

Who Really Pays?

Taxes, Subsidies, and Elasticity

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HOW TO READ EVERY CHART TODAY

■ **Drivers**, the buyers

■ **Gas stations**, the sellers

■ **The state**, which collects a tax or pays a subsidy

■ **Deadweight loss**, gains that no one gets

Florida's October 2022 Gas-Tax Holiday

Drivers never hand Florida's gas tax to the state. Terminal suppliers pay it when fuel leaves the loading rack, and the pump price includes it. For October 1–31, 2022, the legislature cut the tax by 25.3 cents a gallon.

Write down a guess and one reason: how many of the 25.3 cents reached drivers?

25.3¢

cut for one month

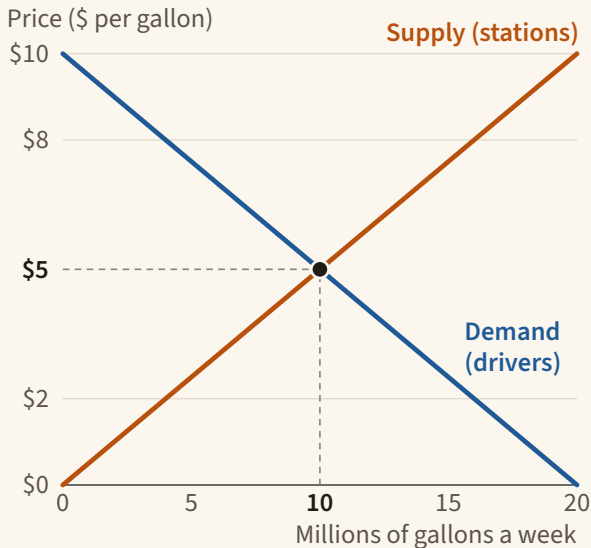
Drivers

Sellers

?

Who got the 25.3¢?

Who Pays a \$2 Tax on Gas Stations?

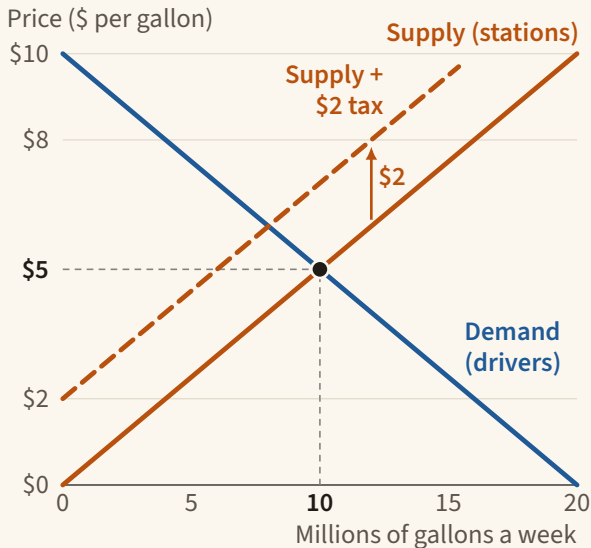


Suppose this is a weekly gasoline market. With no tax, drivers and stations trade 10 million gallons a week at \$5 a gallon, where the curves cross. We use a big \$2 tax so it is easy to see; a 25-cent tax works the same way.

Drivers	Stations
?	

Who bears the \$2 tax

Who Pays a \$2 Tax on Gas Stations?



To sell 10 million gallons, a station needed \$5; now it needs \$7. The whole supply curve shifts up by \$2.

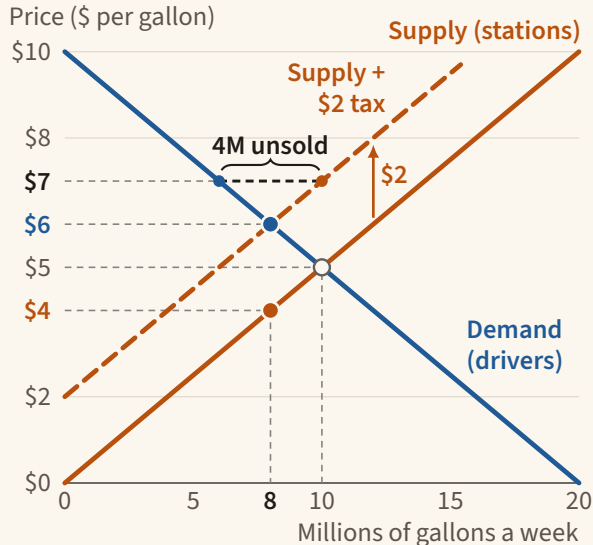
Drivers

Stations

?

Who bears the \$2 tax

Drivers Pay \$1 More; Stations Keep \$1 Less

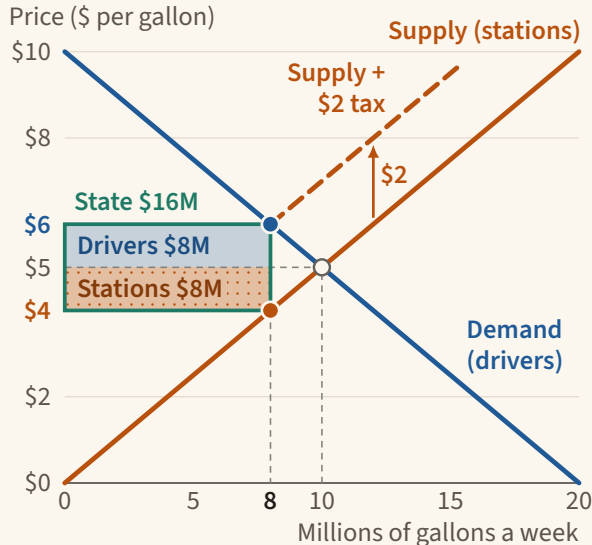


At \$7 drivers want 6; stations, keeping \$5 after the tax, offer 10. Stations cut the price until it stops at **\$6**, where both sides agree on 8.

Drivers	Stations
?	

Who bears the \$2 tax

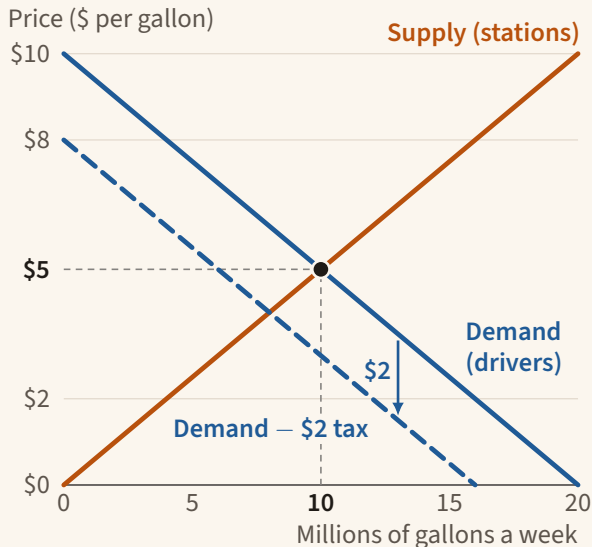
Drivers Pay \$1 More; Stations Keep \$1 Less



On each of 8 million gallons, drivers pay \$1 more and stations keep \$1 less. **The state collects \$16 million** a week, half from each side.



Now Drivers Hand the State the \$2

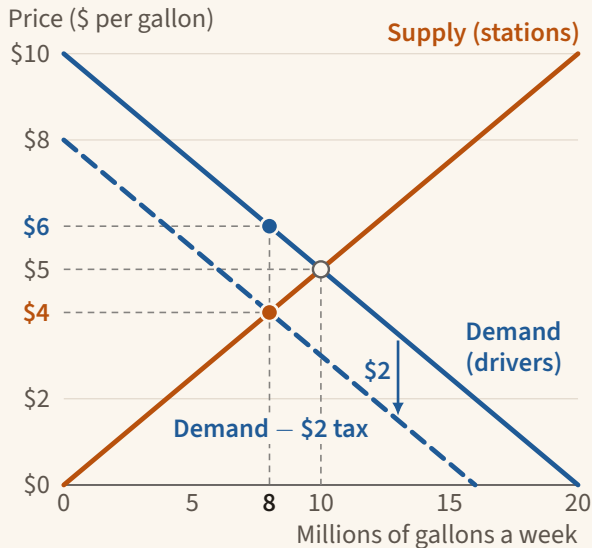


Suppose drivers now hand the state the \$2. A driver who would pay \$10 for the first gallon now offers a station at most \$8, because \$2 goes to the state. Every point on demand drops by \$2.

Drivers	Stations
?	

Who bears the \$2 tax

Same Prices, Same Quantity



Stations get \$4, drivers pay

\$4 + \$2 = \$6, and 8 million gallons trade, just as when stations paid.

The law picks who mails the check, not who bears the tax.

Drivers

\$1

Stations

\$1

Who bears the \$2 tax

Your Pay Stub Splits the Payroll Tax

WHAT THE PAY STUB SAYS

You 7.65%

Employer 7.65%

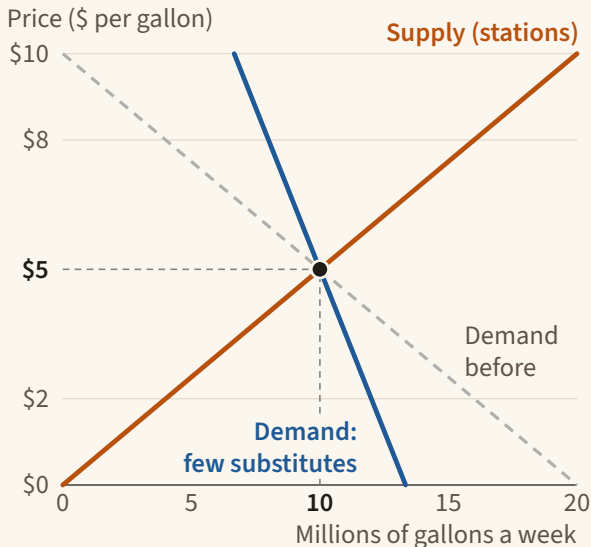
WHO BEARS IT?

?

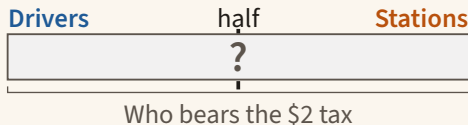
The legal split does not decide who bears the tax. As with gas, the side that cuts back less bears more.

Source: IRS Topic 751 (6.2% Social Security + 1.45% Medicare, each side).

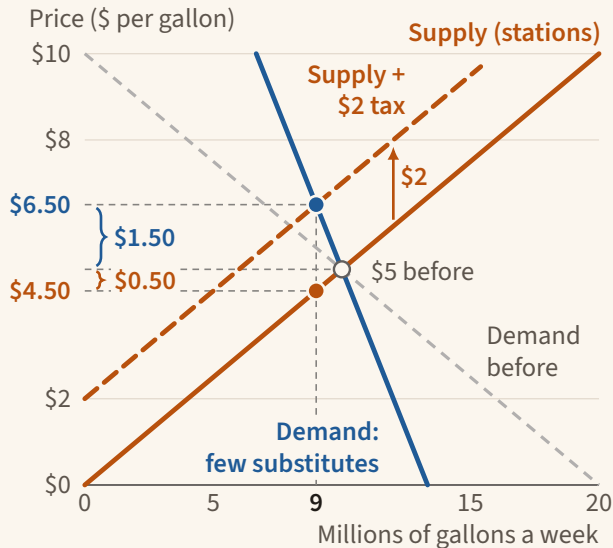
What If Drivers Cut Back Less?



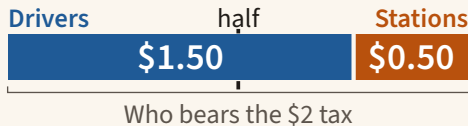
Suppose drivers cut back less. At the same price and quantity, the steeper curve is the less elastic one: drivers buy less, but not much less, when the price rises.



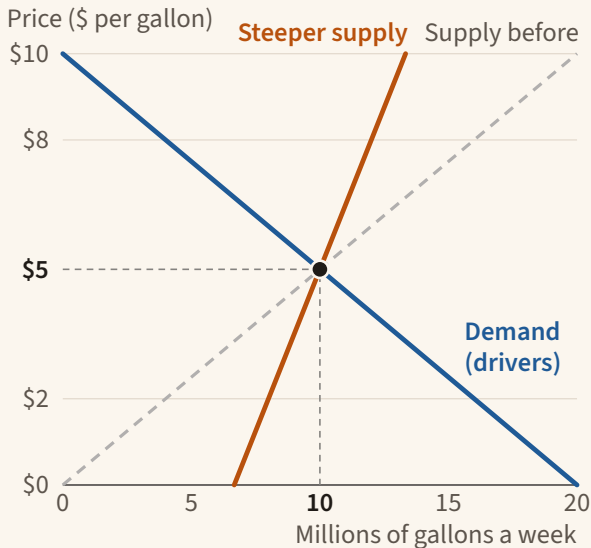
Drivers Cut Back Less, So They Bear \$1.50



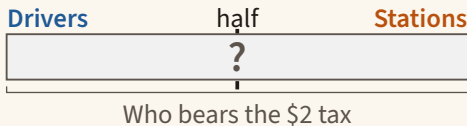
Stations can now raise the price to **\$6.50** and still sell 9 million gallons. Drivers pay \$1.50 more; stations keep \$0.50 less.



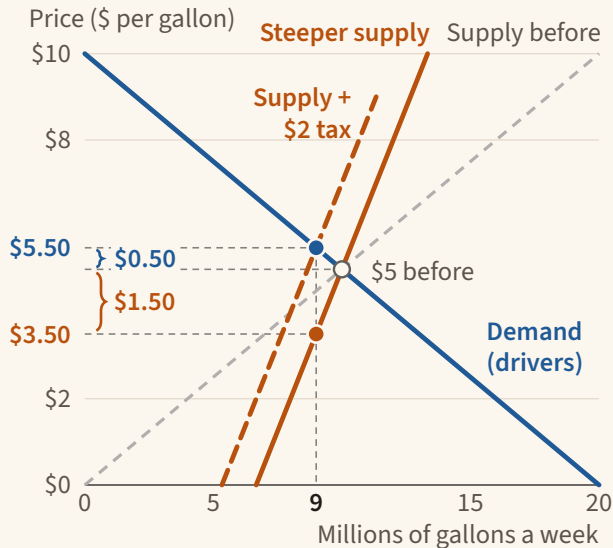
What If Stations Cut Back Less?



Suppose stations cut back less: in the short run their tanks and pumps are in place, so they sell almost as much even if they keep less. At the same price and quantity, the steeper supply curve is the less elastic one.



Stations Cut Back Less, So They Bear \$1.50

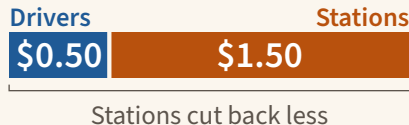
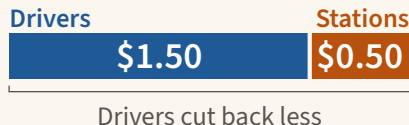


Drivers pay only \$0.50 more; stations keep \$1.50 less. Now the stations, the side that cuts back less, bear most of the tax.

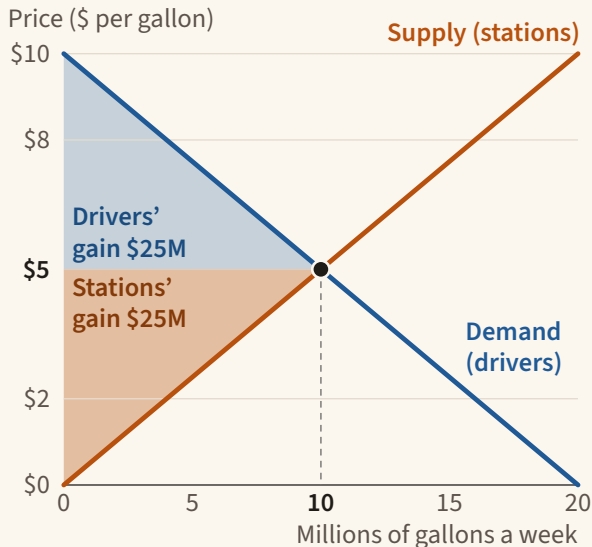


The Side That Cuts Back Less Bears More

- 1 A tax opens a \$2 gap between what drivers pay and what stations keep.
- 2 The price moves until drivers buy what stations offer.
- 3 The side that cuts back less when its price changes, the less elastic side, bears more of the gap.
- 4 We saw it both ways: drivers bore \$1.50 when they cut back less; stations bore \$1.50 when they did. Economists call this split the tax's incidence.

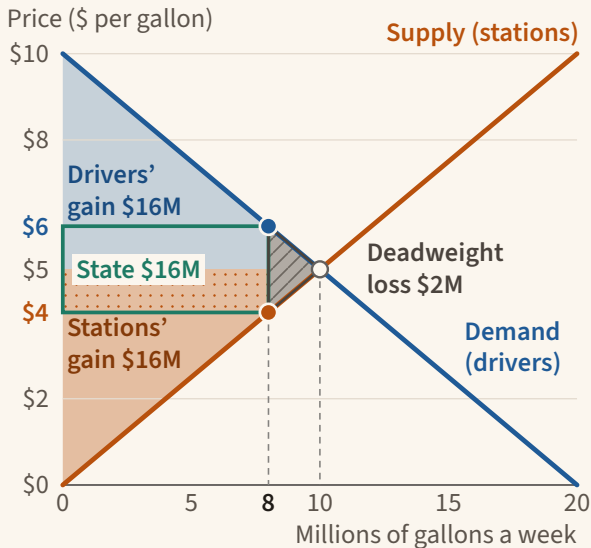


Before the Tax: \$25M of Gains Each Side



Suppose there is no tax. **Drivers' gain** = $\frac{1}{2} \times 10 \text{ million} \times (\$10 - \$5)$ = \$25 million a week. **Stations' gain** is the same.

The Tax Costs \$18M but Raises \$16M

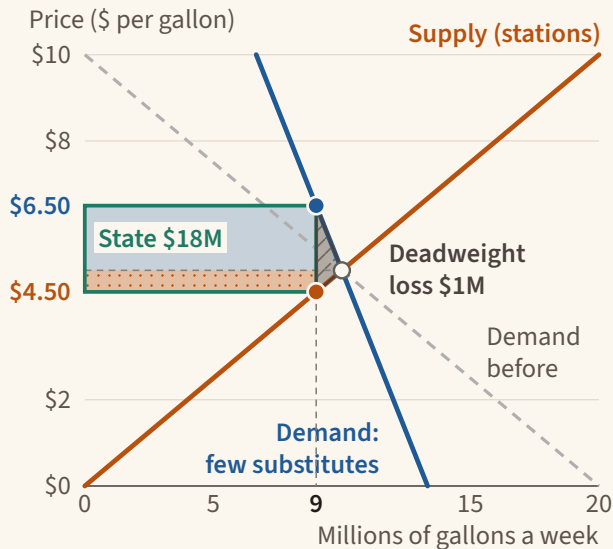


The state collects \$16 million. The 2 million gallons that no longer trade were worth more to drivers than they cost to supply: \$2 million of deadweight loss.

Drivers lose	\$9M
Stations lose	\$9M
In all	\$18M

The state collects	\$16M
Deadweight loss	\$2M

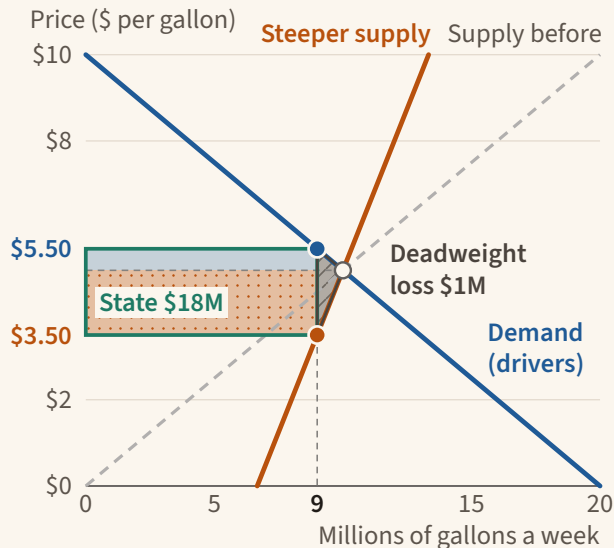
Steeper Demand: More Revenue, Less Loss



A tax on something people keep buying raises more and blocks fewer trades.

	Original	Steeper demand
Revenue	\$16M	\$18M
Deadweight loss	\$2M	\$1M
Drivers bear	\$1	\$1.50

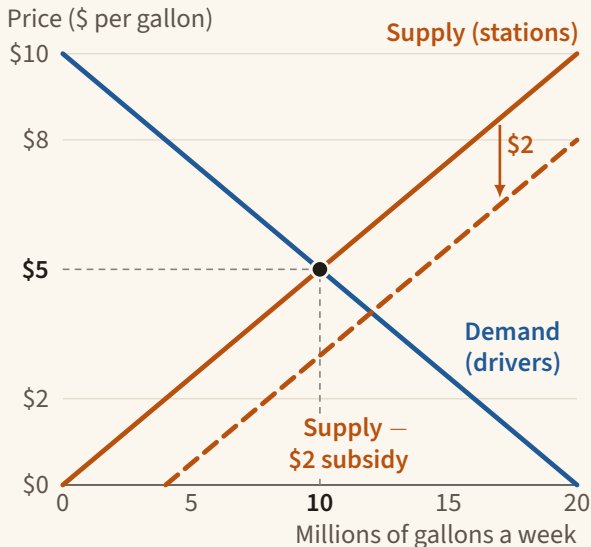
Steeper Supply: More Revenue, Less Loss



When stations cut back less, the same \$2 tax again raises \$18 million and blocks fewer trades, but now stations bear most of it. Land is the extreme case: its supply is vertical, so a land tax blocks no trades and the owner bears all of it.

	Original	Steeper demand	Steeper supply
Revenue	\$16M	\$18M	\$18M
Deadweight loss	\$2M	\$1M	\$1M
Drivers bear	\$1	\$1.50	\$0.50

Who Gets a \$2 Subsidy Paid to Stations?

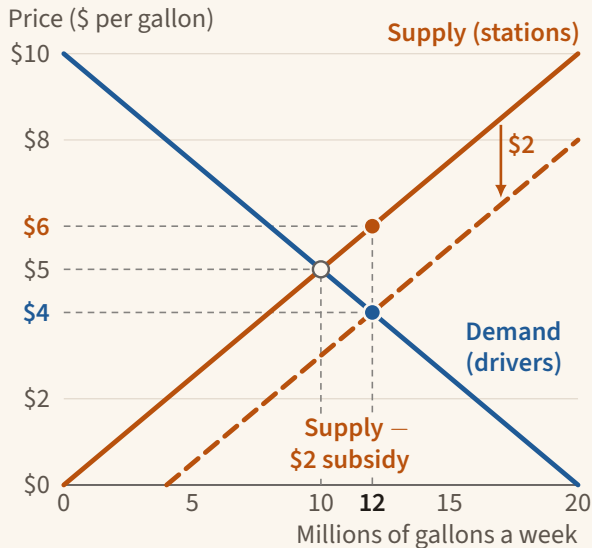


Suppose the state adds \$2 to every gallon a station sells, so a station will offer any amount for \$2 less. Supply shifts down by \$2.

Drivers	Stations
?	

Who gets the \$2 subsidy

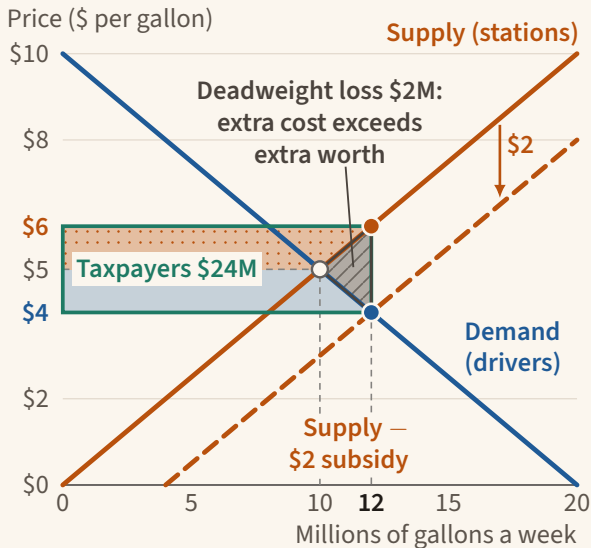
Drivers Pay \$1 Less; Stations Get \$1 More



Stations compete for drivers until the pump price falls to **\$4**. With the state's \$2, a station receives **\$6**. Each side gets \$1, and 12 million gallons trade instead of 10.

Drivers	Stations
\$1	\$1
Who gets the \$2 subsidy	

The Subsidy Costs \$24M but Gives \$22M



Taxpayers pay \$24 million; drivers and stations each gain \$11 million ($\$36\text{M} - \25M), \$22 million in all. The extra gasoline is worth less to drivers than the resources used to supply it: \$2 million of deadweight loss. The side that cuts back less gets more of a subsidy.

Drivers	Stations
\$1	\$1
Who gets the \$2 subsidy	

Who Ended Up Paying or Getting the Money?

POLICY	THE LAW NAMES	WHAT RESEARCHERS FOUND
Gas-tax holidays, 2022 Md., Ga., Conn.	Fuel sellers stop paying the tax	?
Federal student loans	Students receive them	?
Housing vouchers	Low-income renters get them	?
U.S. tariffs, 2018–19	U.S. importers pay; aimed at foreign sellers	?

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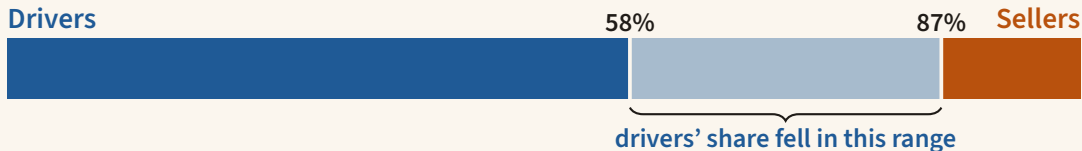
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The Law Did Not Decide Where the Money Went

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U.S. tariffs, 2018–19	U.S. importers pay; aimed at foreign sellers	Foreign sellers did not cut their prices, so the full tariff showed up in what U.S. buyers paid at the border. Amiti, Redding & Weinstein, 2019

Back to Florida: Who Got the 25.3¢?



Other states' 2022 holidays: drivers got 58–87% of the cut at first. We have no reliable estimate for Florida's own holiday.

A tax cut is the same wedge run backward: the pump price falls by the drivers' share.

BEFORE YOU GO

Tell me what
worked and what
didn't.

One minute, anonymous.

