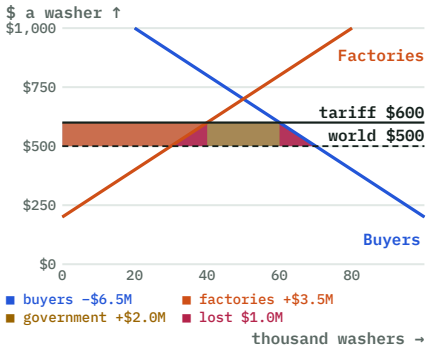
Tariff, quota or subsidy?

Three ways to protect a home industry on one import chart: what each does to the price and to imports, the four money areas, who gets the rectangle, what is lost, the real 2018 US washer tariffs, and the best argument on each side: Coralia's market for washing machines.

1 Tariff

tax at the border

- **Tariff** = tax on imported goods, paid when they cross the border · **imports** = goods bought from another country
- Washers · BUYERS `Qd = 120 − P` · CORALIAN FACTORIES `Qs = P − 20` (Q quantity: thousand washers a year · P price in tens of $: P = 50 → $500) · **world price** $500 = price outside Coralia (Palmera sells any number)
- Free trade $500 → bought 70 · made 30 · imported **40** thousand
- Tariff **$100** → home price `= world price + tariff` = **$600** (home factories charge it too) → bought 60 · made 40 · imported **20** = half · every $50 of tariff → imports −10
- Who pays most? → **home buyers** (price up by the whole tariff), not the foreign factory



2 Four areas

area on the chart = money

- BUYERS' LOSS trapezoid · `average width × price rise` = (70 + 60) ÷ 2 × $100 = **−$6.5M** a year · units: thousand × $ = $ thousand · M = million
- FACTORIES' GAIN = (30 + 40) ÷ 2 × $100 = **+$3.5M**
- TARIFF REVENUE rectangle · `imports left × tariff` = 20 × $100 = **+$2.0M** → government
- DEADWEIGHT LOSS = value of trades that no longer happen, collected by **nobody** · two triangles $0.5M + $0.5M = **$1.0M** (washers made at home for more than $500 · buyers who give up)
- Check · 6.5 = 3.5 + 2.0 + 1.0 · practice: bikes `Qd = 200 − P`, `Qs = P − 40`, world $80, tariff $20 → $100 · imports 80 → 40 · −2.2 · +1.0 · +0.8 · lost 0.4 ($M)

3 Quota

limit the number

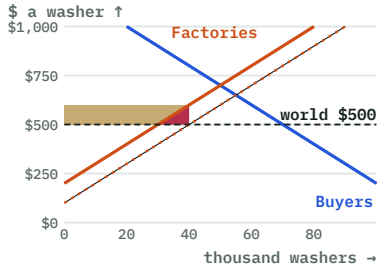
- **Quota** = limit on how many units may be imported a year · **import licenses** = permits saying who may bring them in
- Quota 20 thousand washers → fewer washers → price **$600** · same quantities, same buyers' loss, same $1.0M lost
- Rectangle $2.0M → **license holders** (buy at $500, sell at $600) · not tax revenue, unless the government sells the licenses
- Practice · quota 40 thousand bikes → $100 → $0.8M to the shops with licenses

4 Subsidy

pay the factory

- **Subsidy** = money the government pays firms for each unit they make · $100 a washer → factories get $500 + $100 → make **40** (dotted line) · buyers still pay **$500**, buy 70 · imports 30
- TAXPAYERS $100 × 40 = **$4.0M** = $3.5M to factories + LOST **$0.5M** (one triangle) · practice: bikes $20 × 60 = $1.2M, lost $0.2M

	Tariff	Quota	Subsidy
Buyers pay	$600	$600	$500
Buyers lose	$6.5M	$6.5M	$0
Rectangle $2.0M →	government	license holders	—
Taxpayers pay	$0	$0	$4.0M
Value lost	$1.0M	$1.0M	$0.5M



5 Too high

and who else pays

- **Prohibitive tariff** = so high that imports stop · bikes $40 → $120 (no-trade price) → imports 0 → revenue **$0** · buyers −$4.0M, factories +$2.4M, lost **$1.6M** (×4 for ×2 tariff)
- Revenue vs tariff · $0 → $0 · $20 → $0.8M · $40 → $0 ⇒ a higher tariff can collect **less**
- **Downstream firm** = buys the good to make or sell something else → a tariff raises its costs · gain/loss decided by **buying or making**, not by country

6 Real case

both sides

- **Flaaen, Hortaçsu, Tintelnot** · three economists · **2020** → US tariffs of 2018 on washers: prices **+≈12%** · dryers (no tariff, bought with washers) +≈ same · buyers ≈ $1.5 billion a year · ≈ 1,800 jobs created ⇒ **> $800,000** a year per job
- **Smoot-Hawley** · US, June **1930** (named after its two lawmakers) → higher tariffs on 20,000+ goods · 1,000+ economists signed against · **WTO** (World Trade Organization, Geneva, 1995: where countries agree trade rules) → members' average tariff 13.2% (1996) → **7.4%** (2021)
- **For** barriers: security (defense, medicine, food) · new industry needs years to learn · threat that wins a better trade deal · a town's time to change · **Against**: cost per job far above a wage · other countries answer with tariffs · poorer households pay more

Watch out: the tariff is paid mostly by **home buyers**, not by the foreign firm · deadweight loss is in **nobody's** pocket · a quota's rectangle is not tax revenue · cost per job = one cost, not a verdict: voters weigh the other goals