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PROTECTIONISM IN A LIQUIDITY TRAP

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ABSTRACT

This paper studies the effects of protectionism as a business cycle instrument. In normal times, protectionism reduces international trade, distorts production and reduces output. However, in a liquidity trap protectionism lowers the real interest rate because inflation goes up while the nominal interest rate is stuck at the zero lower bound. This stimulates consumption and output.

Keywords: Business cycle policy, Protectionism, Liquidity trap

JEL classification: E12, E60, F13

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1 Introduction

Openness to international trade remains one of the most hotly debated topics in economics. Apart from the distributional consequences one of the main concerns is the potential vulnerability to foreign business cycle shocks that trade liberalization brings along. This is expressed in the view popular among politicians, the broader public and even among some economists, that trade liberalization is generally beneficial, but that during recessions some protectionism might be useful[1]. In line with this view the pressure towards protectionism is a recurring theme in recessions and according to Global Trade Alert protectionism was also strong during the recent Great Recession (see www.globaltradealert.org).

Research on the effects of protectionism on business cycles is still scarce. Two recent papers (Larch and Lechthaler (2011, 2016)) have found that protectionism is not a suitable business cycle instrument. It not only hurts the trading partner but also the initiating country through adverse terms of trade effects and crowding-out of consumption. However, both papers are based on models with flexible prices. This reduces their applicability to the Great Recession in which many economies faced a liquidity trap and were stuck at the zero lower bound on interest rates (ZLB).

In this paper I use a model with sticky prices, taking account of the ZLB, to analyze the effects of protectionism in the form of raising non-tariff trade barriers. I find that in such a situation, protectionism, used as a business-cycle instrument (i.e., only temporarily), can indeed stimulate an economy in the very short run. Raising trade barriers harms trade, makes imports more expensive, and thus raises inflation. Under normal circumstance this would induce the central bank to raise nominal interest rates. However, with monetary policy stuck at the ZLB this does not happen. In such a situation the increase in inflation lowers the real interest rate, which stimulates consumption and output. These results are in line with a recent literature that finds 'unconventional' effects at the ZLB (see, e.g., Christiano, Eichenbaum, and Rebelo (2011), Gavin, Keen, Richter, and Throckmorton (2015), Albertini and Poirier (2015), Eggertsson (2011) or Eggertsson and Krugman (2012)).

Of course, the result in this paper does not imply that protectionism should generally be used as a business cycle instrument. First, the positive effects highlighted in this paper only occur in an economy at the ZLB, i.e., in 'normal' recessions protectionism is still a bad idea. Second, and more importantly, protectionism once allowed for might be hard to reign in once the episode at the ZLB is over, and thus risks jeopardizing the gains of free trade won in hard-fought trade

[1]Paul Krugman argued in his New York Times column that 'there is a short-run case for protectionism' (Krugman (2009)). According to an international poll in 2009, a majority in 16 of 19 countries thinks that globalization is 'mostly good', while a majority in 11 of the same 19 countries thinks that during a recession the government should make it harder for foreign companies to sell their products (World Public Opinion (2009)).

negotiations over the last couple of decades.

2 Model

The model I am using is the standard open-macro model augmented by iceberg trade costs. Apart from other things like transport costs, these include non-tariff trade barriers like legal requirements for imports. Thus at least partly the level of trade costs can be influenced by the government, and I will model protectionism as a temporary increase in these trade costs.

The model economy consists of two identical countries, Home and Foreign. Households in both countries consume the products of both countries but have a bias towards domestic products, leading to the common demand functions[2]

$$\begin{aligned} c_{h,t} &= (1-\alpha)p_{h,t}^{-\phi} \\ c_{f,t} &= \alpha p_{f,t}^{-\phi} \end{aligned}$$

where c_h (c_f) is the consumption of domestic (foreign) goods and p_h (p_f) their price. Household utility is given by $E_0 \sum_{t=0}^{\infty} \beta^t \varepsilon_t^{-\sigma} \left(\frac{c_t^{1-\sigma}}{1-\sigma} - \frac{L_t^{1+\varphi}}{1+\varphi} \right)$, where c is aggregate consumption, L is labor supply and ε is a discount shock, commonly used to simulate episodes at the ZLB (see, e.g., Levin, Onatski, Williams, and Williams (2005)). Labor supply equates the marginal disutility from work to the product of the wage and the marginal utility from consumption

$$L_t^{\varphi} = w_t c_t^{-\sigma}$$

Intertemporal optimization of consumption yields the familiar consumption Euler equation

$$(c_t \varepsilon_t)^{-\sigma} = \beta \frac{1+i_t}{1+\pi_{t+1}} (c_{t+1}\varepsilon_{t+1})^{-\sigma}$$

where i the nominal interest rate, and π the inflation rate.

The aggregate consumption goods of both countries are CES aggregates of a constant number of varieties, each produced by a monopolistic competitor using a linear production function with labor as the only input. In setting their price firms face quadratic price adjustment costs. The price of internationally traded goods depends additionally on iceberg trade costs, τ, which can be influenced by policy. Profit maximization leads to two markup equations for prices charged on

[2]For definitions of all parameters see table 1. Foreign variables are denoted by an asterisk.

the domestic and foreign market (assuming producer currency pricing)

$$\left[(1-\theta)p_{h,t} = -\theta\frac{w_t}{Z_t} + \nu(\pi_{h,t}+1)\pi_{h,t}\right] - \theta\frac{\nu}{2}\pi_{h,t}^2 - \nu\beta\left(\frac{c_{t+1}\varepsilon_{t+1}}{c_t\varepsilon_t}\right)^{-\sigma}(\pi_{h,t+1}+1)\pi_{h,t+1}\frac{c_{h,t+1}}{c_{h,t}}$$

$$(1-\theta)p^*_{h,t}Q_t = -\tau^*_t\theta\frac{w_t}{Z_t} + \nu(\pi^*_{h,t}+1)\pi^*_{h,t} - \theta\frac{\nu}{2}{\pi^*_{h,t}}^2 - \nu\beta\left(\frac{c_{t+1}\varepsilon_{t+1}}{c_t\varepsilon_t}\right)^{-\sigma}(\pi^*_{h,t+1}+1)\pi^*_{h,t+1}\frac{c^*_{h,t+1}}{c^*_{h,t}}$$

where Q is the real exchange rate, and π_h (π_f) the inflation rate of domestically (foreign) produced varieties. Monetary policy is modeled by a Taylor rule targeting inflation and the output gap. The calibration is standard and summarized in table 1.

Parameter Value	Description
$\beta = 0.99$	Discount factor
$1-\alpha = 0.8$	Degree of home bias
$\phi = 2$	Elasticity of substitution between home and foreign goods
$\sigma = 2$	Intertemporal elasticity of substitution
$\theta = 10$	Elasticity of substitution among varieties
$\varphi = 1$	Elasticity of labor supply
$\nu = 80$	Price adjustment cost
$b_\pi = 1.5$	Taylor rule coefficient, inflation
$b_y = 0.5$	Taylor rule coefficient, output gap
$b_i = 0.6$	Taylor rule coefficient, interest rate smoothing
$\tau = 1$	Iceberg trade costs, policy parameter

Table 1: **Calibration.**

3 Results

The dashed-dotted line in figure 1 shows the effects of a temporary, bilateral increase in trade costs τ under flexible prices.[3,4] Both countries raise τ by 1%

[3] I restrict myself to two-sided protectionism because in this situation it is hardest to generate beneficial effects.

[4] All figures are based on deterministic simulations in Dynare.

on impact and then let it slowly converge back to its steady state level. As expected this policy leads a to substantial drop in international trade (imports plus exports). Since both countries are symmetric and follow the same trade policy, the real exchange rate and the trade balance do not move. Furthermore, the policy reduces output and consumption because it makes imports artificially more expensive and thus distorts the optimal structure of production. Thus, not surprisingly, this exercise confirms that protectionism is not a good idea even if used only temporarily.

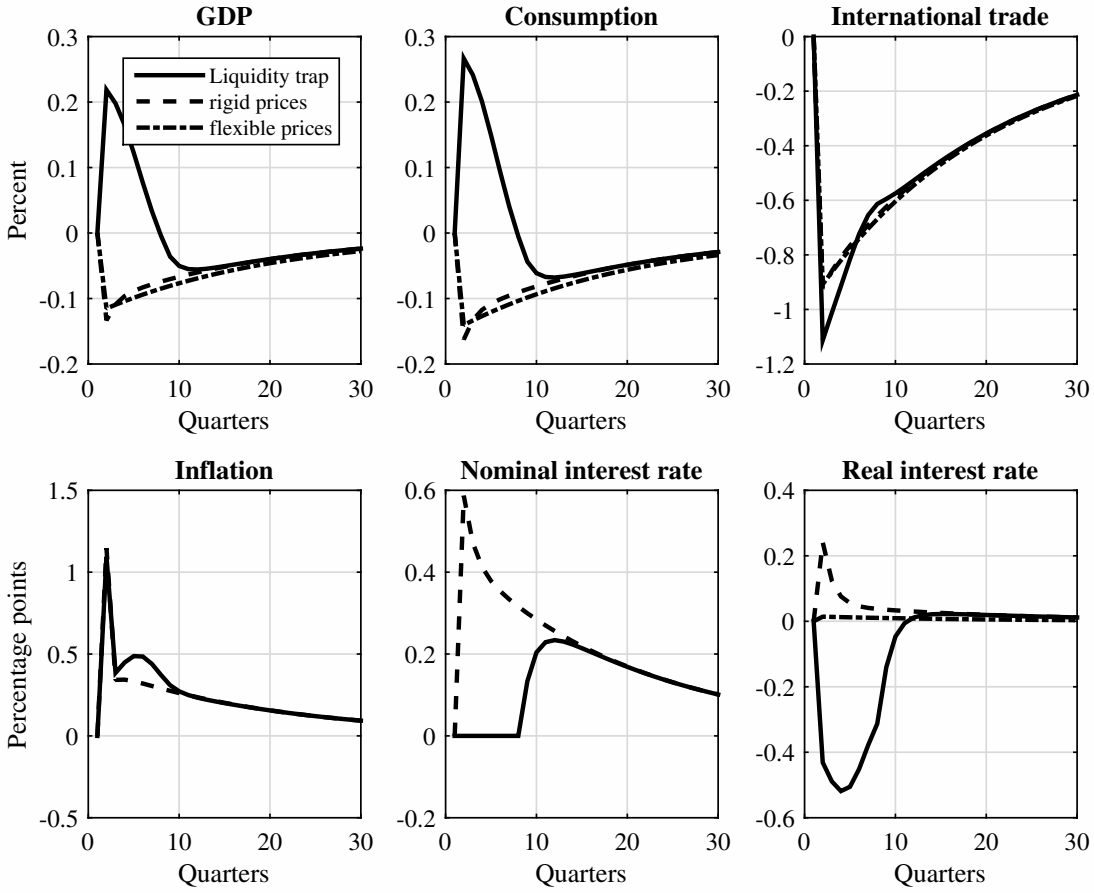

Figure 1: Effects of a temporary increase in protectionism.

The dashed line in figure 1 repeats the same experiment for an economy under sticky prices, with very similar results. Again protectionism leads to a contraction in output.

Finally, the solid line in figure 1 shows the effects of protectionism in an economy at the ZLB. For this experiment, it is assumed that a time-preference shock hits the economy. As in Albertini and Poirier (2015) I assume a shock persistence of 0.85. The size of the shock is chosen such that the economy is at the ZLB for two years. Again the figure shows the effects of protectionism, i.e.,

the difference between the development of an economy that is at the ZLB and uses protectionism and an economy that is at the ZLB and doesn't use protectionism.

The results are in stark contrast to what we have seen so far. Not only does protectionism not lead to a further contraction in output, in the short run it actually stimulates the economy by a considerable amount. The reason is as simple as intuitive. Again the raising of trade barriers makes imports more expensive, which reduces international trade and raises inflation. However, in this scenario an increase in inflation is exactly what the economy needs. We are in a situation in which a discount shock has reduced output and induced deflation. The central bank would like to push up inflation by lowering the nominal interest rate but cannot do so sufficiently because it is constrained by the ZLB. In this situation an increase in inflation is beneficial, because it lowers the real interest rate - in contrast to the effect of protectionism in normal times. The drop in the real interest rate stimulates consumption, which in turn stimulates output. Note, however, that this effect only lasts for as long as the economy is at the ZLB. Once the nominal interest rate is back to positive territory, protectionism is again harmful.[5]

Thus, under these very specific circumstances protectionism can have beneficial effects, if it is possible to avoid a trade war that leads to permanently higher trade barriers. This result resembles results in the recent literature on the ZLB finding 'unconventional' effects in response to productivity or fiscal policy shocks.

4 Conclusion

A widespread view posits that temporary protectionism during a crisis is beneficial. This paper provides a rational for this view, based on an economy that is constrained by the ZLB. In such a situation the economy faces deflation and the central bank would like to lower the nominal interest rate to raise inflation but is constrained by the ZLB. Raising trade barriers pushes up inflation. This is undesirable in normal times (including normal recessions), but beneficial in a liquidity trap, because it lowers the real interest rate and thus stimulates consumption and output. A note of caution is at hand. I do not want to promote protectionism as a business cycle instrument. I think pursuing protectionism, even during a liquidity trap, might lead to permanent increases in trade barriers and thus jeopardize the hard-fought-for benefits of free international trade.

[5]The present value of accumulated output changes is still slightly positive after 30 periods (0.05), but turns slightly negative after 34 periods. To calculate these number I used the formula $\sum_{t=0}^{j} \beta^t \left(GDP_t^{\tau} - GDP_t^{LT}\right)$, where GDP^{LT} is the GDP of an economy in a liquidity trap without protectionism, and GDP^{τ} is the GDP of an economy in a liquidity trap with protectionism.

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