

# United States Senate

WASHINGTON, DC 20510

August 5, 2024

Mr. Rodney McMullen  
Chairman and CEO  
The Kroger Co.  
1014 Vine Street  
Cincinnati, OH 45202

Dear Mr. McMullen,

I write to you today regarding Kroger's adoption and use of Electronic Shelving Labels (ESLs)<sup>1</sup> in dozens of its grocery stores.<sup>2</sup> These digital price tags may enable Kroger and other grocery chains to transition to "dynamic pricing,"<sup>3</sup> in which the price of basic household goods could surge based on the time of day, the weather, or other transitory events – allowing stores to calibrate price increases to extract maximum profits at a time when the amount of Americans' income spent on food is at a 30-year high.<sup>4</sup> Given these concerns, I write to request further information to better understand the justification for and risks of electronic shelving.

Grocery chains are rapidly expanding the use of ESLs. Kroger initially began using this technology in dozens of stores in 2018,<sup>5</sup> expanding to 500 last year.<sup>6</sup> Other grocery companies have quickly followed suit:<sup>7</sup> Walmart announced that it would bring ESLs to 2,300 of its stores

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<sup>1</sup> Grocery Dive, "Why more grocers are putting electronic shelf labels in their stores," Catherine Douglas Moran and Sam Silverstein, February 8, 2023, <https://www.grocerydive.com/news/why-more-grocers-are-putting-electronic-shelf-labels-in-their-stores/642002/>.

<sup>2</sup> Future Stores, "Kroger Rolls Out Kroger EDGE - A Clean Energy, Cloud-Based Signage Solution for Retail Shelves," WBR Insights, <https://futurestores.wbresearch.com/blog/kroger-rolls-out-edge-clean-energy-cloud-based-signature-solution-strategy-for-retail-shelves>.

<sup>3</sup> Harvard Business School Online, "DYNAMIC PRICING: WHAT IT IS & WHY IT'S IMPORTANT," Kate Gibson, May 10, 2024, <https://online.hbs.edu/blog/post/what-is-dynamic-pricing>.

<sup>4</sup> Wall Street Journal, "It's Been 30 Years Since Food Ate Up This Much of Your Income," Jesse Newman and Heather Haddon, February 21, 2024, <https://www.wsj.com/economy/consumers/its-been-30-years-since-food-ate-up-this-much-of-your-income-2e3dd3ed>.

<sup>5</sup> Business Insider, "Kroger is rolling out a new technology to nearly 200 stores that could change grocery shopping as we know it," Hayley Peterson, January 16, 2018, <https://www.businessinsider.com/kroger-is-rolling-out-digital-shelf-technology-2018-1?r=UK&IR=T>.

<sup>6</sup> EIN Presswire, "Cooler Screens Announces Expansion with Kroger to Bring Digital Smart Screens into Stores," Crenshaw Communications, May 24, 2023, <https://www.einpresswire.com/article/635446062/cooler-screens-announces-expansion-with-kroger-to-bring-digital-smart-screens-into-stores>.

<sup>7</sup> Grocery Dive, "Why more grocers are putting electronic shelf labels in their stores," Catherine Douglas Moran and Sam Silverstein, February 8, 2023, <https://www.grocerydive.com/news/why-more-grocers-are-putting-electronic-shelf-labels-in-their-stores/642002/>.

by 2026,<sup>8</sup> and Schnucks is working to expand ESL use to all of its 115 stores by 2025.<sup>9</sup> In February 2024, Kroger began working with IntelligenceNode, a company that “use[s] AI and machine learning to provide dynamic pricing and market analytics solutions” on its marketplace for third-party sellers.<sup>10</sup>

Widespread adoption of digital price tags appears poised to enable large grocery stores to squeeze consumers to increase profits. Analysts have indicated that the widespread use of dynamic pricing will result in groceries and other consumer goods being “priced like airline tickets,” “creat[ing] a sense of urgency and a sense of scarcity that wouldn’t exist if there were just publicly posted prices that everybody understood,” and allowing “sellers...to ... figure out ways to extract the maximum amount of profit from each customer.”<sup>11</sup>

High grocery prices are one of the leading concerns among Americans who are concerned about inflation.<sup>12</sup> In 2023, U.S. consumers spent an average of 11.2% of their budget on food.<sup>13</sup> Indeed, everyday Americans still struggle to put food on the table because giant corporations, facing little competition, can force customers to pay too much for essential grocery items while they further increase their profits.<sup>14</sup>

Kroger first announced it would bring 120 ESL devices into its stores in 2018,<sup>15</sup> promising that this new technology would “better the customer experience.”<sup>16</sup> Kroger’s ESL device, called the Enhanced Display for Grocery Environment (EDGE) Shelf, uses a digital price tag rather than a traditional paper tag to display the price of products, nutritional information, personalized advertisements, and coupons.<sup>17</sup> Importantly, digital price tags facilitate companies’ ability to

<sup>8</sup> NPR, “A supermarket trip may soon look different, thanks to electronic shelf labels,” Lola Murti, June 19, 2024, <https://www.npr.org/2024/06/17/nx-s1-5009271/electronic-shelf-labels-prices-walmart-grocery-store>.

<sup>9</sup> Grocery Dive, “Why more grocers are putting electronic shelf labels in their stores,” Catherine Douglas Moran and Sam Silverstein, February 8, 2023, <https://www.grocerydive.com/news/why-more-grocers-are-putting-electronic-shelf-labels-in-their-stores/642002/>.

<sup>10</sup> Grocery Dive, “Kroger links with AI retail analytics firm to boost marketplace listings,” Catherine Douglas Moran, February 9, 2024, <https://www.grocerydive.com/news/kroger-partners-ai-retail-analytics-firm-intelligence-node/707091/>.

<sup>11</sup> Marketplace, “Dynamic pricing tech may brighten retail bottom lines and put consumers in the dark,” Kristin Schwab and Sofia Terenzio, July 8, 2024, <https://www.marketplace.org/2024/07/08/digital-price-tags-dynamic-pricing-in-person-shopping/>.

<sup>12</sup> Data for Progress, “Voters Who Are Concerned About Inflation Are Mostly Concerned About Grocery Prices — and Overwhelmingly Support Taking Action Against ‘Shrinkflation,’” Rob Todaro, February 12, 2024, <https://www.dataforprogress.org/blog/2024/2/12/voters-concerned-about-inflation-are-mostly-concerned-about-grocery-prices-overwhelmingly-support-action-against-shrinkflation>.

<sup>13</sup> U.S. Department of Agriculture, Economic Research Service, “Food Prices and Spending,” June 27, 2024, <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-prices-and-spending/#:~:text=Budget%20share%20for%20total%20food,the%20composition%20of%20food%20spending>.

<sup>14</sup> Senator Elizabeth Warren, “At Hearing, Warren Calls Out Giant Corporations for Hiking Up Food Prices While Raking in Record Profits, Urges Action to Promote Competition and Bring Down Costs,” May 22, 2024, <https://www.warren.senate.gov/newsroom/press-releases/at-hearing-warren-calls-out-giant-corporations-for-hiking-up-food-prices-while-raking-in-record-profits-urges-action-to-promote-competition-and-bring-down-costs>.

<sup>15</sup> Microsoft, “Kroger’s smart shelves ditch the paper, drop the lights and delight the shoppers,” Bill Briggs, June 25, 2018, <https://news.microsoft.com/transform/kroger-smart-shelves-ditch-paper-drop-lights-delight-shoppers/>.

<sup>16</sup> Microsoft News Center, “Kroger and Microsoft partner to redefine the customer experience and introduce digital solutions for the retail industry,” press release, January 7, 2019, <https://news.microsoft.com/2019/01/07/kroger-and-microsoft-partner-to-redefine-customer-experience-introduce-digital-solutions-for-retail-industry/>.

<sup>17</sup> *Id.*

dynamically change prices. Employees can change the prices of goods with the mere click of a button, updating the digital price tag within seconds.<sup>18</sup>

Large grocery chains such as Walmart<sup>19</sup> and Kroger<sup>20</sup> have claimed that dynamic pricing through ESLs benefits consumers by freeing up time for employees to assist customers. However, these devices also introduce the potential for grocery giants to abuse their power and surge grocery prices, raising prices suddenly and at times when certain products are in highest demand. For example, stores may use this technology to raise the price of turkeys in the days leading up to Thanksgiving, or the price of ice cream on a hot day, causing customers to face unexpected price hikes when they reach the grocery aisle and find themselves unable to afford the groceries that they had originally budgeted for. A 2021 analysis by UCLA researchers suggests that Kroger and other companies will enjoy enormous benefits from this technology, finding that “the adoption of time-based pricing leads to differentiated price competition, it can ‘soften’ price competition, causing both peak-hour and normal-hour prices to rise.” The authors concluded that “time-based pricing creates value for the stores (through higher prices) [but] offers no benefit to consumers.”<sup>21</sup> Kroger is already earning enormous profits: the company had an operating profit of \$3.1 billion in FY23,<sup>22</sup> with gross profit margins that have remained above 20% for the past five years.<sup>23</sup> The increased use of dynamic pricing will drive company profits higher – leaving consumers with the bill.

In addition to price gouging, the EDGE Shelf helps Kroger gather and exploit sensitive consumer data. Through a partnership with Microsoft, Kroger plans to place cameras at its digital displays, which will use facial recognition tools to determine the gender and age of a customer captured on camera and present them with personalized offers and advertisements on the EDGE Shelf.<sup>24</sup> EDGE will allow Kroger to use customer data to build personalized profiles of each customer, and then use those profiles “to determine how much price hiking each of us can tolerate,”<sup>25</sup> quickly updating and displaying the customer’s maximum willingness to pay on the digital price tag – a corporate profiteering capability that would be impossible using a mere paper price tag.<sup>26</sup>

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<sup>18</sup> NPR, “A supermarket trip may soon look different, thanks to electronic shelf labels,” Lola Murti, June 19, 2024, <https://www.npr.org/2024/06/17/nx-s1-5009271/electronic-shelf-labels-prices-walmart-grocery-store>.

<sup>19</sup> Walmart, “New Tech, Better Outcomes: Digital Shelf Labels Are a Win for Customers and Associates,” Daniela Boscan, June 6, 2024, <https://corporate.walmart.com/news/2024/06/06/new-tech-better-outcomes-digital-shelf-labels-are-a-win-for-customers-and-associates>.

<sup>20</sup> Microsoft News Center, “Kroger and Microsoft partner to redefine the customer experience and introduce digital solutions for the retail industry,” press release, January 7, 2019, <https://news.microsoft.com/2019/01/07/kroger-and-microsoft-partner-to-redefine-customer-experience-introduce-digital-solutions-for-retail-industry/>.

<sup>21</sup> Product and Operations Management, “When should grocery stores adopt time-based pricing? Impact of competition and negative congestion externality,” Christopher S. Tang et al, September 1, 2023, <https://journals.sagepub.com/doi/10.1111/poms.14010>.

<sup>22</sup> Kroger, “Kroger Reports Fourth Quarter and Full-Year 2023 Results, Announces Guidance for 2024,” March 7, 2024, <https://ir.kroger.com/news/news-details/2024/Kroger-Reports-Fourth-Quarter-and-Full-Year-2023-Results-Announces-Guidance-for-2024/default.aspx>.

<sup>23</sup> YCharts, “The Kroger Co (KR),” July 25, 2024, [https://ycharts.com/companies/KR/gross\\_profit\\_margin](https://ycharts.com/companies/KR/gross_profit_margin).

<sup>24</sup> Fast Company, “Microsoft and Kroger want to show you Minority Report-style ads,” Mark Sullivan, January 7, 2019, <https://www.fastcompany.com/90289099/microsoft-and-kroger-want-to-show-you-minority-report-style-ads>.

<sup>25</sup> Written testimony of Bilal Baydoun to the U.S. Senate Committee on Banking, Housing, and Urban Affairs, May 2, 2024, [https://www.banking.senate.gov/imo/media/doc/baydoun\\_testimony\\_5-2-24.pdf](https://www.banking.senate.gov/imo/media/doc/baydoun_testimony_5-2-24.pdf).

<sup>26</sup> New York University Law Review, “Predatory Pricing Algorithms,” Christopher R. Leslie, April 2023, pp. 49-111, <https://www.nyulawreview.org/wp-content/uploads/2023/04/98NYULRev49.pdf>.

I am concerned about whether Kroger and Microsoft are adequately protecting consumers' data, and that as Kroger expands the personalized customer experience, customers will ultimately be offered a worse deal.<sup>27</sup>

Kroger is the largest supermarket operator in the United States, boasting over 400,000 employees and nearly 3,000 stores across the country<sup>28</sup> – with the potential to increase its number of stores by several thousand should it complete its proposed \$24.6 billion acquisition of Albertsons.<sup>29</sup> It is outrageous that, as families continue to struggle to pay to put food on the table, grocery giants like Kroger continue to roll out surge pricing and other corporate profiteering schemes. Given those concerns, I ask that you answer the following questions by August 20, 2024:

1. How many Kroger grocery stores currently use EDGE or other ESL platforms?
  - a. How many customers are served by these stores?
2. Did any external entities advise Kroger to adopt EDGE and/or continue using EDGE?
  - a. If yes, who are those external entities?
3. Has Kroger prepared internal estimates regarding the potential to increase prices or profit margins by adopting dynamic pricing with EDGE?
4. How does Kroger establish dynamic prices using the EDGE system?
  - a. What factors does Kroger consider when changing prices? Please include a description of any time- or volume-based considerations.
5. How does Kroger inform customers of recent or upcoming price changes?
  - a. How far in advance does Kroger inform customers of price increases that will be implemented using the EDGE system?
6. For all items that have been subject to dynamic pricing using EDGE, what is the average percentage change in price of those items over the first six months of using the system?
  - a. For what percentage of items has the price increased over the first six months of using the system?
7. Has Kroger ever used EDGE to change the price of an item more than one time within the same day?
  - a. If not, does Kroger intend to do so in the future?
  - b. If yes, please list:
    - i. The locations at which Kroger has changed the price of an item more than once in a day.
    - ii. The complete list of products for which Kroger has changed the price more than once in a day.
8. Will Kroger use customers' data to institute personalized pricing on its ESL platforms?
9. Will customers have the option to opt out of the collection of personal data through ESL platforms?

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<sup>27</sup> Fast Company, "Microsoft and Kroger want to show you Minority Report-style ads," Mark Sullivan, January 7, 2019, <https://www.fastcompany.com/90289099/microsoft-and-kroger-want-to-show-you-minority-report-style-ads>.

<sup>28</sup> NPR, "Kroger and Albertsons plan merger to combine 2 largest supermarket chains," Alina Selyukh, October 14, 2022, <https://www.npr.org/2022/10/14/1129014897/kroger-and-albertsons-plan-merger-to-combine-2-largest-supermarket-chains>.

<sup>29</sup> Federal Trade Commission, "FTC Challenges Kroger's Acquisition of Albertsons," press release, February 26, 2024, <https://www.ftc.gov/news-events/news/press-releases/2024/02/ftc-challenges-krogers-acquisition-albertsons>.

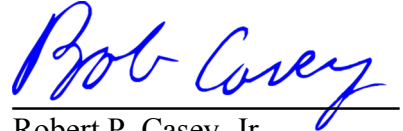
10. What safeguards has Kroger put in place to protect against violations of consumer privacy related to ESL platforms?
11. How will Kroger ensure that it will not use customer data related to ESL platforms to discriminate based on protected classes, such as race, gender, or age, when offering personalized prices?

Sincerely,



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Elizabeth Warren  
United States Senator



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Robert P. Casey, Jr.  
United States Senator