Trade Wars and the Volume of Trade

There's a lot of uncertainty about how high tariffs would go in a trade war, and also about how large the economic costs of such a war would be. But I've managed to convince myself that *if* we're talking about "optimal tariff" warfare, in which countries are trying to exploit their market power, there's a lot less uncertainty about how much effect such a war would have on the volume of trade. Here's a slightly technical but also quick-and-dirty explanation.

Start with the trade theory proposition known as the Lerner symmetry theorem, which says that an import tariff and an export tax have equivalent effects on trade. This is helpful because it's a bit easier to do a quick-and-dirty analysis of an export tax.

Now, the quick-and-dirty part: to do this right you should do general equilibrium. But I'm going to be strategically lazy; as I said in the main article, most of the time partial equilibrium analysis, even in trade, gets you pretty close to the general equilibrium results. So I'm going to do partial here.

So consider a country that faces a downward-sloping demand for its exports, with a constant elasticity of demand ε. This makes the country a kind of monopolist; but we'll assume that exports are competitively produced, so the private sector has no incentive to take advantage of this monopoly power.

The government, however, can do the job, using an export tax to impose the optimal monopoly markup.

Now, we know that a monopolist's profit-maximizing markup is $1/(\varepsilon-1)$; alternatively, the monopolist should charge $\varepsilon/(\varepsilon-1)$ times its marginal cost. So the government should charge an export tax that is $1/(\varepsilon-1)$ times the pre-tax value of exports.

Assume a flat supply curve. Then the volume of exports, relative to its free trade level, is

$(\varepsilon/(\varepsilon-1))^{(-\varepsilon)}$

What does this look like for different values of ε? Here's a table:

Elasticity	Tax rate	Trade volume
3	0.5	0.296
4	0.33	0.316
6	0.2	0.335

As I read this, the export tax rate depends a lot on the elasticity of demand, but because it varies inversely with the elasticity, the effects on export volume are much smaller: we get around a 70% decline in all cases.

I'm happy to be corrected by someone willing to do this right, in full general equilibrium. But I suspect that the basic point is fairly robust.