waste sent to recycling. But redesigning packaging can involve research and testing, investment in machinery and relationships with suppliers. Financing these types of investments may pose a challenge for smaller packaging companies, especially when they are trying to out-compete larger companies that already have a sophisticated production facility.

The expenses of information and knowledge should also be taken into account. When an SME enters the packaging industry, it is imperative that it becomes familiar with the regulatory requirements that are relevant to the products. If there is not a clear idea of the registration and reporting requirements, the recycling requirements, or the documentation required, the perceived cost of market entry can increase. OECD research has shown that SMEs face a major challenge with regulatory complexity and inadequate administrative capacity (OECD, 2019). Therefore, although the direct EPR fee is not a significant amount, the overall expenses to comprehend and adhere to the regulatory system can be high.

Technological costs can be incurred as a result of EPR. Systems may be required to be able to track the amount and type of packaging placed on the market and keep records required for regulatory reporting. These burdens can be minimized in the long-term using digital compliance systems, but there may be investments needed to set up the systems. These expenses can add to the cost of setting up operations for a small company with restricted information-technology resources.

Thus, economies of scale are a key point in understanding the impact of EPR on SMEs. Fixed or semi-fixed compliance costs generally, get smaller as a percentage of each unit produced. A small business producing thousands of packaging units can afford compliance costs over a comparatively small number of units as compared to a large business that produces millions of packaging units. EPR, therefore, may have an unintended effect of reinforcing large companies' cost benefit.

It is not correct to say that the cost of EPR is a problem for all SMEs. The actual burden will depend on the type of packaging, the relationship of the firm in the packaging chain and the nature of the EPR system. An SME might have less technological difficulties than a company producing a multilayer packaging. In a similar manner, the use of collective compliance systems can enable multiple small businesses to share administrative and recycling facilities.

Producer Responsibility Organisations (PROs) are therefore a means by which individual compliance costs can be lowered. An SME can choose to join a collective system that allows compliance activities to be coordinated and managed by the system on behalf of several producers. Collective EPR systems and PROs have been identified as key instruments for the producers to fulfil their duties by the OECD (Hilton et al., 2019). However, the effectiveness of such systems depends on the affordability, transparency and accessibility for the smaller producers.

The overall cost of EPR compliance can be split into direct costs (financial) and indirect costs (administrative, technological and managerial). These costs, however, do not preclude SMEs from participating in the packaging market but may require additional resources to participate in the market. The impact is particularly strong with fixed compliance costs and when SMEs do not have the opportunity to access finance, expertise and collective compliance mechanisms. Hence, in certain circumstances, EPR may turn out to be an entry barrier instead of being an absolute one for all SMEs.

4. EPR IN THE PACKAGING INDUSTRY: THE INDIAN CONTEXT

The context of India is important for the discussion on EPR and participation of SMEs in the packaging industry. The volume of packaging waste has increased due to rapid urbanisation, population growth, higher consumption and this also includes an increase in packaged goods. Plastic packaging has been highlighted as a priority policy issue due to its extensive use as well as the environmental problems arising from collection and recycling.

India's plastic waste management policy has evolved over the years with the Plastic Waste Management Rules and various updates and guidance. The Extended Producer Responsibility is a system that will move from a waste disposal system towards greater responsibility for the producers, importers and brand owners. The EPR framework calls for participation in systems designed to enhance the collection, recycling and environmentally appropriate management of plastic packaging waste (CPCB, 2022).

The Central Pollution Control Board (CPCB) has an important role in enforcing and monitoring the regulatory framework. Systematisation and traceability of compliance have been attempted through development of digital mechanisms of registration and reporting. Producers and entities in scope must submit data on packaging and must comply with the applicable obligations under this regime. These mechanisms are designed to increase accountability, and minimise the risk of plastic packaging entering the waste stream without any responsibility for its management.

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Figure 4: Global Landscape of Countries Implementing Regulatory Action Against Plastic Pollution.
Source: United Nations Environment Programme (UNEP), Plastic Management Infographic (2018).

However, being a part of the Indian EPR system may present some challenges for SMEs. The first step in the process is to determine if enterprises are subject to the various categories of regulation, and which ones they are subject to. Second, they must keep up to date on the packaging they put on the market. Thirdly, they might have to build a network of contacts with the qualified recyclers, waste management systems or PROs. Information and administration are needed for these activities.

This is especially significant in the Indian context as packaging companies come in all shapes and sizes. There are large multinational companies and major domestic companies, as well as small manufacturers, converters, suppliers and regional companies. The significance of the same regulatory imperative can therefore represent a very different economic burden on the various companies. Compliance with EPR can be incorporated into the existing sustainability, procurement and legal departments of a large company. These businesses might have established well-developed material tracking and environmental reporting systems in place. Not all of these capabilities may be available for an SME. Consequently, more staff, consultants, software or training will be required to achieve compliance. Another key consideration is the cost of recycling facilities. Appropriate collection and sorting and recycling systems must be available for EPR to work effectively. The recycling industry in India is a formal and informal industry and the infrastructure available and quality may vary depending on the geographical region. An SME situated in an area with restricted access to approved waste recycling facilities might have to pay more for the transactions and transportations than an SME, situated near the existing recycling facilities.

However, the emergence of EPR can bring opportunities to Indian SMEs. Regulatory demand for recycling can boost the business for companies offering recycling, compliance management, environmental consultancy, and collection/sorting services. Likewise, packaging companies can create new products from recyclable or recycled packaging materials. Thus, the adoption of EPR can have a negative impact on certain SMEs in terms of compliance costs, but also a positive impact on other SMEs in creating new markets.

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Figure 5: Extended Producer Responsibility (EPR) Compliance Cycle and Credit Mechanism under CPCB Framework in India.
Source: *Legal Research & Analysis (2024).*

Another factor that is crucial is the contribution of digitalisation. Digital registration and reporting can help cut down on paperwork, but it can also help to improve transparency – however, it will also demand digital literacy and accurate data from businesses. For large enterprises, these systems can typically be integrated with the
enterprise's existing informationmanagement infrastructure. Training and technical assistance may be needed for
smaller enterprises.
The Indian EPR framework thus reflects the overall conflict between environmental regulation and competitiveness of SMEs. The environmental goal of EPR is that companies will have a role in managing waste derived from the products they put on the market. While that is going on, policymakers must also be mindful of the ability of smaller companies to meet increasingly onerous regulatory demands. A proportionate response can help to bridge this divide. Fewer administrative burdens can be achieved by simplifying the procedures for smaller businesses, providing clear guidance on regulations, offering cost-effective collective compliance arrangements and providing transparency on how to work with recyclers. This would not take away from the packaging waste responsibility of SMEs, but ensure that it is easier to comply with. In the Indian packaging market, EPR must thus be viewed as a regulatory requirement as well as a tool of re-structuring the packaging market. It adds to the amount of responsibility and costs involved in packaging production but can also promote innovation, recycling, and the creation of businesses in the circular economy. What makes EPR a challenge for SMEs is how well the regulatory system manages to reconcile environmental goals with the financial and administrative capabilities of SMEs.

5. EPR AS A BARRIER TO ENTRY FOR SMES

The main question to the assessment of Extended Producer Responsibility (EPR) is whether the costs of compliance are substantial enough to prevent small and medium enterprises (SMEs) from joining the packaging industry. Firms have to pay both capital and operating and regulatory expenses to enter into any industry. Environmental regulations can have an impact on the minimum scale of a new business that can be operated profitably if they impose new fixed and variable costs. EPR can thus be a barrier to entry, especially for smaller firms, in the packaging sector.
An important way in which EPR can create an entry barrier is by increasing the fixed costs. A new packaging business could require systems to be put in place for registration, record keeping, reporting and waste-management compliance before revenues begin to flow in at a significant rate.Important costs for SMEs are the operational costs during the early years of operation as they are not spread across large production volumes. Large businesses that are already running at a large volume may be able to allocate compliance costs across millions of products and services, while a new small to medium business (SME) might have to cover the same level of compliance organisation costs with a significantly lower volume.
This relationship could be accounted for with economies of scale. Assume that two companies have the same costs for

compliance each year. The compliance cost per unit can be very small if the producer/company is a large producer putting several million units of packaging onto the market. The average cost will be much higher for the SME producing a small amount. This can therefore have a knock-on effect on the cost benefits that established companies offer, further reinforcing the upper hand of these companies. This is not a matter of formality when it comes to discrimination against SMEs by EPR, but of the economic effect of the same requirements.

This effect is reinforced by a lack of financial resources. SMEs typically have less access to external finance, and less inhouse resources than large corporations. The expenses of making production processes more compliant, buying compliance software, re-designing packaging or getting professional advice can therefore make a big impact on the profitability of a small enterprise. The impact of regulatory demands on SMEs has been consistently identified by OECD research as disproportionate as a result of their less capacity in terms of finances and organisation (OECD, 2023).

Another significant factor is administrative complexity. Compliance with EPR can involve businesses in knowing what is considered 'packaging', keeping records, reporting packaging levels and proving that the recycling/recovery requirements have been met. If an SME is a small team or the owner of the business, the compliance activities may be about to go with the business as normal, but a large organisation might need to have special staff or resources to handle their compliance needs. This free time is valuable, and can be significant.

These information needs can also be relevant for market entry, when considering EPR. There can be a lack of clarity for entrepreneurs as to which regulations are applicable to their specific products, how packaging should be classified, which recycling operators are authorised and the necessary documentation. This can raise the risk of going into business. In addition, the level of direct monetary costs of compliance can be fairly low, but regulatory complexity can still be an obstacle.

There is potential for an extra technological barrier when redesigning packaging. EPR systems can incentivize producers for recycling or reusing packaging, or using recycled materials. These changes can provide valuable environmental advantages, but can involve the acquisition of new equipment, materials, testing and production methods. Existing companies might be more likely to make these investments, while it may be more challenging for SMEs.

Availability of recycling infrastructure also influences the barrier strength. EPR relies on good working collection, sorting and recycling systems. If such infrastructure is not available, then businesses may need to pay more to meet their obligations – for transportation or transactions. Smaller companies might not have the negotiating power to be able to influence recycling or service companies to offer them better deals. To mitigate this disadvantage, collective systems and Producer Responsibility Organisations can be used, but need to be accessible and cost-effective.

The other is competitive neutrality. Compliant SMEs could be saddled with greater expenses than non-compliant businesses if some businesses are complying with EPR and others are not. This can result in a competitive situation in an unfair way. It is therefore crucial to enforce the rules properly to provide a level playing field for businesses operating in the same market to have approximately equal obligations. Simultaneously, enforcement should be predictable and proportionate to minimise the risk of enforcement being unnecessarily onerous for legitimate small businesses.

But that does not mean that SMEs could not go into packaging if they wish to do so, even in the presence of these costs. The size of the barrier will vary according to the business structure and the business characteristics. A SME making simple, recyclable packaging will have much less problems than a small company making multiple layer packaging. Likewise, the costs of the administration and recycling can be lowered when using collective compliance arrangements.

The OECD has acknowledged the potential for environmental benefits to be incentivised via well-designed EPR systems, with the ability to meet producers' responsibilities via collective schemes or other means (OECD, 2016). The question is then whether there is a proportionality between the compliance requirements and the environmental objective pursued.

EPR can then be thought of as a barrier to entry that is imposed subject to a condition. It becomes more important if the compliance costs are high, largely fixed, uncertain and/or administratively complex. It is less significant if obligations are clear, proportional, easy to access electronically, and backed up by a process of collective compliance. This is important as it would not differentiate SMEs based on their size, packaging type, quantity of production and access to resources and so would affect all SMEs in the same manner.

In general, EPR can result in higher barriers of entry for packaging companies in terms of financial and organizational resources needed to build a packaging company. This could, therefore, deter some prospective applicants, especially very small businesses lacking in financial resources and knowhow. However, there is no evidence to indicate that SME participation is a foregone conclusion with EPR. Instead, its impact will be related to the design and application of the regulatory system and the readiness of SMEs on adapting to the evolving demands of the packaging industry.

6. COUNTERARGUMENTS: BENEFITS AND OPPORTUNITIES CREATED BY EPR

While EPR compliance might have a considerable cost to SMEs, such cost consideration is not enough. EPR aims to do more than just put economic pressure on producers, it seeks to shift economic incentives to promote more sustainable production and consumption. Thus, the same system which results in extra costs for some SMEs, can also lead to new innovation, investment and market opportunities.

Enhanced innovation is one of the main areas of potential benefits of EPR. As producers are increasingly held financially and/or operationally responsible for the packaging waste, environmental issues are increasingly relevant to the design of a product and its packaging. Companies could thus aim to increase the amount of recycled materials incorporated, find material alternatives that can be reused, or minimize the amount of material used. Product design incentives are cited as an important potential benefit of EPR systems, especially when financial payments are based on environmental aspects of the product
(Laubinger et al., 2021).

This provides opportunities for SMEs as sometimes smaller businesses can be responsive to the market demand in new markets. There may be a relatively inflexible production system and supply chain within a large corporation that cannot be easily changed. An innovative SME can be able to offer a specific sustainable packaging solution and become a niche market. EPR can thus drive demand for businesses that supply packaging that has enhanced environmental performance.

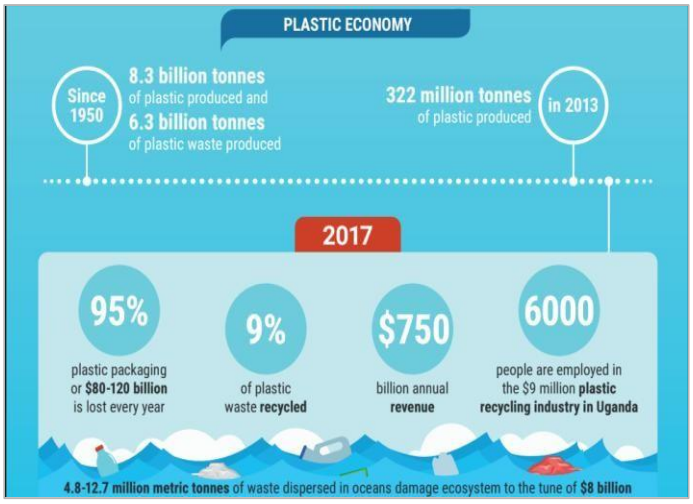


Figure 6: Global Plastic Production, Economic Value Lost, and Recycling Realities.

Source: *United Nations Environment Programme (UNEP), Plastic Management Infographic (2018).*

EPR can also help to create markets for recycling and waste management. Requiring producers to pay for packaging waste management creates an increased demand for collection, sorting, recycling, recovery and related services. This could provide an opportunity for SMEs involved in environmental services. Specialized skills can be built within a business in the areas of waste management, material recovery, recycling technology, compliance management, and environmental consulting. These markets can have a special relevance when considering the development of a circular economy. The circular economy aims to minimize the use of virgin materials and maximize their use for as long as possible. EPR can achieve this goal through increased economic linkages between packaging manufacture and post-consumer material recovery. EPR is not just a disposal issue; it's an opportunity to consider packaging waste as a resource. Competitive differentiation is another possible advantage. Business customers, retailers and consumers are more likely to take environmental performance into account when making a buy. SMEs can make use of recyclable or reusable packaging to create their product stand out from the others. Environmental credentials can therefore be adopted as a part of a firm's value proposition, and not just a compliance requirement. EPR can also help to incentivize resource efficiency. By redesigning packaging, unnecessary material consumption can be reduced, and over time, consumption of raw materials can also be reduced. For instance, a company that can make packaging materials lighter without compromising its safety properties could also cut material costs and environmental impact. The design process in turn, then, can yield long-term economic benefits, since the initial costs of redesign can be substantial. Collective compliance mechanisms can help mitigate the potential negative impacts of EPR on SMEs. Producer Responsibility Organisations and other shared systems enable more than one producer to be involved in waste-management
arrangements without each having to build out full waste collection and recycling systems. Collective producer responsibility systems are acknowledged by the OECD as an important aspect of the implementation of EPR (Hilton et al., 2019). For SMEs, this type of arrangement may involve the access to expertise and infrastructure that might not be available to them by themselves.

To What Extent Does EPR Compliance Cost Act as a Barrier to Entry for Small and Medium Enterprises in the Packaging Industry?

It is also a case to be argued for the benefit of EPR in enhancing the competitiveness of the business by making sure the environmental costs are more consistently reflected in business decisions. If packaging companies invest in environmentally friendly packaging, they may have to pay more for it than those that do not, unless the packaging programme is effectively enforced. This gap can be minimized when producers with similar obligations are required to comply with a working EPR system. This can effectively exclude responsible businesses from competing unfairly with those businesses that don't meet environmental obligations. But the advantages of EPR cannot be taken for granted as they must be weighed against the disadvantages. The result will rely on how well the implementation works, availability of recycling facilities, the fact that compliance is transparent and on SMEs' access to new opportunities. If it is too complicated or too costly, then the innovation is not as beneficial as the expense to a smaller business. EPR can offer environmental and economic benefits, however, if the system is designed efficiently.

Therefore, the EPR has a double impact on SMEs. It can raise the barrier to packaging market entry and operation, and at the same time create market demand for products that are more sustainable, recycled and environmental technologies. The challenge or opportunity EPR presents for certain SMEs is based on their business models, resources, technological capabilities and other factors in the packaging value chain.

The compliance costs to current packaging manufacturers should not be the sole basis for judging EPR. It has to be taken into account within a more comprehensive evaluation of its impact on innovation, market generation, recycling facilities, and the establishment of sustainable business schemes. This way, the impact EPR can have on the competitiveness of SMEs will be more balanced.

7. CRITICAL EVALUATION AND DISCUSSION

The analysis above shows that there is a complex relationship between the implementation of Extended Producer Responsibility (EPR) and SMEs' entry and growth in the packaging sector. Although EPR imposes extra obligations on producers, the extent to which this is a barrier to entry depends on the nature of compliance costs, the size and capabilities of the enterprise, the type of packaging produced and the effectiveness of the regulatory system. It would not be appropriate to draw any definite conclusions about the impact of EPR on SMEs as it is not a positive or negative impact per se. The impact should be evaluated and compared to environmental goals and market conditions. The relative cost of compliance is more important to SMEs than the absolute cost— one of the most significant findings. The cost of complying with EPR for a large corporation could be significant but as the quantity of products is large, the cost of compliance is distributed among a larger number of products. On the other hand, a small business could have a lower total cost, but a higher cost per turnover. This disparity may have impacts on profitability, investment decisions and whether or not entrepreneurs are willing to enter the market. It is especially significant in this context to take the costs of compliance into account. Regardless of the production scale, registration, software, consultancy, employee training and administration systems may need to be set up. This could allow a new SME to make large up-front investments that are not likely to return the investment until they reach economies of scale. These costs can make the minimum efficient scale of operating in the packaging industry greater and may make it less attractive for very small firms to enter the market.

It is not just a cost matter, however, with EPR compliance. Administrative complexity could be a significant burden. It is often the case that SMEs do not have their own environmental and regulatory department and that regulatory requirements need to be understood and met by the owner or employees, which can be a time consuming activity. Regulatory complexity and disproportionate administrative burden are recognized as challenges faced by SMEs by OECD (2023). So, it's as if the less financial costs the better, but also the less unnecessary reporting and the easier the compliance, the better.

The other point of consideration is that environmental regulation is not the same as over-regulatory administration.EPR's environmental goals will call on producers to participate in packaging waste management. These commitments can be made in the interests of environmental benefit and incentivising more sustainable packaging design. Requirements, however, that duplicate information, require additional paperwork or impose undue reporting requirements may not have the same environmental benefits. The goal of the policy must then be to reduce administrative costs, while maintaining environmental accountability.

The impact of EPR on the collection of recyclables is also affected by recycling infrastructure. Producers can more easily meet their obligations when there are collection, sorting and recycling facilities nearby. SMEs might be subjected to greater transportation and transaction costs in regions with limited infrastructure. This can be especially important for smaller businesses, as they often do not have the bargaining power or resources that larger corporations have.

Producer Responsibility Organisations and collective compliance mechanisms can contribute to solving these issues to a certain degree. Collective systems enable multiple producers to pool resources to cover the costs of waste-management facilities and a specific knowledge and expertise about compliance. This can decrease the fixed cost of individual SMEs. However, this needs to

be transparent and inexpensive. As the level of compliance burden is proposed to be reduced, this will not happen if PRO fees are excessive or if smaller producers do not have access to collective arrangements.

But questions of enforcement should not be overlooked. But to achieve EPR, businesses need to meet their commitments, otherwise firms that invest in compliance could be put at a competitive disadvantage. Free-riding is possible when companies opt not to comply with regulations, but other companies do. Free-riding is one of the challenges cited by the OECD to be overcome by EPR systems (Hilton et al., 2019). As a result, it can enhance fairness in the competition.

However, enforcement needs to be proportionate. Complicated enforcement procedures or uncertain penalties may create more uncertainty for SMEs. It is a system of regulation that has clear requirements, easily accessible guidance, and predictable enforcement that is more likely to lead to compliance than a system wherein business does not know what it is required to do.

The connection between EPR and innovation is another crucial factor to consider. EPR can incentivize businesses with the idea of redesigning packaging and investing in reusable or recyclable packaging. Research by the OECD indicates that a fee structure that varies by environmental attributes could enhance the incentive for better product design (Laubinger et al., 2021). This can be a chance for SMEs to create innovative packaging solutions and to take part in new sustainable markets.

But it too takes money to innovate. Sustainable packaging technologies could be quite costly compared to traditional packaging methods, and smaller companies might not have the budget to invest in them. This indicates that EPR policy should be implemented together with measures to increase access of the SMEs to finance, technical assistance and information.

These are important considerations in the Indian context. EPR for plastic packaging has been introduced in India to increase the producer responsibility and enhance the recycling and waste-management systems (CPCB, 2022). This can enhance environmental accountability but the system of implementation should be adapted to the diversity of the business environment in India. The financial and administrative size are different between large corporations and regional manufacturers/small packaging companies. Whether the issue is one of proportion is thus the key one. The environmental responsibilities of SMEs are not always confined to it because they are small. Exemptions may provide opportunities for free-riding and compromise the environmental goals of EPR. Rather, the regulatory system should guarantee that compliance mechanisms are proportionate, open and efficient in administration.

In general, the evidence indicates the EPR is a hurdle, not an insurmountable obstacle. It is most likely to deter SME entry when compliance costs are high, fixed, unpredictable and complex. Collective compliance mechanisms, efficient recycling infrastructure, clear regulatory guidance and proportionate reporting requirements are likely to have less of an impact if businesses are available. EPR can also create new markets and opportunities for innovation that can be of benefit to SMEs. So, the effectiveness of EPR can't be judged on the basis of whether or not it raises business expenses. A detailed evaluation should be carried out taking into account the impact on companies and the environmental and economic advantages of the policy.

8. POLICY RECOMMENDATIONS

The findings show that policymakers are faced with a balancing act. EPR should provide an adequate level of producer responsibility to meet environmental requirements without imposing undue costs on SMEs. There are a number of policy instruments that can help to achieve this balance.

Proportionality of EPR requirements first, should depend on the size and type of business activity. It is the smaller companies' duty to fulfill appropriate environmental responsibilities as well, but that duty could be carried out without the complexity of reporting and administrative requirements, if the environmental risk is relatively low, and the amount of packaging involved is relatively small. Proportionality has the potential to limit the unnecessary administrative burden while maintaining producer responsibility.

Second, governments should have the ability to continue to build simple and integrated digital compliance systems. Registration, reporting and documentation on one

platform can minimise duplication and help streamline regulatory requirements. Standardised forms and automated calculations, as well as clear instructions, may be especially helpful for SMEs that do not have specialised compliance staff. Thirdly, the cost to the individual SMEs can be lowered if collective compliance mechanisms are used more widely. Producer Responsibility Organisations can offer recycling facilities and expertise which may otherwise require large-scale investment by individual enterprises. It is important that there is transparency in PRO fees and performance in order to ensure that collective arrangements actually save costs. Fourth, technical guidance and capacity building programmes should be available for the SMEs. Training and practical guidance on packaging classification, recycling requirements, documentation and reporting can be provided by government agencies, industry associations, etc. Improved access to information can limit the need for SMEs to heavily depend on costly external consultants.

Fifth, the policy makers can contribute to innovation in sustainable packaging by providing monetary incentives, technical assistance and opportunities for research facilities. This is crucial because of potential packaging design and production process changes involved in EPR. Helping SMEs to embrace technologies that are recyclable, reusable and resource-efficient can make the costs of compliance investments productive and sustainable.

9. CONCLUSION

EPR is becoming a more and more effective tool to tackle packaging waste and raise awareness among producers of the environmental impact of their products. But, the adoption of EPR also brings about concerns for the viability of small and medium businesses in terms of financial, administrative and technological burden to comply with the EPR requirements.

This essay analyzes the level of difficulty for SMEs in the packaging industry when complying with EPR compliance cost.

Among the lessons from the analysis is that EPR can provide a meaningful barrier, especially if there are significant fixed costs for compliance, complex reporting mandates, and limited packaging technical expertise and substantial packaging redesign investment. SMEs, in particular, are very vulnerable as they usually have fewer financial and human resources than the big companies. Thus, the same regulatory requirement can have a much larger relative impact for a small business.

But, EPR should not be seen as a default or automatic prohibiting entry. Its impact is greatly influenced by the design and implementation of policy. Arrangements for collective compliance, ubiquitous recycling facilities, simplified digital systems and proportionate requirements can lower the cost of compliance. What's more, EPR offers opportunities for SMEs through demand for sustainable packaging, recycling services, environmental technologies and solutions for the circular economy. The Indian experience illustrates the need to realise this balance. The EPR scheme in India has been enacted to reduce the burden of plastic waste management on the producers and aims at improving the recycling and recovery systems (CPCB, 2022). In order to reach these goals without unnecessarily excluding the participation of SMEs, the different sizes of businesses, production capacities and the capability of regulation should be taken into account. The scope of the barrier can then be considered as conditional and context dependent. EPR is more likely to be an effective barrier when compliance costs are mostly fixed, administrative requirements are complex, and SMEs lack finance, knowhow and recycling facilities. However, the barrier is less important if compliance costs are proportional, if the procedures are easy and if collective systems are available for businesses.

The overall policy goal is not to exclude requirements for SMEs for environmental responsibility – but to make environmental responsibility go hand-in-hand with a costefficient and proportionate compliance framework. This could help maintain environmental goals of EPR without unnecessary restrictions to entrepreneurship and competition.

EPR is a challenge and an opportunity for SMEs in the packaging industry. The compliance costs may reduce the amount of resources needed to enter the market, while its benefits may help encourage innovation and new markets. The success of EPR needs to be evaluated not only on the cost levied on businesses, but also on the environmental benefits it will bring, alongside a competitive and innovative packaging industry.

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