

# 1 **Tax vs Bonus: Which is the Inevitable Champion in Ridding Disposable Bags?**

2 by Allie Collins-Anderson | May 13, 2019

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4 Are humans intrinsically motivated by reward or punishment? Tatiana Homonoff explores this  
5 question in her study on the use of taxes versus bonuses on disposable bag use. Her analysis  
6 concluded that a \$0.05 tax on bags decreased use by more than 40 percentage points, while a  
7 bonus of the same value had almost no effect on consumer behavior.

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9 Homonoff highlights an important fact in economic theory: a financial incentive is only effective  
10 if its value is greater than the cost an individual associates with changing her behavior.

11 Therefore, if consumers perceive changing from disposable bags to reusable ones a burdensome  
12 action, the incentive to do so must be larger than the perceived cost.

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14 Standard economic theory also states that if the tax and bonus are of the same monetary value  
15 (which they are in this case: \$0.05) they should have exactly the same impact on consumer  
16 behavior. Why then is there even a debate on which is more effective in this case? Homonoff  
17 cites behavioral economic studies which find that humans are loss-averse, meaning we are more  
18 likely to change our behavior in response to losses as opposed to gains, a concept referred to as  
19 Prospect theory.

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21 In other words, if I babysit for one family that pays me by direct deposit (the money I make  
22 could be taxed) but a new family offers to pay me in cash (money that wouldn't be taxed if I  
23 choose not to declare it), I will probably choose to babysit for the new family instead because I  
24 know that I could lose money by working for the original family. But if I know that I could make  
25 slightly more money by babysitting for a new family, but both pay me in cash, I probably won't  
26 leave the family that I've already developed a relationship with unless it wouldn't take much  
27 effort to get to know the new family.

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29 Homonoff's findings seem to support this theory. She collected data on grocery bag use for more  
30 than 16,000 customers in Washington, DC, Arlington County, Virginia, and Montgomery  
31 County, Maryland. She gathered panel data (data across different times and locations) in these  
32 regions during the months immediately before and after a tax on plastic bags was imposed in  
33 Montgomery County. This allowed her to see whether or not the tax had a causal impact on  
34 consumer behavior.

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36 Researchers who assisted in the study recorded the type of bags each customer used by observing  
37 customers as they exited the different grocery stores included in the study. They also collected  
38 data on visually-assessable demographic characteristics such as sex and race. The time and  
39 location where researchers collected data was intentionally varied so as to create a randomized  
40 study. The final sample included 16,251 customers from 16 different stores across 3 different  
41 counties.

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43 According to her results, before the tax, 82 percent of customers used at least one disposable bag  
44 per shopping trip but after the tax was imposed only 40 percent of customers used disposable  
45 bags. Extrapolating her findings, Homonoff concludes that in this region alone, assuming each  
46 household shops once per week, the effect of the tax will result in consumers using 18 million

47 *fewer* disposable bags per year. Just imagine the number of plastic bags we could keep out of our  
48 landfills every year if this tax were implemented in every US community.

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50 It is crucial to emphasize, however, that these results are a reflection of a tax on disposable bags  
51 and not a bonus for using recyclable ones. Homonoff's results show that offering a bonus for  
52 using reusable bags doesn't make much of a difference on consumer behavior. Customers  
53 shopping in stores that offered a bonus for using recyclable bags as opposed to taxing disposable  
54 ones were almost as likely to use a plastic bag as in stores that neither taxed nor gave out a bonus  
55 – 82 versus 84 percent, respectively. In other words, while the tax resulted in a dramatic change  
56 in consumer behavior, the bonus had almost no effect at all – results conclusive with the loss  
57 aversion, or Prospect, theory. Punishment seems to have beat reward.

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59 Homonoff does acknowledge the possibility that other factors may have contributed to the  
60 greater effectiveness of the tax as opposed to the bonus, even though these alternative  
61 possibilities do not seem to disprove her results. Most notably, based on surveys conducted in  
62 her study, customers were much more aware of the tax than the bonus, 98 percent and 52 percent  
63 of customers respectively, which she acknowledges could account for the difference in results  
64 between the two.

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66 This study tells a specific story that cannot be ignored. If a tax as small as \$0.05 were to be put  
67 on plastic bags in every grocery store in the United States, it would make an immense impact on  
68 the environment by drastically decreasing the number of disposable bags that end up in our  
69 landfills. When the solution is this obvious, punishment, in some form, is inevitable if we don't  
70 implement it. And we already know how we feel about punishment.

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