ECN330 Trade Policy Analysis of Economic Integration and Trade Liberalization

Exercise set 1 (assignment 1): Modeling the policy implications of volume/value restrictions on imports of heterogeneous goods (hard and soft cheese)

Objective: This exercise set is designed to illustrate the equivalence and non-equivalence of tariffs and quotas by analyzing the trade, economic and welfare implications of the intervention in the case of heterogeneous goods. Such analysis allows an assessment of WTO consistency of trade policy, evaluated based on the principles and rules of the multilateral trading system.

Problem: Suppose that a net importing country has excess demands for hard cheese (HC) and soft cheese (SC) as presented in the table below. Assume that this country is a small market, and that the world prices are given as 20 NOK and 30 NOK for HC and SC, respectively.

	Hard cheese (HC)	Soft cheese (SC)
Excess demands	$[ED]_{HC} = 210 - 3P$	$[ED]_{SC} = 260 - 2P$

1.1. Determine tariff equivalents of a quota on the total imports of cheese given the two cheese product sub-categories by solving for the equilibrium solutions relative to free trade.
- 1.1.1 Solve for the imported quantities of hard and soft cheeses under a free trade regime.
- 1.1.2 Graph the partial equilibrium free trade market situation for each cheese market.
- 1.1.3 Solve for the equilibrium solution when there is a total cheese quota of 200 units. (Repeat the exercise for quotas of 100 units and 150 units - optional.)

Equilibrium solutions under different policy regimes:

$[Q_M]_{Tot}$	$[P_D]_{HC}$ / $[P_D]_{SC}$	Hard cheese market					Soft cheese market				
		$[Q_M]_{HC}$	Prices		Tariff equivalent		$[Q_M]_{SC}$	Prices		Tariff equivalent	
			P_D	P_W	τ_0	$\tau_{\%}$		P_D	P_W	τ_0	$\tau_{\%}$
Free trade regime:											
Quota of 200 units:											
200											

- 1.1.4 Solve for the new excess demand curves. Graph the partial equilibrium solution for each product market showing the tariff equivalents of the 200-unit volume quota.

New excess demand

	Hard cheese (HC)	Soft cheese (SC)
Specific tariff	$[ED_{HC}]_{\tau 0} =$	$[ED_{SC}]_{\tau 0} =$
Ad valorem tariff	$[ED_{HC}]_{\tau \%} =$	$[ED_{SC}]_{\tau \%} =$

1.1.5 Debriefing:

(a) Why might a quota on total cheese imports be inconsistent with WTO rules? Explain using the results of the tariff equivalents that you solved.

(b) What might policymakers' *real* intentions have been by implementing a volume quota as the MA restriction? Think about the effect of the quota on (1) relative prices, (2) trade, and (3) on production and consumption.

(c) What is the implication for the dead-weight losses across product markets?

1.2. Determine the tariff equivalents of a value quota on the total expenditures on imported cheese given the two cheese product sub-categories by solving for the equilibrium solutions relative to the free trade benchmark.

1.2.1 The free trade solution is the same as in 1.1.1.

1.2.2 The partial equilibrium market situation is the same as in 1.2.1.

1.2.3 Solve for the equilibrium solution when there is a total value quota on cheese equal to 6000 NOK. (Repeat the exercise for a quota of 4000 NOK.)

Comparison of the equilibrium solutions under a value quota of 6000 NOK and free trade

$[V_M]_{Tot}$	Hard cheese market						Soft cheese market					
	V_M	Q_M	Prices		Tariff equivalent		V_M	Q_M	Prices		Tariff equivalent	
			P_D	P_W	τ_0	$\tau_{\%}$			P_D	P_W	τ_0	$\tau_{\%}$
Free trade regime:												
Value quota of 6000 NOK:												
6000												

1.2.4 Solve for the new excess demand curves. Graph the partial equilibrium solution for each product market showing the tariff equivalents of the 6000 NOK value quota.

New excess demand

	Hard cheese (HC)	Soft cheese (SC)
Specific tariff	$[ED_{HC}]_{\tau 0}$ =	$[ED_{SC}]_{\tau 0}$ =
Ad valorem tariff	$[ED_{HC}]_{\tau \%}$ =	$[ED_{SC}]_{\tau \%}$ =

1.2.5 Debriefing:

(a) Is a value quota on total cheese imports inconsistent with WTO rules? Explain.

(b) What might policymakers' *real* intentions have been by implementing a value quota as the MA restriction? Think about the effect on relative prices.

(c) What is the implication for the dead-weight losses across product markets?