

Economic Impact Statement

Montgomery County, Maryland

Bill 24-24 Taxation – Paper Carryout Bags and Prohibition on Plastic Carryout Bags

SUMMARY

The Office of Legislative Oversight (OLO) anticipates that Bill 24-24 would have a negative impact on economic conditions in the County in terms of the Council's priority economic indicators. The Bill proposes replacing the current bag tax with a combination ban-and-fee policy. Based on a cost analysis of the per-bag cost of disposable plastic and paper bags as well as a review of the empirical literature on the impacts of plastic bag regulations, OLO anticipates the Bill would negatively impact many retailers and customers residing in the County.

The Bill is likely to increase operating expenses for certain retailers due to higher costs of disposable paper bags and additional implementation expenses, such as training staff on new checkout procedures, increasing staff to mitigate congestion, and reporting requirements. Many retailers would likely offset higher operation costs by raising prices on goods and services and increasing sales for trash bag liners. However, some retailers might experience lower revenues as customers bypass the regulation by purchasing more food at restaurants, or through increased cross-border shopping. This could reduce the competitiveness of the County's retail sector compared to neighboring jurisdictions without similar bans.

The Bill would likely increase household expenses and reduce disposable household income for many residents. Since individuals typically shop at nearby grocery stores, OLO expects most affected customers to be County residents. Residents would likely face higher prices as retailers pass the costs of implementing the policy onto customers. Additionally, some residents may spend more on small trash bags due to the retail plastic bag ban.

BACKGROUND AND PURPOSE OF BILL 24-24

Taxes and bans on plastic bags have been implemented in multiple jurisdictions across the country.¹ They are intended to disincentivize customers from using single-use plastic bags and reduce the amount of plastic litter.² Depending on the jurisdiction, revenues from bag taxes go towards environmental protection.³

In 2012, a County law requiring a 5-cent tax on paper and plastic carryout bags provided by retail establishments went into effect. This included supermarkets, convenience stores, shops, gas stations, and restaurants. Under the law, retailers may retain 1 cent of the bag tax to cover administrative costs. Revenue from the tax is deposited

¹ Muposhi, A., Mpinganjira, M., and Wait, M., "[Considerations, benefits and unintended consequences of banning plastic shopping bags for environmental sustainability: A systematic literature review](#)", 2022.

² Abate, T. G. and Elofsson, K., "[Environmental taxation of plastic bags and substitutes: Balancing marine pollution and climate change](#)", May 2024.

³ Fairfax County Office of Environmental and Energy Coordination "[Disposable Plastic Bag Tax in Fairfax County](#)" Accessed 10/23/2024; Loudoun County, VA "[Disposable Plastic Bag Tax](#)" Accessed 10/23/2024; Montgomery County, MD Department of Environmental Protection "[Bring Your Bag](#)", Accessed 10/23/2024

into the County's Water Quality Protection Charge (WQPC) to fund activities such as restoring and monitoring streams and cleaning and maintaining storm drains.⁴

Bill 24-24 would repeal the 5-cent tax on plastic carryout bags and ban plastic carryout bags provided by retail establishments. Some goods would be exempted from this ban, such as prescriptions, dry-cleaned garments, bulk foods, and perishable food items. Bill 24-24 would also:

- Require a 10-cent tax on paper carryout bags (certain exemptions apply);
- Exempt recipients of food assistance programs from the paper carryout bag tax;
- Set guidelines for businesses subject to the tax, including allowing businesses to retain 5 cents of the tax for administrative costs and requiring businesses to remit the collected taxes to the County every quarter; and
- Increase the amount the County Water Quality Protection Fund receives from each bag fee from 4 cents to 5 cents.⁵

The Council introduced Bill 24-24, Taxation – Paper Carryout Bags and Prohibition on Plastic Carryout Bags, on October 15, 2024.⁶

INFORMATION SOURCES, METHODOLOGIES, AND ASSUMPTIONS

As required by 2-81B of the Montgomery County Code, this Economic Impact Statement evaluates the impacts of Bill 24-24 on residents and private organizations in relation to the Council's priority economic indicators. In doing so, it examines whether the Bill would have a net positive or negative impact on overall economic conditions in the County.⁷

Currently, the County regulates carryout bags through a *fee policy*. Retail establishments charge customers 5 cents per plastic or paper carryout bag, of which they retain 1 cent per bag. Retail establishments charge customers 5 cents per plastic or paper carryout bag, of which they retain 1 cent for administrative costs. The Bill proposes to replace this policy with a *ban-plus-fee* approach that includes:

- Banning retailers from providing plastic carryout bags (with exceptions);
- Raising the fee retailers must charge customers for each paper carryout bag from 5 cents to 10 cents, of which retailers may retain 5 cents per bag; and
- Requiring retailers to remit the bag tax to the County on a quarterly basis.

⁴ Montgomery County, MD Department of Environmental Protection, "[Water Quality Protection Charge](#)"; Montgomery County, MD Department of Environmental Protection "[Bring Your Bag](#)", Accessed 10/23/2024

⁵ Montgomery County Council, "[Staff Introduction Report for Bill 24-24, Taxation - Paper Carryout Bags and Prohibition on Plastic Carryout Bags](#)", Introduced October 15, 2024.

⁶ [Ibid.](#)

⁷ "[Sec. 2-81B, Economic Impact Statements](#)," Montgomery County Code.

This report analyzes the potential economic outcomes of implementing a ban-plus-fee policy in place of the current fee-based approach. To do so, OLO conducted a cost analysis to compare the per-bag costs of paper bags under the proposed policy to the cost of plastic and paper bags under the existing system.

Methodology for Cost Analysis

The cost analysis uses estimates of per bag costs from a 2020 report by the Independent Fiscal Office (IFO) of Pennsylvania.⁸ The IFO report investigates the economic impacts of plastic bag bans, fees, and combined ban-plus-fees policies, focusing on their potential effects on employment, income, and overall economic activity in Pennsylvania. The report estimated a “median,” “high,” and “low” price for disposable plastic and paper bags by (1) collecting over 150 price points from stakeholders, national market analyses, bag-use studies in other jurisdictions, and online retail bag outlets for disposable bags; and (2) comparing price point research to national and industry averages.⁹

OLO used the following methodology to estimate the per bag cost of paper bags under the proposed policy and the per bag cost of plastic and paper bags under the current policy:

1. Assumed the median, high, and low estimates in the IFO report are in January 2020 dollars, the month of its publication;
2. Adjusted the IFO’s cost estimates for inflation to January 2024 dollars, using the Producer Price Index for paper, plastic, and foil bags;¹⁰ and
3. Deducted the amount of the bag tax that retailers may retain under each policy from each estimate.

Two points should be considered before proceeding. First, the cost estimates assume that any increase in demand for paper bags from banning plastic bags in the County would be insufficient to affect their prices. Second, the Montgomery County Office of the Inspector General (OIG) investigated whether the County has received carryout bag tax payments from all retail establishments required to remit payment. It found that due to lack of enforcement and other issues, some retailers are not following the carryout bag tax requirements, resulting in lost revenue and reduced program efficacy. In addition, the County has not conducted comprehensive evaluations to determine if consumer habits have shifted or if litter levels have decreased.¹¹

Scope of Analysis

OLO uses the cost estimates in **Figure 1**, as well as sources cited below, to inform the analysis of the Bill’s economic impacts on residents and private organizations, particularly retail customers and retailers. This analysis does not account for two factors:

1. The economic impacts of the County’s use of the taxes collected through the WQPC.
2. The monetary value of reducing the negative externalities from plastic bag pollution described below.

⁸ Independent Fiscal Office, “[Economic Impact from Regulation of Single-Use Plastics](#)” (Commonwealth of Pennsylvania, June 2020).

⁹ Independent Fiscal Office, pp. 27-28.

¹⁰ Federal Reserve Bank of St. Louis, “[Producer Price Index by Commodity: Pulp, Paper, and Allied Products: Paper, Plastic, and Foil Bags](#),” November 14, 2024.

¹¹ Office of the Inspector General, “[Carryout Bag Tax](#)” (Montgomery County, Maryland, June 13, 2023).

VARIABLES

The primary variables that would affect the economic impacts of enacting Bill 24-24 are the following:

- Per capita cost of bags
- Firm compliance
- Percentage of plastic bags, paper bags, heavy weight plastic bags, and trash bag liners imported

IMPACTS

**WORKFORCE ▪ TAXATION POLICY ▪ PROPERTY VALUES ▪ INCOMES ▪ OPERATING COSTS ▪ PRIVATE SECTOR
CAPITAL INVESTMENT ▪ ECONOMIC DEVELOPMENT ▪ COMPETITIVENESS**

Economics of Plastic Bag Bans

The supply chain for disposable plastic bags begins with the extraction and production of raw materials by petrochemical manufacturers, which process liquids, such as ethane and propane, into plastic resins. Manufacturers transform these resins, combined with additives and colorants, transformed into plastic film through a process called blown film extrusion. The finished plastic bags are then distributed to retailers, which provide them to consumers as a convenient packaging option. After use, these bags often end up as waste, litter, or are occasionally recycled, depending on disposal practices and recycling infrastructure. This interconnected chain highlights the lifecycle of plastic bags from raw materials to end-of-life management.¹²

Arguments For and Against Bans

Regulating single-use plastic bags is justified because of the negative externalities imposed on third parties throughout the supply chain.¹³ A negative externality occurs when market actors indirectly impose costs on another party while not bearing the cost. In this case, producers and consumers of plastic bags create environmental and other costs for residents in a given jurisdiction (and beyond), while not incurring the cost of doing so in their market transactions.

The environmental costs of plastic bags include “the costs of managing plastic bag litter ... and ... repairing clogged waterways, both of which come with high opportunity costs, as they deprive citizens of funds that could have been used to provide other much-needed services.”¹⁴ Proponents also cite economic costs like loss of tourism income due to plastic bag pollution, as well as adverse health and social effects.¹⁵ Because producers and consumers do not pay these costs, the market over-produces single-use plastic bags, resulting in an inefficient allocation of plastic bags (i.e., “market failure”).

Policy options for regulating single-use plastic bags include taxes, bans, and bans-plus-tax. Bag taxes impose a fee on consumers of plastic bags to account for the externalities, the market would readjust and produce fewer

¹² Independent Fiscal Office, “Economic Impact from Regulation of Single-Use Plastics.”

¹³ Asphat Muposhi, Mercy Mpinganjira, and Marius Wait, “[Considerations, Benefits and Unintended Consequences of Banning Plastic Shopping Bags for Environmental Sustainability: A Systematic Literature Review](#),” *Waste Management & Research* 40, no. 3 (March 1, 2022): 248–61.

¹⁴ Ibid.

¹⁵ Ibid.

plastic bags and more environmentally friendlier alternatives. In Montgomery County, for example, the carryout bag tax was introduced to transfer some of the financial responsibility for litter cleanup from taxpayers to consumers, encouraging the use of reusable bags to mitigate disposable bag waste and litter.¹⁶

In contrast, bans prohibit retailers from providing plastic bags to customers. Ban-plus-fee is a hybrid of the previous two options in which retailers are prohibited from providing plastic bags and required to charge a fee on alternative bags (e.g., paper bags).¹⁷

Proponents of bans and ban-plus-fee approaches typically argue that they are the most effective tool to eliminate plastic pollution and mitigate negative externalities.¹⁸ They also claim that bans are easier for governments to implement than bag taxes.

However, critics of plastic bag bans point to negative economic impacts, such as increased shopping costs, job losses, and plastic industry disinvestment. They also cite “competing externalities” like illegal dumping of plastic bags and increased congestion for shoppers.¹⁹

Businesses, Non-Profits, Other Private Organizations

OLO anticipates that Bill 24-24 would have an overall negative impact on certain private organizations in the County in terms of the Council’s priority economic indicators.

The Bill would primarily affect retailers in the County. As indicated in **Table 1**, the retail trade sector had 2,422 establishments in the County for the first quarter of 2024, employing over 40,000 individuals.

Retailers typically purchase disposable carryout bags from suppliers and provide them to customers as a convenience. Instead of directly charging customers who use the bags, retailers generally pass on the cost of purchasing them to customers through final prices of goods and services. Light-weight plastic bags are commonly chosen over paper bags because they are consistently the more cost-effective option.²⁰

Figure 1 provides the per bag median prices and ranges for plastic and paper bags under the current and proposed policies. Under the current policy, retailers may choose to provide customers with plastic or paper bags (or no bags). The median per bag cost for plastic bags is \$0.13 less than paper bags. Because the price ranges do not overlap, there is no scenario in this model in which paper bags are cheaper than plastic bags.

By banning plastic bags, the proposed policy would eliminate the more cost-effective option. Although the proposed policy would decrease the cost of paper bags due to the \$0.04 increase in the amount retailers may retain for each bag, retailers that switch from plastic to paper bags would experience higher costs under most circumstances. As shown below, the median per bag cost for paper bags under the proposed policy would be \$0.09 higher than plastic bags under the current policy. In addition, there is little overlap in the price ranges, indicating that under most circumstances the paper bag price would be higher than the price for plastic bags.

¹⁶ Office of the Inspector General, “Carryout Bag Tax.”

¹⁷ Independent Fiscal Office, “Economic Impact from Regulation of Single-Use Plastics.”

¹⁸ Muposhi, Mpinganjira, and Wait, “Considerations, Benefits and Unintended Consequences of Banning Plastic Shopping Bags for Environmental Sustainability.”

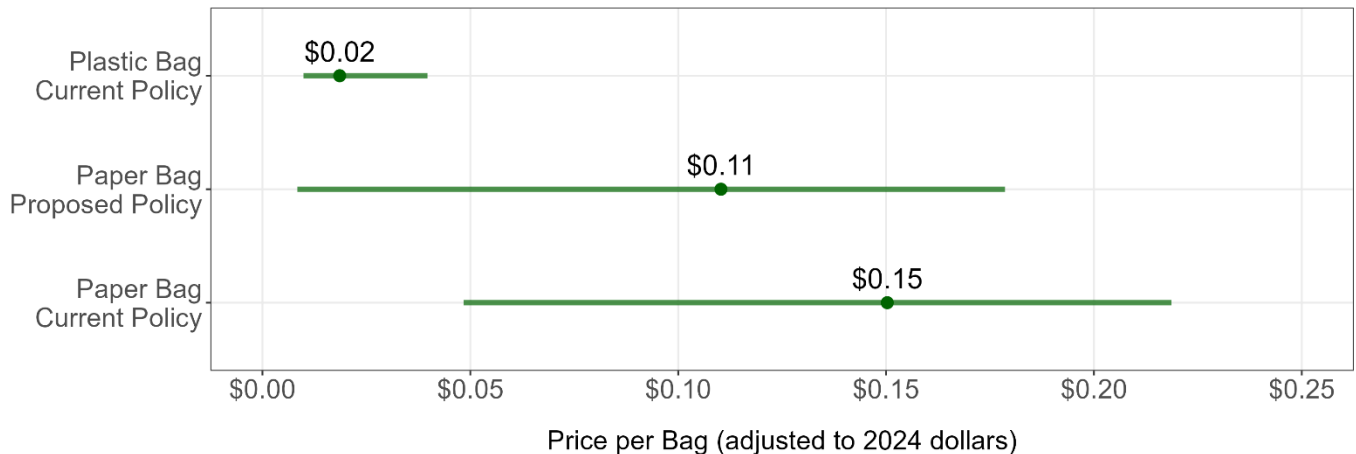
¹⁹ Ibid.; Rebecca L. C. Taylor, “[A Mixed Bag: The Hidden Time Costs of Regulating Consumer Behavior](#),” *Journal of the Association of Environmental and Resource Economists* 7, no. 2 (March 2020): 345–78.

²⁰ Independent Fiscal Office, “Economic Impact from Regulation of Single-Use Plastics.”

Table 1. Retail Trade Sector and Sub-Sectors in Montgomery County (2024 First Quarter)²¹

NAICS	Sector/Sub-Sector	Quarterly Establishments	January Employment	Total Quarterly Wages	Average Weekly Wages
44-45	Retail Trade	2,422	40,362	\$484,245,624	\$934
441	Motor vehicle and parts dealers	165	6,020	\$126,835,191	\$1,619
444	Building material and garden equipment and supplies dealers	130	3,234	\$43,391,767	\$960
445	Food and beverage retailers	534	12,113	\$115,354,677	\$742
449	Furniture, home furnishings, electronics, and appliance retailers	288	2,779	\$33,372,716	\$932
455	General merchandise retailers	157	5,586	\$51,767,200	\$740
456	Health and personal care retailers	303	2,968	\$51,108,444	\$1,348
457	Gasoline stations and fuel dealers	162	1,070	\$10,176,018	\$736
458	Clothing, clothing accessories, shoe, and jewelry retailers	335	3,219	\$22,472,977	\$565
459	Sporting goods, hobby, musical instrument, book, and miscellaneous retailers	348	3,373	\$29,766,634	\$703

Figure 1. Price Ranges and Median Prices per Disposable Bag



Operating Costs: Due to the higher price for paper bags than plastic bags, the Bill would likely increase operating costs for many retailers. Operating costs may also increase from various implementation costs, such

²¹ U.S. Bureau of Labor Statistics, *Quarterly Census of Employment and Wages*, "[Private, NAICS Sectors, Montgomery County, Maryland: 2024 First Quarter, All Establishment Sizes](#)" and "[Private, NAICS Sub-Sectors, Montgomery County, Maryland: 2024 First Quarter, All Establishment Sizes](#)", accessed December 6, 2024.

as “training on new checkout procedures, additional staffing, reporting requirements and technology and infrastructure upgrades related to self-checkout and point-of-sale prompts.”²²

The Bill’s effect on operating costs, however, could be mitigated by lower demand for disposable bags from customers who switch to reusable bags and the higher “carrying capacity” of paper bags than their plastic alternatives.²³ It is uncertain whether lower demand would be sufficient to fully offset the higher cost of paper bags and the various implementation costs described above.

Business Income: The Bill may have mixed impacts on certain retailers’ business incomes. On the one hand, retailers would likely build into the final prices of goods and services increases in operating costs from higher bag prices or implementation costs, thereby passing the costs of the regulation onto customers. In addition, studies have found that plastic bag regulation increases sales of plastic trash bags, as certain customers no longer use the “free” plastic grocery bags as trash can liners.²⁴ Thus, certain retailers may see increased revenues from trash bag sales that buffer business incomes from higher operating costs.

On the other hand, business incomes may decline for certain retailers due to declining revenues. The economist Rebecca Taylor conducted two studies of disposable bag regulations in California cities and counties from 2007 to 2014. In her 2020 study, Taylor found that these regulations caused a three percent increase in supermarket checkout duration and that customers who experienced longer checkout times were less likely to return.²⁵ In her 2022 study, she found that customers bypassed plastic bag bans by purchasing more food at unregulated grocery stores and restaurants and increased cross-border shopping.²⁶

Based on these findings, the Bill may particularly reduce business sales and income for retailers closer to Howard County, the District, and Loudoun and Fairfax Counties, which have adopted disposable bag taxes over bans.²⁷ If this occurs, the Bill may reduce the competitiveness of the retail sector in the County relative to these neighbors. (Prince George’s and the City of Frederick have recently banned plastic carryout bags.²⁸) OLO does not know whether these impacts would be significant enough to decrease jobs in the retail sector.

Beyond these potential impacts, OLO does not expect the Bill to affect private organizations in terms of the Council’s other priority indicators.

²² Ibid.

²³ Ibid.

²⁴ Yu-Kai Huang and Richard T. Woodward, “[Spillover Effects of Grocery Bag Legislation: Evidence of Bag Bans and Bag Fees](#),” *Environmental and Resource Economics* 81, no. 4 (April 1, 2022): 711–41; Rebecca L. C. Taylor, “[Bag Leakage: The Effect of Disposable Carryout Bag Regulations on Unregulated Bags](#),” *Journal of Environmental Economics and Management* 93 (January 1, 2019): 254–71.

²⁵ Taylor, “A Mixed Bag.”

²⁶ Rebecca L. C. Taylor, “[It’s in the Bag? The Effect of Plastic Carryout Bag Bans on Where and What People Purchase to Eat](#),” *American Journal of Agricultural Economics* 104, no. 5 (2022): 1563–84.

²⁷ Fairfax County Office of Environmental and Energy Coordination, “[Disposable Plastic Bag Tax FAQs](#),” Fairfax County, accessed January 13, 2025; Loudoun County, “[Disposable Plastic Bag Tax](#),” Loudoun County Government, accessed January 13, 2025; Howard County, “[Disposable Bag Fee](#),” Howard County Government, accessed January 13, 2025; District of Columbia Department of Energy and Environment, “[Purpose and Impact of the Bag Law](#),” DOE, accessed January 13, 2025.

²⁸ City of Frederick, “[Reusable Bag Initiative](#),” City of Frederick, accessed January 13, 2025; Prince George’s County Department of the Environment, “[Bag It Right](#),” Prince George’s County Government, accessed January 13, 2025.

Residents

OLO anticipates that Bill 24-24 would have a negative impact on certain residents in the County in terms of the Council's priority economic indicators.

The Bill would likely impact many residents of the County, as credit card data indicates that individuals typically patronize grocery stores near their homes.²⁹ The new policy likely would increase household expenses for certain residents. As discussed above, many retailers would likely pass the costs of implementing the plastic bag ban onto their customers in the form of higher prices for their goods and services. Importantly, all customers would experience higher prices, irrespective of whether they use reuseable bags. However, customers who do not switch to reuseable bags would also pay more for paper bags. Also, certain customers would purchase more small trash bag liners since they could no longer use disposable, retail-sized plastic bags as a substitute. Holding all else equal, these customers would experience net losses in disposable household income.

However, certain customers likely would mitigate these costs by switching to reuseable bags to avoid the higher paper bag fee, shopping at retailers in other neighboring jurisdictions, or finding other ways to bypass the ban-plus-fee policy.

Beyond this potential impact, OLO does not expect the Bill to affect residents in terms of the Council's other priority indicators.

Net Impact

OLO anticipates that Bill 24-24 would have an overall negative impact on economic conditions in the County in terms of the Council's priority economic indicators. The Bill proposes replacing the current bag tax with a combination ban-and-fee policy. Based on a cost analysis of the per-bag cost of disposable plastic and paper bags as well as a review of the empirical literature on the impacts of plastic bag regulations, OLO anticipates that the Bill would negatively impact many retailers and customers residing in the County.

The Bill is likely to increase operating expenses for certain retailers due to higher costs of disposable paper bags and additional implementation expenses, such as training staff on new checkout procedures, increasing staff to mitigate congestion, and reporting requirements. Many retailers would likely offset higher operation costs by raising prices on goods and services and increasing sales for trash bag liners. However, some retailers might experience lower revenues as customers bypass the regulation by purchasing more food at restaurants, or through increased cross-border shopping. This could reduce the competitiveness of the County's retail sector compared to neighboring jurisdictions without similar bans.

The Bill would likely increase household expenses and reduce disposable household income for many residents. Since individuals typically shop at nearby grocery stores, OLO expects most affected customers to be County residents. Residents would likely face higher prices as retailers pass the costs of implementing the policy onto customers. Additionally, some residents may spend more on small trash bag liners.

DISCUSSION ITEMS

Not applicable

²⁹ Sumit Agarwal, J. Bradford Jensen, and Ferdinando Monte, "Consumer Mobility and the Local Structure of Consumption Industries" (Cambridge, Mass: National Bureau of Economic Research, 2017).

CAVEATS

Two caveats to the economic analysis performed here should be noted. First, predicting the economic impacts of legislation is a challenging analytical endeavor due to data limitations, the multitude of causes of economic outcomes, economic shocks, uncertainty, and other factors. Second, the analysis performed here is intended to *inform* the legislative process, not determine whether the Council should enact legislation. Thus, any conclusion made in this statement does not represent OLO's endorsement of, or objection to, the Bill under consideration.

AUTHOR

Stephen Roblin (OLO) prepared this report.