Extended Abstract
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Paper/Poster Title	Do Non-Tariff Measures on Agricultural Trade Reduce Food Security?

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Abstract	*200 words max*

There has been increasing economic commentary on the trend towards de-globalisation. Furthermore, food supply shortages following the war in Ukraine have nudged some countries towards protectionism. This latest trigger is due to concerns that liberal trade policy reduces food security.

As liberalisation, in some instances, becomes unfashionable, this paper considers whether liberalisation of technical barriers to trade (TBT), a type of non-tariff barrier, can help improve food security through increased agricultural trade.

This paper estimates the impact of TBTs on agri-food prices. Then, within the GTAP Computable General Equilibrium (CGE) model, it uses these estimates to consider defraimplications on food affordability, food production and food supply resilience for countries in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) agreement.

We conclude liberalisation of TBTs may increase food affordability, increase global food production, and improve the diversity of a country's food supply sources. Thus, we conclude there is benefit of countries considering the pursuit of agri-food trade liberalisation as a part of their policy packages targeting food security.

Keywords	Agricultural Protection; Agricultural Trade; Food Trade; International Trade
JEL Code	Q17 see: www.aeaweb.org/jel/guide/jel.php?class=Q)

Introduction	*100 – 250 words*

For some countries, concerns about food security have led to increased protectionism in response to the invasion of Ukraine by Russia. The sudden contraction in the global grains supply has led them to question if they are too reliant on imports to feed their population.

However, other countries, like the UK, seek to promote agri-food trade liberalisation as part of a policy toolkit to help improve food security. Increasing trade thus exploiting comparative advantage may reduce global agri-food prices. It may also increase the diversity of food sources for countries that previously focused on

domestic food production – this could make food supply more resilient to bad harvests occurring in particular geographical areas.

Strengthening the evidence base on the links between trade liberalisation and food security will help improve this live debate.

This paper focuses on technical barriers to trade (TBTs), a non-tariff measure (NTM), which defines the characteristics a product must possess (e.g. shape and size). It is an area that is often overshaded by discussion of tariffs. NTM liberalisation is often more difficult to negotiate thus a higher bar of robust evidence is needed to convince governments to ambitiously pursue this.

The paper econometrically examines the effects of TBTs on agri-food prices then uses these as inputs in Computable General Equilibrium (CGE) model simulations to investigate the effects on food security.

Thus, this paper hopes to inform the debate on whether liberalisation of a specific non-tariff measure can improve food security.

Methodology	*100 – 250 words*

Matching using HS6 codes, we construct a panel dataset from agri-food prices, technical barriers to trade (TBTs), tariffs, GDP and other country and product specific control variable. We use a simplified treatment-effect approach to regress agri-food prices on the frequency ratio of TBTs.

To investigate this estimated impact on food security we use the static GTAP Computable General Equilibrium (CGE) model. This is a perfect competition model which features an Armington specification and constant returns to scale.

We assume the country-specific nature of TBTs increase costs and therefore prices of products exported to countries imposing the TBTs. Thus, TBTs form part of a price wedge between the price of imported and domestic products. This makes imports facing these TBT less price competitive.

We add a variable to the CGE model representing the change in the TBT frequency ratio of a good in a given country. We add an accompanying coefficient that links this variable to the wedge between import and domestic prices. The value of this coefficient is the empirically estimated impact of TBTs on prices.

We use a highly aggregated sectoral specification, grouping agri-food GTAP 65 sectors into 'live animals', 'meat and dairy', 'crops, fruit and vegetables' and 'processed food' sectors.

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We simulate complete liberalisation of agri-food TBTs. We shock the TBT frequency ratio variable for countries in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) as well as the UK, EU, US and China.

We analyse outputs in the context of a pre-determined definition of 'food security'.

Results	100 – 250 words

We expect our regression on Technical Barriers to Trade to yield small to moderate positive effects on agri-food prices. For a given group of products, this would mean countries that impose TBTs on fewer products, have lower average prices for that group of products. This could imply liberalisation of TBTs may reduce agri-food prices.

In this case, we would expect liberalising TBTs in CPTPP countries (and the UK, EU, US and China) within our modified static GTAP framework would reduce the price wedge between domestic and export prices. This will increase the price competitiveness of agri-food exports for those with a comparative advantage. This may decrease domestic prices in net-importing countries, potentially increasing the affordability of food. We expect food to become more affordable in countries where the price of food rises too, this is because greater exports may increase demand for inputs, including labour, raising wages.

Overall, we expect agri-food trade to increase amongst shocked countries. We expect self-sufficiency (domestic production relative to consumption) to increase in some regions but fall in others depending on their comparative advantage in food production. We expect the increase in trade to increase the diversity of food supply for most countries.

Discussion and Conclusion	100 – 250 words

Our findings suggest liberalisation of technical barriers to trade (TBT) can improve some aspects of food security but the way it does this depends on a country's comparative advantage in agri-food production.

Liberalisation may cause some countries to have greater self-sufficiency but worsened food supply resilience while others may have more affordable food but become less self-sufficient.

These conclusions may focus countries' liberalisation-food security debate on the specific food security objectives they wish to target and whether non-tariff liberalisation, further to tariff liberalisation, can help achieve this.

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