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EXTENDED PRODUCER RESPONSIBILITY IN CANADA

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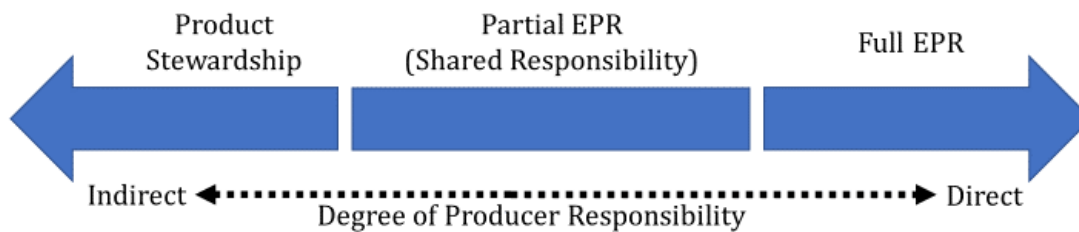
Introduction

Extended producer responsibility (EPR) has become an instrumental part of waste management policy in Canada. By making producers more responsible for the waste generated from their products and materials, EPR policies can provide incentives to improve the life-cycle performance of how products are designed, manufactured, and managed as waste. Assigning direct responsibility to producers can improve the quantity and quality of materials that are recovered at their end-of-life.¹

Yet EPR is more than a single policy. It represents a broad spectrum of policies, where producers must take varying degrees of responsibility—both physical and financial.

Figure 1 shows the three main archetypes of EPR policies in Canada. It categorizes policies based on the degree of responsibility that producers must take over their products.² On the far right of the spectrum are “Full EPR” programs, where producers are assigned full financial and physical responsibility for managing their products at their end-of-life. On the far left are “Product Stewardship” programs. These programs assign no direct responsibility to producers.³ In the middle are “Partial EPR” programs, which are jointly financed/managed by consumers, government, and industry (CCME, 2014a).

Figure 1: Spectrum of EPR Policies in Canada



Source: Adapted from CCME, 2014b

Generally, Canadian provinces and territories are transitioning toward full EPR programs in accordance with the Canada-wide Action Plan (CAP). Phase 1 of CAP was initiated in 2009, where provinces and territories committed to implementing a range of full EPR programs by 2015. These included programs for packaging and printed paper (PPP), electronics and electrical products, mercury-containing products, household hazardous and special wastes, and automotive products (CCME, 2014b).

¹ In total, Canada has over 200 provincial and territorial programs that collect, manage, and recover the resources from post-consumer material. A single program typically covers one type of material or product, such as waste from electronics, hazardous household waste, packaging, and printed paper, and automobiles. They can also be applied in other areas, like deposit-refund programs.

² This discussion paper does not assess voluntary EPR or stewardship policies. Such programs have been implemented in Canada—and internationally—but are generally ineffective at driving resource recovery and improved environmental performance.

³ For simplicity, this paper includes product stewardship programs under the umbrella of Extended Producer Responsibility, even though producers take very little (or no) responsibility in these programs.

Provinces have made significant progress on implementing Phase 1 of CAP. Nine of ten provinces now have legislated EPR programs for Phase 1 materials. British Columbia became the first province to implement programs for all Phase 1 materials, covering residential blue box materials, electronics, beverage containers, and hazardous household solid waste. These programs are funded and operated entirely by producers.

Not all provinces, however, have made the same degree of progress. The Atlantic provinces, for example, have yet to implement an EPR program for packaging and printed paper. Alberta still relies exclusively on a handful of product stewardship programs and is now the only province without EPR programs (EPR Canada, 2017).

Implementing Phase 2 of the Canada-wide Action Plan on EPR has also proven difficult. The initial goal was for provinces to implement Phase 2 by 2017, which includes programs for construction and demolition waste, furniture, textiles and carpet, appliances, and ozone depleting substances. But aside from a select few pilot projects and studies on Phase 2 materials, very little progress has been made (EPR Canada, 2017).

The ultimate objective of the Canada-wide Action Plan is to establish a harmonized approach to EPR programs across the country, covering a common set of materials. So far, however, most provinces have implemented their own unique programs with little consideration of standardizing or integrating systems across jurisdictions. The result is a complicated patchwork of product stewardship programs, partial EPR programs, and full EPR programs. Provincial programs cover different materials and use different definitions, reporting mechanisms, and governance structures.

To better inform the state of policy in Canada, this discussion paper assesses each of the three archetypes of EPR policies. It canvasses the key characteristics of each archetype by drawing on Canadian policy experience and considers the extent to which each policy approach is creating incentives on both upstream production and downstream waste management.⁴ It concludes with a discussion on where policy might be improved, including a focus on economic incentives for producers and harmonization across provinces.

Product Stewardship Programs

Product Stewardship programs are typically funded by consumers and/or taxpayers and operated by government-run agencies or quasi-government organizations. As a result, producers have no direct responsibility to finance stewardship programs. They may, however, in some cases, help advise governments in how the programs are operated. Stewardship programs are implemented through provincial legislation and/or regulation (CCME, 2014a).

⁴ It should be noted that this paper does not provide a comprehensive list of EPR programs in Canada. See [Environment Canada](#) for a detailed list of programs.

Most provinces are moving forward with full EPR, but stewardship programs are still common in Canada

Canadian provinces started implementing product stewardship programs in the 1980s and 1990s. They became a common approach to creating centralized recycling systems for several material- and product-types. Deposit-refund systems for beverage containers were one of the first types of product stewardship in Canada. These programs established regulations and legislation that made government-run agencies responsible for collecting, sorting, and recycling beverage containers (NWPS, 2009).

In the past decade, however, many stewardship programs have transitioned to partial or full EPR programs, which are less prescriptive and generally receive a higher level of support from industry. Ontario, for example, is currently transitioning its programs for tires, electronics, and hazardous household waste (Welsh & Benzie, 2017).

Still, several provinces rely on product stewardship programs to drive resource recovery and divert materials from landfills. Alberta, for example, relies exclusively on product stewardship programs and is now the only province without an EPR program. The province has five stewardship programs, covering used oil, tires, electronics, paint, and beverage containers (CCME, 2014a).

Other provinces also rely on stewardship programs to recover materials. Nova Scotia and Newfoundland and Labrador, for example, use stewardship programs to recover used oil. All provinces aside from ON, MB, and BC use stewardship programs for collecting and recycling tires. Lastly, most provinces (with the exception of BC and MB) still use product stewardship models for their deposit-refund programs (CM Consulting, 2018; CCME, 2014a).

Product stewardship programs are operated by quasi-government organizations

Generally, product stewardship programs make government agencies or quasi-government organizations responsible for managing the materials on behalf of producers (and consumers). Under these programs, the liability to manage materials rests with these government-led organizations.

The five stewardship programs in Alberta, for example, are managed by Delegated Administrative Organizations (DAOs). These organizations report directly to the Ministry of Environment and are responsible for establishing and administering the different recycling programs. The Alberta Recycling Management Authority, for example, is responsible for managing the programs for electronics, paint, tire waste, and used oil, while the Beverage Container Management Board manages the deposit-return program for beverage containers. These quasi-government organizations collect fees from producers that are levied on their products, which are used to finance and operate the different recycling programs (ARMA, 2018; NWPS, 2009; CCME, 2014a).

Ontario uses a similar stewardship model for its deposit-refund program. Provincial regulation gives the Liquor Control Board of Ontario (LCBO) direct responsibility to fund and

operate the collection and recycling system, reporting directly to the provincial government. The program, however, only covers the collection and management of alcoholic beverage containers. Ontario does not have a stewardship or EPR program for non-alcoholic beverage containers.

Importantly, not all stewardship programs are operated by government agencies. The LCBO, for example, contracts the Beer Store (a private company) to collect and manage materials. The deposit-refund program for beverage containers in New Brunswick uses a similar model. Beverage companies in New Brunswick created Encorp Atlantic in 1992 to act as its stewardship agent (CM Consulting, 2018).

Consumers pay for stewardship programs through eco-fees and advance disposal fees

Product stewardship programs are typically financed by consumers or taxpayers, not producers. Many programs, for example, are financed through eco-fees or advance disposal fees that are added to the price of goods at the point-of-sale. This financing framework means that producers are not forced to internalize recycling costs into their operations. Fees are also typically set at the same rate for each category of products or materials, regardless of design and manufacturing decisions further upstream or environmental performance.⁵

The stewardship program for tires in Quebec—operated by Recyc-Quebec—is self-financing based on consumer fees. Tires sold in the province include a \$3 fee for each tire, which funds the program (Recyc-Quebec, 2019).

Most provincial deposit-refund programs operate in a similar way. Fees are set based on the aggregate costs of the programs. In Alberta, fees for beverage containers are added at the point of sale as an environmental fee, which are ultimately remitted to the Beverage Container Management Board. The program in New Brunswick works in the same way: consumers pay an environmental fee at the point of sale, which pays for program costs. A portion of revenues in the New Brunswick program also go into a government fund to help improve waste diversion opportunities (Alberta Recycling, 2018; CM Consulting, 2018).

Stewardship programs have been effective at increasing resource recovery

Stewardship programs have diverted significant quantities of material from landfill and have increased the amount of materials recycled and reused. Stewardship programs make recycling more accessible for consumers and create secondary markets to collect and manage these materials. Most programs—though not all—also set targets for collection and recovery rates. Targets are rarely enforced with penalties, but the programs have still helped improve resource recovery rates beyond what would have occurred otherwise (Walls, 2011; CCME, 2014b).⁶

⁵ A benefit of this approach, however, is that program costs are transparent to consumers. Under EPR models, the costs are embedded in the price of products.

⁶ In Alberta, DAOs must submit annual business plans and annual reports to government that summarize their performance (CCME, 2014a).

Quebec's tire recycling program, for example, has increased the amount of material recycled by 20% in two years (from 76,000 tonnes in 2015 to 90,000 tonnes in 2017). By 2017, 75% of used tires were recycled, 24% recovered (i.e., incinerated), and 1% remolded (Recyc-Quebec, 2019).

Deposit-refund programs that use a stewardship model (i.e., all provinces except for BC and MB) typically result in very high collection rates of the designated materials. In 2018, for example, these stewardship programs achieved an average recycling rate of 77% for beverage containers. By contrast, the recycling rate for non-alcoholic beverage containers in Ontario, which does not use a deposit-refund system, was only 45% in this same year (CM Consulting, 2018).⁷

Producers have weak incentives to improve environmental performance and circularity

Although product stewardship programs are effective at improving resource recovery outcomes, they provide no direct incentives to improve environmental performance and circularity. By design, the responsibility of managing materials rests with quasi-government entities, not producers. And because programs are financed through consumer fees at the point-of-sale, producers are not forced to internalize the financial, social, or environmental costs associated with managing their products at the end-of-life.

Some product stewardship programs, however, have attempted to overcome these shortfalls by creating an active—albeit indirect—role for industry. The board of directors for Alberta Recycling, for example, appoint three industry councils for each of the product categories (electronics, paint, and tires). These councils include representation from manufacturers, merchandisers, independent businesses, municipalities, and the province. Together, these councils provide an avenue for industry to influence how programs operate. The AB government also completed a report in 2007 that explored opportunities to improve how products and materials are designed (CCME, 2014b; NWPSC, 2009).

Despite these efforts, however, it is clear that product stewardship models lack the legal framework and incentives to drive innovation and cost-effective resource recovery. And because product stewardship programs do not internalize costs, producers have few incentives to improve upstream design and manufacturing.

Shared EPR Programs

Shared responsibility programs are operated and/or financed by both governments and producers. The split between government and producer responsibility varies across

⁷ The size of the deposit may also influence collection rates and, as a result, the amount of diverted material. In Alberta, the deposits on beverage containers were raised in 2009 from 5- and 20-cents to 10- and 25-cents, respectively. Over the following eight years, collection rates rose by 8 percentage points (CM Consulting, 2016).

programs, but the common approach is that producers still do not have complete responsibility over the waste generated from their products. Programs are often operated by government and financed (fully or partially) by industry.

Municipal blue box programs are the most common type of shared EPR

The most common type of shared EPR is for household blue box recyclables. In many provinces, these programs are operated by municipalities and financed by producers, either in full or in part. In these programs, municipalities are still responsible for the physical management of blue box materials. However, producers are required to help finance these systems by transferring funds to municipalities that operate the programs.

In Ontario, for example, municipalities maintain responsibility over the physical management of materials. When municipal blue box programs first started in the province during the 1980s, municipalities were 100% responsible for operating and financing the programs. In 2002, however, the Waste Diversion Act required producers to pay 50% of municipal recycling costs (Stewardship Ontario, 2013).

Other provinces have similar arrangements for their curbside recycling programs. In Manitoba, for example, municipalities operate the recycling programs while producers pay 80% of the costs. In Quebec, producers pay 100% of the costs, but municipalities still maintain responsibility to collect, sort, and manage the materials (CCME, 2014b).

Shared EPR programs have improved resource recovery

Similar to product stewardship programs, partial EPR programs have improved resource recovery rates and reduced how much waste material is landfilled. Municipal blue box programs have been instrumental in increasing recycling rates across Canada. They have also been critical in expanding the range of materials recycled and catalyzing the start-up of associated industries to process these materials. And the recent trend to have producers help finance the costs of these programs has taken some of the financial burden off municipalities.

Like under Stewardship Programs, producers lack incentives to improve environmental performance and circularity

Partial EPR programs face the same limitation as product stewardship programs. While producers take on slightly more responsibility in how shared programs are financed, property rights over the physical material rests with municipalities, not producers.

Producers in Ontario's blue box system, for example, pay fees based on the net cost of managing specific materials. Materials that are more difficult or costly to recover carry a higher price (Stewardship Ontario, 2019). However, because producers only pay 50% of the total cost of the program, the pricing signal is weaker than if they paid 100% of the costs.

Taking only partial responsibility also means that producers have no control over how materials are managed or how their money is spent. Blue box programs are operated and managed by municipalities. This inability to affect how goods are collected and managed can

have unintended consequences: if municipalities are simply compensated for the materials that they manage (partially or fully), they have limited incentives to find the lowest-cost recycling options (Giroux Environmental Consulting, 2014).

At the same time, taking partial responsibility dampens the incentive to improve the environmental performance further upstream in how products/materials are designed. Program fees are typically distributed across producers based on the total volume of goods sold within a province, which represent the average cost of managing all materials, not the marginal cost of managing materials from an individual producer.

A study by Stewardship Ontario, for example, assessed whether there were any positive upstream benefits from the province's blue box program. It found that the program had no impacts on upstream product design: program costs in each municipality were not sufficiently high to incent producers to change product design. And because producers had no direct control over program costs, there would be no guarantee that producers would see a reduction in how much they pay municipalities by making their products with more recyclable materials (NWPSC, 2009).

Full EPR Programs

Full EPR programs make producers physically and financially responsible for managing the waste generated from their materials. Programs are implemented at the provincial level and are established through legislation and regulations (CCME, 2014a).

Full EPR programs are often operated by Producer Responsibility Organizations

EPR programs typically allow firms to choose how they ultimately collect and manage their materials, and in being less prescriptive have the potential to be more efficient. This flexibility is also why EPR generally receives a higher level of support from industry. In most cases, the responsibility to manage and recover materials is delegated to Producer Responsibility Organizations (PROs). These PROs are industry-led organizations and typically operate as not-for-profits. Producers, in other words, delegate responsibility to PROs to recover and manage materials on their behalf.

The legislation governing provincial EPR programs can affect how many PROs are allowed to operate for each material type. The old Waste Diversion Act in Ontario, for example, mandated the formation of a single PRO to manage material for each program. Legislation in other provinces does not specify the number of PROs for a given material type, however, in most cases, a single PRO is created to manage all of the waste within a given province.

Some provinces, however, encourage multiple PROs to operate for a given material type. The new Waste Free Ontario Act, passed in 2016, is restructuring its diversion policies from product stewardship models to Individual Producer Responsibility (IPR). The shift to IPR is similar to other full EPR programs in the country, but it is the first of its kind to clearly put legal responsibility on individual producers.

The goal of Ontario's new approach is to give individual producers maximum flexibility in how they fulfill their resource recovery targets: some may still choose to partner with other firms to create a centralized operation, while other firms may choose to go it alone and manage their own materials (Recycling Product News, 2017). The goal is to foster more competition among PROs and encourage innovative and low-cost waste management.

Producers pay fees that reflect the net cost of recycling, proportionate to the amount of material that each producer generates

Aside from the few producers that manage their materials themselves—and bear the costs of waste management directly—most producers pay fees to their PRO to manage materials on their behalf. While fee structures vary across programs, fees generally must recover costs for the collection systems, processing, administrative, and marketing costs. Revenues generated from selling recycled materials are used to offset these costs.⁸

Depending on provincial legislation/regulations, fees vary depending on how producers design and manufacture their goods. The Recycling Regulation in BC, for example, allows producers (and PROs by extension) to determine how to pay for the programs, providing they adequately cover the costs of collecting and mandating products for each product category (NWPS, 2009).

Importantly, fees in these EPR programs represent the average total cost of managing materials. The only situation where a producer would pay the marginal cost of waste management—and pay fees that reflect its own design and manufacturing choices—is when it manages its own materials.

Producers are meeting or exceeding recovery targets under full EPR programs

Most full EPR programs include collection and recovery targets that producers (or PROs operating on their behalf) must try to meet. These targets are instrumental in driving higher recycling rates. And while many of these targets are non-binding, producers have managed to meet or exceed provincial targets.

In BC, for example, all EPR programs have a recycling rate target of 75% and impose no penalties for failing to achieve this target. For blue box materials, the industry-led organization responsible for running the province-wide program achieved a recovery rate of 78% in 2016. The recovery rate for used oil filters was 85% in 2012, up from 18% before the program was implemented. This recovery rate translates to saving between 23,700 and 52,000 cubic meters of landfill space (Bartlett et al., 2016).

⁸ Revenues from selling materials typically offset only a portion of program costs and depend primarily on the type of material. Recycled aluminum, for example, can generate enough revenue to offset the costs of collecting and sorting the materials. Other materials, however, like plastics, paper, and packaging, fetch a much lower price and offset a small fraction of program costs.

Programs in other provinces have also led to high recovery rates. Table 1 shows recovery rates for used oil and oil products across six provinces. It shows that most provincial EPR programs, on average, have achieved recovery rates for used oil and oil products above 80%.

Table 1: Recovery Rates for Used Oil and Oil Products

	BC	SK	MB	QC	ON	AB*
Used Oil	79%	78%	77%	94%	-	82%
Oil Filters	85%	85%	79%	83%	98%	94%
Oil Containers	79%	52% (+24% reuse)	33% (+20% reuse)	95%	87%	92%

*Alberta is the only province in this table that uses a product stewardship program to collect used oil and oil products. The remaining provinces use full EPR programs.

Some product stewardship programs achieve similar recovery rates to full EPR programs

Yet Table 1 also illustrates another important point of comparison: for used oil and oil products, recovery rates in full EPR programs are not that different compared to Alberta’s stewardship program. In fact, Alberta’s product stewardship program achieves some of the highest recovery rates in the country.

Data for deposit-refund programs shows a similar outcome, although differences between jurisdictions in the level of the deposit-refund and in the range of containers covered confound direct comparisons. The product stewardship program in Alberta achieved the highest recycling rate for non-refillable beverage containers in 2016. The deposit-refund program in BC—which uses a full EPR model but covers a narrower range of containers—was close behind with a recycling rate of 82% (CM Consulting, 2018).

These two examples (oil and beverage containers) provide a limited comparison for how collection rates vary across full EPR programs and stewardship programs. To make a more comprehensive assessment, more analysis is ultimately required.

Existing EPR programs are not necessarily more cost-effective than product stewardship programs

A key advantage of EPR—at least in theory—is that giving producers direct responsibility helps lower overall policy costs. By giving producers full responsibility, it encourages them to find the least costly way to recycle products and rewards those that find new and innovative ways to design products that generate less waste. These incentives are strongest when producers are required to pay the full costs of managing their waste (OECD, 2001; 2014; 2016; EPR Canada, 2017; Ecofiscal Commission, 2018).

Yet available data in Canada shows a more complicated story.⁹ Comparing data between Alberta and British Columbia is particularly illustrative. Both provinces have similar populations and manage similar quantities of diverted waste. In 2017, the cost of running BC's tire EPR program was \$483 per tonne, while the cost of AB's product stewardship program was \$414 per tonne. The cost of BC's electronics program was \$1154 per tonne, while AB's was \$667 per tonne.

These data are by no means definitive. Each provincial program is operated differently, collects different volumes, and has different expenses (e.g., outreach, administration, etc.). These data do, however, provide good reason to question whether EPR programs are indeed more cost-effective compared to product stewardship.

Ultimately, Canada lacks good data on cost-effectiveness, which makes it difficult to conduct a more rigorous analysis. Many provinces, for example, use different metrics and units when tracking material quantities. In other cases, data is simply unavailable. Better data and research on cost-effectiveness would be an extremely valuable addition to the Canadian discourse.

More research is needed to determine whether full EPR has helped drive a domestic market for resource recovery

Another benefit of well-designed EPR programs—again, in theory—is that they can create a reverse supply chain for the collection and recycling of materials. At sufficient scale and volumes, EPR programs can create a steady supply of materials into the recovery market and provide greater certainty over feedstocks (Smart Prosperity, 2019).

Initial evidence from BC suggests that EPR might be driving a small positive impact on local markets. Merlin Plastics, for example, is based in Vancouver and recycles much of the plastic from the province's blue box EPR program. And while the Merlin Plastics had a facility long before the EPR program was implemented, the company says that EPR has induced \$20 million in capital investment, including a new plant to process plastic containers. The EPR system—through its multi-stream collection—has also helped reduce contamination rates, which helps retain the value of materials for downstream markets (Smart Prosperity Institute, 2019).

Full EPR programs have potential to improve upstream product design and manufacturing, but have so far had a limited impact

All three archetypes of recycling policies in this discussion paper can clearly improve resource recovery rates. However, the key distinguishing feature of full EPR is that it makes producers responsible for managing the waste from their products. In theory, this forces producers to internalize waste management costs as a factor of production, creating

⁹ These data were collated by Electronics Product Stewardship Canada. Data are pulled from the individual annual reports for each EPR and product stewardship program.

incentives to improve environmental performance. Designed well, they can create a continuous incentive for producers to innovate and improve the whole supply chain: from design, manufacturing, and post-consumer waste management.¹⁰

Based on Canadian policy experience, however, full EPR programs have not delivered on these benefits.

In some cases, the performance of EPR may be constrained due to policy design and implementation. Many EPR programs in BC, for example, do not charge producers different fees based on how they design and make their products. And even in cases where fees do vary based on recyclability—like with the provincial blue box program—the fees are likely too small to affect the decisions of producers, many of which sell internationally (Canada’s Ecofiscal Commission, 2018).

Other examples from BC illustrate further limitations. BC’s deposit-refund program is fully funded and operated by industry; however, producers pay fees that reflect the aggregate costs of the program. It creates no incentive to continually improve recycling rates (CM Consulting, 2018). In fact, because the program is partially funded through deposits that are not claimed by consumers (i.e., on containers that were not returned), producers may have a disincentive to increase recovery rates.

The tire recycling program in BC operates in a similar manner: producers charge advanced disposal fees on all tires sold within the province. These fees reflect the average cost of collecting and recycling the materials. Fees are also applied at the point of sale, instead of being included within the shelf price. This differs from other EPR programs in BC, where program costs are included in the shelf price.

There may also be limitations based on the type of material covered in EPR programs. In some cases, products such as tires and oil are made from relatively homogenous materials, with limited potential to improve their overall environmental footprint. Although producers may find new and low-cost opportunities for reusing and recycling tires, for example, EPR programs may not have much influence on how the products are designed and manufactured.

Provincial governments have tried to tackle these challenges, but with limited success so far. New Brunswick’s EPR program for used oil requires that producers describe efforts to redesign their products to improve reusability and recyclability. Yet, despite these

¹⁰ In essence, EPR policies do what other existing waste management policies cannot: they create a direct link between the manufacturer of consumer goods and how the waste from these goods is ultimately managed. Other policies, such as landfill tipping fees, municipal pay-as-you-throw programs, landfill bans, bag limits, etc., fail to properly internalize waste management costs for producers. Moreover, full EPR policies also go beyond partial EPR programs and stewardship programs in this regard.

requirements, the industry-led organization responsible for managing used oil in the province acknowledges that:

With respect to the concept of design for environment, there is limited ability of a stewardship program of this scope to influence product design. The oil and glycol industries are consolidating and most brand owners manufacture for a market area on a multinational level. (AUOMA, 2017).¹¹

Importantly, these shortcomings of EPR are not specific to Canada. Other countries—particularly in Europe—have struggled to implement EPR policies that create measurable environmental gains in product design and manufacturing (EPR, 2017; European Commission, 2014).

Discussion

From an economic and environmental perspective, there is significant potential in expanding, reforming, and harmonizing EPR programs in Canada. In theory, well-designed full EPR programs can create cost-effective opportunities for improving resource recovery. They can create continuous incentives for producers to find innovative solutions, both for downstream waste management and upstream product design. Programs can also foster a domestic market for recycling and reuse.

So far, however, evidence suggests that EPR programs in Canada have not lived up to their potential. Provinces and territories use a mix of product stewardship, shared EPR, and full EPR programs, each implemented and structured differently. Few of these programs make producers individually responsible for funding and physically managing their share of the waste stream. Even fewer are coordinated across jurisdictions. And it is unclear whether EPR programs are driving resource recovery at a lower cost than product stewardship programs.

This section offers several policy considerations to better inform the discussion about EPR in Canada. It is not intended to be comprehensive or complete, however. Due to project constraints, the goal here is to briefly cover some of the key areas of EPR design and implementation in Canada.

Incentives to improve environmental performance are closely tied to the extent to which producers are legally responsible for compliance

Economic theory suggests that EPR programs work best when individual producers are assigned complete responsibility over the waste generated from their products. This provides a more direct pricing signal, such that producers have a clear incentive to improve environmental performance.

¹¹ Despite these challenges, however, AUOMA still charges producers higher environmental handling fees for non-recyclable products and/or containers to promote recycling efforts (AUOMA, 2017).

Although several provincial EPR policies have attempted to assign complete legal responsibility to producers, it is not clear whether they actually achieve this standard in practice. Most producers delegate responsibility to Producer Responsibility Organizations, which act on their behalf. As noted by Valiante and Busuttill (2017), the reliance on PROs can give producers the “perceived ability to transfer liability from oneself to a third-party agent,” reducing the perceived risk of non-compliance.

Recent changes to EPR legislation in Ontario may address this issue. It is the first province to integrate the principles of Individual Producer Responsibility into its EPR regulations. The obligation to divert material is solely on the individual producer—not the PRO, should a producer choose to join one. For example, if a producer in Ontario joins a PRO to manage its materials, the producer will still—in theory—be on the hook if the PRO fails to meet its targets. Provincial programs, however, have yet to be fully implemented, so it is too early to evaluate the efficacy of these programs.

While the legal framework of EPR matters, it is also important to recognize that EPR programs may have a relatively small impact on producers’ overall environmental performance. Even if programs are designed well—and establish clear legal responsibility for producers—there are a multitude of other factors that influence how producers design and make their products. Canada is a small market relative to the rest of the world; our EPR policies therefore have limited effect on the decisions of multinational corporations.

Fostering competition can help drive cost-effectiveness, but perhaps not in all cases

It is clear that most EPR programs in Canada—including product stewardship programs—lack competition. With few exceptions, provincial programs are operated by a single PRO. Effectively, this market structure creates a monopoly for collecting and recovering each given material type.

Relying on a single PRO in each province *can* have benefits. A single PRO for a particular material type may be able to achieve economies of scale that are unachievable with multiple PROs in a given market. A single operator can also help establish province-wide standards for collection and processing. In some cases, this centralization can help improve economies of scale and reduce contamination rates, especially considering the low volumes of material in Canada, low population density, and large geography.

In other cases, however, a lack of competition may hinder the overall cost-effectiveness of EPR programs. Multiple PROs can give manufacturers choice in how they comply with the regulations. This competition can encourage each PRO to offer low-cost recycling opportunities and provide a continuous incentive to find new and innovative ways to recycle or reuse waste materials. By contrast, a single PRO may operate like a monopoly, with weaker incentives to reduce costs and innovate (Valiante & Busuttill, 2017).

Whether competition can enhance or hinder cost-effectiveness ultimately depends on the type of materials being collected. It might make economic sense, for example, to have a single

PRO for household blue box materials for an entire province (like BC); whereas greater competition might make sense for other materials, like electronics, tires, or used oil.

Reducing free-ridership is key for program cost-effectiveness and fairness

Reducing free-ridership in EPR programs is important in creating fairer and more cost-effective programs. In some programs, producers are exempt due to their small size. In these cases, waste management costs associated with exempted producers are effectively subsidized by the larger producers. It also mutes the price signal for exempted producers to improve the environmental performance of their products.

Ontario's blue bin program, for example, exempts producers that generate less than \$2 million in sales or generate less than 15 tonnes of packaging. This exemption means that hundreds of thousands of small business owners are not included in the program. A report prepared for the CCME found that 14 other EPR programs across Canada have also been affected by free-ridership (Marbek Resource Consultants Ltd., 2007).

In particular, the growth in internet shopping poses a significant problem for EPR programs. In most cases, the producers of online consumer goods are not based in Canada, making it difficult for provinces to regulate these entities. Moving forward, capturing internet sales within EPR programs will be critical to ensuring a level playing field and equitable cost-sharing; yet it is unclear whether provinces are actively addressing this issue.

Stringency and enforcement are key to improving environmental effectiveness

Most EPR policies in Canada—including product stewardship programs—lack stringency and enforcement. Performance targets are often non-binding, with no clear or enforceable penalties for producers (or PROs) that do not achieve them. Targets are largely symbolic and aspirational (EPR Canada, 2017)

Enforcement and stringency are the foundation of efficacious EPR programs. If the targets underlying EPR legislation are not ambitious, and if they are not adequately enforced, producers will likely have weak incentives to comply. This weakened compliance then undermines the efficacy of the entire program. The risk of non-compliance is particularly high in cases where individual producers delegate compliance obligations to PROs, as discussed above (Smart Prosperity Institute, 2019).

Coordinating EPR policies across provinces could offer several benefits, but full harmonization is unlikely in the short term

Harmonization across provinces and territories could offer several benefits. Under the current patchwork approach, programs cover a range of different materials and producers must comply with different rules in different provinces. A more unified approach could reduce overall compliance and administrative costs by coordinating education, behavioural nudges, and legal frameworks across provinces (Smart Prosperity Institute, 2019).

Greater harmonization could also help reduce diversion costs and improve environmental performance. Given Canada's large geography and low-population density, coordination could increase the volume of recyclables and improve economies of scale in waste management. Moreover, if all provinces had EPR programs that internalize the full cost of the programs, producers would have stronger incentives to improve product design (Giroux Environmental Consulting, 2014).

Despite these benefits, however, there are several challenges to full harmonization across Canada. First, the federal government has limited jurisdiction to establish national EPR programs. To date, the federal government has played a relatively minor role while provinces have taken the lead. Perhaps the federal government could play a stronger convening role in the harmonization process; however, it is uncertain how much influence it could have.

Second, it is unclear how provinces would conjointly develop legislation and regulations for EPR. Provinces could agree to use similar definitions, legal frameworks, and reporting mechanisms; but the extent to which two or more provinces could create fully harmonized programs with shared infrastructure is uncertain. The Atlantic provinces have proposed creating a harmonized approach to developing EPR for blue box materials, which could provide an interesting testing ground for some of these ideas. Ultimately, however, more research on these questions is needed (Giroux Environmental Consulting, 2014).

Third, provinces are moving at very different speeds on implementing EPR and are taking different approaches to policy design, implementation, and governance. In the short term, efforts might be better spent on improving existing programs with integration as a secondary, longer-term objective.

Notwithstanding these challenges, Canada need not achieve full harmonization to see the benefits. Ontario, Quebec, and British Columbia are leaders on EPR in Canada and collectively represent about three-quarters of the country's population. Creating stronger coordination across these three provinces could have a big impact on both downstream waste management and upstream product design/manufacturing.

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