Implications of International Trade Agreements

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We study a classic international trade model consisting of a strategic game in the tariffs of the governments. The model is a two-stage game where, at the first stage, governments of each country use their welfare functions to choose their tariffs either (i) competitively (Nash equilibrium) or (ii) cooperatively (social optimum). In the second stage, firms choose competitively (Nash) their home and export quantities. We compare the competitive (Nash) tariffs with the cooperative (social) tariffs and we classify the game type according to the coincidence or not of these equilibria as a social equilibrium (when they coincide), a prisoner's dilemma (when they do not coincide and the competitive outcome is dominated by the social) or a lose-win dilemma (when they do not coincide but one of the countries is damaged in terms of welfare in the social optimum). The lack of coincidence of these equilibria for the welfare of the governments is a main difficulty in international trade that can be partially dealt with the use of trade agreements that impose the social tariffs and rule the distribution of the corresponding welfare gains and try to mitigate the externalities that could arise among the two countries. We conclude that in the classic model, the enforcing of a trade agreement may be a difficult issue because of some powerful externalities that might arise. For this we consider a welfare balanced trade agreement that has the feature of maintaining the Nash welfare shares of the two countries when the social tariffs are enforced. We study the gains obtained by the countries by using such a trade agreement as well as changes in the shares of other relevant quantities such as profits, consumer surplus and total output of the countries and the possible implications and externalities that may be caused by changes in these quantities.