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## **The US-EU Trade War: What Effects For The Olive Oil World Market?**

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Pupo D'Andrea, and Roberto Solazzo

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**Agriculture under the 4<sup>th</sup> Industrial Revolution**

## **The US-EU trade war: what effects for the olive oil world market?**

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<sup>1</sup> The views expressed herein are those of the author and do not necessarily reflect an official position of the European Commission.



## **The US-EU trade war: what effects for the olive oil world market?**

**Abstract:** The purpose of this study is to understand the possible effects arising from the imposition of a tariff on Spanish packaged olive oil exported to the US on the world market. Specifically, we look at the impact on the Italian olive oil trade due to the US's retaliation authorized under the WTO Large Civil Aircraft (Airbus-Boeing) Dispute. Furthermore, we also consider what could happen on the world market, and mainly on the Italian and Spanish one, in the event of tariff removal according to the recent agreement on the suspension of mutual duties. The analysis is performed by the GTAP model based on the GTAP-MRIO database, which extends the standard GTAP Data Base. We use the Spanish olive oil as an input, and we distinguish between Italian import of Spanish olive oil for consumption and production inputs. The latter is indeed affected by the US tariffs. In running the first scenario, we calibrated a shock on Spanish export to the US-based on the reduction already observed. Further, we introduce trade frictions against the Spanish olive oil used as input since US tariffs affect them equally. Then, we simulate the current suspension of retaliation. Results show that Spanish export to the US loses between 7% and 13%. Compared to the initial export flow, on average, all the other suppliers would experience an increase ranging between 2% and 3% of their export to the US.

**JEL codes:** F14, Q17

**Keywords:** Olive oil, WTO LCA dispute, olive oil trade; Italian olive oil exports, GTAP



## I. Introduction

In the last years, we have seen a considerable increasing tension surrounding international economy and trade, shaken by unprecedented events: the COVID-19 pandemic, the UK's exit from the European Union (EU) (the so-called Brexit), the emergence of national sovereignties, the Trump's rise to power that with its political agenda "America First" caused trade war and uncertainty in the international arena. Consequently, countries made changes in their policies that impacted global trade relationships. These changes include new tariffs and trade barriers that drive up costs, forcing firms to rearrange their supply chains and potentially undermine trade relationships. The slow exit from the health crisis and Biden's election as President of the United States (US) gives hope for the establishment of a more relaxed climate in international relations.

Since '80, one of the critical points in the bilateral relationship between the US and EU has been the increasing competition in the Large Civil Aircraft (LCA) market (Titievskaia, 2020). From 1992 to 2004 the US - EU Agreement on Large Civil Aircraft established forms and limits of government support on both sides of the Atlantic, prescribed transparency, and committed parties not to open trade disputes (European Commission, 2004). In 2004, the US terminated the agreement requesting consultations with the European Communities, France, Germany, Spain, and the United Kingdom for subsidies deemed unfair to Airbus. At the same time, the EU presented a counter-claim to WTO against US subsidies to Boeing. Such cases were objects of two separates and parallels WTO disputes.

In 2019, after finding that certain subsidies provided by the EU and some Member States (MS) to Airbus caused adverse effects on the US's interests, the US was authorized to take countermeasures concerning the EU and the four interested member States. Following the WTO decision, starting on 18 October 2019, the Trump administration decided to impose additional *ad valorem* duties, affecting some of the main manufacturing and agri-food European products exported to the US (Lee, 2021). Relatively to agri-food, some Italian products are directly affected by these measures (e.g. cheeses



and cured meat). However, duties affect Italy even indirectly. The export of olive oil to the US is a leading example. Indeed, the US imposed additional *ad valorem* duty of 25% on virgin olive oil and olive oil other than virgin that are imported for consumption in containers weighing less than 18 kg from Germany, Spain, and the United Kingdom. The tariff applies to these countries' olive oil even when shipped from another country to the United States. The virgin and non-virgin olive oil shipped in bulk is not subject to additional duty. In 2019, Italy was the second world's top exporter, after Spain, and the world's largest buyer of olive oil, with more than 570,000 tons of imports. The US is the main outlet market for Italian olive oil exports, with a share of 30%. For Italy, the chance to occupy the free space left on the US shelves by the packaged Spanish olive oil is related to the ability to package and export national or other than Spanish olive oil origin to the US. Given the presence of Spanish oil in Italian exports of mixed olive oil to the US, it will mean changing Italian olive oil sale strategies on all markets.

Exactly one year later (October 2020), under the WTO dispute that sees opposed the EU and the US, with the first as complainant against the illegal subsidies provided by the second to Boeing, the EU was authorized to impose tariffs on imports from the US.

The imports amount affected by retaliatory duties (respectively, \$7.5 billion of EU imports and \$4 billion of US imports), risks an escalation of the trade war between the two countries. It is being sought to defuse through a new era of enhanced dialogue between the President of the European Commission von der Leyen and the new President of the United States Biden, who agreed on the suspension of mutual duties by 4-month.

Keeping in mind the olive oil sector, the objective of the article is dual: from one side it would understand the possible effects on the world market, particularly on the Italian trade, arising from the imposition of a tariff on Spanish packaged olive oil exported to the US. The second objective is to simulate what could happen on the world market, mainly on the Italian and Spanish market, in the event of tariff removal (following the agreement). In this case, the idea is to grasp whether the changes



made by the tariff imposed by the US in 2019 were structural or not, and if the future elimination of the tariff would restore the original market shares of competitors.

To this purpose, the study provides a) a more in-depth descriptive statistical analysis on trade flows of olive oil towards the US market; b) an evaluation of the effects in the medium term through a macroeconomic model (GTAP); c) possible changes for US trade geography on olive oil, which would cause modifications on supply markets for the olive oil bulk and bottled oil destination.

The paper is structured as follows: Section 1 describes the subsidies affecting the US and EU. Section 2 provides a descriptive analysis of the olive oil trade. Section 3 highlights the policy measures affecting the olive oil market. Section 4 presents the GTAP model. Results and discussion are in section 5. Section 6 reports the conclusions.

## **II. The issue on Import Duties: US vs EU and EU vs the US**

In 2004 the US requested consultations under WTO with Germany, France, the United Kingdom, Spain, and the European Communities (EC) concerning measures adopted by the EC and the four MS to Airbus<sup>2</sup>. US claimed that such actions were illegal subsidies affecting trade in LCA at the United States' expense. The measures subject of the US complaint relate primarily to the provision of financing, the provision of loans on preferential terms, the provision of grants and government-provided goods and services, the assumption and forgiveness of debt. Other measures involve the financial contribution of the EC and the four MS in favour of designing and development of airplanes, the growth, expansion, and upgrading of Airbus' production sites and for research and technological development relating to the entire family of Airbus products.

After the US's request, a Panel was established in 2005, and in 2011 WTO found that certain subsidies provided by the EU and some MS to the European LCA manufacturer Airbus caused adverse effects on US's interests. Specifically, in terms of displacement of imports of US LCA into

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<sup>2</sup> For more information see [https://www.wto.org/english/tratop\\_e/dispu\\_e/cases\\_e/ds316\\_e.htm](https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds316_e.htm).



the EU market, displacement of US exports from the European and specific third country markets (Australia, Brazil, China, Chinese Taipei, Korea, Mexico, and Singapore), as well as significant lost sales in the same markets, by subsidizing development, production, and sale of large civil aircraft of the Airbus company to the detriment of Boeing. EU failed to comply with the Dispute Settlement Body's recommendation. Then, in 2019, the US was authorized to take countermeasures concerning the EU and the four-member States interested at a maximum level of \$ 7.5 billion annually - a value commensurate with the adverse effects existed in the 2011-2013 reference period - in the form of suspension of tariff concessions and related obligations to the European Union under the GATT 1994<sup>3</sup>.

Therefore, starting on 18 October 2019, Trump administration decided to impose an additional import duty (of 25% *ad valorem*) on a long list of products, mainly manufacturing and agri-food ones. Similarly, a duty of 10% has been imposed on new airplanes and new aircraft from the EU and Germany, France, the United Kingdom and Spain (USTR, 2019b).

Duties affect the most valuable agri-food products in the EU countries such as cheeses, fruit (fresh, prepared, or in juice), whiskies and liqueurs, hams, pork meat, olive, and olive oil.

As regards olive oil, the additional *ad valorem* duty of 25% (on top of existing tariff) concerns virgin olive oil and olive oil other than virgin imported from Germany, Spain and the United Kingdom. The tariff concerns only olive oil imported for consumption in containers weighing less than 18 kg (corresponding, respectively, to the Harmonized Tariff Schedule (HTS) Subheading 1509.10.20 and 1509.90.20). The tariff applies to these countries' olive oil even when shipped from another country to the United States. Importers must declare the origin of the product, and the duty applies to the value of the percentage of Spanish (or German or British) olive oil present in the container. The virgin and non-virgin olive oil shipped in bulk (container weighing 18 kg or more) is not subject to additional duty.

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<sup>3</sup> The US has applied for authorization to impose countermeasures worth \$ 11.2 billion annually.





In a preliminary list circulated on April 2019, the US planned to impose an additional ad valorem duty of up to 100% on a list of 317 tariff subheadings, both virgin and non-virgin olive oil and both bulk and packaged olive oil of any of the 28 EU MS. The final list limited the scope of duties for olive oil, but the US periodically updates the list. Indeed, in an updated list published on 21 February 2020, the duty on new airplanes and other new aircraft increased from 10 to 15%, and the list of products subject to an additional duty of 25% has been revised but no changes have been made compared to what was already decided in October concerning olive oil. In addition to the periodic revision of the list, the US reserves the right to take appropriate action in the event of EU imposition of additional duties on US products related to the LCA dispute over illegal subsidies provided by the EU to Airbus or as countermeasures in the context of the ongoing dispute at the WTO associated with the illegal US subsidies to Boeing as claimed by EU.

In this regard, in June 2005 EC requested consultations under WTO with the US concerning illegal subsidies provided to US producers of LCA. A Panel was established in 2006, and in 2012 WTO found that certain measures provided by the US, also at the sub-federal level, to the US LCA industry, to Boeing, caused serious prejudice to the interests of the EU. On 28 March 2019, the Appellate Body of the WTO ruled that the US had not taken appropriate action to remove the distorting subsidies it is granting to Boeing and that the last still benefit from illegal subsidies from central and local US government that continue to cause damage to Airbus. Therefore, in October 2020 EU was authorized to take countermeasures concerning the US at a level just under \$4 billion annually<sup>4</sup>.

The issue of olive oil tariffs has been much debated, both in the exporting countries and in the US itself. In the US, since the first proposal of April, the leading associations of olive oil have highlighted the adverse effects of duty on consumers (and among these low-income ones) due to rising olive oil prices. This consideration stems from the fact that the US produces a meagre share (approximately 3%) of the domestic market's olive oil. Consequently, the increase in prices would have to lead to a

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<sup>4</sup> For more information see [https://www.wto.org/english/tratop\\_e/dispu\\_e/cases\\_e/ds353\\_e.htm](https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds353_e.htm).



higher financial outlay or a shift in consumption towards cheaper but less healthy cooking oil and fats, with a negative impact on US citizens health and on national health expenditure (USTR, 2019a).

The duty could have a domino effect on the entire world market for olive oil since Spain is the second-largest source of olive oil supply in the US after Italy. According to Eurostat data, Spain has already exported 104,705 tons of olive oil to the US in the 2018/19 marketing year, which represents about one-third of all-American olive oil imports. The rest of the EU has exported 92,700 tons of olive oil to the US in the same market year.

Regarding Italy, the chance to fill the gap left free on the US shelves by the packaged Spanish olive oil is related to the ability to package and export to the US national olive oil or of origin other than the Spanish one. Given the presence of Spanish olive oil in Italian exports of mixed olive oil to the US, there probably will be a change in Italian olive oil sale strategies on all markets, including the national one; or else an increase of sales to the US of bulk olive oil, losing the value-added deriving from the processing. At the same time, Spain will search either for other non-traditional markets for its packaged olive oil or to sell bulk olive oil in the US. All these options, in turn, will produce a repositioning of all the major players on world trade.

### **III. Literature review**

The EU is the most important contributor in the international olive oil market as empirical evidence shows (Mili and Zuniga, 2001; Kailis and Harris, 2007; Crescimanno et al., 2002; Anania and Pupo D'Andrea, 2007). The literature that considers simulation models on olive oil is scarce; while different studies are linked, on the one hand, to the use of gravity models to understand the directions of trade flows; on the other hand, others focus on the market structure and on consumer choices. This paragraph reviews some of the studies related to role of the most significant EU e non-EU countries affecting the olive oil markets.



Using a Delphi survey, Bouhaddane and Mili (2018) investigated the key factors and future strategies for the internationalization of the Spanish olive oil from a value chain perspective. Results emphasized that the success of a sustained competitive advantage in imported markets depends on the joint efforts contributed by all the chain participants. Furthermore, the establishment of cooperation agreements with companies in destination is a way for reinforcing the presence of Spanish producers in the foreign markets. A similar result was in the study of Mili and Rodríguez Zúñiga (2001). Anania and Pupo D'Andrea (2011) explained the future developments in the global olive oil market are determined by structural changes in the industry. Yet, in another seminal paper, Mili (2006) considered a structured survey of internal and external key factors affecting EU olive oil by stressing the main strengths, weaknesses, opportunities, and threats. The main strengths are related to the product characteristics, the EU leading position in the international market, the benefits for environment and rural development, and the marketing strategies of the olive oil companies. The threats refer to cheaper vegetable oils competition, and an increase of global supply with higher rates than potential demand. Another threat is related to the high dependency of the EU olive oil producers on public subsidies.

Anania and Pupo D'Andrea (2008) explored the global trends in the olive oil market from the EU perspective. Their analysis considered bilateral olive oil trade flows disaggregated with respect to its quality. Developments in demand and in the imperfectly competitive structure of the industry play a role in determining the central role of this market, while supply factors and expected changes in trade policies play a less relevant role.

Bayramer and Tunalioglu (2016) underlined-that EU countries import the “bulk” olive oil from other olive oil producers, such as Turkey and Tunisia. Thus, these countries did not take advantage of the olive oil exporting added value (Tunalioglu, 2010). Turkekul et al. (2010) employed a constant market share analysis to determine the competitiveness of Turkey and its competitors in the US, Australia, Canada, Brazil and Japan in two different periods 1990-1994 and 2000-2004. The analysis



provided evidence that Italy is the most competitive in the destination markets. Greece and Turkey follow Italy. In the same period, although Spain increased its own role as an exporter, its competitiveness is adversely affected due to a decrease in its market share. Turkey's success in sustainable and permanent international competitiveness in olive oil depends on production, organization and trade policy. Pomarici and Vecchio (2013) paid attention to the reasons behind the difficulties of the Italian olive oil industry to compete in the world markets. Authors showed that stagnant demand in the main producer/consumer countries and strong competition arising from the Spanish olive oil industry increasingly involved also in processing and trade are the main difficulties made by the Italian producers. In addition, these weakness factors are boosted by the market power exerted by large retail chains that are now the main channel in which olive oil is retailed in the domestic market.

In studying the Tunisian olive oil market, Grumiller et al. (2018) stressed the fact that integration into particularly European olive oil value chains is important in the domestic market improvements. The weakness consists of different factors, going from the low productivity and high volatility levels in olive production to the limited access to finance. The EU is one of the most important markets for Tunisian olive oil and the Deep Comprehensive Free Trade Area negotiations may provide an opportunity for enhancing entry market.

While determining the effect of olive oil exports on economic growth in Tunisia, Bakari (2020) proves that olive oil exports determine a positive impact in the long and in the short run and concomitantly emphasizes that the application of specific policies and strategies are necessary to encourage the evolution of this sector.

As regards to the olive oil trade, Angulo et al. (2011) used a gravity model in analysing the principal determinants of Tunisian olive oil exports during the period 2001-2009. The analysis is based on a Local Origin-Destination flow model, which makes that destination countries are the main determinants of flows. In their spatial and panel specification, the authors stressed out the existence



of a positive and significant relationship between the importer's income level and imported olive oil volume. This result pointed out the existence of similarity inflows between neighbouring importing countries. Furthermore, measuring the inertia affecting trade flows between countries, the research's results emphasized a clear time-dependence effect. Instead, Rallatou and Tzouvelekas (2016) examined the factors affecting olive-oil trade within the EU 28 MS. In particular, the study has considered unidirectional EU olive oil trade volumes for a period of 16 years (from 2000 until 2015). This study underlined that an increase in the price of olive oil negatively affects trade quantities, whereas an increase in the per capita GDP of either the exporter or the importer positively affects trade quantities. Kavallari et al., (2011) evaluated the factors that influence imports of olive oil from the main producing Mediterranean countries (both EU members and not) into the UK and Germany. They extended the gravity model by considering other relevant factors such as the number of immigrants of the main producing countries living in Germany or the UK, the level of flow tourist, and if the importing countries directly bought from the producers or not. They found out that the EU membership or the Mediterranean Partnership highly impact. Imports of olive oil are also positively affected by the absence of mediators if the importing countries directly buy from the producing ones and even more if they import bulk olive oil. Also, trade is positively affected by tourism flows from the importing countries into the producing ones. Kashiwagi et al. (2020) investigated for factors influencing olive oil exports and imports in Mediterranean countries. The authors estimated the commodity-specific gravity model by considering trade flows from 1998 to 2016. Results suggested that an increase in the overall bilateral size of trading partners positively affects the olive oil trade. However, differences in factor endowments negatively impacted exports, yet causing a positive impact on their imports. The EU MS are competitive in olive oil export, and the volume of their imports are large among the EU countries whose per capita income and demand properties are similar. The simultaneous export and import of olive oil in Mediterranean countries imply the relevance of a growing intra-industry trade rather than a country's specialization following its comparative

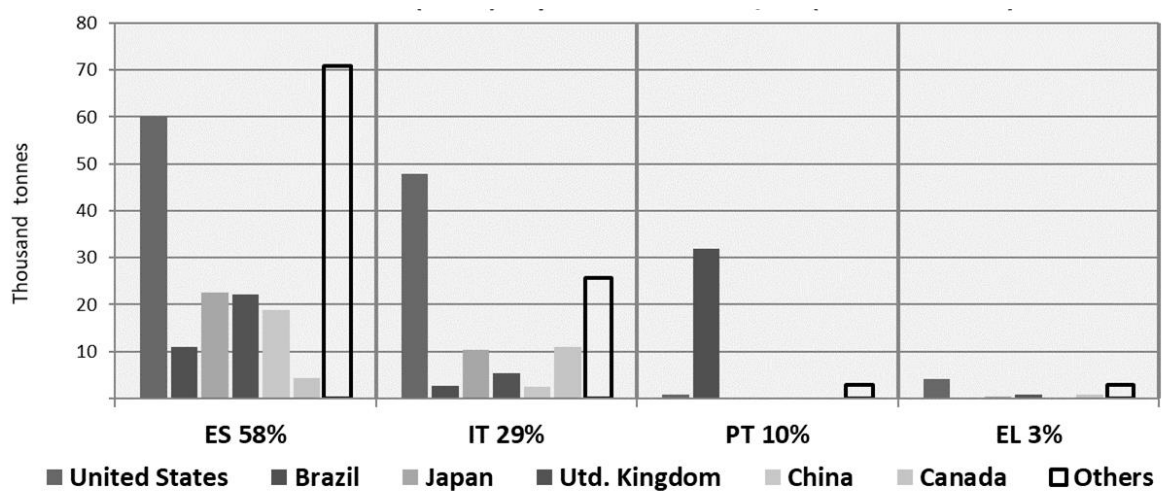


advantage. Even the analysis of Vlontzos and Duquenne (2008) is based on a commodity-specific gravity model which considers Greek export from 1991 to 2005. This study found out that the virgin olive oil exports were positively impacted by the change in the GDP per capita of trade partners, the existence of a Greek community in partner countries and tourist inflows to Greece. Another strand of literature has dealt with estimating effects of the olive oil demand. In this context, we quote the study of Xiong et al. (2010) which estimated the US demand for olive oil products and investigated several demand drivers, such as relative prices, personal income, and dietary information. This paper stressed the increase in consumer awareness of the health benefits of olive oil and the proliferation of the Mediterranean diet in the US. To estimate a demand system for olive oils, authors have considered monthly imports of olive oil over the period January 1990-December 2012. They found out that the income elasticity for virgin olive oils sourced from the EU is above one, but demand for non-virgin olive oils could be considered income inelastic. Additionally, the demand for olive oil as a single product is price inelastic. Differentiated by product characteristic and origin, olive oils are highly substitutable with each other but not with other vegetable oils.

Finally, we consider the seminal paper of Hammami and Beghin (2020). This research is based on a calibrated multi-market partial-equilibrium displacement model whose purpose is to explore the welfare and trade impacts of US retaliatory tariffs from the Airbus WTO dispute on EU olive oil. The model took in consideration four differentiated types of retail olive oil in the US market. The authors designed two main scenarios; the first one considered a 100% tariff on all EU olive oils and the second one a 25% tariff on non-bulk Spanish olive oil. Results from the first scenario show heavy losses for US consumers (\$924 million), a reduction in EU olive oil exports to the US (\$354 million), and an increase in exports from non-EU countries (\$90 million). In the second scenario, welfare losses are mitigated (\$55 million), a diversification on Spanish olive oil with stronger decreases in olive oil shipped in smaller containers. Considering the aggregate EU exports to the US, the study reveals their small decrease given the substantial trade diversion induced by the applied tariff.

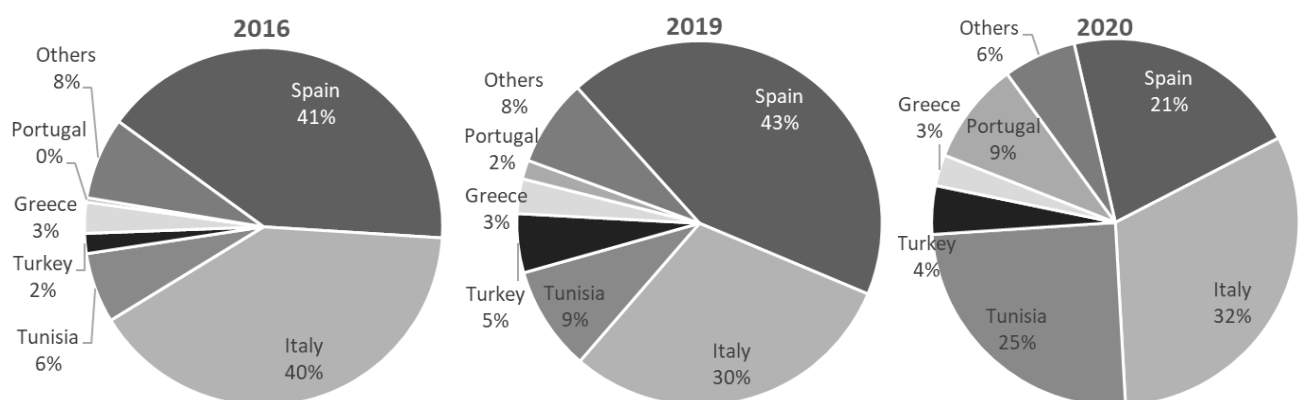
#### IV. Statistical analysis on the olive oil trade

In 2019, Spain was the leading supplier of olive oil for the US, with a 43% share (Fig. 1 and 2). The volume of flows from Italy was approximately 30% of the total, while it was slightly less than 10% from Tunisia. In the previous years, Spain has significantly increased its weight, surpassing Italy in 2016.



**Figure 1:** Olive oil and its fractions (HS 1509) exports of MY 2018/2020 (first 5 months)

Source: Eurostat



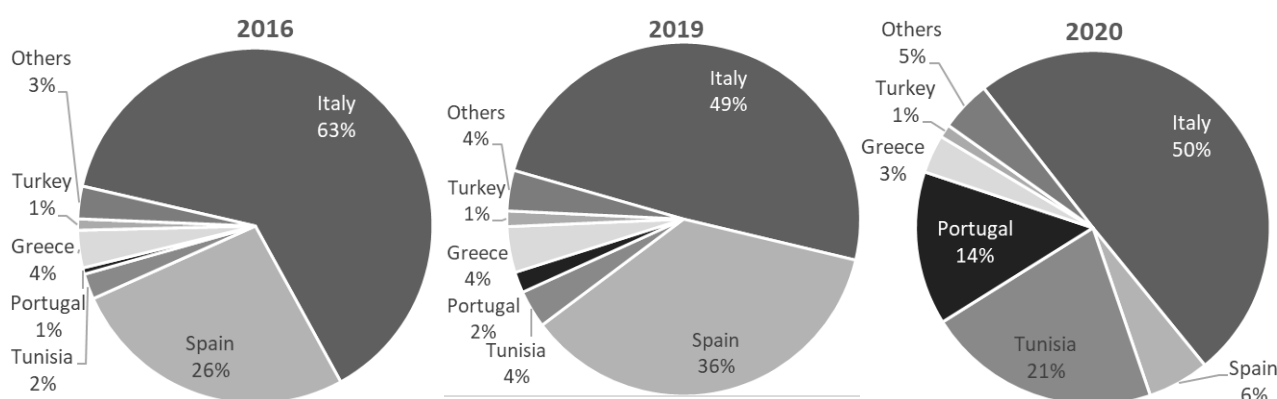
**Figure 2:** US imports of Olive oil (HS 1509), tonnes

Source: our elaboration on US Census Bureau Trade Data

Analysing only US imports, Italy is the first supplier of packaged olive oil to the US - that one directly affected by the increase in tariffs, - with half of the imported flows in 2019 (Fig. 3). Even in this case, the weight of Italy has decreased until 2019 in favour of Spain, which weighed around 36% in 2019. In the same year, Greece, Tunisia and Portugal covered marginal shares, between 2 and 4%.

Before the increase in tariffs, the weight of the packaged olive oil on the total olive oil exported from Italy and Spain to the US was very different. Packaged olive oil represented for Italy almost all olive oil flows, while it was just over half for Spain.

After the increase in tariffs, the share of the packaged olive oil for Spain has fallen below 20%, while for Italy still represents over 90%.



**Figure 3:** US imports of packaged Olive oil - in container weighing <18 kg (HS 15091020 and 15099020), tonnes

**Source:** our elaboration on US Census Bureau Trade Data.

The analysis of olive oil flows towards the US shows the relevant changes produced by the duties.

In 2020, compared to 2019, US imports of packaged Spanish olive oil declined by more than 80%, while, at the same time, US imports of Spanish olive oil in bulk were only slightly reduced (-4.5%). As a consequence, the share of Spain as a US supplier of (packaged and in bulk) olive oil is reduced from 43% (2019) to 21% (2020). This market share was marginally occupied by Italy (from 30% in





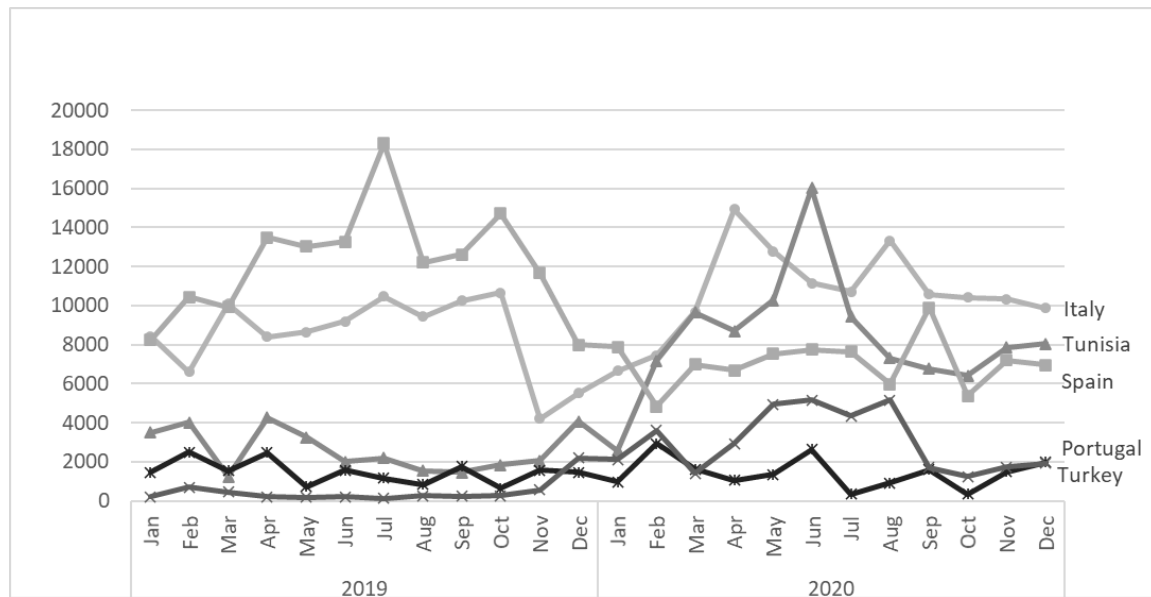
2019 to 32% in 2020), becoming the first supplier of olive oil to the US. Portugal and especially Tunisia, (from 9% to 25%) are the countries that benefited the most.

By only analysing the US imports of packaged olive oil, the impact on the Spanish exports is obviously greater. The share of Spain, which has grown in recent years, has fallen from 36% (2019) to 6% (2020). Italy increased its flows to the US market in 2020 by keeping its leadership as a supplier of this product with a share of 50%. Also, in this case, Portugal and Tunisia occupied more of the market share left by the Spanish export: the overall weight of the two countries on flows to the US has grown from 6% to 35%, with an increase in volumes of more than 700% in 2020.

The monthly data analysis of the olive oil flows towards the US shows that in November 2019, right after the tariffs' increase, imports of olive oil from Spain and Italy fell (Fig. 4). However, in December those from Italy began a recovery already; in March 2020, the imports from Italy seemed to have returned to pre-tariff levels, and in the following months they exceeded the results of 2019. For Spain, the declining trend continued until February, where it seemed to settle on significantly lower values than in 2019. As to olive oil flows from Portugal (packaged) and Greece (bulk) the trend slightly increased right after the tariff increase. Hence, in February and March 2020 Tunisia overtook Spain as olive oil supplier of the US, reaching export volumes close to those of Italy.

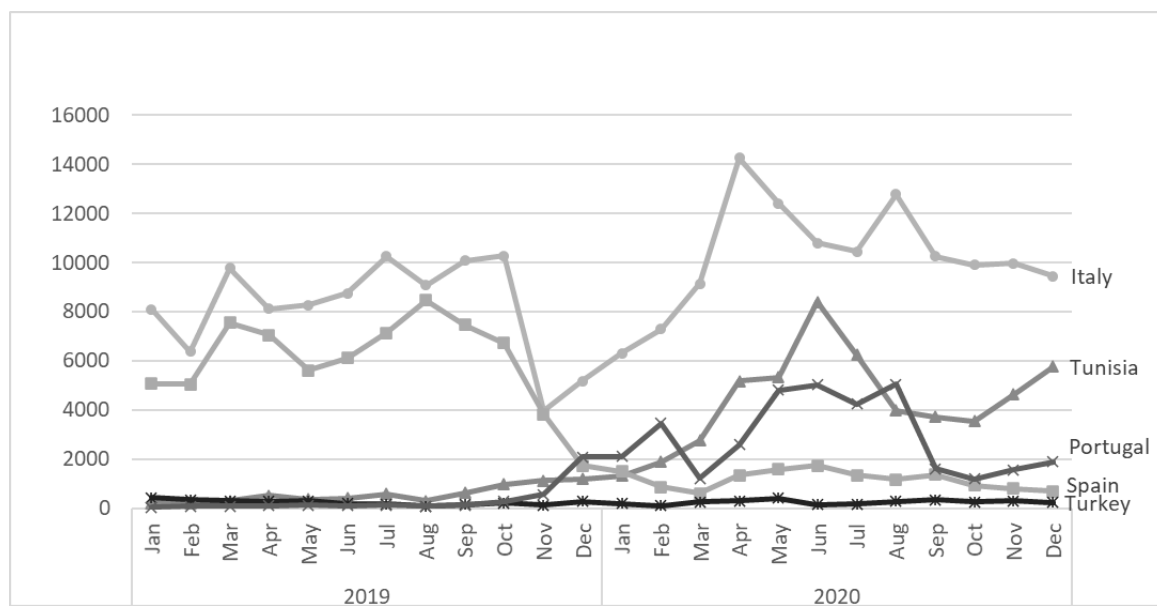
By investigating the packaged olive oil, in only two months, between October and December 2019 the flows of Spain to the US dropped from over 6,700 tons to less than 2,000 tons; these monthly thresholds weren't exceeded by Spain in the following months (Fig. 5). This allowed Portugal, in addition to Tunisia, to overtake Spain as a US supplier of packaged olive oil in 2020.

Spain, on the other hand, maintained its leadership in 2020 as an exporter of bulk olive oil to the US, with a slight decrease compared to 2019 (Fig. 6). Also in this case, Tunisia greatly increased its flows which almost doubled in 2020. For Italy, exports of bulk olive oil to the US remained a marginal share of the total flows of olive oil.



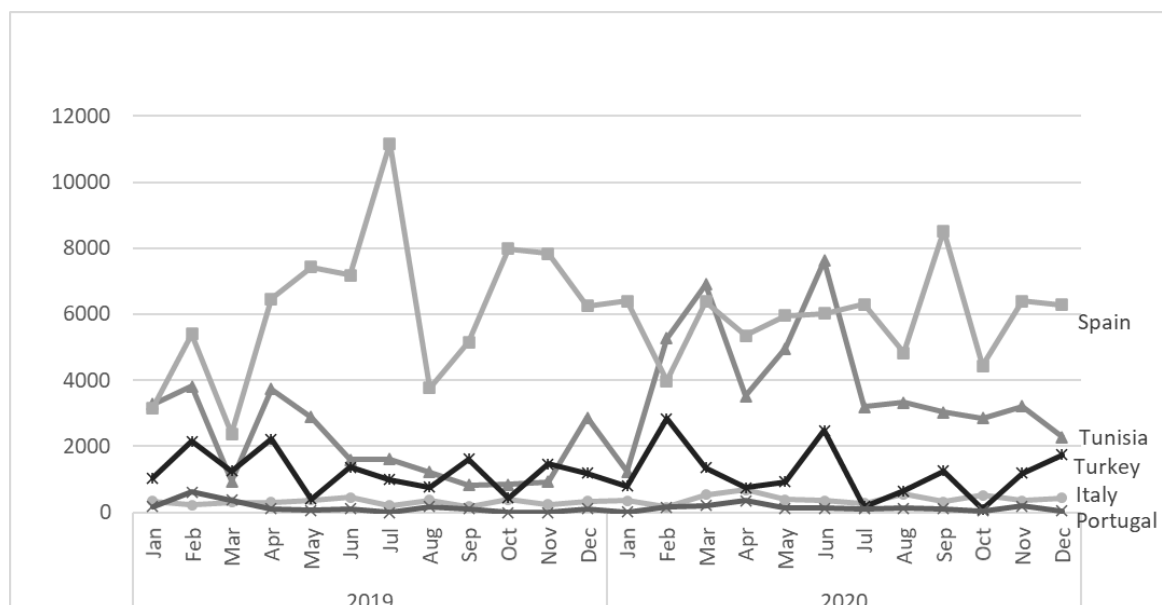
**Figure 4:** US imports of Olive oil, by country (tonnes) - Olive Oil (HS 1509)

**Source:** our elaboration on US Census Bureau Trade Data



**Figure 5:** US imports of Olive oil, by country (tonnes) - Packaged Olive Oil - in container weighing <18 kg (HS 15091020 and 15099020)

**Source:** our elaboration on US Census Bureau Trade Data



**Figure 6:** US imports of Olive oil, by country (tonnes) - Bulk Olive Oil - in container weighing >18 kg (HS 15091040 and 15099040)

## V. Policy Measures affecting the olive oil market

The gradual disappearance of trade border protection has changed the global economic environment by ensuring that markets become internationally open. This process brought out new markets such as India, Brazil, China. The opening of the markets has expanded firms' business that acquire market shares in foreign countries, raising the level of competition. Currently, expanding into new geographic areas is a choice but also a strategic decision influenced by internal and external events.

The additional tariffs, although representing a cost for countries to which they are applied, can be seen as a chance in terms of expanding the market or new geographical destinations, diversifying sales strategies and acquiring new market shares. Nowadays, facing the issue related to the additional tariff means to deal with a global context that is going to change in comparison to the past period. Indeed, the additional tariffs applied by the US to the Spanish producers might change the geography of olive oil by causing a reallocation of the market share. The analysis of the applied tariff around the world could explain some new market strategies that Spain and Italy have been implemented to



overcome the new high US tariff. For this purpose, we present applied tariff data coming from different sources: TARIC and MacMap databases. TARIC, the database on taxation and custom unions of the European Communities, gives customs duties at 10 digits of the Combined Nomenclature. Market Access Map is a free analytical tool that allows to compare customs tariffs, tariff-rate quotas, trade remedies, and non-tariff measures applicable to a specific good in any market in the world. Olive oil tariffs are specific meaning that they are levied depending on the quantity traded. It is possible to convert specific duties in ad valorem. We refer, briefly, to applied tariffs in terms of ad valorem based on trade statistics by considering countries depending on their share of exports towards the US.

Except for the EU, the global applied tariff rates by U.S. on virgin olive oil, and extra virgin olive oil are relatively low on average (ad valorem tariffs equivalent to 1.08%), ranging between 0 and 44%.

The free trade is applied on virgin olive oil imports entering Japan, Australia and Canada. For those entering Brazil and China, the applied tariff is equal to 10%, while for olive oil from Chile and Argentina the US apply a tariff of 6% and 30%, respectively. In the diversification strategy some of these countries become a key point, also and above all in the light of the updating of trade agreements and new agreements being negotiated. The highest tariff is applied on the EU, with an MFN (Most Favoured Nation) duty of approximately 44% (2018). However, most of the EU partners benefit from preferential trade agreements with a very low level of tariffs or 0%.

Over the last three years, international anti-trade rhetoric around the world has risen and a kind of trade conflict between leading economies, including the US, China and the EU, has emerged (Bown 2017, Bown and Zhang, 2019). Trade tensions evolve from existing more or less transparent tariff wars to discriminatory implementation of other barriers such as non-tariff measures (NTMs), causing an impact that is sometimes difficult to assess and predict. Agriculture products have always been sensitive in the international arena due to their relevance for national food security and rural



development and their dependence on nature. In general, on agri-food products, scholars are showing that while the average MFN tariff rates have declined over the years, the use of Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary (SPS) measures affecting the exports seems to have increased. Arita et al. (2017), in analysing transatlantic barriers on the US and the EU agri-food trade, show how removing NTMs between these two countries on sensitive agriculture sectors arise significant gains. Nevertheless, larger gains could be realized through activity cooperation. Their simulations suggest trade gains could be substantial in case of deeper integration. Notably, virgin and extra virgin olive oil appear to be involved where these TBT and SPS measures have emerged. The olive oils must comply with different rules and standards depending on where they are traded. The EU, the International Olive Council and the Codex Alimentarius establish specific requirements for this product. The EU Regulations are valid within the EU area, while outside the EU territory, International Olive Council standards are applied. In a large context, as in a worldwide scenario, then, different rules must be considered, in that case, the rules related to the Codex Alimentarius prevail. However, it should be kept in mind that there are as many standards as countries; the numbers of requirements imposed on the exporters are different depending on the importing countries. We can divide the world into three blocs where TBT and SPS are more stringent depending on the countries belonging to the bloc: Asian countries with the higher number of requirements, North America and the EU. China imposes a higher number of requirements (70), followed by the US, Canada, Brazil, Chile and Japan. Most of them are labelling requirements, which were initially intended to provide superior traceability information, inspections and packaging. Along with labelling requirements, there is also a growing interest in organic and fair-trade schemes, which resulted in the increasing demand for such products to follow organic certification requirements.

The trade structure previously examined, together with the geopolitical and geo-trade issues, allows us to go further in exploring the existence of different olive oil market orientations.



## **VI. Scenario Implementation: The GTAP model**

After providing the descriptive statistical analysis on trade flows of olive oil towards the US market, due to the direct and indirect impact of the US retaliation measures, the study evaluates the effects in the medium term through a computable general equilibrium (CGE) model (GTAP). In particular, the goal is to understand the type of change (structural or temporary) that has mostly determined the additional tariff applied by the US to packaged olive oil from Spain on the world olive oil market and the resulting new equilibrium from the suspension of retaliation.

The statistical analysis covers Eurostat and US International Trade Commission data from the last few years, including data on the first months of application of the duties. On the one hand, Eurostat data help us to study which are the main suppliers of Italy; on the other hand, they provide reliable and relevant information about the different target markets for Italian (and Spanish) olive oil. US ITC data analysis enables us to explore the main olive oil suppliers in the US and provides us with the distinction of the US trade flows by packaging (above or below 18 kg). They also allow us a deeper comprehension of the duties' effects.

The potential economic impact of the US trade restriction is performed by a CGE model, specifically by the GTAP one.

The GTAP model is built on general equilibrium theory and designed to assess the inter-regional, economy-wide economic policies incidence (Hertel and Tsigas, 1997). The main advantages of the CGE approach are its solid micro-theoretical underpinning and its economy-wide scope, as well as its detailed inter-sector linkages for each of the economies represented and the complete and consistent coverage of all bilateral trade flows<sup>5</sup>.

We depart from the standard framework using the GTAP-MRIO database, which extends the standard GTAP Data Base (Aguiar et al., 2019)<sup>6</sup>. This extension is important for better analyzing the global economy, which is organized in production stages being performed in different countries.

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<sup>5</sup> For more details on the GTAP features, see Hertel (1997).

<sup>6</sup> <https://www.gtap.agecon.purdue.edu/resources/download/10043.pdf>



MRIO is constructed from IO tables of other countries complemented by trade databases that contain bilateral trade flows by end-users, namely: firms, consumers, and investors.

MRIO approach is crucial in this analysis since the US's extra duty against the Spanish olive oil regards not only the direct export but also the Spanish olive oil embedded in the export from other countries. GTAP-MRIO allows us to perform the analysis of the upstream–downstream impact of the WTO dispute.

Indeed, the impact on Italian export of olive oil is overall indirect, i.e., using Spanish oil as input. Thanks to the GTAP-MRIO, we can distinguish between Italian import of Spanish olive oil for consumption and production inputs. The latter is going to be affected by the US tariffs.

We used the most recent available GTAP database version – known as version 10a – which includes data on up to a maximum of 141 regions and countries, 64 industries, and 8 endowments. It has 2014 as base period.

Geographical and sectoral aggregation of the model is shown in Table 1.



<u>Countries/regions</u>	<u>Sectors</u>	<u>Factors</u>
Oceania	Olive Oil (packed)	Land
Eas tAsia	OliveOil (bulk)	Natural resources
South Eest Asia	Other vegetbales oils	Capital
South Asia	Oil seeds	Skilled labour
China	Grains Crops	Unskilled labour
Japan	Meat & Livestock	
USA	Other Food	
Rest of Nafta	Processed food	
Argentina	Extraction	
Chile	Textile	
Rest of Latin America	Light Manufacturing	
UK	Heavy Manufacturing	
Italy	Utilities & Construction	
Spain	Trade	
Greece	Business	
Portugal	Transport	
Rest of EU	OtherServices	
EFTA		
Russian		
Tunisia		
Morocco		
Israel		
Turkey		
Rest of MENA		
SSA		
Rest of World		

**Table 1:** Geographical and sector indication

The baseline scenario is relatively straightforward. Firstly, we calibrated the shock on Spanish export of olive oil to the US, due to the application of the extra duty, according to the reduction already observed in the main statistical databases. Secondly, knowing the value of the Spanish olive oil used as input for Italian olive oil export and other exporters to the US, we introduce trade frictions against the Spanish olive oil used as input. Finally, to verify changes in the market after the US's trade policy, we simulate the current suspension of retaliation. In the scenario, tariffs are set back to the initial value. However, due to the dispute, Spain loses some of its market share to competitors, that would represent a cost anyway for Spain to gain it back. Consequently, we add to the policy scenario an increase in iceberg costs on Spain exports, with a sensitive range between 1.5% and 3%.

## VII. Results and Discussion



The US's policy has an impact on the olive oil market and production chain. The longer the policy is applied, the more such changes become structural. However, model results also show that the impact is in part absorbed by Spanish's exporters reallocating olive oil export from packaged to bulk and partly absorbed by the US's consumer with an increase of olive oil import price<sup>7</sup>.

The use of a CGE model helps us to simulate the possible impact of the end of the US tariffs application. The negotiation has just started, and a tariff suspension is applied. However, tariffs have been applied for a significant period, and the market adapted to the situation. An end of the current tariff would lead to a situation where tariffs are those before the US's retaliation, but hardly the market will be back to the previous situation. Moreover, as anticipated above, Spain's exporters have to re-adjust their market strategy and their position among the different stages of the "filiera".

To estimate a possible outcome, we ran a simulation where tariffs are back to those before US retaliation, with 1.5% (Scenario 1) or 3% (Scenario 2) as iceberg cost for Spanish exporters to the US market.

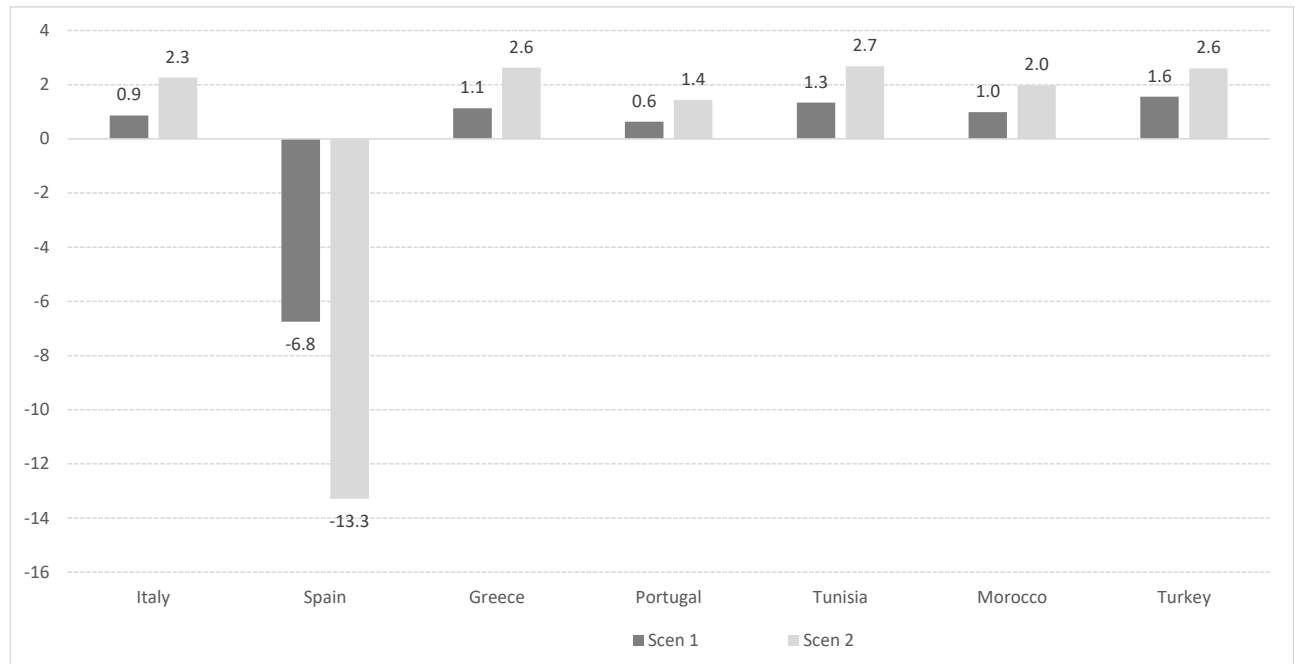
Figure 7 shows the possible new configuration in the US olive oil market after one year of application of tariffs against Spain's export.

Even if the negotiations successfully end, hardly, at least in the short term, Spanish's exporter will fully recover. Compared to the initial export flow, Spanish furniture to the US market can lose between -7% and - 13%, respectively in scenario 1 and 2. On average, all other suppliers would experience an increase between 1 and 3% of their export to the US. However, Tunisia shows the biggest increase in absolute terms.

According to our analysis, the US retaliation policy against Spain will not end with the tariffs cancellation. Other suppliers have "taken" some Spanish markets, and a simple, clean slate on tariffs cannot restore the initial situation.

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<sup>7</sup> Welfare decomposition impact shows that US's consumers will have a negative impact by 16 Million \$.



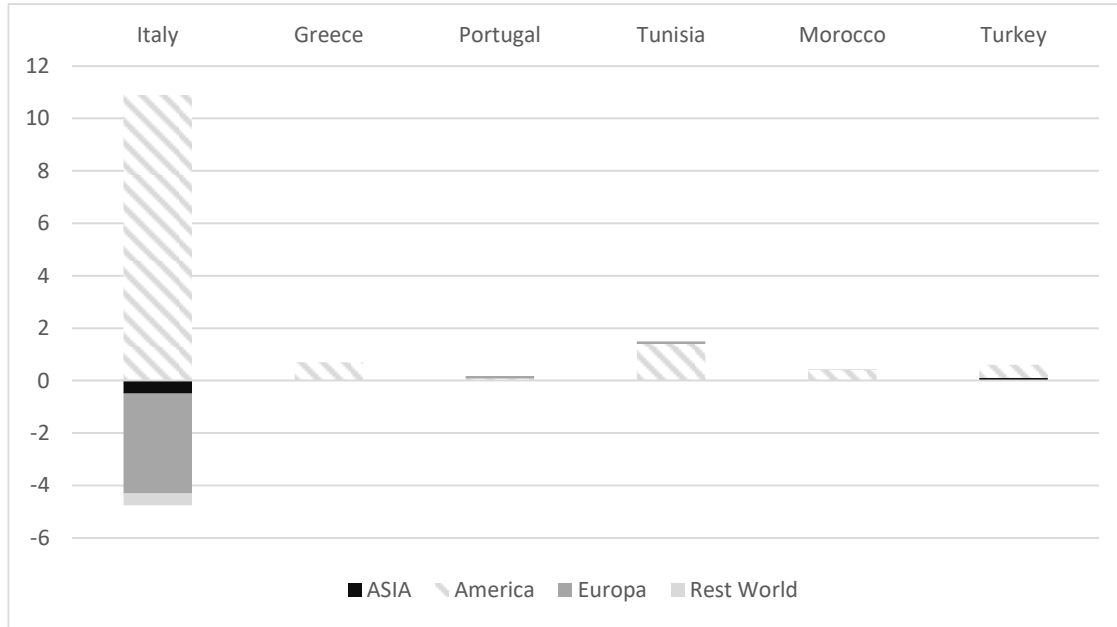
**Figure 7:** Change on the US market: Scenario 1 and Scenario 2 (% change vs baseline)

Source: our elaboration on GTAP simulations.

For Scenario 2, where the loss of Spain export to US is more significant, i.e. the gain by competitors is bigger; model results provide some information on the possible directions of the forthcoming adjustments in the world olive market. As we already argued above, world trade of olive oil is changing, with new actors entering the market. The US retaliation has contributed to the current changes, probably speeding up some processes.

According to the simulation, and focusing on the Scenario 2, olive oil exporters are reacting differently to this market storm.

Figure 8 shows how the competitors of Spain, namely Italy, Greece, Portugal, Tunisia and Morocco have reallocated their supply in the different markets.



**Figure 8:** Scenario 2: export change to US market for main Spain competitors (% change vs baseline)

Source: our elaboration on GTAP simulations.

Italy has mainly diverted its olive oil export, from Asia and Europe, increasing its role in the US. Premium price linked to Italian brands has pushed exporters to divert olive oil export from other markets to concentrate the US's market space left by Spain. Like the Italian strategy is the one adopted by Greece. All other exporters, a part of the expansion to the US market, show some differences. Portugal, Tunisia and Morocco expanded also the Europe's market while Turkey to Asia. In other words, model results show different paths, where the biggest olive oil producers adopt different strategies. Italy, Morocco and Greece focus on the US market replacing Spain, Portugal expands in EU, while Turkey plays an important role in the Asian market. On parallel, Tunisia appears to be the strongest player, increasing its export in both Europe and US (C. Vos, 2021).

### VIII. Policy implication

The US and the EU have a prolonged trade dispute on Large Civil Aircraft subsidies. Both parties argued that the other was subsidizing its major commercial-aircraft manufacturer (Boeing and Airbus) by violating the WTO rules. Following the WTO decision the US imposed additional ad-valorem tariffs on a list of specific products, bringing out geographical concentrated political pressure. Past



example of trade dispute between the US and the EU was the so-called “Banana War”. In 1993, the EU implemented rules helping banana imports from ex-French and British colonial possessions, which hurt the interests of the US firms (Dole and Chiquita) that grew bananas in Latin America. Under the WTO, the US was authorized, to impose a variety of retaliatory tariffs on specific products (cheese and handbags). The US tariff imposition worked and in 2001 the EU MS agreed to a resolution on the banana war, even if the Banana War found a solution in 2012.

The olive oil case is an interesting one, because it produces some adverse effects on both the consumption and production side. On the consumption, the imposition of the tariffs requires a new source of supplier’s US market other than Spain and force consumers to choose between olive oil, that has become more expensive, or a different kind of oil and fats with a substitution effect. In this perspective, rising prices may induce consumers to choose oil and fats with lesser health qualities than olive oil with an increase in health expenditure (USTR, 2019a). On the production side, the relevant presence of Spain (major producers) has always been a barrier to entry on the US market for other competitors. The tariff changes the international trade geography, causing adverse impacts on the European market, also in the case of its elimination. The possibility of occupying the spaces left free by Spain on the US pushes other competitors, particularly non-EU, to invest both in production and in the downstream phases of the primary sector (bottling) in order to take the opportunity of selling bottled olive oil with higher added value on a rich market, such as the American one, which recognizes a higher value for the product. This could lead to a decrease in the EU olive oil bulk flows that reach EU from these countries through preferential agreements or through Inward Processing Traffic. This trade diversion could generate difficulties in supply sources from abroad for EU countries, mainly Italy which is heavily dependent on imports to sustain both internal consumption and its own exports.



Although the dispute on LCA seems to be solved, the WTO is not a neutral actor, indeed, the abolition of the additional tariff does not mean a return to past equilibrium but it determines a new equilibrium with an effect on the trade geography that should be defined structural.

## **IX. Conclusion**

In this paper we have investigated, on the one hand, the effects on the world market, particularly on the Italian one, coming from the US tariff imposition on the Spanish packaged olive oil exported to the US, as consequence of the retaliation applied under the LCA Dispute. On the other hand, we have simulated what could happen on the world market, and mainly on the Italian and Spanish one, in the event of the tariff removal. This exercise could tell us whether or not the changes made by the tariff imposed by the US in 2019 are structural in nature and if the future elimination of the tariff will restore the original market shares of competitors. Our analysis quantified the economic implications of US retaliation tariffs on EU olive oils. The interesting result from our analysis is that Spain is not losing on total exports but on markets of destination. As a matter of fact, Spain reduces its share in the US consumers market, as the end of the supply chain, therefore the maximum added value, to the advantage of Tunisia, Greece, and Italy, and strengthens its role as a supplier of those countries. The % loss showed by Spain in the US market, and the more general picture, highlights the role of Tunisia, which is acquiring market shares in the face of other main competitors. This is an interesting result, and it is fully in line with the Tunisian long-term market strategy in playing an increasingly important role in bottled, value-added, and organic extra virgin olive oil on the international market.

Concomitantly, the analysis shows the different market orientations of the olive oil exporters. In the EU, Italy and Greece look at the premium price of the US market, while Portugal would increase its EU market share. Outside of the EU, Tunisia and Morocco look at the European market, while the orientation of Turkey is towards Asia countries. Overall, olive oil world trade shows changes, with Tunisia, Turkey and Morocco as emerging players in different markets.



Another interesting outcome of our analysis refers to the WTO dispute settlement mechanism. As shown in the analysis, retaliation by tariffs can alter a market as the removal of the tariff does not guarantee the return to the previous situation. The WTO mechanism, enabling the winner of the dispute to choose on which sector applying tariffs, is an effective trade strategy towards a faster solution of the disputes. However, it also emerges a possible permanent perturbation of a market not directly involved in the dispute. The announced WTO reform could give room for a reflection on the dispute mechanism.

As next steps, since investments in olive oil production increase are long terms ones, the use of a dynamic model will improve the analysis.

#### **Main references:**

- Aguiar, A., B. Narayanan, and R. McDougall (2016). “An Overview of the GTAP 9 Data Base,” *Journal of Global Economic Analysis*, 1(1): 181–208.
- Aguiar, A., M. Chepeliev, E. Corong, R. McDougall, and D. van der Mensbrugghe (2019). “The GTAP Data Base: Version 10.”, *Journal of Global Economic Analysis*, 4(1): 1–27.
- Anania, G. and Pupo D’Andrea, M.R. (2011). Olive oil in the Mediterranean area: production, consumption and trade. CIHEAM Watch letter, 16, pp. 1-6.
- Anania, G., and Pupo D’Andrea, M. R. (2008). The global market for olive oil: actors, trends, policies, prospects and research needs. TRADEAG Working Paper n. 08/2.
- Anderson, J. E., Neary, J. P. (2005). Measuring the Restrictiveness of Trade Policy, *The World Banks Economic Review*, 8, 151-169.
- Angulo, A.M.; Mtimet, N.; Dhehibi, B.; Atwi, M.; Ben Youssef, O.; Gil, J.M.; Sai, M.B. (2011). A revisited gravity equation in trade flow analysis: An application to the case of Tunisian olive oil exports. *Investig. Reg.* 2011, 21, 225–239.
- Antimiani, A., Fusacchia, I. and Salvatici, L. (2018a). GTAP-VA: An integrated tool for global value chain analysis, *Journal of Global Economic Analysis*, vol. 3, no. 2, 69–105.



- Antimiani, A., Salvatici, L. (2005). EU Trade Policies, Benchmarking Protection in a General Equilibrium Framework, Brussels, Trade AG Working Paper No. 4.
- Arita, S., Beckman, J., Mitchell, L. (2017). Reducing transatlantic barriers on U.S.-EU agri-food trade: What are the possible gains? *Food Policy*, Volume 68, 2017, pages 233-247, ISSN 0306-9192, <https://doi.org/10.1016/j.foodpol.2016.12.006>.
- Bakari, S. (2020). The Impact of Olive Oil Exports on Economic Growth: Empirical Analysis from Tunisia. *BILTURK Journal of Economics and Related Studies*, Volume: 2 Issue: 3 Year :2020.
- Bown, C (2017). “New eBook: Economics and policy in the Age of Trump,” VoxEU.org, 5 June.
- Bown, C and E Zhang (2019). “Will a US-China trade deal remove or just restructure the massive 2018 tariffs?” VoxEU.org, 1 May.
- Bouhaddane, M., and Mili, S. (2018.) A Forecast of Internationalization Strategies for the Spanish Olive Oil Value Chain. *International Journal of Food System Dynamics*. 2018, 1-27 DOI: <http://dx.doi.org/10.18461/pfsd.2018.1801>
- Corong E. L., Hertel, T. W., McDougall, R. A., Tsigas, M. E. and van der Mensbrugghe, D. (2017). “The Standard GTAP Model, Version 7”, *Journal of Global Economic Analysis* 2(1), pp. 1-119.
- Crescimanno, M., Di Marco, S. and Guccione, G. (2002). "Production and trade marketing policies regarding organic olive oil in Sicily", *British Food Journal*, Vol. 104 No. 3/4/5, pp. 175-186. <https://doi.org/10.1108/00070700210425642>.
- European Commission (2004), EU – US Agreement on Large Civil Aircraft 1992: key facts and figures, Memo 04/232, Brussels, 6 October 2004.
- Francois, J. F. and D. Nelson (2002). “A Geometry of Specialization,” *Economic Journal*, 112(481): 649–678.



- Francois, J.F and L. M. Baughman (2018). "Round 3: 'Trade Discussion' or 'Trade Wars'?" The Estimated Impacts of Tariffs on Steel and Aluminium," The Trade Partnership, Policy Brief 5 June.
- Grumiller, Jan; Grohs, Hannes; Raza, Werner; Staritz, Cornelia; Tröster, Bernhard (2018). Strategies for sustainable upgrading in global value chains: The Tunisian olive oil sector, ÖFSE Policy Note, No. 26/2018, Austrian Foundation for Development Research (ÖFSE), Vienna.
- Hammami, AM., and Beghin JC. (2020). The Trade and Welfare Impacts of the U.S. Retaliatory Tariff on EU Olive Oil. Working Paper 20-WP 609. Center for Agricultural and Rural Development Iowa State University.
- Hertel T.W. (1997). "Global Trade Analysis: Modelling and Applications", Cambridge University Press.
- Hertel, T.W. and Tsigas, M. E. (1997). Structure of GTAP. In Hertel, T.W. (ed.), Global Trade Analysis: Modeling and Applications, Cambridge: Cambridge University Press, 13-73.
- Kashiwagi, K.; Yamna, E.; Arfa, L.; Zaibet, L. (2020). Growing Olive Oil Export and Intra-Industry Trade in Mediterranean Countries: Application of Gravity Model. *Sustainability* 2020, 12, 7027. <https://doi.org/10.3390/su12177027>.
- Kavallari A., Maas, S. and M. Schitz (2011). Examining the Determinants of Olive-oil Demand in Non-producing Countries: Evidence from Germany and the UK, *Journal of Products Marketing*, 17: 355-372.
- Kee, H. L., Nicita, A., Olarreaga, M. (2005a). Import Demand Elasticities and Trade Distortions, Centre for Economic Policy Research, London, Working Paper No. 4669.
- Kee, H. L., Nicita, A., Olarreaga, M. (2005b). Estimating Trade Restrictiveness Indices, The World Bank, Washington, DC.





- Lee, T. (2021). Examining the Temporary Détente in the Boeing-Airbus Dispute, American Action Forum, Research
- Mili, S. (2006). Olive Oil Marketing on Non-traditional Markets: Prospects and Strategies. *New Medit*, 5(1), pp. 27-37.
- Pelikan, J., Brockmeier, M. (2008). In the Jungle of Import Tariffs-The Importance of the Implemented Measure to Aggregate Import Tariffs, *Agrarwirtschaft*, 57(2), 131-142.
- Pomarici E., Vecchio R. (2013). The Italian olive oil industry in the global competitive scenario. *Agric. Econ. – Czech*, 59: 361-372.
- Rallatou, D., and Tzouvelekas, V. (2016). An Analysis of the Trade Patterns of Olive-Oil in the European Union. *Agricultural Economics Review*, 17(2): 55-69.
- Titievskaja J. (2020). “EU-US dispute over civil aircraft subsidies”, EPRS (European Parliament Research Service), At glance, PE 659.347, November 2020.
- USTR (United States Trade Representative) (2019a). Large Civil Aircraft Section 301 Tariff Hearing on Proposed Countermeasures. Transcript: Day 1 - May 15, 2019 [https://ustr.gov/sites/default/files/enforcement/301Investigations/Section\\_301\\_Hearing\\_on\\_Proposed\\_Countermeasures\\_Transcript-Day\\_1.pdf](https://ustr.gov/sites/default/files/enforcement/301Investigations/Section_301_Hearing_on_Proposed_Countermeasures_Transcript-Day_1.pdf)
- USTR (United States Trade Representative) (2019b). Technical Adjustments to Section 301 Action: Enforcement of US WTO Rights in Large Civil Aircraft Dispute, Docket No. USTR–2019–0003, *Federal Register* / Vol. 84, No. 202 / Friday, October 18, 2019 / Notices.
- Vlontzos, G.; Duquenne, M.N. (2008). Greek olive oil: How can its international market potential be realized. *Estey J. Int. Law Trade Policy* 2008, 9, 32–47.
- Vos C., *Internationale*, 7-13 May, 2021.