A good is demanded by domestic citizens, and supplied by both domestic and foreign producers. All markets are competitive.

You're a policymaker charged with setting a sales tax on domestic suppliers and a tariff on foreign suppliers.

All you care about is (domestic) economic welfare and (domestic) tax revenue. (In other words, you don't care about foreigners.)

A policy consists of tax rates T_U and T_F on domestic and foreign suppliers. A policy is efficient if no other policy yields both greater welfare and greater revenue.

You take the foreign supply curve as given (so we assume away any retaliatory tariffs).

Let η_D, η_U, η_F be the elasticities of demand, domestic supply, and foreign supply. ,

Theorem. An efficient policy satisfies

$$T_F = \frac{\eta_U(1+\eta_F T_U) - (1-T_U)\eta_D}{(1+\eta_F)(\eta_U - (1-T_U)\eta_D)} \tag{1}$$

where the elasticities are computed at the equilibrium points (and are therefore functions of T_U and T_F).

Note that the efficient value of T_F is increasing in T_U, decreasing in η_F, and decreasing in $|\eta_D/\eta_U|$,

Corollary. If

$$T_U > \frac{\eta_D - \eta_U}{\eta_D(1+\eta_F)} \tag{2}$$

then efficiency requires $T_F < T_U$. Thus any sales tax levied on consumers should be offset by a subsidy to imports.

In the examples below, I assume you always choose an efficient policy.

Example 1 (Economics 101). Suppose that $T_U = 0$ and $\eta_F = \infty$. Then $T_F = 0$.

Example 2. More generally, suppose that $T_U = 0$. Then $T_F = 1/(1+\eta_F)$. Thus, for example, if imported goods are supplied with a price elasticity of 10 (and if there is no tax on domestic goods), then the tariff rate should be about $1/11 \approx 9\%$.

Example 3. More generally in another direction, suppose that $\eta_F = \infty$. Then the corollary applies, i.e. any tax on consumers should be offset by a subsidy to imports.

Example 4. Assume $|\eta_D/\eta_U| = 1$ (so that domestic supply and demand are equally elastic). Then (1) reduces to

$$T_F = \frac{2 - (1-\eta_F)T_U}{(1+\eta_F)(2-T_U)}$$

The following chart shows the efficient tax rate on foreign goods as a function of the tax rate on domestic goods and the elasticity of foreign supply (still assuming that the domestic elasticities of supply and demand are equal in absolute value). The shaded entries correspond to situations in which the corollary applies, so that any tax levied on consumers should be offset by a subsidy to imports:

ELASTICITY OF FOREIGN SUPPLY

DOMESTIC TAX RATE	1	2	5	10	20	50	100	∞
.00	0.50	0.33	0.17	0.09	0.05	0.02	0.01	0.00
.01	0.50	0.34	0.17	0.10	0.05	0.02	0.01	**0.01**
.03	0.51	0.34	0.18	0.10	0.06	0.03	**0.02**	**0.02**
.05	0.51	0.35	0.19	0.11	0.07	**0.04**	**0.04**	**0.03**
.08	0.52	0.36	0.20	0.13	0.09	**0.06**	**0.05**	**0.04**
.10	0.53	0.37	0.21	0.14	**0.10**	**0.07**	**0.06**	**0.05**
.15	0.54	0.39	0.23	0.16	**0.12**	**0.10**	**0.09**	**0.08**
.20	0.56	0.41	0.26	**0.19**	**0.15**	**0.13**	**0.12**	**0.11**
.25	0.57	0.43	0.29	**0.22**	**0.18**	**0.16**	**0.15**	**0.14**
.50	0.67	0.56	**0.44**	**0.39**	**0.37**	**0.35**	**0.34**	**0.33**
.90	0.91	**0.88**	**0.85**	**0.83**	**0.83**	**0.82**	**0.82**	**0.82**