Cannlytics

Cannabis Data Science

Saturday Morning Statistics

December 4th, 2021

What are instrumental variables and where did they come from?

Phillip G. Wright
(1861 - 1934)

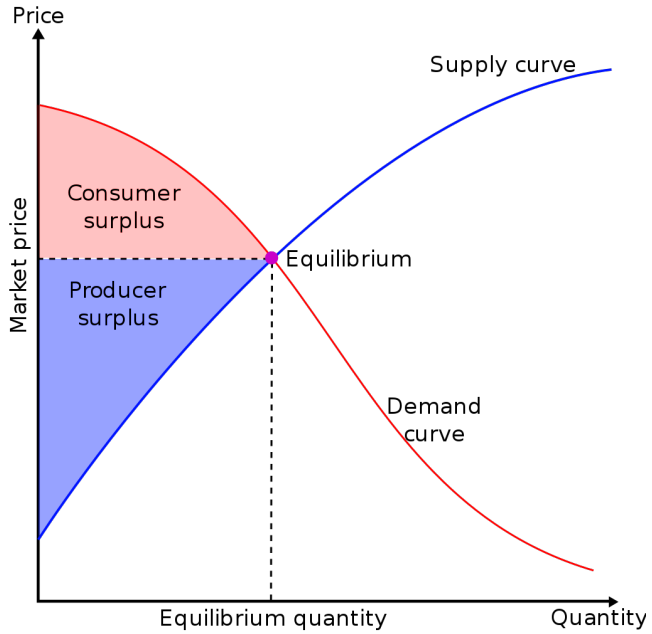
[16] The trade in dairy products is shown in the table below:

FOREIGN TRADE IN DAIRY PRODUCTS 1924-1925
(In millions of pounds)

Commodity	1924				1925			
	Imports	Exports	Net Imports	Net Exports	Imports	Exports	Net Imports	Net Exports
Fresh milk and cream	80.7	0.6	80.1	...	108.3	0.7	107.6	...
Condensed, evaporated, and powdered milk	8.5	211.8	...	203.3	12.4	151.4	...	139.0
Cheese	59.2	4.3	54.9	...	62.0	9.2	52.8	...
Butter	19.3	8.3	11.0	...	6.9	5.4	1.5	...
Total	167.7	225.0	...	57.3	189.6	166.7	22.9	...

The Tariff on Animal and Vegetable Oils by Phillip G. Wright (1928)
Retrieved from: https://scholar.harvard.edu

What is economic surplus in a competitive market?



Economic Surplus in Perfect Competition Equilibrium
Source: SilverStar at en.wikipedia

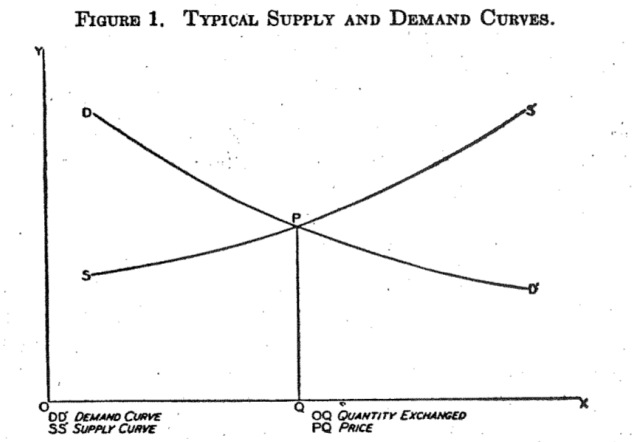


FIGURE 1. TYPICAL SUPPLY AND DEMAND CURVES.

The Tariff on Animal and Vegetable Oils by Phillip G. Wright (1928)
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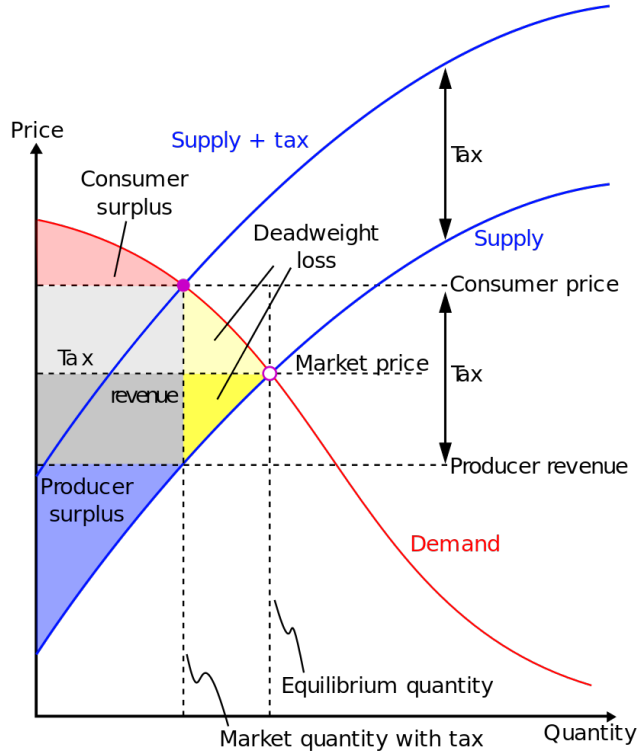
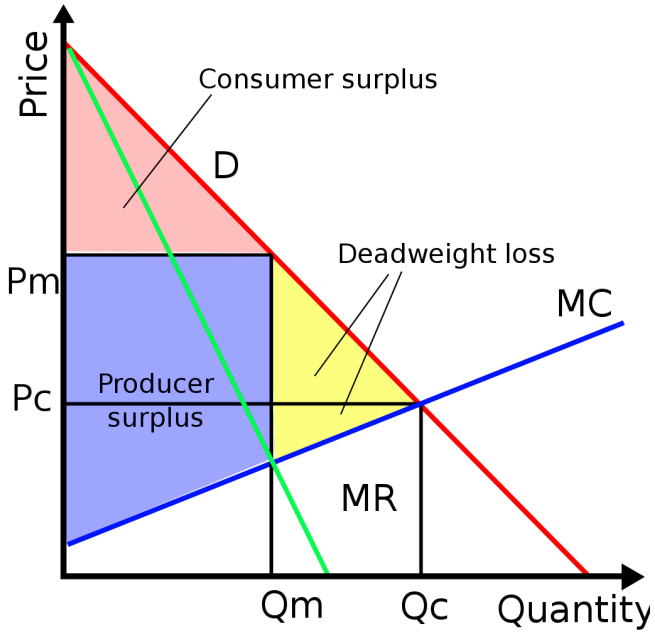
Who bears the cost of a tax?



Effects of a tax on a market
Source: SilverStar, Evan Derickson at en.wikipedia

It depends...!

Who bears the cost of quantity restrictions?



Effects of a quantity restrictions on a market
Source: SilverStar at en.wikipedia

It depends...!

The identification problem

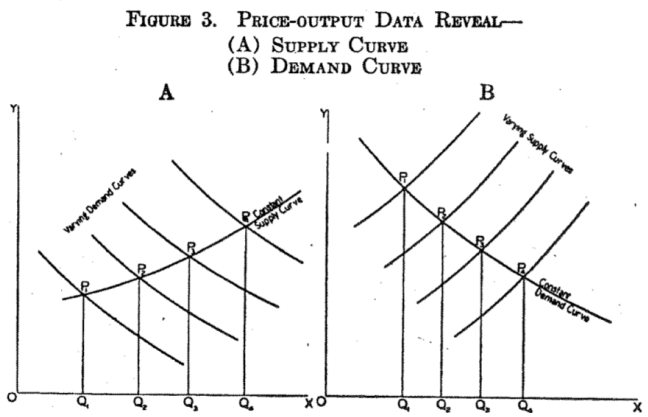


FIGURE 3. PRICE-OUTPUT DATA REVEAL—
(A) SUPPLY CURVE
(B) DEMAND CURVE

The Tariff on Animal and Vegetable Oils by Phillip G. Wright (1928)
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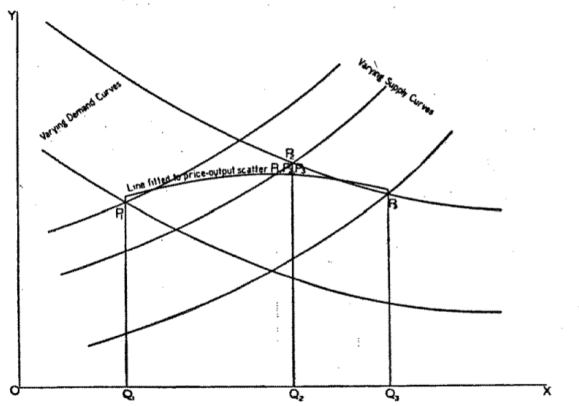

FIGURE 4. PRICE-OUTPUT DATA FAIL TO REVEAL EITHER SUPPLY OR DEMAND CURVE.

The Tariff on Animal and Vegetable Oils by Phillip G. Wright (1928)
Retrieved from: https://scholar.harvard.edu

The change in price and quantity depends...!

The identification problem

The preceding discussion reveals the extreme elusiveness of the cost and demand curves which lie embedded in any existing data. Estimates of their elasticities may be made, but any hope of obtaining numerical values comparable with results to be obtained in physical science must be abandoned.

The Tariff on Animal and Vegetable Oils by Phillip G. Wright (1928)
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In applying these principles no rule to be followed blindly can be laid down. Each case must be studied on its own merits, and success will depend largely upon the skill of the statistician. A few general suggestions may, however, be made.

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 Thank you for coming.

Take some time and discuss any conclusions drawn.