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No Mask, No Service: Customer Reaction to Walmart's 2020 National Mask Mandate

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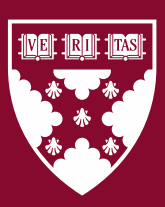

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Abstract

Multi-location firms face a complex series of economic tradeoffs when deciding whether to implement standard processes or allow processes to vary across establishments. One element of this tradeoff is customer response. This paper explores customer reaction to a prominent standardized policy, Walmart's national in-store mask mandate during the COVID-19 pandemic. I find that, in the two weeks after Walmart's corporate mask mandate was enacted, foot traffic at stores in counties with no government mask mandates declined by 1-2% relative to stores in other counties. This effect was driven by stores in heavily Republican counties, where the decline was approximately 5%. However, analysis of a spending panel suggests there was little impact on sales conducted via credit and debit cards. This study provides evidence about the scope for customer reaction in response to corporate policies which in turn informs decisions about the relative merits of standardization or variance of policies across establishments.

Keywords: Economics, Microeconomic Behavior, Strategy and Policy

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Introduction

Multi-location firms face a complex series of economic tradeoffs when deciding whether to implement standard processes across locations or to allow policies to vary at individual establishments. Standardization of corporate policies may bring clarity, consistency, and simplicity, making resources redeployable across locations and maintaining consistent brand reputation. In some cases, including product pricing (DellaVigna and Gentzkow 2019) and worker wages (Hazell et al. 2022) national chains have been shown to follow the same policy across locations even though local pricing seems like a profitable deviation. In other cases, individual managers have been shown to effectively use their expertise and discretion to adjust to local conditions (Campbell and Frei 2011, Ren and Willems 2009), accommodating heterogeneous customers with different service priorities (what Frei and Moriss (2012) call "operating segments"). This is important because aligning customer priorities with firm offerings may have a large impact on customer satisfaction (Buell et al. 2021).

The question of standardization is especially critical for service firms, which have long been understood to differ from manufacturing firms in their degree of customer contact (Chase 1978). As the retail and service sectors in America have become a much larger share of U.S. GDP and employment, they have also increasingly been dominated by national chains (Kosova and Lafontaine 2012). This large geographic scope increases the heterogeneity of customers served by chain restaurants, grocery stores, cinemas, and general merchandise retailers. For example, Regal Cinemas, the second-largest cinema chain in America, is headquartered in Knoxville, Tennessee and has theatres in locales ranging from downtown Manhattan to Anchorage, Alaska.

The impact of this increasing geographic scope on customer heterogeneity has been further magnified by the increasing range of American political beliefs. Americans have become increasingly polarized, disagreeing not only on issues of political opinion (Boxell et al. 2020, Mason 2018, Pew Research 2017) but also about their interpretations of the same set of facts (Alesina et al. 2020). The rise of opinion programs on television news (Bursztyn et al. 2022) and popular social media sites which create echo chambers

that insulate similarly-minded people from new information that might update their beliefs (Quattrociocchi et al. 2016) have reinforced this trend.

Against this backdrop, this paper explores one aspect of the tradeoff around implementing standardized policy across locations: the potential scope for customer reaction. It examines whether Walmart's decision to impose a nationwide in-store mask mandate in July 2020 provoked any change in customer behavior. Walmart is the ideal setting in which to examine reaction across heterogeneous operating segments because of its extraordinary scale: at one point, 90% of Americans lived within 15 miles of a Walmart (Basker 2007). Requiring the use of facemasks during the COVID-19 pandemic, especially early in the pandemic, was a complex corporate decision, with implications for employee health and absenteeism and customer safety and satisfaction. The exact costs and benefits were also highly uncertain. This complexity is perhaps illustrated by the fact that chains within the same industry enacted different policies. For example, AMC and Regal Cinemas both initially declined to enact mask mandates and then reversed course in June 2020 due to public pressure, while Cinemark only enforced mask use where required by law (New York Times 2020). At the time of these initial mandates, for any given firm it was uncertain whether customers would react at all to a mask mandate, and whether that reaction would be positive or negative.

Using data derived from mobile phone applications, I compare the change in foot traffic after the imposition of Walmart's corporate mask mandate at stores where no public mandates existed to the change in foot traffic at stores where public mandates were already in place. I consider locations of both Walmart and its Sam's Club division. When Walmart enacted its in-store mask policy, 33 percent of its stores were in a county without a public mask mandate enacted by state or local officials. I consider customers at these stores "treated" by the enactment of the mandate, that is, they were newly subject to a mask mandate imposed by Walmart, while shoppers at comparison stores had already been subject to the public mask-wearing requirements in their area. Comparing changes in foot traffic before and after the mandate at these two groups of stores identifies the impact of imposing a mask mandate on shoppers who were not already subject to public restrictions. This difference-in-differences style of analysis also accounts for any common trends impacting all Walmart shoppers over this period, assuming that trends in foot traffic in these two groups of

stores would have evolved in parallel if not for the corporate mask mandate. Possible violations of this assumption are discussed below (including the possibility that public mandate shoppers reacted favorably to the policy), but pre-period trends in foot traffic and spending patterns move in parallel which bolsters support for this assumption.

I find that the introduction of a corporate mask mandate resulted, on average, in a small decrease in foot traffic at no-public-mandate-county stores relative to mandate-county stores in the two weeks after Walmart's policy took effect. This decline is on the order of 1-2% and dissipated within days. I then illustrate that this effect is driven by larger and more persistent declines at stores in counties where the electorate voted overwhelmingly for President Trump in 2016. This is consistent with existing work that finds Republicans and Democrats differ both in their beliefs about the severity of the threat posed by COVID-19 and their behavioral responses as measured by surveys (Allcott et al. 2020), mobility data derived from cellphones (Barrios et al. 2020), and debit card transactions (Painter and Qiu 2021). This is also consistent with management literature that finds different political constituencies respond asymmetrically to overt corporate political activity (Burbano 2021, Liaukonyte et al. 2022), and that these responses tend to dissipate within days or weeks (Hou and Poliquin 2022). A placebo test on foot traffic at Dollar General suggests that this really was an effect specific to Walmart, and robustness tests cast doubt on the existence of any offsetting positive effect on foot traffic in public mandate counties.

Foot traffic alone is a key performance indicator, but how does this decline in foot traffic translate into sales? Using SafeGraph's newly available spend panel, a dataset of anonymized debit and credit card transaction data aggregated to individual places in the United States (SafeGraph 2023), I find that declines in foot traffic did not translate into declines in sales using these payment types. After the mask mandate, there is a small decline in sales (on the order of 1%) but it is not robust to controlling for the number of COVID-19 cases locally, or to store-specific time trends. This analysis has limitations (discussed below) but suggests that the short-term costs of customer reaction to this policy were minimal, and, more broadly, that more work is needed to understand exactly how declines in foot traffic could impact firm performance.

Importantly, I do not identify the precise mechanism behind the decline in foot traffic. It is an open question whether the decline was driven by ideological opposition to a mask mandate (a deliberate consumer boycott (Hendel et al. 2017, Liaukonyte et al. 2022)) or by adjustment costs in areas where people were less likely to believe that the pandemic was a serious threat. The lack of an impact when the policy was announced five days before it took effect may suggest the latter. In fact, aversion to mandates and not having a mask are correlated in survey responses (Taylor and Asmundson 2021). These different mechanisms may have different implications for how a firm could mitigate customer reaction to a potentially unpopular policy.

While the early-pandemic mask mandates seem exceptional, they are one instantiation of the more general problem of establishing policy for multi-location establishments across jurisdictions with different rules and regulations. While firms must comply with public accommodations laws that stop them from forbidding service to customers based on factors like race, gender, ethnicity, or religion, they have wide latitude to set requirements on customers in other ways. These service requirements range from relatively uncontroversial dress codes ("No Shoes, No Shirt, No Service") to more contentious restrictions like forbidding firearms. In the case of firearms, firms again make this determination against a backdrop of varying state and local regulations. Firms differ in their choice of standardized vs. local policies, with some chains like Walmart forbidding open-carry in their establishments, some like Starbucks simply 'requesting' customers not to carry firearms, and a few like Macy's and TJ Maxx explicitly deferring to state or local regulations (Wong 2019).

This general problem remains important, as the balance of power between corporate and public decision makers has shifted. This is true in relation to efforts to combat the ongoing COVID-19 pandemic: in January 2022, the Supreme Court struck down a federal rule that would require employees of private corporations to get vaccinated or get tested. Some firms like Carhartt have chosen to maintain these rules and faced backlash. Others, like Starbucks, have dropped the requirement (NPR 2022). In April 2022, a U.S. District Court similarly ended the requirement that passengers wear masks on planes and other transportation (Associated Press 2022). This is also part of a broader trend of devolving power to firms. Since the mid-2010s, Supreme Court decisions have both empowered corporations to exercise certain personal rights like

religious objections to, for example, providing contraception as part of employee health plans (*Burwell v. Hobby Lobby Stores* 2014), and limited the power of federal administrative agencies to enact national policy without explicit Congressional approval (*West Virginia v. EPA* 2022). With these shifts away from uniform national public policy, managerial awareness of the scope for customer reaction to corporate policy is becoming more critical.

Related Literature

This paper relates most closely to work in operations management dealing with customer segmentation and the tradeoffs between flexibility and standardization. Serving customers with different service priorities (what Frei and Moriss 2012 call "operating segments") poses strategic and operational challenges for firms (Frei and Morriss 2012, Guajardo and Cohen 2018). Addressing these challenges is critical, as customer-firm compatibility may explain a large part of the variance in customer satisfaction (Buell et al. 2021). One way to account for customer heterogeneity is to allow operational variance rather than offering a standard product or service (Karmarkar and Pitbladdo 1995). This could be accomplished by explicitly setting different policies in different locales, or allowing managers discretion to set store-level, rather than chain-level policy. Empirical work has suggested that individual managers do use their discretion to tailor offerings to local demand conditions (Campbell and Frei 2011, Ren and Willems 2009) and that market-type dispersion does impact organization design (Campbell et al. 2009). Previous empirical work has demonstrated that customers are segmented by demographics like gender (Halek and Eisenhauer 2001) and income (Campbell and Frei 2011, Propper 1995). This paper adds to this existing work by highlighting that political divisions could be a source of customer heterogeneity, and providing some evidence that, at least for large chains, the impact is so far small.

In addition, while it investigates a different type of corporate action, this paper also relates to literature investigating customer reaction to CEO activism. As CEOs increasingly undertake direct political advocacy on divisive issues not necessarily related to their core business interests (Chatterji and Toffel 2019) and seek to define corporate purpose (Gartenberg and Serafeim 2019) other work has found small consumer

responses to corporate statements in favor of gun control (Hou and Poliquin 2022) and high-profile endorsements of particular candidates (Liaukonyte et al. 2022) which, like the results in this paper, are asymmetric along party lines and dissipate relatively quickly.

This paper is most conceptually similar to Hou and Poliquin (2022), which also make use of the SafeGraph foot traffic data and examine reaction to two open letters by a group of CEOs (including Walmart's CEO) calling for stricter gun control. This work builds on and differs from theirs in three important ways. First, this paper illustrates that politically diverse customer constituencies might pose a strategic not only for CEO speech on explicitly political issues, but also for operational decisions that become controversial. Walmart's initial statement acknowledged the controversy surrounding mask mandates, stating that "we know some people have differing opinions on this topic" (Walmart 2020a) but was couched as a health and safety issue ("a simple step to help keep you safe"). Operational and political decisions are intertwined, and the concerns and evidence presented by the literature on CEO activism are important to an even broader community of strategy and operations scholars. Second, it finds that, in the case of the mask mandate, the decline in foot traffic was much shorter-lived than the decline illustrated by Hou and Poliquin (2022) following statements on gun control. Gathering case studies from multiple policies is important, as not every potentially controversial decision will have the same resonance for the American public as the issue of gun control. Finally, this paper makes use of the new SafeGraph spend panel to explore how declines in spending track declines in foot traffic, illustrating that in this case the impact on debit and credit card transactions was minimal.

This paper also adds to the growing literature about political polarization and the COVID-19 pandemic, focusing on implications for private rather than public actors. Existing work largely focuses on publicly imposed non-pharmaceutical interventions (NPIs) like stay-at-home orders imposed by state and local governments (Alexander and Karger 2020, Baek et al. 2021, Goolsbee and Syverson 2021). This paper adds to this literature by considering an effective (Abaluck et al. 2021) but less invasive NPI that can be imposed by private actors as large-scale government intervention has ended and Americans' appetite for stricter measures wanes more than two years into the pandemic. An important subset of this existing

literature about NPIs highlights heterogeneous opinion and behaviors along political party lines. American political polarization is stark and increasing (Boxell et al. 2020, Mason 2018, Pew Research 2017), as is dislike and distrust of counter-partisans (Boxell et al. 2022). These political divisions have translated to different social distancing behaviors across a variety of survey, location, and transaction data (Allcott et al. 2020, Barrios and Hochberg 2021, Painter and Qiu 2021). Others have explicitly linked differences in NPI adherence to cultural emphasis on individualism (Bian et al. 2022) and trust in institutions (Brodeur et al. 2021). This paper suggests that differential responses to NPIs may also be a concern for business managers, specifically those managing the regional or national chains that serve these diverse political constituencies. There is growing recognition of the role that private firms can play in public health efforts, for example as strategic vaccination sites (Chevalier et al. 2021) or through workplace testing programs (Rosella et al. 2022), but while these national chains can be influential in public health efforts, they may also be concerned about alienating certain operating segments and thus hesitant to impose nationwide policies.

Finally, Walmart itself has provoked substantial scholarly work. Walmart's scale has sparked interest in its impact on diverse socioeconomic conditions like employment (Basker 2005, Neumark et al. 2008), earnings (Dube et al. 2005), competitor pricing (Basker and Noel 2009), local economic development (for a survey, see Bonanno and Goetz 2012), housing prices (Pope and Pope 2015), and obesity (Courtemanche and Carden 2011). This paper complements this body of work, highlighting that retail and service establishments govern spaces in which millions of Americans work and transact everyday, and this scale poses important questions and challenges for operational strategy.

Data

Data about trips to Walmart come from SafeGraph, a company that tracks a subset of location-enabled cellphones to record trips to individual points of interest in the U.S (SafeGraph 2021). SafeGraph data have been made available to academic researchers and are being used in a growing number of papers to study mobility patterns in the U.S. (Barrios et al. 2020, Goldfarb and Tucker 2020, Goolsbee and Syverson

2021). SafeGraph data are aggregated, "from numerous applications in order to provide insight about physical places" and are available at the level of number of trips to specific points of interest: they report the number of tracked devices that visited a location on a given day. Due to privacy concerns, SafeGraph excludes census block group information if fewer than five devices from that block visited an establishment in a month. This number of raw trips can be adjusted by the number of devices that SafeGraph follows in a particular census block group and scaled by population to create an estimate of the total number of trips to a place on a given day (SafeGraph 2021).

SafeGraph foot traffic data have two important limitations. First, the data undercount trips by populations less likely to have smartphones, including low-income and elderly individuals. This latter group is particularly important: because of their vulnerability to the coronavirus, seniors may be disproportionately more likely to shop at stores that require masks, and if trips by seniors are undercounted in SafeGraph data, this offsetting increase in trips would not be captured in this analysis. While I cannot fully account for this shortcoming, I do confirm that the negative impact on foot traffic is present (and in fact larger) in counties with older age profiles. Second, the data only reflect trips to stores, not actual transactions. Estimating the actual losses associated with reduced foot traffic requires additional assumptions. However, for retailers like Walmart, foot traffic is an important performance indicator and is likely correlated with sales, as people generally go to Walmart to shop or retrieve goods shipped to store. Finally, while these data do not account for substitution to online purchases, this is unlikely to be a major concern in this setting, as the areas without mask mandates also have worse online access as measured by the number of residential high-speed internet connections (see Exhibit 1).

This paper also makes use of the SafeGraph Spend dataset which contains anonymized debit and credit card transaction data connected to individual places in the United States. The data are created from a panel of about nine million customers. While the sample is not perfectly representative of the United States, there is consistently high correlation between each state's sample and its true share of population. Some states are under or over-represented, but these biases are relatively consistent over time, and unlikely to be important over the relatively short four-week analysis period in this paper (Ho 2021). The major shortcoming

of the Spend data is that, unlike point-of-sale data from barcode scanners (which often do not permit identification of individual retailers), they do not include cash transactions. The Federal Reserve estimates that in 2020, Americans used cash for 19 percent of total transactions, but only 6 percent of total transactions by value were cash (The U.S. Federal Reserve 2022). It seems plausible that cash transactions not covered by the dataset would be of relatively less value than debit and credit transactions. It is possible, however, that cash is a larger share of transactions at non-mandate-county stores than in mandate-county stores. Thus, to the extent that the decline in foot traffic occurred disproportionately among people who favor the use of cash, their missing transactions would not be captured by this analysis.

Data on local mask mandates were collected and disseminated by Professor Austin L. Wright at the University of Chicago (Wright 2020). Data on daily county population and age structure and the 2016 election results were retrieved from publicly available sources (Census Bureau 2020). Data on daily coronavirus cases were retrieved via the COVID-19 Data Hub (Guidotti and Ardia 2020). Data on county-level broadband service is publicly available from the Federal Communications Commission (Federal Communications Commission 2018).

Empirical Specification

A. Context

During the COVID-19 pandemic, rules requiring face coverings became controversial in the United States. The Centers for Disease Control first recommended the use of cloth face masks in public on April 3, 2020, but even in early June, only 76% of Democrats and 53% of Republicans reported wearing a mask all or most of the time (Pew Research Center 2020). Messaging from President Trump and senior officials in the executive branch about the importance of wearing face masks was also inconsistent (NBC News 2020). The flashpoints for conflict over masking were often retail environments, with videos circulating on social media of individuals or groups objecting to being asked to wear a mask at, for example, multiple Walmart, Target,

and Costco locations (Business Insider 2020b, CBS Los Angeles 2020, NY Daily News 2020, USA Today 2020). At the same time, groups like the American Association for Retired Persons (AARP) maintained lists of retail mask policies for its members who valued a shopping experience where masks were required. In the summer of 2020, with some deeply resentful of mask policies and some valuing them, it was unclear whether there would be any net impact of imposing a mask mandate, or whether it would be positive or negative.

On July 15, 2020, Walmart announced via press release and its social media channels that, beginning July 20, it would require customers and associates to wear masks at all locations nationwide as "a simple step to help keep you safe," (Walmart 2020a). Notably, Walmart's press release acknowledged divisiveness around the issue, stating, "we know some people have differing opinions on this topic" (Walmart 2020a). Within the retail sector, other prominent chains followed Walmart and announced national mask mandates in late July including Target, Kroger, Albertsons, Publix, Aldi's, Walgreens, CVS, Home Depot, and Lowe's. However, holdouts remained. Southeastern Grocers (parent company of Bi-Lo, Harvey's and Winn Dixie) initially vocally declined to follow suit, but instituted their own mandate a week later. While in early July Dollar General had initially announced a mask mandate for its 15,000 stores, it later backtracked to merely 'request' customers wear masks before ultimately re-instating a mask mandate in August (Business Insider 2020a).

At the time that Walmart introduced its mask mandate, some public mask wearing requirement was in place in 45% of U.S. counties. These mandates were enacted by state or local authorities, and the exact requirements varied by jurisdiction. Figure 1 presents a map of counties shaded by mandate status as of July 20 (the date Walmart's mask mandate took effect), with Walmart locations superimposed.

XX Figure 1 about here XX

Table 1 provides summary statistics that illustrate how counties with a public mandate differ from no-public-mandate counties. Columns 1-3 present mean values of statistics for all counties, public mandate counties, and no-public-mandate counties. Column 4 presents the p-value from a t-test of equality of means between columns (2) and (3).

XX Table 1 about here XX

Counties choose whether to enact a mask mandate, and Table 1 highlights that public mandate counties differ systematically from no public mandate counties. The latter group of counties that had not enacted public mask mandates were, on average, less populated with a slightly higher share of the population over age 64. These counties had fewer new coronavirus cases per day in the pre-period, and fewer cases/thousand overall. They also had a much higher average vote share for President Trump in the 2016 Presidential Election, and were less connected to the internet, with fewer high-speed broadband connections per household.

However, what is important for this analysis is that the trends in foot traffic and spending patterns at Walmart stores located in public mandate counties closely track the patterns at stores located in no public mandate counties. While the sum of total spending is higher in mandate county stores (which make up a larger share of the sample), the foot traffic and spending patterns co-move: they are dominated by day-of-the-week effects, with foot traffic and spending peaking on weekends. Most critically for a difference-in-difference style of analysis that examines the change in foot traffic after Walmart's corporate mandate between these two groups of stores, the trends in the pre-period move together, suggesting that they would have continued to do so in the absence of the corporate mask mandate.

XX Figure 2 about here XX

B. Specification

$$\ln(\text{daily visits})_{ict} = \beta_1 post_t \; x \; nomandate_c + \beta_2 \; store_i + \beta_3 \; day_t + \epsilon_{ict} \quad (1)$$

Equation (1) summarizes the main identification strategy of the paper. The log number of visits to store i in county c on day t is regressed on a dummy variable $post_t x \; nomandate_c$ that takes a value of 1 if a day t occurs after the introduction of the corporate mandate and county c is a county without a public mask mandate. The coefficient of interest is on this indicator variable (β_1) and summarizes the difference in foot traffic before and after the introduction of the mandate at no-public-mandate stores relative to public-

mandate stores. A day fixed effect (day_t) captures day-specific determinants of foot traffic like days of the week, a store fixed effect ($store_i$) captures time-invariant but store specific determinants of foot traffic. Standard errors are clustered at the county level.

In a standard difference-in-difference setup, otherwise similar units are differentially treated, and the pre-post differences between them identify the effect of the policy on the treated units under the assumption that the untreated units are reasonable counterfactuals for the treated units. Here instead, otherwise different areas are uniformly treated, and the differences between them are compared. However, as discussed above, while the geographic areas are different, the trends in foot traffic and spending patterns in treated and non-treated areas closely mirror each other.

To explore which stores are driving this result, I rank counties by the share of the vote received by President Trump in the 2016 Presidential Election and then divide counties into deciles. Counties in the first decile are counties where President Trump received the lowest share of the vote in 2016, and counties in the 10th decile are counties where President Trump received the highest share of the vote in 2016. I then interact the coefficients in equation (1) with a set of nine indicator variables indicating county c's decile of the distribution. The result is equation (2).

$$\ln(\text{daily visits})_{ict} = \beta_1 post_t \; x \; nomandate_c + \beta_2 \; store_i + \beta_3 \; day_t + \gamma \Sigma_{d=2}^{10} decile_d \; x \; post_t \; x \; nomandate_c + \psi \Sigma_{d=2}^{10} decile_d \; x \; day_t + \epsilon_{it} \quad (2)$$

The set of nine γ coefficients captures any additional impact of the mandate on foot traffic for stores in a given decile of the distribution, relative to stores in the most Democrat-leaning areas (in the bottom decile of the county vote share distribution).

Finally, to investigate the time path of the effect and to verify that the decline occurs on or around the introduction of the mask mandate, I replace the single indicator variable in equation (1) $post_t \; x \; nomandate_c$ with a set of 28 dummies that each take a value of 1 if a store is located in a no-mandate county and a store-day observation falls on a particular day in the two weeks prior to and after the introduction of the mandate. The day prior to the mandate is the omitted category.

$$\ln(daily\ visits)_{ict} = \Sigma_{t=-14}^{14} post_t\ x\ nomandate_c + \beta_2 store_i + \beta_3 day_t + \epsilon_{it} \quad (3)$$

Results

A. Main Results

Table 2 presents the results of estimating equation (1), the impact of the imposition of the mask mandate on store-level foot traffic. Column (1) is the baseline specification. Column (2) includes a control for the number of county-level coronavirus cases/thousand and Column (3) demonstrates that estimates are robust to the inclusion of store-day time trends. Results across the three columns are largely unchanged: the introduction of the corporate mask mandate is associated with a 1.2% drop in foot traffic in stores located in no-mandate counties relative to stores in counties where mask mandates already existed.

XX Table 2 about here XX

The negative impact on foot traffic after the introduction of the mandate is driven by stores located in the top half, and in particular the top decile of the county vote share distribution. Figure 3 plots the nine γ coefficients from equation (2), estimating the additional impact on foot traffic for a county in the given decile of the Republican vote-share distribution. Counties in the top two deciles of the distribution are counties where more than 75% of voters voted for President Trump in 2016. In these counties, the decline in foot traffic is on the order of 4-5%, more than double the average effect of 1.2%. Smaller sample sizes reduce the statistical power of this heterogeneity analysis, but the effect in the top decile is statistically different from the effect in the bottom decile.

XX Figure 3 about here XX

Figure 4 then traces the time-path of this decline in foot traffic by plotting the daily event-study coefficients described in Equation 3 and presented in Appendix Table A3. This Figure shows two things. First, the effect is driven by the day of the mandate and the subsequent two or three days, and dissipates

quickly. Second, there does not appear to be a decline when the mandate is announced, five days before it takes effect.

XX Figure 4 about here XX

Finally, the analysis in Table 3 replaces the outcome variable in equation (1) (ln of total daily foot traffic) with the ln of total daily spending in order to examine whether Walmart's mask mandate resulted in a decline in credit or debit card transactions. Column 1 suggests that the total dollar value of credit and debit card transactions declined at no-mandate-county stores relative to mandate county stores in the two weeks following Walmart's mask mandate, an effect similar in magnitude to the impact on store-level foot traffic. However, Columns 2 and 3 illustrate that this effect is not robust to controlling for new daily coronavirus cases, total cumulative coronavirus bases, and the inclusion of a store-day time trend

XX Table 3 about here XX

B. Robustness Tests

One threat to identification is the possibility that appreciative shoppers increased their trips to Walmart after they began to require masks. If this happens in no-mandate counties, it would simply offset the estimated effect. However, if foot traffic systematically increased in public mandate counties because Walmart's policy was particularly popular, this confounds the difference-in-differences, which assumes that foot traffic in public mandate county stores stays the same after Walmart's mask mandate.

To assess this possibility, I test for positive changes in foot traffic in a subset of mandate counties where, between July 20 and 27, shoppers had a choice between Walmart (which required masks) and Winn Dixie (which did not). Across Alabama, Florida, Georgia, Louisiana, and Mississippi there are 200 Winn Dixie and 370 Walmart stores co-located in 44 counties with public mask mandates. Comparing the change in foot traffic between Walmart and Winn Dixie locations before and after Walmart enacted a mask mandate, I see no evidence of a positive impact on Walmart foot traffic from enacting this policy (results are presented in Appendix Table A4). I do not observe a positive effect of enacting this policy at locations in mandate

counties. In fact, foot traffic at Walmart declined approximated 4% relative to foot traffic at Winn Dixie after Walmart enacted its mask mandate, though the effect is not robust to the inclusion of store-day time trends. Results are presented in Appendix Table A4. This suggests that, if anything, the decline in foot traffic at no-public-mandate county stores may be underestimated because certain shoppers in mandate counties may have also decreased their trips to Walmart in the wake of their public announcement and enforcement of the mask mandate.

This test is not perfect. First, since these stores are competitors, foot traffic trends may not evolve in parallel after Walmart's mask mandate: for example, if Walmart shoppers flock to Winn Dixie because, despite the public mandate, they are lax on the enforcement of mask wearing. However, if this were the case, then an increase in foot traffic to Walmart in mandate counties would not be confounding the main estimate in this paper. Second, Winn Dixie is geographically concentrated in the U.S. Southeast, and perhaps shoppers in these states are least likely to have an affinity for mask wearing relative to Walmart locations in other geographic markets. However, these are not heavily Republican counties: 34 out of 44 counties are in the bottom half of the distribution of the vote share for President Trump in 2016.

Another threat to validity is the probable undercounting of older individuals in the SafeGraph data. While about 85% of all Americans are estimated to own a smartphone, for Americans over age 65 this share is only 61% (Pew Research Center 2021). If older Americans are both less likely to own smartphones and more likely to patronize a mask-mandating establishment due to being at a higher risk of serious illness or complications due to COVID, there could be an offsetting positive effect on foot traffic in no-public-mandate counties not captured by the analysis.

While I cannot fully account for this, I can verify that the negative impact on foot traffic is similar (in fact, slightly larger) for counties with a larger share of the population over age 64. Appendix Table A5 repeats the main analysis of Table 2, restricting to counties where more than 19.6% of the population is over age 64 (this is the median share for all counties). The results are essentially in the same: in fact, the decline in foot traffic is larger (on the order of 2-3%) in this subset of counties. An offsetting effect may exist, but in areas

where it is likely to be important (counties with older age profiles), it is still counterbalancing a negative impact on foot traffic.

In addition, one could question whether this effect is specific to Walmart or result of an identically timed but more general decline in foot traffic in counties without public mask mandates. However, re-estimating Equation (1) using foot traffic at Dollar General, a retailer with similar geographic coverage to Walmart that made no changes to its mask policy during this time, I find no evidence of a decline in Dollar General foot traffic around the implementation of Walmart's mandate on July 20th. Results are presented in Appendix Table A6.

Finally, a mask mandate might also change shopping behavior conditional on going to the store. For example, people may linger and purchase more because they feel safer in a masked environment, or they may shop faster if wearing a mask is uncomfortable or provokes anxiety about the pandemic. The results from analysis of the spend data make this seem unlikely, but I cannot fully account for this possibility. As an additional check, I re-estimate equation (1) at the store-week level where SafeGraph make available the median "dwell time" recorded at a store each week. Dwell time is the time elapsed between the first and last ping of a device recorded at a location: since an individual can arrive at a location before the first device ping, dwell time is a lower bound of time spent at a given location. I find no significant impact on median dwell times at the store-week level (Appendix Table A7). This rules out some subset of extreme changes in shopping behavior.

Limitations

In addition to the limitations already discussed above, there are three important limitations of this paper.

First, I cannot specify the fundamental cause of the decline in foot traffic. While consumer response was asymmetrical in heavily Republican vs. heavily Democratic areas, this could be driven by both philosophical objections to a mask mandate or by adjustment costs. These mechanisms have different strategic implications for a firm seeking to mitigate lost foot traffic: do beliefs have to change, or would

distributing masks have changed behavior? Disentangling the roots of behavior would be difficult, even with better data, as not having a mask and aversion to mask mandates are correlated in survey responses (Taylor and Asmundson 2021). Other work has attempted to delve further into the cultural determinants of these differential responses to public health measures (Bian et al. 2022, Brodeur et al. 2021). The contribution of this work is to establish that there was an impact on foot traffic, estimate its size, and whether it corresponded to a decline in sales.

Second, this paper examined only one small aspect of the overall corporate decision to enact at mask mandate: its intention was not to explore the complexities of the decision in full, which potentially included employee well-being, health care costs, absenteeism, and turnover. These are important considerations: Walmart is self-insured, and the cost of a median COVID-related ICU stay has been estimated at around $13,000 (Clark 2022). If masking in no-public-mandate counties kept Walmart Associates out of the hospital, the savings to the retailer could rise quickly. Customer reaction is one small part of the tradeoffs of national corporate policymaking.

Finally, how generalizable is this empirical finding to other eras, corporate policies, and firms? While the early-pandemic mask mandates seem exceptional, managers establishing policy for multi-location establishments across jurisdictions with different rules and regulations (for example, about open-carry of firearms, or requiring ID to purchase certain goods) is a broader phenomenon. Businesses have wide latitude to impose general behaviors on customers at their facilities, ranging from dress codes to automatic opt-in to digital tracking on their properties (as is policy at Disneyland (Carr 2019)). Understanding the scope for customer reaction to the imposition of these policies is directly relevant for managers. Mask mandates are an extreme example of this type of policy in their visibility to consumers (literally, masks are in consumers' faces) which makes them a useful context to study consumer reaction. However, it could be argued that if the consumer reaction to such a highly visible policy was small and transient, as was the case for Walmart, then contentious issues that are less visible to consumers (for example, the decision to cover reproductive health care like contraception and abortion care for employees) may provoke even less consumer response. These will be difficult corporate decisions, even for giant firms like Walmart, which had approximately $109.7

million in net sales in the thirteen week period ending July 31, 2020 (Walmart 2020b). Finally, future work should also consider how firms other than Walmart may be especially vulnerable to or insulated from customer reaction based on their brand recognition, geographic scope, and customer switching costs.

Conclusion

As the geographic scale of retail and service chains has expanded, the probability that they serve heterogeneous customers in multiple operating segments increases. Should corporate leaders impose standard processes in all locations, or allow processes to vary, perhaps permitting local managers to use their discretion to tailor services to customer tastes? This question has gained renewed urgency due to deep divisions in American society, and as the balance of power shifts from public to corporate decision makers.

This paper analyzed customer reaction to one standardized policy: a nationwide mask mandate implemented by Walmart in July 2020. It provides evidence of a small, short-lived average decline in foot traffic (on the order of 1.6%) in response to Walmart's initial in-store mask mandate, and casts doubt on the existence of major sales losses. This effect was driven by stores located in heavily Republican counties. It is unclear whether that was due to ideological opposition, or adjustment costs in areas where the pandemic was seen as less of a threat. The lack of anticipation effects (no drop in foot traffic in response to the announcement of the mandate) and the short-lived nature of the decline may suggest the latter.

Customer responses are part of a complex series of tradeoffs of implementing uniform national corporate policy. In this case, the benefits of enacting the mandate (which may include reduced employee illness and absenteeism and ensuing corporate savings on health care costs, service delays, and turnover) seem to have outweighed the cost for Walmart, which continued requiring masks for customers until mid-May 2021 (NPR 2021).

If the decline in foot traffic in reaction to a mask mandate was small, and there was no robust decline in sales: what is the practical significance of these findings? First, this is an important case study because it illustrates the fuzzy boundaries between deliberately political activities like CEO speech or a firm taking a public stance on an issue not directly related to its core business interests (Burbano 2021, Chatterji and Toffel

2019, Hou and Poliquin 2022) and an operational decision like a mask mandate which can become political. The growing literature on the former may have implications for an even wider array of policies than has been previously appreciated.

Second, the small effects are surprising given the vociferous debate over mask mandates that occurred at the time. With the benefit of hindsight, at least for large firms like Walmart, the impact of corporate mask mandates seems to have been minimal and was likely outweighed by the benefits of healthier employees which potentially reduced health care costs, absenteeism, and turnover. The short-lived decline in foot traffic may also be partially due to many of Walmart's competitors subsequently announcing their own mask mandates, leaving few comparable outside options for maskless shopping. This raises the normative question (which is beyond the scope of this paper) of what role large corporations (acting alone or in concert) should play in addressing issues of public significance or during times of crisis. Decisions by large chains have potentially large externalities, and may influence smaller firms to follow suit (de Vaan et al. 2021). In the case of mask mandates, counterfactual estimates have suggested that a national mask mandate for employees in public businesses could have reduced the early growth rate of coronavirus cases and deaths by more than 10 percentage points (Chernohukov et al. 2021) and that near-universal mask use could have saved on the order of 100,000 lives from late 2020 to early 2021 (Reiner et al. 2021). Walmart alone employs about 1.6 million Associates in the United States, and corporate decisions affect their health, safety, and well-being, whether they are about simple NPIs to stop the spread of infectious diseases, the presence of guns in the workplace, or the extent of services covered by health insurance. However, it is an open question to what extent managers will feel empowered to enact national-level policies that may be received differently by operating segments with diverse worldviews.

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Data Availability Statement

The primary data in this study are available from SafeGraph via the research data platform Dewey (deweydata.io). At the time of the article, SafeGraph made their data freely available to academic researchers. Other data are publicly available from the sources described in the text and cited in the references.

Tables and Figures

Figure 1: Walmart Locations and County-Level Mask Mandates

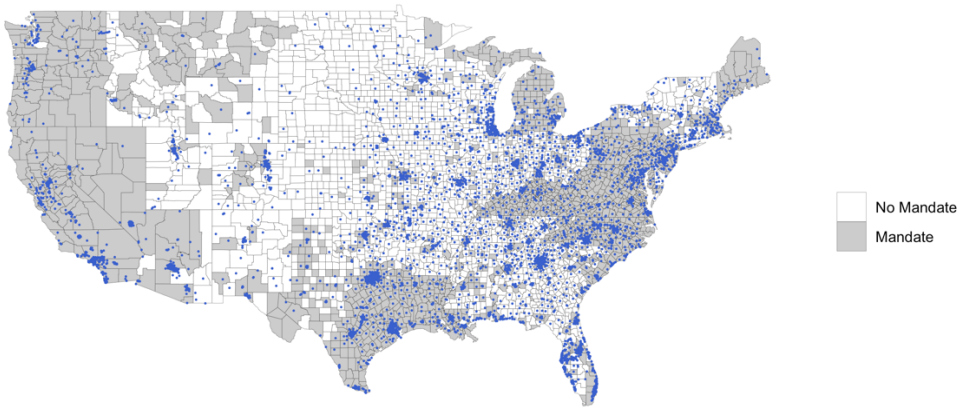

Figure 1 indicates whether a U.S. county had a public mask mandate in place as of July 20, 2020 when Walmart introduced its nationwide in-store mask mandate. Walmart locations are superimposed as blue dots.

Table 1: Descriptive Statistics

	(1) All	(2) Public Mandate	(3) No Public Mandate	(4) p-value (Test of Equality of Means)
Panel A: Store-level				
Pre-Mandate Average Daily Visits	2075	2075	2074	.938
Pre-Mandate Average Daily Spend	4576	4758	4212	<.001
Number of Stores	5151	3437	1714	5151
Panel B: County-level				
Population (2019)	160892	229644	87433	<.001
Share Over Age 64	0.18	0.18	0.19	.003
New Coronavirus cases/thousand	0.17	0.18	0.16	.002
Total Reported Coronavirus cases/thousand	8.49	8.90	8.05	.029
Vote Share, President Trump (2016)	0.61	0.57	0.64	<.001
Residential High-Speed Broadband Connections/Household	0.75	0.77	0.72	<.001
Number of Counties	1843	952	891	1843

Notes: Table presents descriptive statistics on Walmart stores (Panel A) and the counties that contain them (Panel B). Panel A shows the mean number of daily visits to all Walmart locations, Walmart locations in counties with public mask mandates (Column 2), and Walmart locations in counties with public mandates (Column 3). Average new coronavirus cases per thousand and total reported coronavirus cases are calculated until July 20, 2020 (the date of Walmart's mask mandate).

Figure 2: Trends in Foot Traffic and Spending by County Mandate Status

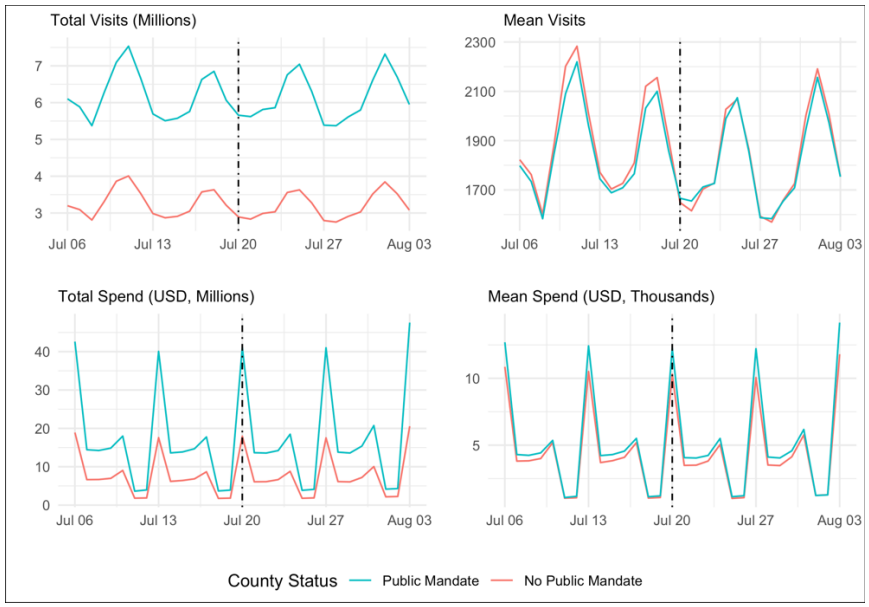

Figure 2 illustrates total and average visits and dollars spent at stores located in counties with and without public mast mandates during the study period (two weeks pre and post the enactment of Walmart's mask mandate). The date of Walmart's mask mandate is represented by the vertical dotted line.

Table 2: Walmart's Mask Mandate - Impact on Foot Traffic

	(1) Ln(daily visits)	(2) Ln(daily visits)	(3) Ln(daily visits)
Post x No Public Mandate County	-0.0160***	-0.0162***	-0.0389***
	(0.00488)	(0.00480)	(0.00683)
Coronavirus cases/thousand		0.00920**	0.00971*
		(0.00435)	(0.00501)
Cumulative coronavirus cases/thousand		0.000204	0.00523*
		(0.000600)	(0.00296)
N	142965	142965	142965
Day FE	Yes	Yes	Yes
Store FE	Yes	Yes	Yes
Store-Day Time Trend			Yes

Note: Column 1 presents the results of a two-way fixed effect regression testing for the impact of Walmart's mask mandate on log daily visits. Column 2 adds a control for county-day COVID cases/thousand, and for total cumulative coronavirus cases/thousand since the start of the pandemic. Column 3 demonstrates that the estimate is robust to the inclusion of a store-day time trend. Standard errors are clustered at the county level. This analysis excludes 162 stores in 77 counties that adopted mask mandates during the postperiod. Appendix Table A1 demonstrates that results are nearly unchanged when including these stores. * p<0.10, ** p<0.05, *** p<0.01

Figure 3: Results by County Political Leanings

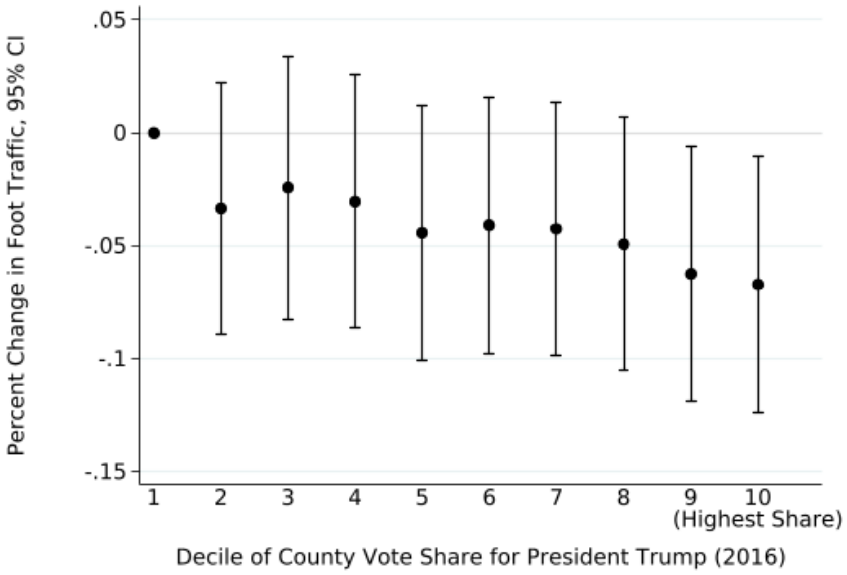

Figure 3 illustrates coefficients from Equation (2). Coefficients indicate the additional decline in foot traffic for counties in each decline of the vote share distribution for President Trump. For reference, coefficients are presented in Appendix Table A2.

Figure 4: Daily Event-Study Coefficients

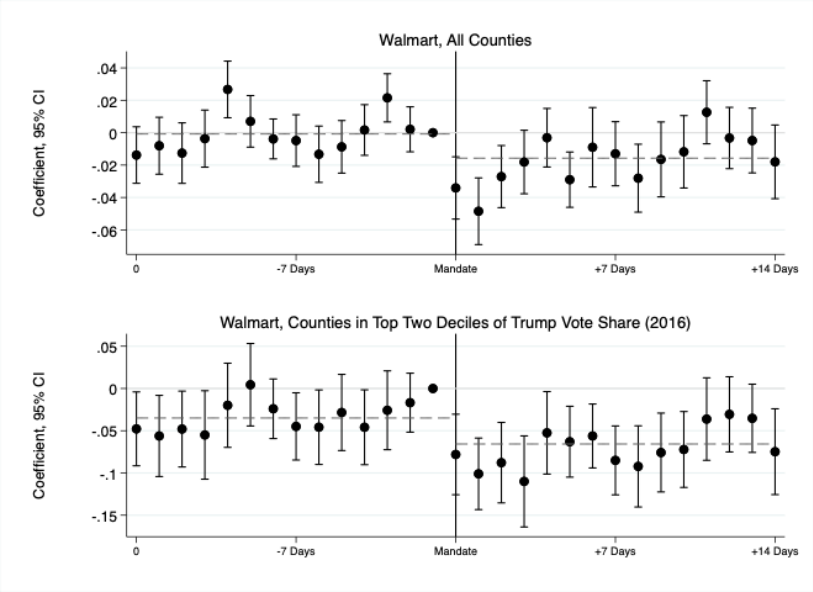

Figure 4 plots the coefficients from an event-study estimation of the impact of Walmart's mask mandate on store-level foot traffic (presented in equation (3) in text). The top panel presents the impact on all stores, the bottom restricts the analysis to the stores in counties in the top two deciles of the vote-share distribution for President Trump in 2016. The date of Walmart's mask mandate is indicated by a straight vertical line, and the day before the mandate takes effect is the omitted category. The y-axis is interpreted as the percent change in foot traffic at Walmart stores in no-public-mandate counties relative to those located in public mandate counties on each individual day.

Table 3: Walmart's Mask Mandate - Impact on Spending

	(1) Ln(daily spending)	(2) Ln(daily spending)	(3) Ln(daily spending)
Post x No Public Mandate County	-0.0171**	-0.00914	-0.0338
	(0.00840)	(0.00844)	(0.0283)
Coronavirus cases/thousand		-0.0318*	-0.0288
		(0.0185)	(0.0206)
Cumulative coronavirus cases/thousand		0.00868***	0.00594
		(0.00213)	(0.0119)
N	140418	140418	140418
Day FE	Yes	Yes	Yes
Store FE	Yes	Yes	Yes
Store-Day Time Trend			Yes

Note: Column 1 presents the results of a two-way fixed effect regression testing for the impact of Walmart's mask mandate on log total dollars spent according to SafeGraph's Spend panel of debit and credit card transactions. Column 2 adds a control for county-day COVID cases/thousand, and for total cumulative coronavirus cases/thousand since the start of the pandemic. Column 3 adds a store-day time trend. Standard errors are clustered at the county level. This analysis excludes 162 stores in 77 counties that adopted mask mandates during the postperiod. Appendix Table A1 demonstrates that results are nearly unchanged when including these stores. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

Appendix Tables

Table A1: Difference-in-difference estimate of impact on foot traffic

	(1)	(2)	(3)
	Ln(daily visits)	Ln(daily visits)	Ln(daily visits)
Post x No Public Mandate County	-0.0175***	-0.0176***	-0.0404***
	(0.00456)	(0.00448)	(0.00655)
Coronavirus cases/thousand		0.00903**	0.00952*
		(0.00434)	(0.00501)
Cumulative coronvacirus cases/thousand		0.000340	0.00529*
		(0.000596)	(0.00294)
N	147845	147845	147845
Day FE	Yes	Yes	Yes
Store FE	Yes	Yes	Yes
Store-Day Time Trend			Yes

Note: See Table 2. Table repeats the analysis in Table 2, but includes counties that introduced mask mandates in the two-week postperiod.

Table A2: Walmart's Mask Mandate - Heterogeneous Effects by County Political Leaning

	(1)	(2)	(3)
	Ln(daily visits)	Ln(daily visits)	Ln(daily visits)
Post x No Public Mandate County x Decile 10	-0.0672**	-0.0675**	-0.104***
(Highest 2016 vote share for President Trump)	(0.0290)	(0.0298)	(0.0297)
Post x No Public Mandate County x Decile 9	-0.0627**	-0.0418	-0.101***
	(0.0288)	(0.0293)	(0.0268)
Post x No Public Mandate County x Decile 8	-0.0493*	-0.0303	-0.105***
	(0.0286)	(0.0296)	(0.0267)
Post x No Public Mandate County x Decile 7	-0.0426	-0.0403	-0.0939***
	(0.0286)	(0.0289)	(0.0271)
Post x No Public Mandate County x Decile 6	-0.0411	-0.0345	-0.0843***
	(0.0291)	(0.0290)	(0.0295)
Post x No Public Mandate County x Decile 5	-0.0442	-0.0401	-0.0699**
	(0.0288)	(0.0291)	(0.0281)
Post x No Public Mandate County x Decile 4	-0.0304	-0.0227	-0.0552**
	(0.0287)	(0.0286)	(0.0267)
Post x No Public Mandate County x Decile 3	-0.0244	-0.0215	-0.0427
	(0.0298)	(0.0299)	(0.0264)
Post x No Public Mandate County x Decile 2	-0.0335	-0.0231	-0.0317
(Lowest 2016 Vote Share for President Trump)	(0.0285)	(0.0283)	(0.0272)
N	142965	142965	142965
Day FE	Yes	Yes	Yes
Store FE	Yes	Yes	Yes
Store-Day Time Trend			Yes

Note: Table displays the coefficients graphed in Main Text Figure 3. Column 1 presents the results of a two-way fixed effect regression testing for the impact of Walmart's mask mandate on log daily visits, with the key indicator variable interacted with a dummy for the decline of county vote share for President Trump in 2016). Column 2 adds a control for county-day COVID cases/thousand and cumulative COVID cases/thousand since the onset of the pandemic.

Table A3: Event-Study Coefficients

	(1)	(2)	(3)	(4)	(5)	(6)
	All Stores			Stores in counties at the top (deciles 9, 10) of the distribution of Republican County Vote Share		
	Ln(daily visits)	Ln(daily visits)	Ln(daily visits)	Ln(daily visits)	Ln(daily visits)	Ln(daily visits)
Two Days Prior to Mandate	0.00253	0.00209	0.000574	-0.0165	-0.0168	-0.0218
	(0.00706)	(0.00708)	(0.00752)	(0.0179)	(0.0178)	(0.0192)
Three Days Pre Mandate	0.0215***	0.0215***	0.0190**	-0.0261	-0.0258	-0.0356
	(0.00758)	(0.00759)	(0.00864)	(0.0238)	(0.0238)	(0.0268)
Four Days Pre Mandate	0.00160	0.00165	-0.00232	-0.0456**	-0.0459**	-0.0604**
	(0.00798)	(0.00798)	(0.00997)	(0.0227)	(0.0226)	(0.0267)
Five Days Pre Mandate	-0.00859	-0.00874	-0.0141	-0.0282	-0.0284	-0.0478*
	(0.00828)	(0.00828)	(0.0107)	(0.0231)	(0.0230)	(0.0288)
Six Days Pre Mandate	-0.0133	-0.0133	-0.0199*	-0.0457**	-0.0458**	-0.0699**
	(0.00885)	(0.00887)	(0.0121)	(0.0226)	(0.0225)	(0.0300)
Seven Days Pre Mandate	-0.00457	-0.00488	-0.0131	-0.0444**	-0.0449**	-0.0738**
	(0.00811)	(0.00813)	(0.0120)	(0.0205)	(0.0203)	(0.0289)
Eight Days Pre Mandate	-0.00355	-0.00386	-0.0136	-0.0237	-0.0240	-0.0582**
	(0.00626)	(0.00628)	(0.00972)	(0.0179)	(0.0180)	(0.0247)
Nine Days Pre Mandate	0.00725	0.00699	-0.00405	0.00441	0.00443	-0.0343
	(0.00810)	(0.00812)	(0.0125)	(0.0250)	(0.0249)	(0.0371)
Ten Days Pre Mandate	0.0271***	0.0267***	0.0142	-0.0195	-0.0199	-0.0631
	(0.00888)	(0.00892)	(0.0144)	(0.0254)	(0.0254)	(0.0388)
Eleven Days Pre Mandate	-0.00351	-0.00367	-0.0175	-0.0545**	-0.0550**	-0.103**
	(0.00895)	(0.00899)	(0.0156)	(0.0268)	(0.0267)	(0.0418)
Twelve Days Pre Mandate	-0.0123	-0.0126	-0.0279*	-0.0474**	-0.0480**	-0.100**

	(0.00951)	(0.00953)	(0.0169)	(0.0230)	(0.0229)	(0.0392)
Thirteen Days Pre Mandate	-0.00783	-0.00806	-0.0247	-0.0555**	-0.0562**	-0.113***
	(0.00891)	(0.00896)	(0.0169)	(0.0245)	(0.0245)	(0.0426)
Fourteen Days Pre Mandate	-0.0135	-0.0138	-0.0319*	-0.0466**	-0.0478**	-0.110***
	(0.00889)	(0.00890)	(0.0176)	(0.0225)	(0.0223)	(0.0419)
Day Mandate Takes Effect	-0.0339***	-0.0341***	-0.0328***	-0.0782***	-0.0781***	-0.0733***
	(0.00979)	(0.00980)	(0.00936)	(0.0243)	(0.0243)	(0.0234)
Day 1 Post	-0.0483***	-0.0485***	-0.0461***	-0.101***	-0.101***	-0.0910***
	(0.0105)	(0.0105)	(0.00949)	(0.0216)	(0.0216)	(0.0198)
Day 2 Post	-0.0273***	-0.0271***	-0.0233***	-0.0882***	-0.0878***	-0.0734***
	(0.00979)	(0.00978)	(0.00825)	(0.0243)	(0.0243)	(0.0213)
Day 3 Post	-0.0178*	-0.0181*	-0.0131	-0.111***	-0.110***	-0.0912***
	(0.00998)	(0.01000)	(0.00801)	(0.0273)	(0.0275)	(0.0233)
Day 4 Post	-0.00281	-0.00312	0.00311	-0.0526**	-0.0525**	-0.0286
	(0.00920)	(0.00922)	(0.00729)	(0.0249)	(0.0249)	(0.0196)
Day 5 Post	-0.0287***	-0.0290***	-0.0215***	-0.0631***	-0.0630***	-0.0339*
	(0.00869)	(0.00871)	(0.00698)	(0.0214)	(0.0214)	(0.0175)
Day 6 Post	-0.00865	-0.00899	-0.000576	-0.0563***	-0.0562***	-0.0222
	(0.0128)	(0.0125)	(0.0129)	(0.0193)	(0.0193)	(0.0170)
Day 7 Post	-0.0127	-0.0130	-0.00330	-0.0857***	-0.0851***	-0.0463***
	(0.0101)	(0.0101)	(0.00696)	(0.0208)	(0.0208)	(0.0162)
Day 8 Post	-0.0277***	-0.0281***	-0.0172**	-0.0925***	-0.0922***	-0.0486***
	(0.0106)	(0.0107)	(0.00667)	(0.0245)	(0.0245)	(0.0165)
Day 9 Post	-0.0163	-0.0165	-0.00456	-0.0762***	-0.0758***	-0.0273
	(0.0118)	(0.0118)	(0.00791)	(0.0238)	(0.0238)	(0.0170)
Day 10 Post	-0.0114	-0.0118	0.00145	-0.0721***	-0.0722***	-0.0185
	(0.0114)	(0.0114)	(0.00782)	(0.0228)	(0.0229)	(0.0162)

Day 11 Post	0.0129	0.0126	0.0269***	-0.0361	-0.0362	0.0229
	(0.00987)	(0.00993)	(0.00880)	(0.0249)	(0.0249)	(0.0174)
Day 12 Post	-0.00273	-0.00329	0.0121	-0.0302	-0.0306	0.0338*
	(0.00963)	(0.00965)	(0.00837)	(0.0228)	(0.0227)	(0.0179)
Day 13 Post	-0.00460	-0.00484	0.0117	-0.0352*	-0.0353*	0.0344*
	(0.0102)	(0.0102)	(0.00984)	(0.0206)	(0.0206)	(0.0205)
Day 14 Post	-0.0178	-0.0180	0	-0.0746***	-0.0748***	0
	(0.0116)	(0.0116)	(.)	(0.0258)	(0.0259)	(.)
County COVID cases/		0.00856**	0.00952*		0.00306	0.00479
thousand		(0.00434)	(0.00495)		(0.00260)	(0.00356)
County Cumulative		0.000325	0.00506*		0.00109	-0.00268
COVID cases/thousand		(0.000599)	(0.00297)		(0.00127)	(0.00323)
N	142965	142965	142965	8181	8181	8181
Day FE	Yes	Yes	Yes	Yes	Yes	Yes
Store FE	Yes	Yes	Yes	Yes	Yes	Yes
Store-Day Time Trend			Yes			Yes

Note: Table contains coefficients from estimation of equation (3). Coefficients are plotted in Figure 3 of the Main Paper. * p<0.10, ** p<0.05, *** p<0.01

Table A4: Difference-in-difference estimate of impact on foot traffic at Winn Dixie

	(1) Ln(daily visits)	(2) Ln(daily visits)	(3) Ln(daily visits)
Post x No Public Mandate County	-0.0424**	-0.0425**	-0.0307
	(0.0169)	(0.0169)	(0.025)
Coronavirus cases/thousand		0.00815	0.0115
		(0.0138)	(0.0155)
Cumulative coronavirus cases/thousand		-0.00122	0.00328
		(0.00296)	(0.0134)
N	8550	8550	8550
Day FE	Yes	Yes	Yes
Store FE	Yes	Yes	Yes
Store-Day Time Trend			Yes

Note: Column 1 presents the results of a two-way fixed effect regression testing for the impact of Walmart's mask mandate on foot traffic at Walmart locations relative to co-located Winn Dixie grocery stores, in counties with public mask mandates. This analysis includes 200 Winn Dixie stores and 370 Walmart stores in 44 counties with mask mandates and seven days pre and post Walmart's imposition of a mask mandate. Column 2 adds a control for county-day COVID cases/thousand and cumulative coronavirus cases since the pandemic onset. Column 3 demonstrates that the estimate is robust to the inclusion of a store-day time trend. Standard errors are clustered at the store level. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table A5: Walmart's Mask Mandate - Impact on Foot Traffic (Older Counties)

	(1) Ln(daily visits)	(2) Ln(daily visits)	(3) Ln(daily visits)
Post x No Public Mandate County	-0.0203***	-0.0206***	-0.0393***
	(0.00473)	(0.00469)	(0.00899)
Coronavirus cases/thousand		0.00188	0.000521
		(0.00426)	(0.00479)
Cumulative coronavirus cases/thousand		0.00104	0.00859***
		(0.00103)	(0.00291)
N	41296	41296	41296
Day FE	Yes	Yes	Yes
Store FE	Yes	Yes	Yes
Store-Day Time Trend			Yes

Note: See Table 2 notes. Table repeats the analysis, limiting to stores in counties with an above-median share of population over age 64.

Table A6: Test for Walmart's Mask Mandate's Impact on Dollar General Foot Traffic (Placebo)

	(1) Ln(daily visits)	(2) Ln(daily visits)	(3) Ln(daily visits)
Post x No Public Mandate County	0.00792	0.00816	-0.0194*
	(0.00527)	(0.00527)	(0.0106)
Coronavirus cases/thousand		-0.00499	-0.00874**
		(0.00349)	(0.00378)
Cumulative coronavirus cases/thousand		0.000289	0.000231
		(0.000902)	(0.00316)
N	391546	391546	391546
Day FE	Yes	Yes	Yes
Store FE	Yes	Yes	Yes
Store-Day Time Trend			Yes

Note: Table repeats the analysis of Table 2, replacing foot traffic at Walmart with foot traffic at Dollar General. 503 Dollar General locations are excluded because they are located in 73 counties that impose a mask mandate in the post-period. * p<0.10, ** p<0.05, *** p<0.01

Table A7: Walmart's Mask Mandate - Impact on Weekly Median Dwell Time

	(1)	(2)	(3)
	Ln(daily visits)	Ln(daily visits)	Ln(daily visits)
Post x No Public Mandate County	0.00773	0.00733	0.000303
	(0.00170)	(0.00168)	(0.00391)
Coronavirus cases/thousand		0.00159	0.00120
		(0.000555)	(0.000829)
Cumulative coronavirus cases/thousand		0.000195	0.000609
		(0.000282)	(0.00120)
N	23895	23895	23895
Day FE	Yes	Yes	Yes
Store FE	Yes	Yes	Yes
Store-Day Time Trend			Yes

Note: Column 1 presents the results of a two-way fixed effect regression testing for the impact of Walmart's mask mandate on log median dwell times. Column 2 adds a control for county-day COVID cases/thousand, and for total cumulative coronavirus cases/thousand since the start of the pandemic. Column 3 demonstrates that the estimate is robust to the inclusion of a store-day time trend. Standard errors are clustered at the store level. This analysis excludes 162 stores in 77 counties that adopted mask mandates during the postperiod. Appendix Table A1 demonstrates that results are nearly unchanged when including these stores. * $p<0.10$, ** $p<0.05$, *** $p<0.01$