

**Title:       An Analysis of Impact of Tariff Reduction in the Non-Agriculture Market Access Negotiations in the Wto Doha Round on the Fisheries Sector in Taiwan**

**Authors:**   Fu-Sung Chiang, Institute of Applied Economics, National Taiwan Ocean University (Taiwan)  
Ya-Ling Pan, Institute of Applied Economics, National Taiwan Ocean University (Taiwan)  
Chin-Hwa Jenny Sun (Author), National Taiwan Ocean University / IATTC (USA)  
Lee-Jung Lu, Department of Leisure Management, Tung Nan University (Taiwan)

**Abstract:**   According to the 2005 World Trade Organization (WTO) Hong Kong Ministerial Declaration, NAMA negotiations will reduce tariff by using the non-single coefficient of Swiss formula. Based on the Swiss formula with coefficient 8 for developed members and the status of new members, the deadline for Taiwan to reduce tariff will be extended for two years. As Doha round negotiations will be implemented in January of 2011 with a 5-year implementation period, this suggests that the completion of final tariff reduction will be scheduled in December of 2017. This study utilizes mathematical programming techniques by applying the most current dataset in 2007 to the fisheries sector equilibrium model of Sun et al (1999) and at the same time considering both future population growth and economic growth rate of 2% to simulate the impact of tariff reduction on the fishing industry. We find that the import quantity of fishery sector in 2017 will increase by 36.96% of the 2017 predicted baseline. In addition to tariff reduction formula, we make further adjustments the supply elasticity of factors to conduct sensitivity analysis by simultaneously considering the impact of the low price of imported fish products as direct substitute for domestic products. The import quantity of fishery sector will increase by 91.51% in 2017, while the total production and the value of fisheries sector will decrease by 6.64% (which is about 96,967 MT) and 14.23% (which is about NT\$22,723,647 million), respectively, of the predicted value of the corresponding baseline. Within the Taiwans fishery sector, aquaculture will bear the heaviest burden of the loss in output. Because the production of all three major fishery sectors will fall, the total production and the employment of fishery sectors will be reduced by 6.64% (which is about 96,967 MT) and 21.19%, respectively. According to the fisheries statistical yearbook in 2007, 342,915 were employed in the all fishery sectors. This means that as many as 122,112 people will be unemployed. The aquaculture sector will suffer the biggest loss in employment of 23.27%. Among the forty-three fishery products, farmed shrimp, shellfish, and fishes will suffer most of the loss in output reduction. The production cost

of giant shrimp, small abalones, eel, oyster, and other aquaculture products exceed their output value, and the low price imported fish products will replace them in the market. Competition from imports will make it difficult for the producers to survive. It is anticipated that 10% of the above-noted fish farmers will have to withdraw from the industry. They will need government to assistance to find alternative employment.