Exploring the impacts of shorter food supply chains on rural jobs in the EU – a model-based analysis

Introduction

Covid-19 has highlighted the vulnerabilities of the global food systems and reminded us about the importance of resilient supply chain. Despite of the rapid action of the private and public sector to limit the stress the pandemic has created, all stages of the food supply chain have still being challenged (OECD, 2021).One way to make supply chains more resilient is to make them shorter and regional. Consumer interest in locally produced food has started before, but COVID-19 pandemic has accelerated it further (EIT FOOD, 2020). Other factors such as trade wars, wars and related sanctions also support the growth of local food networks as shorter food supply chains (SFSC) can help to mitigate the risk of disruptions. In addition, SFSC and relocalization can also increase the prosperity of rural areas by promoting local production and livelihoods by increasing agricultural employment, which has been on a long-term declining trend. Positive environmental impacts can also be possible due to decreasing food miles.

There are a number of studies that focus on economic and environmental impacts of SFSC (González-Azcárate et al., 2021; Loiseau et al., 2020; Malak-Rawlikowska et al., 2019; Mundler & Laughrea, 2016).The findings generally show that SFSC are economically more beneficial for the farmers. However, in terms of sustainability, there might be some negative impacts. Most of these studies are based on surveys (González-Azcárate et al., 2021; Malak-Rawlikowska et al., 2019; Mundler & Laughrea, 2016). To the best of our knowledge there is limited number of studies that employ CGE analysis in assessing impacts of relocalization or SFSC (Arriola et al., 2020; Chepeliev et al., 2021, van Meijl et al., 2021). Their findings generally show that globalization rather than localization will bring better economic impacts and faster recovery from the COVID-19 pandemic.

With this exercise, we aim to explore how the European farming sector within the whole economy would be impacted from shortening EU food supply chains by looking into a number of employment and economic indicators. In our model-based analysis, we will focus on the net impact of SFSC on agricultural employment at the EU regional level to see in which regions and sectors job gains and losses can occur.

Methodology

The study employs the Modular Applied GeNeral Equilibrium Tool (MAGNET) model, a state-of-the-art multi-sector, multi-region recursive dynamic CGE model (Woltjer and Kuiper, 2014). We change consumer preferences towards local production for agri-food by holding a sensitivity analysis of 10%, 20% and 30% of increase in EU import expenditure share relative to non-EU import expenditure share. In a second step, we link national trends from MAGNET in a tops-down fashion to assess the impact of SFSC at the regional level. More specifically, we take agriculture employment data at the NUTS2 level for the EU which is available on Eurostat as farm structure survey (FSS) data per farm type and per gender for 27 member states (MSs) (Eurostat, 2021). After mapping food and agricultural sectors of MAGNET with the sectors from FSS data, we apply the shocks coming from MAGNET to the regional employment data at the EU level. By doing this, we can pinpoint different impacts of shorter supply chains per region, per sector and by gender.

Preliminary results

Our preliminary results show that the EU's total agri-food trade balance improves in all scenarios with increased intra-EU trade with respect to our baseline in 2030. However, there are differences at the

sector level. The highest improvements in trade balance occur for the sectors that the EU is not highly self-sufficient or but also not entirely import dependent e.g. fruits and vegetables or vegetable oils. We also observe that the EU production of nearly all food and agriculture products are better off with increasing preference for EU products whereas overall value of production in non-EU countries decreases. As expected, the impact of SFSC is not homogenous across EU MSs and across products. Similarly, in comparison to the baseline SFSC mostly have a positive impact on agri-food prices in the EU.

Regarding the impact of shorter supply chains on agricultural jobs within the EU, we see generally a positive trend across all our scenarios. In general, highest gains in primary agricultural jobs occur in Spain, France, Italy and Poland. While in Spain and Italy, the increase in rural jobs is highest in the specialist horticulture and permanent crops, in Germany and Poland the employment in specialist field crops increase the most. We also observe varying impacts of SFSC at the NUTS2 level.

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