Modeling impact on consumer packaged goods pricing resulting from an increase in the steward obligation

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Introduction

The purpose of Extended Producer Responsibility is to shift the physical and financial responsibility of end of life waste management onto the producers (or first importers), of a particular good. Conceptually, it is difficult to find fault with the premise – generally speaking, people who make a product, should ultimately be responsible for how it gets managed post consumption.

However, in practice, what producers are financially obligated for is of critical importance when addressing what is literally a billion dollar question. At present, EPR for printed paper and packaging waste has focused on recycling – producers are obliged to pay for the costs associated with recycling post-consumer packaging waste. Where this becomes potentially problematic, is that recycling costs, particularly for composite and light-weight materials, are going up exponentially – recycling system costs for Ontario, British Columbia and other jurisdictions with EPR are increasing by double digits year over year. In the case of Ontario, recycling system costs have more than doubled in the past 15 years, while recycling rates have actually decreased.

While advocates of EPR say that producers should be paying these costs irrespective of what they might be, the reality is that these costs are absorbed by the consumer, in the form of increases in the cost of consumer packaged goods.

This study seeks to better understand the relationship between producer responsibility fees and the price of consumer packaged goods. Using best available data, this study models several scenarios intended to reflect the proposed increase in the steward obligation resulting from the Blue Box transition plan. These changes include:

1) The transition of the Ontario Blue Box program to 100% Extended Producer Responsibility for the residential printed paper and packaging recycling program. At present, Ontario uses a shared producer responsibility model where packaging producers are responsible for 50% of best practice recycling system costs reported by municipalities

2) Model the potential cost increases resulting from expanding the steward obligation into the IC&I sector. These sectors include long term care facilities and retirement homes, elementary and secondary schools, and private multi residential buildings (not presently serviced through the Blue Box)
3) Expanding the list of acceptable Blue Box materials to include packaging like products.

Note: Please refer to Appendix A and B for studies that model the estimated costs attributable to expansion into the IC&I sector, and the inclusion of packaging like goods in the Blue Box.

Methodology

Estimating the increase in the price of consumer packaged goods resulting from EPR legislation and an increase in the steward obligation is modeled by quantifying direct impacts, indirect impacts and induced impacts. For the purposes of this analysis, we model these results in two phases. First, we calculate the direct impact to consumer packaged goods resulting from a change in the Blue Box fee schedule. There is a direct causal relationship between packaged good prices and the steward obligation, as demonstrated by the Stewardship Ontario "Pay in Model" (PIM)

Note: The "Pay in" model is used to calculate packaging fee rates for all materials included in the residential Blue Box program. Obligated producers must collect and remit this fee for every product that is sold into a given market, with funds collected by an Industry Funded Organization (Stewardship Ontario).

While a common refrain used by proponents of these proposed changes is that producers will ultimately internalize these costs (and as a result, will innovate in order to find ways to contain costs), the very nature by which the "Pay in" model works shows the opposite. Any increase in the steward obligation is automatically redistributed to all Blue Box materials sold into the province via the fee schedule. While a fulsome description of the fee setting methodology is beyond the scope of this study, packaging fees are intended to reflect of recycling that particular material type at end of life.

In Ontario, packaging fees are "invisible" and assigned to products based on their relative material composition and unit weight (i.e. aluminum packaging pays a different fee than PET packaging). In essence, the fees that all packaging producers pay is intended to reflect the net system costs of operating Ontario's Blue Box program. Given that the fee is invisible, it is built into the sticker price of all packaging sold in the market (by comparison, waste electronics has a visible fee, which consumers can see at the point of purchase).

By definition, the way in which waste management costs are recovered for residential packaging waste is passed directly onto the consumer. Increased waste management costs (resulting from either EPR legislation, falling commodity prices, or increases in difficult to manage material) translate directly into higher fee rates for packaged goods.

Based on the analysis found in the accompanying studies (see attached documets), we have estimated that the increase in the steward obligation resulting from the proposed changes are:

- Transition to full producer responsibility: Approximately $135 million dollars annually (50% of Blue Box net system costs)
- Expanding the steward obligation to include subset of IC&I sectors: Estimated at between $95 and $115 million dollars annually (Note: $115 million dollar estimate provided by the MOECP)
- Expanding acceptable Blue Box materials to include packaging like products: Approximately $95 million dollars (Note: Refer to Appendix B)

Direct increase in the cost of packaged goods (resulting from an increase to the Blue Box fee schedule):

Estimated between $320 million and $345 million dollars annually.

While the transition to a 100% producer responsibility model may shift the full financial obligation of managing packaging waste onto the producer, that cost increase is passed directly to the consumer. This is not even a point that can be debated, the very nature in which packaging fees are calculated, by necessity, passes it on to the consumer.

Where quantifying the impact on consumer packaged goods pricing becomes more complicated, is when we try and measure indirect and induced effects attributable to an increase in recycling system costs. For the purposes of this study, we have made the following assumptions:

1) Packaging producers will not internalize any increase in the cost of the steward obligation. Their response will be to either increase the price of their products, reduce costs at other points in the supply chain (upstream suppliers), or reduce their operations (job losses, facility closures etc.). While some may debate as to whether that is a reasonable assumption, producers have openly admitted that they are unable to internalize an increase in costs resulting from the Blue Box transition.
2) For the purposes of modeling, we treat an increase an increase in the steward obligation as an increase in the cost of manufacturing inputs. This was done to try and simplify our modeling, as we have limited data regarding how different CPG companies and sectors will respond to an increase in the steward obligation (as noted above, a producer may look for savings by renegotiating costs/contracts with suppliers, or choose to contract their operations).

Steps to model both indirect and induced effects

In order to estimate indirect and induced impacts attributable to an increase in recycling system costs, we use an input-output model, which in general terms, provides a detailed picture of the flow of products and resources within a given economic system and between that economy and actors outside of the system. Input-Output models are commonly used to estimate economic multipliers for specific industries and sectors, which in turn, form the basis for economic impact analysis that attempts to quantify the contribution/impact of specific industries to a local

economy (or the effects of a given policy, event, or investment, expressed in terms of employment or investment).

Given that we have already modeled the direct impacts on packaged good pricing resulting from the proposed legislative changes (a direct increase of $320 - $345 million dollars per year), we perform the following steps to model indirect and induced impacts using our input-output model.

Step 1: Quantify the potential reduction in the municipal tax base resulting from the transfer of recycling and landfilling costs onto producers

One of the common claims made by advocates of producer responsibility is that it results in a reduction in the municipal tax base. When Ontario officially announced its transition to EPR, the headline used was that it would save Ontario tax payers hundreds of millions of dollars each year. However, the actual impact on the municipal tax base is much more muted. Municipalities (particularly in a post COVID world), grapple with significant budgetary shortfalls and are in all likelihood going to take the funds "saved" from transitioning the Blue Box program and re-allocating those funds to other programs and services. Using British Columbia as a proxy, there is no data to suggest the transition to 100% EPR has resulted in a tax savings for households.

There is an argument to be made that the reallocation of funds to support other municipal programs and services does benefits household, but the benefits that are accrued are indirect and do not directly offset the increase in packaging costs that are attributable to EPR.

In the absence of having any examples to provide context for the analysis, this model assumes that households will experience between a 10% and 30% reduction in the taxes/levis that they were previously paying under Ontario's shared responsibility model (where the % reduction is a function of locality)

2) Determine how producers respond to the increased obligation. As noted prior, we operate under the assumption that stewards are not going to internalize any of this $300+ million dollars, and that it will either manifest itself in one of two ways a) costs are transferred to consumers (both directly via the fee allocation model and indirectly via increased pricing, b) contraction of the company resulting in job losses etc. (a less likely scenario, but one that does have a precedent - our modeling assumes consumers absorb this cost).

3) Examine the existing basket of good costs across localities (basket of goods costs vary significantly depending on whether it is rural/northern community, urban areas etc.) - part of this analysis is to also to determine the relative price elasticity of the consumer good basket within those communities. Our analysis attempts to capture regional differences in cost of consumer goods by using relative price elasticities for a range of consumer goods and packaged products (measured in more than two dozen communities across Canada). Price elasticity is an often neglected consideration, but our analysis has shown that packaged good prices are very much a function of locality - price elasticity in Northern Ontario is sometimes 200% greater than in Southern Ontario, i.e. you increase the transportation costs for 4 litres of milk by 50 cents, the

corresponding price increase in Red Lake is more than $2.00. Due to relative price elasticities, our modeling shows that the increase in the price of consumer goods resulting from producer responsibility is more acute in certain communities.

4) Using a logit-loglinear regression model, we use the EMSI input-output table that has been adapted for Ontario. A log-linear analysis is necessary to specifically isolate what percentage of the increase in the steward obligation specifically manifests itself with respect to price changes in the consumer basket of goods. While a full elaboration of this exercise is outside the scope of this report, it is best explained using the following example "If a bottled water producer faces an additional $10 million dollars in direct costs in response to an increase in the steward obligation (their share of the increase in overall net system costs), how much will it increase the unit price of bottled water that they sell?".

Log-linear analysis allows us to control for all of the factors that can potentially impact the price of a product (e.g. bottled water), and specifically isolate how changing the cost of a product input (e.g. plastic bottle packaging), affects the total price that consumers will end up paying. Given that that the overall price of a good varies depending on how sensitive the price is to changes in the cost of packaging inputs, our study modeled more than 30 different sectors and 660 different types of packaging most commonly consumed by households. As best we could, the intent was to model how cost of living for Ontarians would change in response to an increase in the steward obligation.

5) As noted in step 3, we know that certain communities are much more sensitive to changes in the prices of goods based on their relative elasticity measure. Using the output of Step 4, we then apply how price changes manifest in specific communities across Ontario. It should be noted that the impact of changes to the basket of goods costs is not borne equally across communities. Rural and Northern communities face much higher price volatility in response to EPR legislation, when compared to densely populated urban areas (which appear to be better insulated to price shocks due to proximity to other markets and increased density of competing retailers).

6) Once we have determined the potential change in the consumer goods basket, we then back out savings resulting from a potential decrease in the municipal tax base to arrive at our final estimates.

While the aforementioned description of the modeling steps may seem complicated, in many ways, the results can be interpreted as though we are increasing input costs when manufacturing packaged goods. An alternative interpretation would be that packaging producers are reducing investment in the province, equal to the increase in the overall steward obligation.

What does this actually mean for consumers?

Using the aforementioned analysis, we can now look at how an increase in the price of consumer packaged goods translates at the register for Ontarian families (Note: Our modeling uses the

"basket of goods" defined by Statistics Canada, but specifically focuses on items that fall under the purview of Blue Box packaging).

Increasing the steward obligation by $320 million dollars will result in a 6.24% increase in the common basket of goods costs for households. This value actually ranges depending on locality – as noted above, communities in rural and northern areas are more sensitive to changes in the price of consumer packaged goods. Increases in the basket of goods costs for households range from 4.79% on the low end (municipality in the GTA) to 12.44% on the high end (municipality in North-Western Ontario)

Detractors of this methodology have questioned how a $300+ (or more) million dollar increase in costs faced by stewards will result in a greater than $300 million dollar impact on consumers. Referring to the methodology outlined above, it is conceptually no different than calculating how investments in an industry can lead to job creation and economic growth as a result of direct, indirect and induced effects. What makes the situation surrounding packaged consumer goods relatively unique, is that these products are much more sensitive to changes in the cost of inputs. Even if we were to set aside the producer responsibility issue for a moment, average grocery bills for Ontarians is going to increase by 3.8% this year as a result of inflationary pressures (i.e. increases to the cost of production, logistics and product safety). This alone represents a $400 increase in what the average household in Ontario spends on groceries each year – an issue that will be exacerbated if we have to account for changes to the cost of packaged products resulting from an increase in the steward obligation.

An issue of equity

While a 6-10% increase in our grocery bills may seem like an inconvenience to some, it can have catastrophic consequences to lower income and marginalized families in Ontario. In the summer of 2019, York University conducted focus groups with more than 1800 consumers in the Greater Toronto Area over the course of four months. More than 80% of respondents indicated that price was the primary determinant for making a purchase. If possible, respondents indicated that they would like to make more sustainable purchases, but budgetary restraints largely impeded them from doing so.

During focus group sessions, families expressed concern that they were unable to keep up with the rising cost of food, and would have to "go without" should prices continue to increase.

What makes this issue particularly insidious is that households characterized as "low income" (household income less than $40,000 per year) consume 18.4% more pre-packaged goods (namely grains, produce and frozen meats), when compared to families whose household income exceed $100,000 a year. There is an inverse, statistically significant correlation between household income and % of prepackaged products of overall weekly purchases. Given that lower income groups are the greatest consumers of packaged goods (both in absolute terms, and as a

relative % of the overall purchasing basket), any upwards pressure in the cost of food stuff could have potentially adverse impacts.

Ultimately, the decision to force producers to use recyclable packaging, and pick up the tab for doing so, has an unintended effect that disproportionately affects are most vulnerable and marginalized families. The province has signaled their desire to promote a sustainable Ontario – but is a system truly sustainable if it has negative economic and social consequences for underrepresented groups?