Kiel **Policy Brief**

Why Trade Barriers Hurt: Protectionism in the New Trade Model

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1 Introduction

During the great depression of the 1930's many countries tried to protect their economies by building up trade barriers. Today there is widespread agreement that these measures contributed importantly to the depth and persistence of the crisis. Nevertheless, there has been a worrisome, although still small, increase in protectionist measures. In this policy brief, which is based on a joint project with Mario Larch of the ifo Institute for Economic Research in Munich, I try to analyze the consequences of protectionism in the new trade model of Melitz 2003 and its dynamic version in Ghironi and Melitz 2005. The latter is especially well suited for the analysis of the current crisis since it allows for deviations from the long-run equilibrium – in other words it allows for recessions.[1] The main conclusion is that protectionism hurts all countries, including the country imposing the protectionist measures, even if the other countries do NOT react with protectionism by themselves. Thus, the new trade theory yields a powerful argument against any kinds of protectionism.

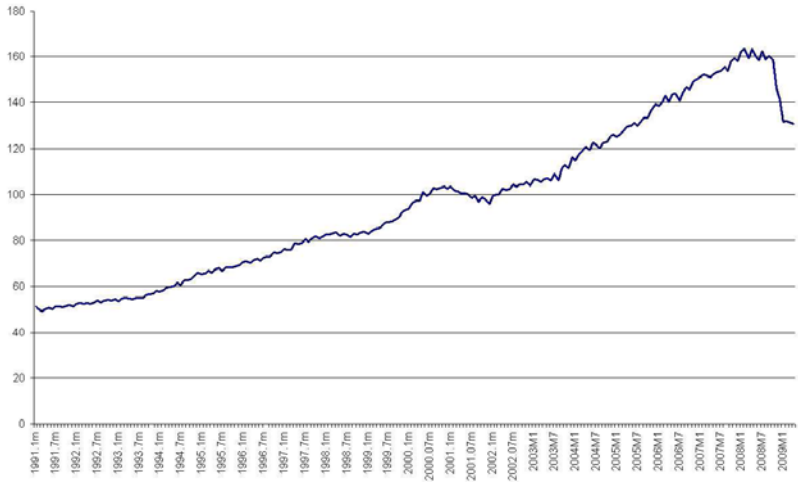

Figure 1: Development of world trade. *Source:* CPB world trade monitor 2009

In the course of the current crises world trade has suffered tremendous decreases over the last few months. This is very well illustrated in figure 1, showing the development of world trade (in levels) since 1990. Over the first half of 2009 world trade has seen an unprecedented slump of approximately 20 % and is almost back to the level it had at the beginning of 2005. As shown in figure 2, this phenomenon is not restricted to just a few countries, but has hit most economies around the globe. As noted by Baldwin and Evenett 2009, so far, this reduction is only due to the recession and not (yet) due to protectionist measures.

[1] Melitz 2003 only allows for comparisons of different steady-states, thus the current crisis cannot be covered.

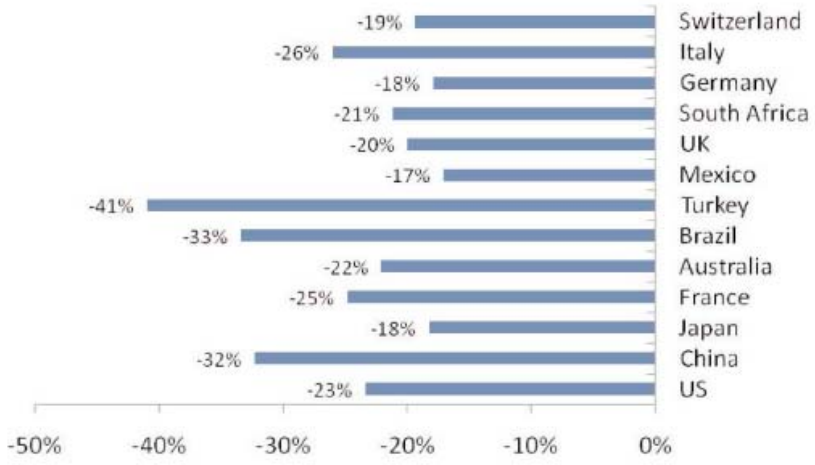

Figure 2: Change in monthly trade flows between October and December 2008. Taken from Baldwin and Evenett 2009

Nevertheless, there has already been an increase in protectionist measures as documented, e.g., by IMF and World Bank 2009 or Erixon 2009. At the beginning of this year, the US-congress wanted to build in severe "Buy American" clauses into the huge stimulus package. After an outcry of policy-makers and economists around the globe, these measures have been cut down by a considerable degree. Much more recently China shocked the world community by announcing that it would use similar clauses for their stimulus package. One problem is, that there is relatively large room for increasing protectionism, even without violating the rules of the WTO. As argued in Bouet and Laborde 2008, most developed countries could increase tariffs by as much as 100 %, because they already set their tariffs lower than obliged. For low-income countries this margin is even higher.

Thus, it does not seem exaggerated that Richard Baldwin and Simon Evenett 2009 brought together well-renowned researches to contribute to a recent VoxEU-E-book "The collapse of global trade, murky protectionism and the crisis: Recommendations for the G20". They propose five steps to counteract recent protectionist tendencies:

- Follow Keynes at home and Smith abroad: Fiscal stimulus packages are fine, but it should be taken care that the measures do not harm trade. Spill-over to other countries are explicitly encouraged, or as Simon Crean put it: "Nurture-thy-neighbor" instead of "beggar-thy-neighbor".
- A global surveillance mechanism: Assemble a team of independent experts to track protectionism and issue warnings in real-time.
- A temporary, legal-binding standstill on protection: Government leaders should commit not to raise trade barriers for the duration of the global economic downturn.
- Don't abandon developing nations.
- Trade facilitation as foundations for export-led recovery: Use the momentum of the crisis to accelerate the completion of the WTO's current negotiations on trade facilitation.

Especially, the first point is criticized by Fredrik Erixon 2009. He argues that "higher government spending means more discretionary powers for politicians and bureaucrats, indiscriminate subsidies, rent-seeking and corruption" and "Big Government at home means a new Age of Protection abroad". Instead he calls for a "coalition of the willing" committing themselves to not raise trade-barriers. Kumar 2009 argues that the main problem lies in the shortage of credit and suggests the foundation of an "International Trade Financing Fund", a new international organization along the lines of IMF and World Bank with the mandate to finance trade of large global firms.

The E-book of Baldwin and Evenett 2009 also discusses some reasons why protectionism would hurt a country rather than protecting it from the global downturn: One argument is that through the global interlinkages and supply chains, import restrictions would harm domestic firms because input-costs are increased. Anne Krueger argues that import-competing goods would have higher prices and thus reduce demand, while Viktor Fung stresses the danger of retaliation from trading partners. In line with this, Hufbauer and Schott 2009 estimate that a "Buy American" clause could gain 10.000 jobs but loose as much as 65.000 through retaliation. However, a thorough analysis using the models of new trade theory is still missing and thus I try to close this gap.

2 Modeling approach

The contribution by Melitz 2003 has proofed to be very influential. It is currently by far the most heavily used model for the analysis of international trade. Its popularity stems from the combination of being able to capture important stylized facts,[2] while still being very tractable. While the original model only compares different steady-states, Ghironi and Melitz 2005 also captures transitional dynamics. It is quite obvious that we are currently not in a long-run equilibrium and thus a sensible analysis of protectionism in the current crisis needs to refer to the latter. In this section I will only briefly describe the model framework and then discuss the consequences of protectionism in the following section.

Ghironi and Melitz 2005 assume that firms are heterogeneous with respect to their productivity. Each period new firms try to enter the market. Before entering the market firms have to pay a fixed entry cost. Only afterwards they will learn their productivity, which is drawn from a random distribution. Entering firms anticipate their future profits. Since during an economic downturn, profits are lower, the number of new firms will also go down. The productivity of a firm stays the same for the rest of its life, until it is hit by an exogenous shock, destroying the firm.

After learning the productivity, firms will decide whether to export or whether to serve only the domestic market.[3] Since export is subject to fixed costs, only the most productive firms will export. Additionally, exports are due to iceberg transport costs, i.e. it is assumed that a

[2] Like the fact that only very productive firms export; that exporters are bigger and employ more workers than domestic firms; and that small firms with low productivity are driven out of the market.

[3] In Melitz 2003 domestic production is subject to fixed costs and therefore firms with very low productivity will immediately exit. This is different in Ghironi and Melitz 2005 because there are no fixed costs of production

firm that wants to sell one good at the foreign market, needs to ship one plus τ units of the product. The parameter τ measures the waste of resources during transport but is supposed to cover regulatory restrictions and tariffs, too. Typically, trade liberalization is modeled as a permanent decrease in this parameter. In this policy brief I will assume that the long-term value of trade costs is fixed exogenously, but that a country might want to deviate from this long-run value by raising short-term trade barriers.

3 Three scenarios

In this section I will describe the transmission mechanisms of how a recession in one country could spill-over to its trading partners. I will illustrate three different scenarios: First I discuss the standard case of Ghironi and Melitz 2005 where no change in trade costs takes place. In a second scenario I will assume that one country tries to protect itself from the recession in the other country by increasing trade-costs. In other words, that country tries a beggar-thy-neighbor approach. In a third scenario, I will analyze the situation where the other country reacts itself, by increasing trade costs. For the illustrations in this section I will use the exact same calibration as Ghironi and Melitz.

3.1 Scenario 1: No change in trade costs

In line with Ghironi and Melitz, I model the recession in such a way that only one country is hit by a temporary decrease in aggregate productivity. Although temporary, the shock is assumed to be persistent and follows an autoregressive process with an autocorrelation-coefficient of 0.9, which is actually lower than most people in the business-cycle literature would use. Figure 3 illustrates the results.

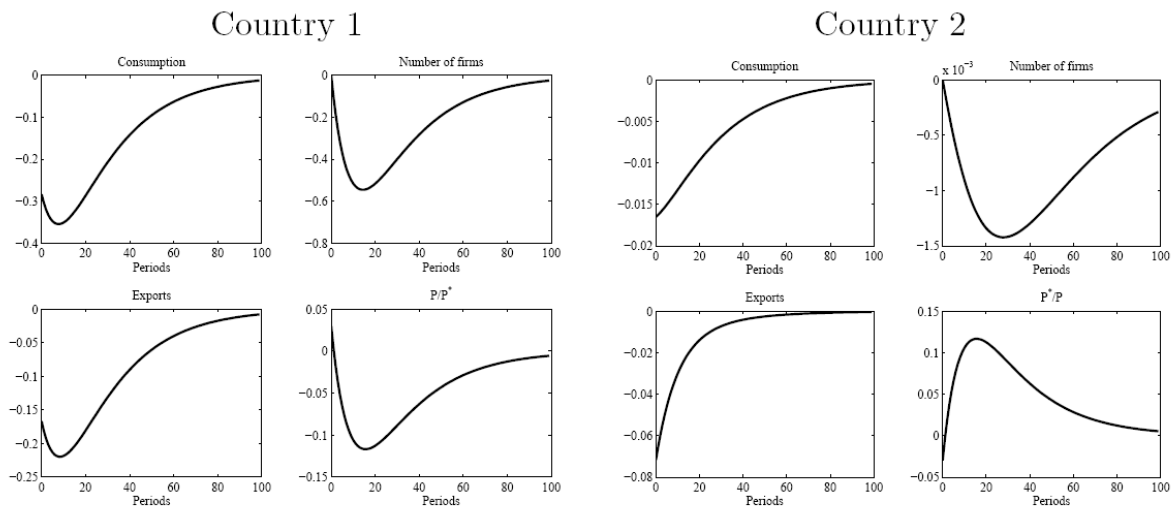

Figure 3: Reactions of model economy to a productivity shock in country 1.

The left-hand panel illustrates the effects for country one, where the shock has occurred. Not very surprisingly, an increase in productivity implies a reduction in production and consumption. Since the profitability of firms is decreased, the number of new firms diminishes and therefore also the total number of firms. The reduced income in country one has also consequences for country two, because the demand for imports in country one goes down. This reduces returns in the export sector in country two and thus output and production go down there as well – this is how the recession spills over from one country to the other.

Because country one becomes poorer relative to country two, there will be a depreciation of the real exchange rate (see the bottom right display in each panel). The reduced demand in country one implies a decrease in the price level relative to the price level of country two, where the drop in demand is much lower. These price effects increase the share of exporting firms in country one, but the total level of exports goes down. Nevertheless, the price-adjustments help country one to overcome the crisis but hurt country two. It is this phenomenon on which the popular argument is based, that one country is exporting its recession to the its trading partners. One might think, that raising trade barriers is thus a good way to avoid, or at least dampen, these spill-over effects. However, it will be shown that this view is indeed too shortsighted.

Before we discuss the effects of protectionism, it is worth noting two more facts about the adjustment illustrated in Figure 3: a) the effects are very persistent and in fact much more persistent than the underlying shock process. While productivity returns to its long-run value after 50 periods, for consumption this takes twice as long. The reason for this lies in the sluggish adjustment of the number of firms. b) Note that the effects for country two are quite small. This phenomenon is not new in the literature and therefore it is usually assumed that the productivities of countries are positively correlated. Further below it will be shown, that this assumption does not change the results of my analysis.

3.2 Scenario 2: Country two raises barriers to trade

Next assume that country two tries to shield itself from the economic downturn of its trading partner and thereby raises import restrictions, in order to protect import competing firms from cheap exports. For simplicity, I assume that the deviation of trade costs from its steady-state value mirrors the development of productivity in country one. Note that only the costs of exporting from country one to country two are affected, while country one does not increase trade barriers, i.e. the costs of exporting from country two remain at their steady-state value. It is assumed that the increase in trade costs does not yield any direct returns to the government. In other words the increase in trade costs is not due to an increase in tariffs but rather due to non-tariff barriers. This is very much in line with the empirical facts of the current crisis, as documented by Baldwin and Evenett 2009.

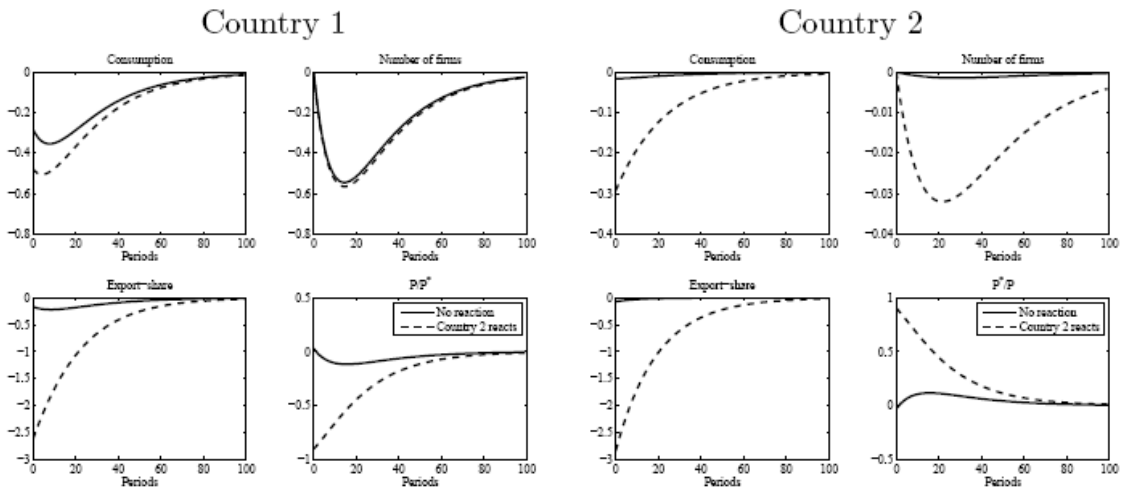

Figure 4: Reactions of model economy to a productivity shock in country 1, when country 2 raises trade barriers.

The results are illustrated in figure 4, where the solid line is scenario one and the dashed line scenario two.[4] The effects for country one in the left-hand panel are not very surprising. The increase in trade barriers, further reduces exports and overturns the increase in the share of exporting firms that would have taken place without a reaction in trade policy into a decrease (not shown in the graph). Of course, this further decreases output and thereby consumption in country one.

What is maybe more surprising is the fact that this does not help country two. In stark contrast, it makes things much worse. The decrease in consumption in country two is multiplied and is almost as strong as it was in country two when trade policy did not react. This result is explained by the effects of trade barriers on the real exchange rate. Demand in country one has been further dampened, lowering the price level there and putting downwards pressure on the real exchange rate to counteract the effects of increased trade barriers. Lower income and demand in country one, as well as the accompanying deprecation of the real exchange rate, lead to a sharp decline in exports in country two.

Although it is true, that import-competing firms in country two are shielded from cheap imports, the decrease in output of the export-industry far outweighs these effects and implies a strong decline in income. In fact, this kind of trade policy implies that production is shifted from efficient exporting firm to inefficient import-competing firms. On top of the decrease in output, for the consumer this implies unnecessary increases in prices, due to inefficient production.

So far we have assumed that country one does not care about the increase in trade barriers of country two. However, it is much more likely that country one looks for retaliation and therefore also increases trade barriers for imports from country two. This scenario is described in the next section.

[4] The solid lines for country two in figure 4 look so different than in figure 3 due to the different scaling of the graphs. In fact, this difference demonstrates powerfully how big the negative effect of protectionism is.

3.3 Scenario 3: Both countries raise import barriers

During the great depression the attempts of some countries to shield themselves by erecting trade barriers was retaliated by other countries which in turn raised trade barriers and thereby started a vicious cycle that proofed to be disastrous. Therefore, in this section I analyze a third scenario in which both countries increase trade barriers. For simplicity I assume, that both countries set the same level of trade barriers, mirroring the development of productivity in country one. The resulting effects are illustrated in figure 5, showing all three scenarios in one graph.

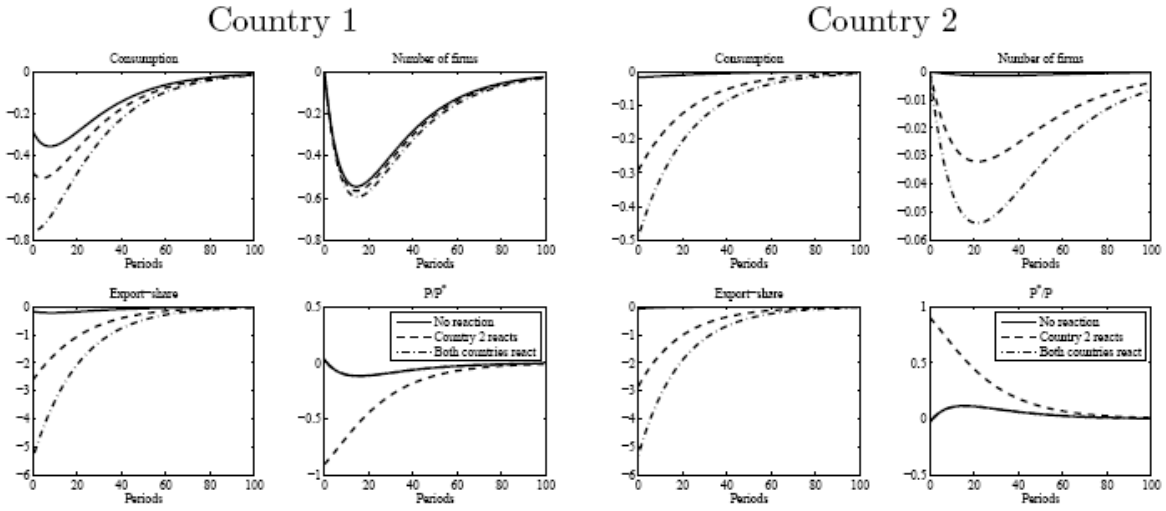

Figure 5: Reactions of model economy to a productivity shock in country 1, when both countries raise trade barriers.

In line with the results of the previous section, retaliation only makes matters worse for both parties. The real exchange rate is brought back exactly to the path it had without any changes in trade costs. So in this sense the two policy reactions offset each other. However, the retaliation of country one deepens the inefficient redistribution of output between relatively unproductive domestic firms and highly productive exporting firms, in this way further wasting resources. This illustrated by the increased slump in export shares and results in a stronger – and also more persistent – decline in output and consumption.

3.4 Correlated Shocks

As a robustness check, in this section it is assumed that productivity across countries is positively correlated. In line with Backus et al 1992, I use a coefficient of correlation of 0:088. The results are illustrated in figure 6. It is immediately clear, that the picture does not change all. Of course, the recession in country two is stronger, because now productivity there also declines, but effects of protectionism are exactly the same as in the scenarios above.

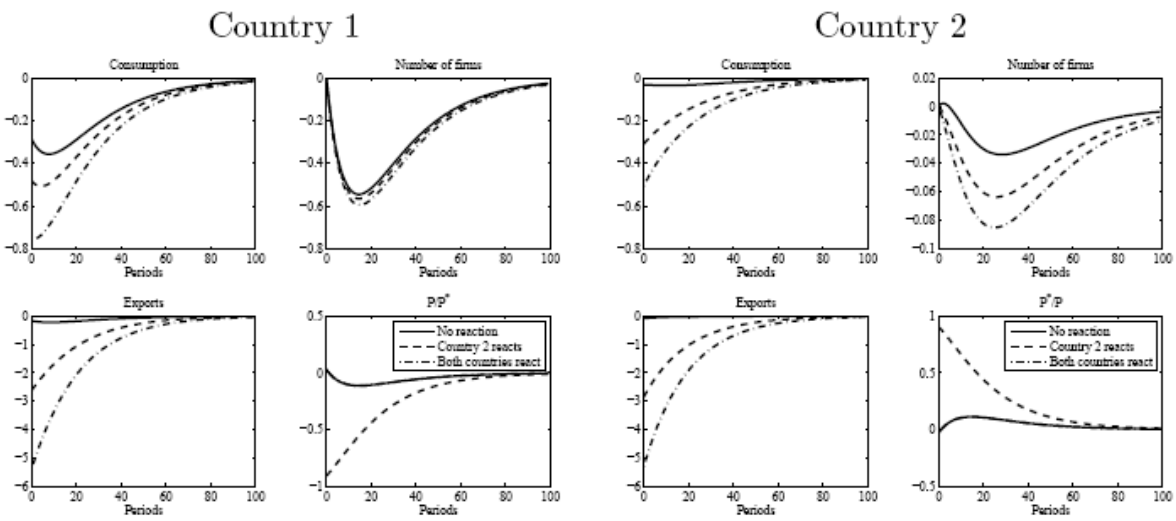

Figure 6: Reactions of model economy to a productivity shock in country 1, when both countries raise trade barriers.

4 Conclusion

In this policy brief it was demonstrated that a beggar-thy-neighbor policy does not work in the new trade models. A country cannot shield itself from an economic downturn in one of its trading partners by imposing trade barriers, but rather hurts itself (along with its trading partners). The reason for this result lies in the composition of producing firms. On the one hand, trade barriers shield import-competing firms from foreign competition and thus help them to survive. But on the other hand, trade barriers distort prices, change the real exchange rate and thus hurt the export industry.

Because exporting firms tend to be more productive than import-competing firms, this kind of policy redistributes production from efficient firms to inefficient ones. As a consequence, the slump in output is rather increased than avoided. In other words, raising trade barriers decreases average productivity and makes the recession deeper.

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