Antidumping and Feed-In Tariffs as Good Buddies? Modeling the EU-China Solar Panel Dispute

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Executive summary

Renewable energy support policies since 2010 have resulted in a series of international trade disputes. An initial wave of disputes was focused on national subsidy programs for renewable electricity generation with "local content requirement" clauses. More recently, these disputes have centered on a different type of trade distorting practice, i.e. dumping and antidumping (AD) in relation to renewable energy products (biodiesel) and technologies (solar panels). In the latter case the disputes involve China's dumping of solar panels in the US and the EU. The EU-China solar panel dispute involves the largest photovoltaic market and the biggest photovoltaic manufacturer. In 2011, China exported 90% of its solar panel production, and the EU had the world's largest installed solar generation capacity, constituted 80% of Chinese products. The EU was Chinese solar manufacturers' first export market. Penetration of Chinese solar panels was facilitated by public subsidies, and European photovoltaic manufacturers' market share has fallen progressively. This situation led to the European photovoltaic manufacturers' complaint about unfair competition, and the European Commission (EC)'s AD (and anti-subsidy) investigations. The EC established that solar cells and solar panels imported from China were being sold at a dumped price which was hurting EU solar manufacturers. In December 2013, a definitive AD duty was imposed on these products. In March 2017, following investigation and several interim reviews, the EC decided that the AD measures should be maintained for a period of 18 months which would constitute "an appropriate mediation between the competing interests" (EC, 2017). By September 2017, the EC had decided to lower the minimum import prices for Chinese solar panels imported.

This solar dispute is the most significant AD complaint investigated so far by the EC. It is concerned with strategic trade policies but not exclusively. The renewable energy and environmental stakes are obvious since photovoltaic is a carbon abatement technology. Both the fight against global warming and the path to energy transition will be affected by how this trade dispute is managed. Consequently, during the investigation in 2012, the EC felt it necessary to challenge the claim that use of AD duties would undermine the EU's green energy objectives. A side benefit of the EU being able to import cheap solar panels is that this increases its adoption of renewable energy equipment and reduces global greenhouse gas emissions.

Less immediate but equally important from a renewable energy and environmental perspective is the idea that AD can be seen as interfering with renewable electricity support programs such as feed-in tariff (FIT). FIT programs are set as a function of the cost of solar technologies. The EC observed that "there has been a boom in solar installation demand in the years 2010 to 2013 driven, in certain Members States, by a mismatch between FIT set at a level of a fair module price and the overall level of prices driven by unfairly dumped Chinese modules" (EC, 2017). Therefore, we would question the interrelation between FIT and AD policies which is the preoccupation of the present paper.

To our knowledge, there are no theoretical works on the interactions between AD duties and renewable energy support programs. In this paper, we consider a duopolistic price competition model with differentiated products and intra-industry trade in photovoltaic equipment. We assume that the foreign firm has a cost advantage, and that the domestic market for solar panel is the largest market. Dumping and AD are conceived in line with Bernhofen (1995). Two levels of AD duty are considered: an optimal duty maximizing domestic welfare, and an adequate duty

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nullifying the foreign dumping margin. The theoretical results are supplemented by numerical simulations of the model.

We assess the environmental stakes related to dumping and AD policies, and evaluate the interrelation between FIT and AD. We show that if welfare maximization is used to calculate the FIT rate and the AD duty that should be implemented, FIT and AD appear complementary policies: the optimal FIT rate increases in the AD duty, and vice versa. Therefore, when setting AD duties in sectors related to clean energy products it is imperative also to consider the extent to which renewable energy is subsidized. In addition, if the AD duty is chosen to nullify the dumping margin rather than to maximize the domestic welfare, FIT and AD cease to be complementary and become substitutes. Therefore, the introduction of an AD duty should be accompanied by a decrease in the FIT rate.

In investigating how these two policies react to dumping we show that AD duty reacts positively to higher levels of dumping while under the same conditions, for a given AD duty, the FIT rate decreases. Furthermore, if the competitiveness of domestic firms decreases competitiveness due to a rise in their marginal costs, we show that both an optimal FIT and an optimal AD duty react strategically. However, under the same conditions the AD duty nullifying the dumping margin will decrease.

Lastly, we introduce domestic and foreign R&D activities in the photovoltaic sector, and international spillovers. Solar energy is considered a second-generation energy requiring "substantial R&D investments, as well as deployment support, to gain market learning" (International Energy Agency 2006). In such a context, AD can be seen as securing R&D results and may benefit the environment. This was an important point raised by the EC when justifying its AD investigation: to avoid a situation where dumping would discourage EU producers from developing new technologies in the photovoltaic sector. We show that introducing R&D lessens FIT programs and raises the dumping margin, and that these effects are reinforced by spillovers.

Our results related to the complementarity (substitutability) of FIT and AD duty highlight the importance of the level of decision-making related to these policies. Energy policy is decided at the national level, and generally by an independent agency, whereas trade policy is managed at the federal level (e.g. DG Trade for the EU). Our results suggest the need for coordination of the decision making related to these two policies. Finally, when R&D is considered, our results show that public policies aiming at fostering domestic research activities may replace FIT programs since a more efficient industry needs fewer subsidies for renewable electricity producers.

For a given FIT, we investigate the benefits of penalizing dumping by an AD duty solar panels or a direct subsidy to domestic solar panel producers. We employ numerical simulations of the model. In the case of low environmental stakes, the case explored shows that the optimal answer depends on the extent of the dumping. In the case of high levels of dumping, a subsidy is preferred. If renewable energy and the environment are the focus, an AD duty is preferred systematically to a subsidy, i.e. whatever the dumping margin.

Keywords: Antidumping; FIT; Solar Panels; Renewable Energy; Trade disputes; EU; China.