

# Preventing domestic deflation in the presence of foreign tariffs

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## Abstract

In this paper, I build upon the previously established results on the correct definition of deflation and the conditions under which deflation occurs. I extend these ideas to an open-economy setting where foreign tariffs distort domestic trade, thereby introducing contractionary pressures. I derive the functional conditions under which tariff-induced shocks may trigger domestic deflation, and I propose theoretical and policy mechanisms to prevent such outcomes.

The paper ends with "The End"

## 1 Introduction

In earlier works, I defined the correct notion of deflation as a conditional transformation of inflation, and further, I established when deflation occurs in terms of functional parameters. A natural extension arises when domestic price stability is threatened, not by internal demand contraction alone, but by external shocks in the form of foreign tariffs.

Tariffs, when imposed abroad on a nation's exports, reduce external demand. This dampens domestic production, employment, and eventually aggregate demand, creating the conditions under which deflation may emerge. The central question addressed in this paper is:

*How can a nation prevent domestic deflation in the presence of foreign tariffs?*

## 2 The correct definition of deflation

Following Ghosh (2025), the correct definition of deflation is

$$d(t) = \begin{cases} 0 & \text{if } i(t) \geq 0, \\ -i(t) & \text{if } i(t) < 0, \end{cases}$$

where  $d(t)$  is deflation as a function of time and  $i(t)$  is inflation as a function of time.

Deflation is not simply negative inflation but the positive magnitude of negative inflation.

### 3 When deflation occurs

In the same framework, inflation is given by

$$i(t) = \begin{cases} \lambda e^{-\lambda t}, & t \geq 0, \\ 0, & t < 0, \end{cases}$$

and deflation arises if

$$d(t) = D \wedge D > 0 \iff t \geq 0 \wedge \lambda < 0 \wedge D = -\lambda e^{-\lambda t}.$$

Thus, the domestic economy enters deflation precisely when the structural parameter  $\lambda$  is negative, corresponding to contractionary forces overwhelming expansionary dynamics.

### 4 Tariff-induced deflationary pressure

Consider an open economy facing a foreign tariff  $\tau$  on its exports. Let the effective demand faced by domestic producers be reduced to

$$Q^*(t) = Q(t)(1 - \tau),$$

where  $Q(t)$  is baseline foreign demand without tariffs. The decline in external demand reduces  $\lambda$  through its effect on expected future profitability and investment.

Formally, let

$$\lambda = \lambda_0 - \alpha\tau,$$

with  $\alpha > 0$  capturing the sensitivity of the domestic contraction parameter to foreign tariffs. Then,

$$\lambda < 0 \iff \tau > \frac{\lambda_0}{\alpha}.$$

This defines the threshold tariff rate beyond which domestic deflation becomes inevitable unless countered by policy intervention.

## 5 Mechanisms for preventing deflation

To prevent deflation in the presence of foreign tariffs, the state must ensure  $\lambda \geq 0$ . Several instruments are available:

### 5.1 Domestic fiscal policy

Government expenditure  $G$  can offset external demand loss. Define the adjusted parameter

$$\lambda' = \lambda_0 - \alpha\tau + \beta G,$$

where  $\beta > 0$  captures the fiscal multiplier effect. Prevention requires  $\lambda' \geq 0$ .

### 5.2 Monetary expansion

Similarly, an expansionary monetary stance lowering interest rates  $r$  can sustain domestic investment. Suppose

$$\lambda'' = \lambda_0 - \alpha\tau + \beta G + \gamma(-r),$$

with  $\gamma > 0$ . Adequate monetary loosening helps maintain nonnegative  $\lambda''$ .

### 5.3 Strategic trade diversification

Let  $\delta$  denote the fraction of exports redirected to untariffed markets. Then effective tariff exposure is  $\tau(1 - \delta)$ . Prevention requires

$$\lambda = \lambda_0 - \alpha\tau(1 - \delta) \geq 0.$$

## 6 Synthesis

The generalized prevention condition is:

$$\lambda_{eff} = \lambda_0 - \alpha\tau(1 - \delta) + \beta G + \gamma(-r) \geq 0.$$

Thus, even in the presence of adverse foreign tariffs, a combination of fiscal expansion, monetary loosening, and diversification can preserve domestic stability by ensuring

$$\lambda_{eff} \geq 0$$

## 7 Conclusion

In this paper, I have extended the theoretical framework of deflation to an open-economy context with foreign tariffs. By modeling tariffs as a force that can push the inflation parameter  $\lambda$  into the negative domain, I derived explicit conditions for when deflation arises. More importantly, I outlined a policy synthesis capable of preventing deflation: maintaining  $\lambda_{eff} \geq 0$  through a balance of fiscal, monetary, and trade measures.

## References

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- [4] Dornbusch, R. & Fischer, S. *Macroeconomics*. McGraw-Hill.

**The End**