Diet-related health consequences of a UK-US trade deal

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Introduction

The potential implications of a UK-US trade deal on UK's diets is a highly discussed topic. Fears on hormone beef, chlorinated chicken and GMO food is on the agenda again. But besides these po-tentially harmful food safety aspects, a deal with the USA could also impact incomes, the relative availability and prices of particular food groups, and through that impact the dietary composition in the UK. Previous analyses have shown that the increases in trade costs that are expected for a British exit from the European Union (Brexit) could increase dietary risks at a population level (Springmann and Freund, 2017; Seferidi et al, 2019). The question we will be focusing on in this study is whether a trade deal between the UK and the US could alleviate some of the detrimental dietary impacts Brexit could be associated with.

Methods

So far, there is little empirical evidence on the relationship between trade liberalization and diet-related health consequences. We try to bridge this gap by using a combined economic-health-risk assessment framework. The framework includes, on the economic side, MAGNET (Woltjer und Kui-per 2014), a computable general equilibrium model (CGE) which is based on the GTAP model (Her-tel, 1997) and database but has a more detailed representation of agricultural aspects to specify trade policy scenarios. We use the GTAP 9 database (Aguiar et al., 2016) and a suitable sectoral aggregation that includes information on agri-food products on the most disaggregated level avail-able.[1] Changes in food consumption are transferred from MAGNET to the health model which al-lows us to estimate the diet-related health consequences of policy changes. Consumption changes in MAGNET account for the consumption of food items that are directly purchased by the private household (such as vegetables and fruits (v_f) or cattle meat (cmt)) and that are consumed in a more processed form in the other foods sector (ofd). Finally, we also account for food that is con-sumed in restaurants (trd). The reference scenario is based on a baseline that projects key drivers like GDP and population growth until 2027. EU policies that have been formally agreed to, like the CETA agreement, are included in the baseline.

The health aspects are analysed by using a comparative risk assessment model of dietary and weight-related risk factors (Springmann et al, 2018). The risk factors include high consumption of red meat, low consumption of fruits, vegetables, nuts, and legumes, as well as being under-weight, overweight, and obese, the latter of which are related to changes in energy intake. In the model, changes in those risk factors are associated with changes in mortality risk for the most

[1] In total we use an aggregation with 39 regions and 34 sectors.

common diet-related diseases, including coronary heart disease (CHD), stroke, type-2 diabetes mellitus (T2DM), and cancer (in aggregate and as site-specific ones, such as colon and rectum cancers), and an aggregate of other diseases. Relative risk estimates that relate change in risk factors to changes in disease mortality were adopted from meta-analysis of prospective cohort studies to minimise bias from individual studies. The risk-disease relationships included here are responsible for three quarters of the deaths attributable to dietary risks, and for about a fifth all attributable deaths in the UK in 2016 (GBD Risk Factors Collaboration 2016).

Scenarios

The re-election of Boris Johnson in December has paved the way for UK's exit from the EU. Although, the EU and the UK are starting to negotiate a trade deal (soft Brexit) the possibility of a hard Brexit is still looming if both sides do not come to an agreement until the end of 2020. For this reason, we evaluate a UK-US trade deal against both a soft and a hard Brexit scenario. To formally specify a Brexit and a UK-US trade agreement in MAGNET we consider changes in both tariffs and non-tariff measures (NTM). The letter is a measure of trade distortions such as customs controls, technical barriers to trade (TBT), sanitary and phytosanitary (SPS) checks, etc. In case of a soft Brexit, we assume a comprehensive trade agreement with zero tariffs but a moderate increase in NTMs. If there will be a hard Brexit, those NTMs will be larger and, in addition, the EU and the UK will impose their most-favoured-nations (MFN) tariffs on each other's imports. The NTMs estimates are drawn from Dhingra (2017). They took the NTM estimates from a study on TTIP (Berden et al., 2009) and assumed that the increase in NTMs between UK and EU is, in case of a soft Brexit, ¼ of the reducible fraction of NTMs between EU-US, and ¾ in case of a hard Brexit. The MFN tariffs for the UK are based on the temporary list announced in March and updated in October 2019, whereas the EU imposes its own list on MFN tariffs on UK imports.[2]

In case the UK and the USA succeed in negotiating a deep and comprehensive trade deal, we assume that there are no tariffs involved and that standards are harmonized such that NTMs are significantly reduced between both countries. Specifically, we assume that all reducible NTMs are actually reduced following the estimates of Berden et al.

Results

In the analysis, Brexit is associated with increased dietary risks that lead to about 4,000 additional diet-related deaths for the case of a hard Brexit, and to about 1,300 for the case of a soft Brexit. The major part of the effects can be attributed to the changes in the risk factors associated with the consumption of fruits, vegetables and nuts. This is due to decreases in consumption due to

[2] To calculate those tariffs we use information on the detailed tariff line level and compute trade-weighted averages to aggregate tariffs to the sectoral level that is used in the CGE model using TASTE software.

higher trade barriers. This sector is also particular exposed to any change in trade policy since the self-sufficiency rate of the UK is low with only approx. 40%.

A US-UK trade agreement reduces those negative impacts by 800 diet-related deaths – a reduction of 20 % for a hard Brexit and 62 % for a soft Brexit. This is mainly driven by larger UK imports of fruits, vegetables and nuts from the USA in case of trade agreement. A sensitivity analysis in which sensitive animal-based products are excluded from liberalization – something frequently argued for in the public discussion on grounds of food safety – further increased the potential health benefits of a US-UK trade agreement by an additional 50 avoided deaths.

Conclusion

A US-UK trade agreement could alleviate some of the potential detrimental impacts that Brexit is expected to have on dietary health. Most of the beneficial impacts stem from increased imports of health-sensitive food groups, such fruits and vegetables. Excluding animal-source foods, as is sometimes called for due to food-safety concerns related to different regulatory environments, could further increase the potential health impacts of a US-UK trade agreement. Health-proofing any future trade agreement could represent one way of balancing business interests against the interests of populations, in particular good public health.

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