



# When does coordination for free trade regimes fail? ☆



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## ABSTRACT

This paper examines why the recent efforts to arrange free trade regimes have failed repeatedly focusing on the increased uncertainties in economic fundamentals and the asymmetric political economic characteristics of trading countries reflected in the hawkish trade retaliatory tendencies. We demonstrate that, under informational barriers due to economic uncertainties, a slight negative change in economic fundamentals as well as the signals about the economic fundamentals can lead to the collapse of free trade regimes. Moreover, the fear of a trading partner's deviation to protectionist policies might trigger preemptive protectionist measures resulting in a trade war when trade policies show strategic complementarity. However, a free trade regime is more likely to be sustained when it is commonly known that each country has strong symmetric retaliatory tendencies in case trade friction occurs. Nonetheless, if the asymmetry in retaliatory tendencies of trading countries increases the preemptive incentive, a free trade regime is more likely to collapse to a trade war.

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## 1. Introduction

After the launch of the WTO in 1995, efforts to make progress in multilateral trade liberalization have been repeatedly thwarted due to continuous deadlock of the Doha Development Agenda (DDA) since negotiations started in 2001. The deadlock in multilateral trade liberalization has been aggravated by the latest advent of the global financial and fiscal crisis and the resulted increased uncertainty in economic fundamentals since the global financial crisis in 2008 and the European fiscal crisis in 2011. The increased uncertainty in economic fundamentals due to the financial and fiscal crisis initiated a vicious circle of protective trade policies and the resulted trade wars within the downgrading economic fundamentals.

To mitigate the vicious circle between the worsening economic fundamentals and protectionist trade policies and to avoid the global trade war, a wide range of international efforts have been made to arrange credible enforcement mechanisms for countries involved in trade agreements to prevent their deviation to non-cooperative policies such as protectionist trade policies and non-cooperative devaluation of currencies in the format of G20 for an example. Notwithstanding these global efforts to arrange an international coordination

mechanism to prevent the deviation to protectionist trade policies, deviation to non-cooperative policies, as well as the resulting collapse of coordination mechanisms, has often been observed. Recent examples include the 2011 non-cooperative currency intervention by the government of Switzerland to devalue Swiss currency against competing countries, as well as frequent import restrictions under the forms of anti-dumping and safeguard measures.

This paper examines the sources of repeated failures to make progress in trade liberalization under the DDA regime by focusing on economic uncertainty in economic fundamentals and the related informational barriers that have been aggravated by recent financial and fiscal crisis. This study discusses factors underlying the disappointing performance of international trade regimes, even though the WTO has established both a forum for repeated games for trade negotiations and a mechanism for trade disputes settlement that is considered to be stronger than the GATT system. We examine the impacts of informational barriers on each country's trade policies, as well as the overall impact on equilibrium trade regimes. Given the strong strategic complementarities of trade policies, we investigate preemptive incentives to choose protectionist trade policies that are motivated exclusively by the fear of trading partner's possible aggressive policies under informational barriers among trading partners.

Traditional approaches to examine the sources of non-cooperative trade policies include literature that focuses on terms of trade effect of protectionist trade policies and strategic trade policies as in [Brander and Spencer \(1985\)](#). Earlier studies on strategic trade policies, however, do not address the impact of informational barriers that causes the failures of policy coordination in arranging free trade regime.

Given the strong strategic complementarities of trade policies, it is highly likely that the trade policy game might end up with multiple

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equilibria, including the case of non-cooperative protectionist trade policy regimes. A groundbreaking contribution to handle the problem of multiple equilibria with strategic complementarities was made by the seminal paper by Carlsson and Damme (1993). Subsequent to that study, there have been significant advances in efforts to explain the coordination failure considering the impacts of informational barriers with global game theoretic approaches.<sup>2</sup> Carlsson and Damme (1993) define a global game as an incomplete information game where the actual payoff structure is determined by a random draw from a given class of games, and one in which each player makes a noisy observation of the selected game. The study shows that, when the noise vanishes, iterated elimination of dominated strategies in the global game forces the players to conform to risk-dominance criterion a la Harsanyi and Selten (1988).

A study by Baliga and Sjoström (2009) examines how the uncertainty about the conflicts in the multiple equilibria can be reduced to a unique equilibrium considering two types of strategies such as strategic substitutes and strategic complements. Chassang and Miquel (2010) examine the determinants of cooperation, as well as the effectiveness of deterrence when fear is a motive for conflict. They focus on the incentive for preemptive attacks that work only under strategic risk, which is created when payoffs from cooperative peace strategies are not commonly known. Although these studies have made significant contributions to explain coordination failures considering informational barriers, they do not consider the strategic aspects of trade policy coordination issues under informational barriers. This paper fills the gap between the global game theoretic efforts to explain coordination failures and the issues of trade policy coordination focusing on the impact of informational barriers and strategic incentives in international trade policy regimes.

Based on a global game theoretic approach, we demonstrate that trade regimes can collapse to non-cooperative trade regimes, wherein different countries pursue protectionist policy measures given a slight negative change in signals about economic fundamentals under informational barriers. The intuition behind this result is that when a country's trade policies are heavily influenced by the trade policies of trading partners in the same direction with strategic complementarity, a sudden change of trade regimes might happen due to slight deterioration of economic fundamentals or signals about them under informational barriers. The failure of DDA to reach at a cooperative multilateral trade liberalization including the areas such as trade in agricultural commodities and trade in services can be explained by the increased suspicion among negotiating parties due to wide spread informational barriers with deteriorating economic fundamentals as explained by the model in this paper. Moreover, the fear of a trade partner's deviation to protective policies will trigger preemptive protective measures, resulting in a trade war when the initial asymmetry of trade openness between trading partners is relatively large under the informational barriers on economic fundamentals.

This paper is organized as follows. Section 2 describes the framework and model to examine the impact of economic uncertainty and resulted informational barriers on equilibrium trade regime considering the strategic complementarity of trade policies based on iterated equilibrium dominance concept as the equilibrium refinement criterion. Section 3 examines the impact of trade retaliation measures adopted in case trade conflicts occur on equilibrium trade regimes. We demonstrate that if each country takes the hawkish strategy of more aggressive retaliation in case trade conflicts occur in a symmetric way, the cooperative free trade regime is more likely to be sustained. Section 4 determines the impact of asymmetric hawkish trade retaliation strategies between trading countries on the equilibrium trade regime. Section 5 concludes and discusses policy implications.

<sup>2</sup> Refer to Angeletos et al. (2007a, 2007b), Baliga and Sjoström (2004) and Chassang and Miquel (2010) for the latest research about the impact of noisy signals on equilibrium with strategic complements. Harsanyi and Selten (1988) provide a classic discussion on the role of risk-dominance in equilibrium selection. Moreover, Morris and Shin (2003) provide a comprehensive review of the global game theoretic perspective applied to various issues. Rochet and Vives (2004) analyze coordination failure based on theoretic global game approaches.

## 2. The model

We consider a trade policy game where each government has two trade policy options, free trade policies and protectionist trade policies.<sup>3</sup> The payoff matrix from each trade regime is given as follows: <Payoffs from each trade regime>

		Country <i>j</i>	
		F (Free trade policy)	P (Protectionist trade policy)
Country <i>i</i>	F (Free trade policy)	$\pi_i + \delta_i V_i, \pi_j + \delta_j V_j$	$S_i, F_j$
	P (Protectionist trade policy)	$F_i, S_j$	$W_i, W_j$

where  $\pi_i$  denotes the payoff of country *i* from free trade policies, while  $\delta_i$  represents the discount factor of country *i* and  $V_i$  is the continuation payoff from mutually cooperative trade policies.  $S_i$  represents the payoff from taking a unilateral free trade policy while the competitor chooses non-cooperative trade policies, while  $F_i$  is the payoff from the opposite case.  $W_i$  denotes the payoff from the trade war in which both countries choose protectionist trade policies. When both countries choose free trade policies, the game takes the form of a repeated game with continuation payoffs. On the other hand, the game ends up as a one-shot game when either of the countries deviates to protectionist trade policies.

To determine the impact of economic uncertainties and informational barriers on the equilibrium trading regime, we examine the complete information case with no uncertainty in economic fundamentals as a benchmarking discussion. When there is uncertainty in economic fundamentals, the payoffs from each trade regime can be known only with probabilistic distribution. We assume that the uncertainty in economic fundamentals are reflected in the uncertain payoffs from free trade regime,  $\pi_i$ .<sup>4</sup>

### 2.1. A benchmarking discussion: complete information case

As a benchmarking discussion, we examine the case where the payoff from mutual cooperative free trade policies,  $\pi_i$ , is commonly known to be  $\pi_i \in [\underline{\pi}, \bar{\pi}]$ . The payoffs from other cases are assumed to be always commonly known parameters, given as  $F_i > W_i > S_i$ , implying that trade policies are strategic complements, analogous to stag-hunt games. Moreover, the payoff from unilateral deviation to protectionist trade policies (i.e., unilateral betrayal) is higher than the payoff from trade war (i.e., mutual betrayal). Furthermore, the payoff from trade war is higher than the payoff from being unilaterally betrayed.<sup>5</sup>

In this case with complete information, the free trade regime can be an equilibrium regime when the payoff from mutual free trade policies is higher than the deviation payoff, as follows:  $(\frac{1}{1-\delta})\pi_i - F_i \geq 0$ . When the net gain from deviation to non-cooperative trade policies is negative,

<sup>3</sup> Protectionist trade policies are defined as non-cooperative Nash equilibrium strategies in a one-shot game that maximize a country's own individual welfare without caring trading partners' welfare. In the same context, free trade policies are defined as cooperative trade policies to maximize the joint-welfare of trading countries.

<sup>4</sup> The uncertainty of the payoffs from each trade regime due to uncertainty in economic fundamentals can be found in any type of trade regimes. For simplicity of discussion, we assume that the payoff uncertainty is found only from free trade regime. Even in case where the payoff uncertainty is found from other trade regime, the major findings of this paper are not affected.

<sup>5</sup> As pointed out by an anonymous referee, the assumption of strategic complementarity of the trade policies implies the mercantilist interpretation of the welfare impact of trade policies. When trade policies are strategic substitutes, unilateral trade liberalization might improve social welfare while a trading partner country imposes a protective trade policy. Such a case of welfare improvement via unilateral trade liberalization is possible when we assume a small economy with consumers heavily dependent on imported consumption goods while the export industries take a very small portion of the economy. However, this type of economy is an exceptional case not that often observed in reality. In addition, the real world trade negotiation is proceeded mainly by the reciprocity principle of trade liberalization. In that context, strategic complementarity of the trade policies is assumed in this paper.

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