Optimal Trade Agreement
Flexible Output Patterns

T^{Nash}

Optimal
tariff T-1

y^{Nash}

Optimal $\bar{y}$

| 0 | 0.2 | 0.4 | 0.6 | 0.8 | β |

Figure 1a: The optimal trade agreement implements free trade if discount factor β is large. When β is small, optimal tariffs and output of the import good are both strictly positive ($T > 1$; $\bar{y} > 0$).

Loss of
utility

| 0 | 0.2 | 0.4 | 0.6 | 0.8 | β |

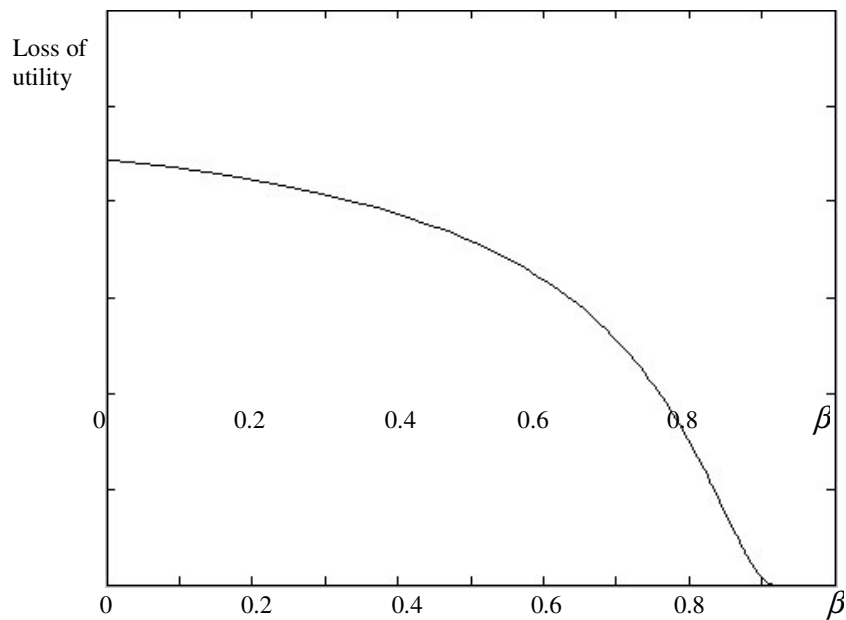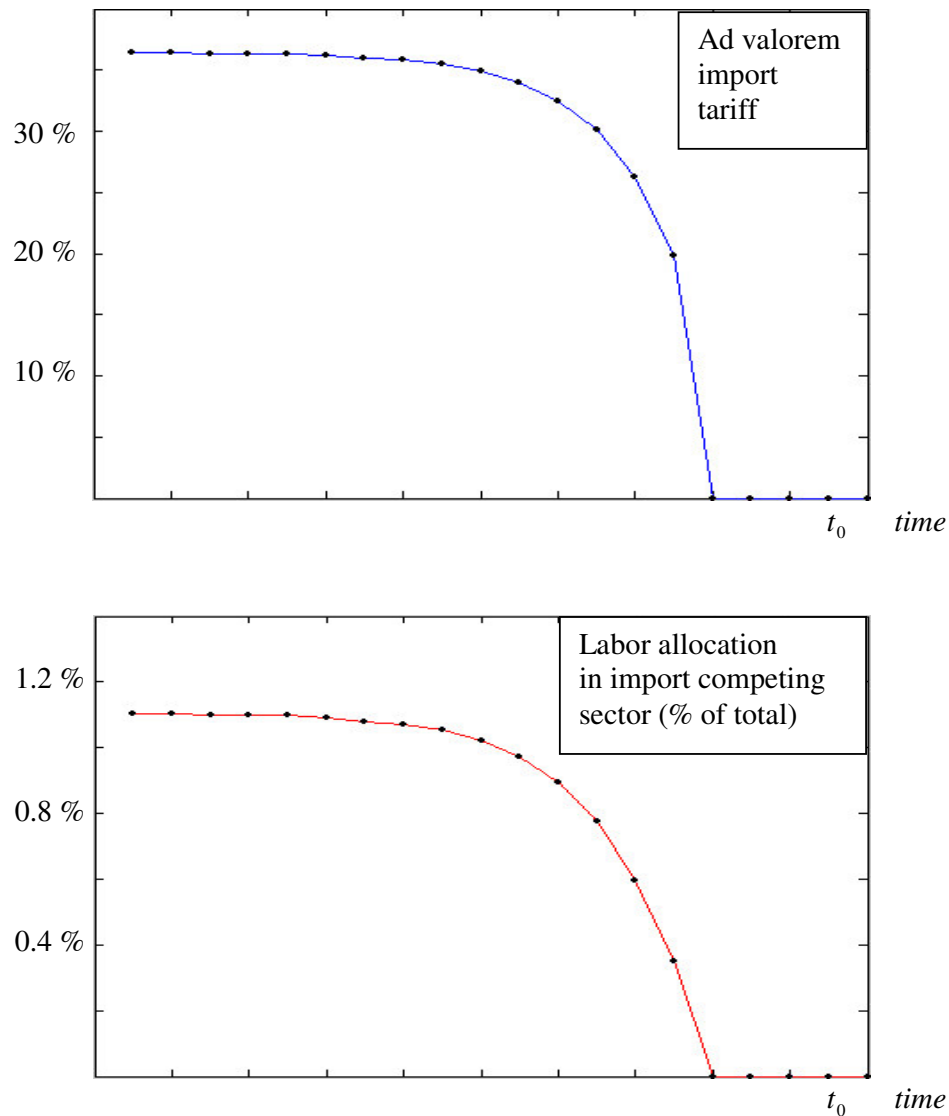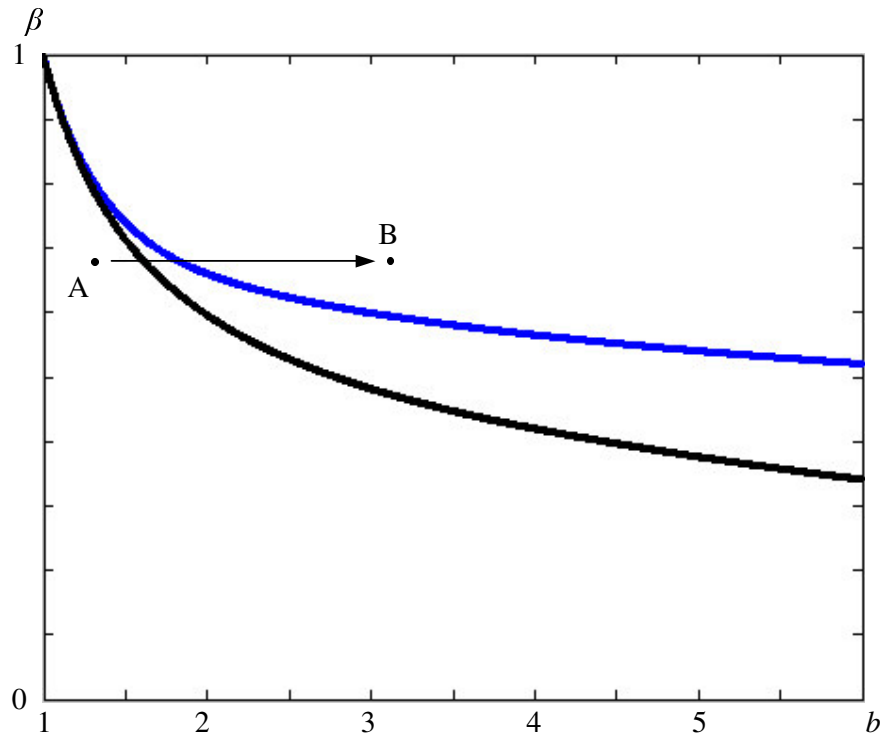| 0 | 0.2 | 0.4 | 0.6 | 0.8 | β |

Figure 1b: Patient countries with a high discount factor β can cooperate on free trade. For low discount factors, free trade is not sustainable and the optimal trade agreement has to implement positive tariffs and subsidies, which incur efficiency losses. These losses are increasing when the discount factor β shrinks.

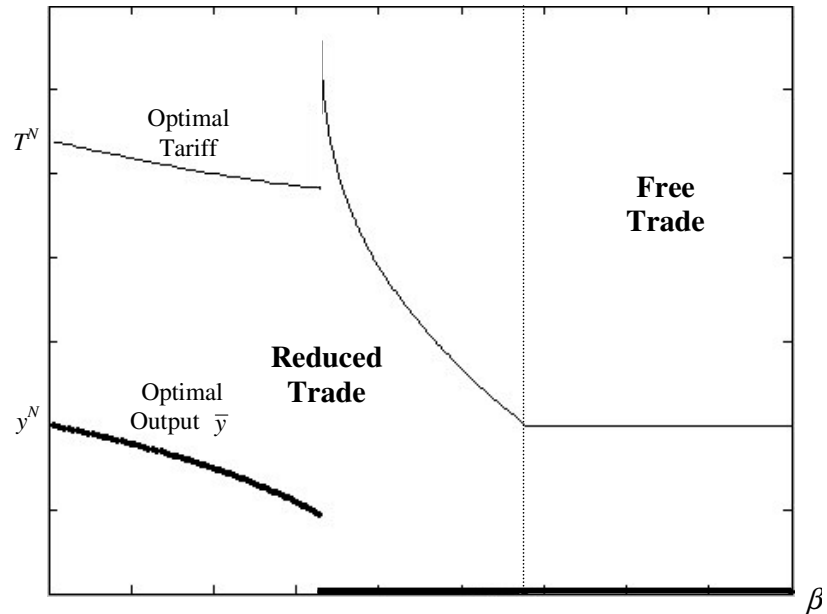## Optimal Trade Agreement
Gradualism because of Learning by Doing

Figure 2: The parameter of comparative advantage, b, jumps up at date t_0. The jump in b induces free trade after that date. The anticipated gains from cooperation allow liberalization of trade also *before* date t_0. The more distant t_0, the heavier accruing gains are discounted and the higher are tariffs (top panel) and labor distortions (bottom panel). Consequently, liberalization and decline of the import competing sector are gradual.

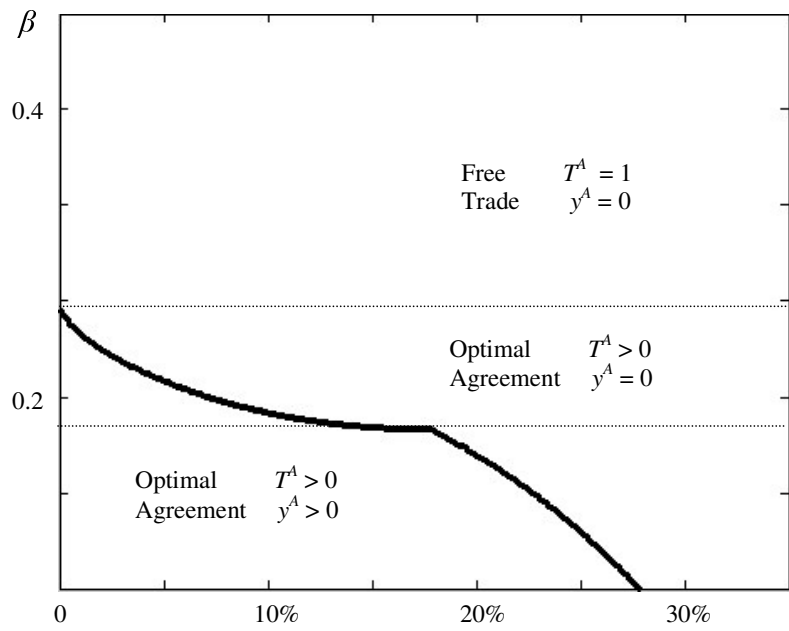## The Need for Temporary
Industrial Policy to Reach Free Trade

Figure 3: The plane (b,β) is divided in three regions. In the lower left region (for small values of b and β), an efficiency-enhancing self-enforcing trade agreement must include industrial policy. In the upper right (for large values of b and β) free trade is self-enforcing. If a jump in export productivities takes the world economy from the lower left to the upper right region (e.g. from point A to B), and if the jump in productivities is conditional on some degree of trade integration, free trade can only be reached by a temporary use of industrial policy.

Optimal Trade Agreement
Rigid Output Patterns

Figure 4.a: There are three ranges for the discount factor β: For the high range, free trade is self-enforcing (tariffs and production distortion is zero). In the medium range, only tariffs are used as a means to make the trade agreement sustainable. If β is very small, both, tariffs and industrial policy are set at positive values in the trade agreement.

Figure 4.b: shows the relation between the discount factor β and the efficiency loss induced by the optimal self-enforcing trade agreement measured in percent of free trade utility.