

## Bilateral import tariffs under variable love for variety

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Some bilateral tariffs remain even under WTO and induce a question for theorists: Can any mutual tariff be welfare enhancing? A positive – protectionist – answer is shown possible under some oligopolistic or dynamic hypotheses, see Brander and Spencer (1984). However, the question remains weakly studied in modern trade theory under monopolistic competition. Unlike oligopoly, here strategic behavior of firms cannot be a reason for protectionist thinking. Still, some welfare gains from tariffs look generally possible. Indeed, under variable elasticity of substitution, the equilibrium number of firms can be socially *excessive* or insufficient, see Dixit and Stiglitz (1977). So, mutual tariffs can be thought off as a cure for such “distortion of variety” in non-CES world. However, they generate “structural distortion:” asymmetry between consumption of domestic and imported goods. Therefore, overall welfare impact of tariffs is non-obvious.

First, we try to disentangle these basic links in the market mechanism *per se* – from various selection effects and inter-sectorial effects. Therefore, our basic setting repeats simple Krugman’s (1979) trade model. Two countries include one differentiated sector, one production factor and homogenous firms. The general-form (unspecified) additively separable utility function is assumed increasing, concave. We allow for variable elasticity of substitution (VES), unlike constant elasticity (CES) broadly studied in trade theory. The countries are symmetric in preferences, populations and technology. The difference from Krugman’s trade model is that iceberg trade costs turn into iceberg tariffs now, i.e., they become *redistributed* among the consumers. This makes essential difference for welfare.

We find analytically that any bilateral tariff makes the equilibrium consumption of each domestic variety *growing*, import *decreasing*. Simultaneously, total output of a firm *decreases*, because a monetary transfer from tariffs stimulates the domestic consumption insufficiently to compensate decreasing import. Surprisingly, competition/variety (mass of firms), *increases* in tariff, because variety must be inversely related to each firm's output under free entry. Further, in the case of increasingly elastic utility (unrealistic IEU industry) – free trade generates *less* firms than social optimum (Dixit and Stiglitz). Here a small import tariffs stimulates variety (mass of firms) and somewhat *enhances* total welfare. In other words, a small mutual tariff pulls the market closer to socially optimal situation, curing the “variety distortion.” However, under sufficiently big tariff, the “structural distortion” between import and export outweighs the previous positive effect. More realistic is DEU case, i.e., decreasingly elastic utility. Here the logic mirrors what we have seen previously: we prove that for whole DEU class of additive preferences introduction of any small tariff *reduces* social welfare in both countries because both kinds of distortion are summed up. Any subsidies for imports or export tariffs bring a symmetrical outcome: social welfare increases with small subsidies in a realistic DEU case, but welfare decreases in unnatural case of increasingly elastic utility. By contrast, CES-utility is a borderline between broad IEU and DEU classes, bringing zero effect near free trade but negative welfare effect under any substantial tariffs/subsidies.

To roughly quantify the losses, we follow the methodology of Arkolakis et al. (2012), Melitz and Redding (2015), to look on compensating variation. Using calibrated trade elasticity from the literature, we apply it, however, with the two-parametric AHARA utility function (flexible enough for our goals). The evaluated magnitude of social loss from tariffs turned out moderate. Namely, the tariff rate about 4% induces a significant drop in trade 10% but the welfare loss amounts to only 2.2% (for a hypothetical country with import share in consumption about 20%).

## References

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