

# THE EXTENSION OF THE EU EMISSIONS TRADING SYSTEM TO MARITIME TRANSPORT: IMPLICATIONS FOR MALTESE IMPORTS AND WIDER RAMIFICATIONS<sup>1</sup>

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*As part of a broad package of reforms designed to meet its climate targets, the European Union extended its Emissions Trading System (ETS) to maritime transport emissions as of 1 January 2024. This article studies one facet of the possible implications of this policy once it is fully in place as of 2026 – the economic effects on Maltese consumers and industry following the potential increase in Malta’s commodity import prices. Considering different scenarios regarding carbon price developments, we use data on Malta’s imports by product, trading partner and sea transportation costs to estimate the potential product-specific increase in Maltese commodity import prices resulting from the widened scope of the EU ETS. Based on a static Computable General Equilibrium analysis, we trace the effects of these import price shocks on both aggregate and sectoral dimensions. Results show an expected increase in overall consumer prices in Malta, ranging between 0.11% and 0.25%, depending on the underlying EU ETS carbon price. These developments will be largely driven by the higher prices for those commodities that are largely imported. Product-dependent increases in import prices are expected to dampen overall economic activity, although the fall in real GDP is expected to be rather muted at -0.12% to -0.26%, depending on carbon price developments. This drop is largely due to the shock’s negative effect on private consumption and investment, although the net adverse effects are somewhat cushioned by an expected fall in imports.*

## Introduction

Given its objective of becoming the first climate-neutral continent by 2050, the EU has adopted the ‘Fit for 55’ package – a set of proposals designed to meet the bloc’s intermediate target of reducing net Greenhouse Gas (GHG) emissions by at least 55% by 2030, compared to 1990 levels (Council of the European Union, 2024). Among the reforms set out within this package, the EU ETS has been extended to cover the GHGs emitted by maritime transport, mandating shipping companies to purchase ‘emission allowances’ to compensate for their annual verified emissions.<sup>2</sup>

The new rules, which came into effect as of 1 January 2024, apply to cargo and passenger ships of at least 5000 gross tonnage (GT). The shipping emissions falling under the system’s scope are route-based and flag-neutral, in such a way that the system covers 100% of emissions incurred by ships when moving between two EU ports, 50% of emissions during voyages between an EU port and a non-EU port, and 100% of emissions released at berth and during movements within EU ports. The inclusion of the shipping industry within the EU ETS will follow a gradual phase-in period, whereby shipping companies are mandated to surrender enough allowances to cover 40% of their 2024 verified emissions and 70% of their 2025 emissions, before covering 100% of their emissions incurred in 2026 and thereafter.

While the inclusion of shipping emissions into the EU ETS was driven by a desire to reduce GHG emissions and accelerate green investments by the shipping industry, the new regulations could potentially carry some adverse economic implications. Early European Commission (2021) calculations suggested that at a carbon price in the

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<sup>2</sup> One emission allowance permits the emission of one tonne of CO<sub>2</sub> equivalent.

range of €45–€55/tCO<sub>2</sub> (in 2020 values) in 2030, the inclusion of maritime transport into the EU ETS would increase shipping companies' costs by 7%. In a separate study applied to Sweden, Vierth et al. (2023) estimate that an ETS price of €80/tCO<sub>2</sub> could see fuel costs rise by 11%–42% for intra-EU voyages and by 5%–21% for extra-EU trips, depending on vessel type.

Given Malta's reliance on the shipping industry as a crucial mode of transport for its trading activities, any policy which raises shipping costs could pose challenges to the Maltese economy. Among these, Maltese consumers and industries might experience higher commodity import prices insofar as the extra costs levied on shipping companies are passed on in the form of higher prices.<sup>3</sup> In this light, this article examines the potential effects on the Maltese economy were this risk to materialise. Throughout, we assume that any rise in freight shipping costs is fully passed through to import prices, and only consider the economic effects that might be realised when the extended scope of the EU ETS is fully in place as from 2026.

## Data

The analysis that follows is based on two data sources: (i) a *Trade-and-Transport (T-a-T)* dataset developed by the United Nations Conference on Trade and Development (UNCTAD), and (ii) trade data (in *quantity* and *Cost, Insurance Freight [CIF]* values) from Eurostat.

The *T-a-T* dataset contains annual bilateral trade flows, quantified in terms of *weight* and *Free On-Board [FOB]* values, for every traded commodity defined by the Harmonised System (HS) nomenclature between 2016 and 2021.<sup>4</sup> All trade flows incorporated in this dataset are disaggregated by the mode of transport with which commodities transit from the country of origin to destination, and are further complemented by the transport cost for each mode. As such, the *T-a-T* dataset is the only source of information about the shipping costs incurred in transporting a particular commodity between two countries by sea (Ferrari et al., 2023).

*“All trade flows incorporated in this dataset are disaggregated by the mode of transport with which commodities transit from the country of origin to destination, and are further complemented by the transport cost for each mode”*

Given that the *T-a-T* dataset provides data only up to 2021, the information on sea transport costs as recorded within this dataset is combined with Eurostat data about the Maltese economy's imports by product group and trading partner in 2023, expressed both in terms of their *weight* and *CIF* values. The two data sources are employed simultaneously to estimate the expected increase in commodity import prices resulting from applicability of the EU ETS to the shipping industry.

## Simulation design

*“Any hike in sea freight costs due to the inclusion of maritime transport in the EU ETS should only impact the value share of imports constituting sea transport costs”*

Any hike in sea freight costs due to the inclusion of maritime transport in the EU ETS should only impact the value share of imports constituting sea transport costs. As such, the understanding of the resulting impact on import prices necessitates the calculation of two elements: (1) the share of sea transport costs in Maltese imports, and (2) the expected increase in freight shipping costs solely due to the widened scope of the EU ETS. The methodology applied below inherently assumes that Malta's inward trading patterns from 2023 will remain unchanged over the coming

<sup>3</sup> This work focuses solely on the potential increase in *commodity* import prices resulting directly from the extension of the EU ETS to maritime transport. As such, any reference to the risk of potentially higher import prices should be interpreted as the risk of higher *commodity* import prices, and not the import prices of *goods and services*.

<sup>4</sup> For this study's purposes, the products under the HS classification are mapped to the *Classification of products by activity* (CPA 2.1) to establish similarity with the products' classification considered within the model applied in this work.

years. Any substantial shifts in the countries from which Maltese imports originate, the commodity-specific quantities imported, or transport modes used might all affect the share of sea transport costs in the *CIF* value of imports. Moreover, since Malta's inward trading patterns from 2023 are assumed to remain unchanged in the coming years, this method implicitly assumes that the quantity of fuel burned by ships calling at Malta after the extension of the EU ETS remains unchanged from the levels burned prior to the inclusion of maritime transport within the EU ETS.

### Share of sea transport costs in Maltese imports

Let the per-unit freight rate (€/kg) to transport commodity  $g$  from country  $c$  to Malta by sea ( $s$ ) in year  $t$  be denoted by  $ufr_t^{g,c,s}$ . We consider this information for 2019, which is directly available from the *T-a-T* dataset, and scale it upwards to 2023 values using the percentage increase in the *Global Container Index (GCI)* between the 2019 and 2023 averages (Freightos, 2024).<sup>5</sup> Then, the per-unit freight rate to import commodity  $g$  from country  $c$  by sea in 2023 can be expressed as:

$$ufr_{2023}^{g,c,s} = ufr_{2019}^{g,c,s} \cdot (1 + \Delta GCI)$$

where  $\Delta GCI$  is estimated at +7.8%. Next, we consider the quantity (in kg) of each commodity  $g$  imported from each country  $c$  in 2023, denoted by  $M_{2023}^{g,c}$ , alongside the share of this trade transported by sea in 2019 ( $\varphi_{2019}^{g,c,s}$ ), as recorded in the *T-a-T* database.<sup>6</sup> Then, the quantity of commodity  $g$  imported by sea transport from country  $c$  in 2023, denoted by  $M_{2023}^{g,c,s}$ , is given by:

$$M_{2023}^{g,c,s} = \varphi_{2019}^{g,c,s} \cdot M_{2023}^{g,c}$$

The 2023 transport costs involved to import commodity  $g$  by sea from country  $c$  are then expressed as a share of the underlying *CIF* value of all inward trade in commodity  $g$  from country  $c$  in 2023 ( $CIF_{2023}^{g,c}$ ). Denoted by  $\widehat{TC}_{2023}^{g,c,s}$ , this share is indicative of the proportion of sea transport costs in the aggregate value of the underlying trade:

$$\widehat{TC}_{2023}^{g,c,s} = \frac{ufr_{2023}^{g,c,s} \cdot M_{2023}^{g,c,s}}{CIF_{2023}^{g,c}}$$

Summing across the respective trading partners yields the share of sea transport costs per product imported by Malta in 2023, denoted by  $\widehat{TC}_{2023}^{g,s}$ :

$$\widehat{TC}_{2023}^{g,s} = \frac{\sum_c ufr_{2023}^{g,c,s} \cdot M_{2023}^{g,c,s}}{\sum_c CIF_{2023}^{g,c}}$$

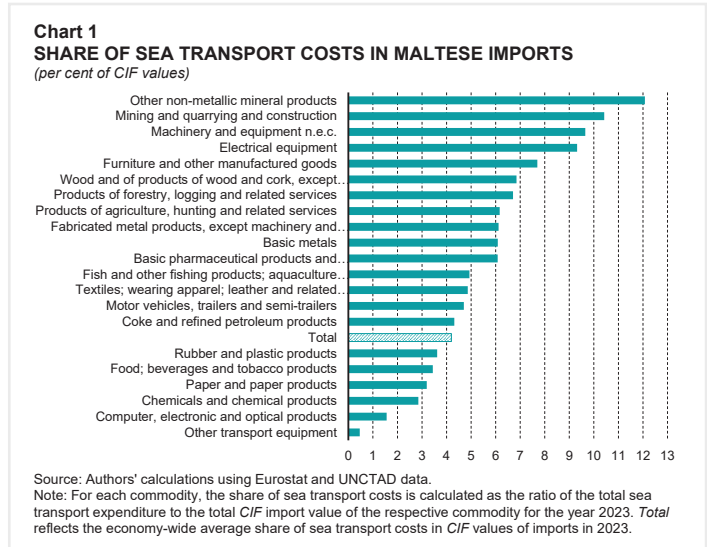
Chart 1 illustrates the respective  $\widehat{TC}_{2023}^{g,s}$  for the product groups imported into Malta in 2023. Overall, sea transport costs constituted 4.2% of the total *CIF* value of Maltese imported commodities in 2023.<sup>7</sup> Turning to product heterogeneities, the most expensive commodities to transport (in relation to their value) include *Other non-metallic mineral products* (12.1%) and *Mining and quarrying and construction* (10.4%), with the latter being largely driven by the imports of *crude petroleum and natural gas*. On the other hand, the expenditure required to transport high-value commodities such as *Other transport equipment* and *Computer, electronic and optical products* is relatively small relative to their value, constituting 0.5% and 1.6% of their *CIF* price, respectively.

<sup>5</sup> We refrain from using the 2021 data because the data on the quantity imported used to calculate the per-unit freight rate is currently 'experimental' while most of this data up to 2019 is based on information in UN Comtrade. Moreover, shipping costs increased markedly as from late 2020 and in 2021, before returning to normal levels by the end of 2022 (Freightos, 2024).

<sup>6</sup> In the absence of data for 2023, we assume that the proportion of commodity  $g$  imported from country  $c$  using sea transport in 2023 remains constant at the levels recorded in the *T-a-T* dataset for 2019.

<sup>7</sup> For reference, the share of sea transport costs in Maltese imports' total *CIF* value as calculated directly from the *T-a-T* dataset consistently stood at 6.3%-6.7% between the years 2016 and 2019. Underlying differences can be largely explained by a higher *CIF* value and lower quantities of Maltese imports in 2023, vis-à-vis trade data from 2019 and earlier years (Eurostat, 2024). Such patterns yield larger per-unit *CIF* values for 2023, which implicitly result in a lower share of sea transport costs in the value of Maltese imports for 2023.

Given that we consider the 2019 sea freight rates scaled to 2023 values, these shares of sea transport costs do not reflect recent atypical developments in the shipping industry, namely the increases in shipping costs in the aftermath of the COVID-19 pandemic and the Red Sea crisis. This allows us to analyse the potential economic impact resulting purely from the widened scope of the EU ETS, thereby excluding any hikes attributed to the situation in the Red Sea in particular. This is especially important in light of the inherent difficulty to disentangle the hikes in global shipping costs as from 1 January 2024 between those due to the Red Sea crisis and those induced by the EU ETS. As such, the above sea transport cost shares should be interpreted as the burden of sea transport costs in relatively normal times for the maritime transport industry.



### Expected increase in freight shipping costs due to the extension of the EU ETS

Assuming that the additional transport costs are fully passed through to import prices, the resulting increase in the import price of commodity  $g$ ,  $P_g^M$ , can be estimated as:

$$\Delta P_g^M = \Delta TP^E \cdot \widehat{TC}_{2023}^{g,S}$$

where  $\Delta TP^E$  is the expected percentage increase in sea transport prices resulting solely from the applicability of the EU ETS to the shipping industry. We adopt an approach similar to Flodén et al. (2024) and estimate the expected increase in sea freight costs by considering different scenarios regarding the EU ETS carbon price and the price of *Very Low Sulphur Fuel Oil* (VLSFO), to which the majority of ships trading worldwide have shifted in recent years (IMO, 2021).<sup>8</sup> In doing so, the additional cost induced by the EU ETS is linked directly to ships' fuel costs and indirectly to their total operating cost. Assuming that 1 ton of VLSFO emits 3.15tCO<sub>2</sub> (Lloyd's List, 2021), we estimate the EU ETS-induced percentage increase in ships' cost to emit 1 ton of VLSFO as follows:

$$\Delta P^f = \begin{cases} \frac{3.15 \cdot P^{ETS}}{P^f} & \text{for intra - EU voyages} \\ \frac{3.15 \cdot P^{ETS} \cdot 0.5}{P^f} & \text{for extra - EU voyages} \end{cases}$$

where  $P^f$  is the price of 1 ton of VLSFO, assumed fixed at \$700 per metric ton (i.e. close to the current global average bunker price [Ship & Bunker, 2024]), and  $P^{ETS}$  represents the EU ETS carbon price, expressed in € per tCO<sub>2</sub>.<sup>9</sup> Because fuel costs represent only some proportion,  $\omega^f$ , of ships' total operating costs, the increase in ships' fuel cost is translated into aggregate sea freight costs as follows:

$$\Delta TP^E = \omega^f \cdot \overline{\Delta P^f}$$

<sup>8</sup> This kind of approach is necessary in light of the difficulty to assess the impacts on freight rates that can be attributed solely to the widening scope of the EU ETS, and not to other developments such as the Red Sea crisis.

<sup>9</sup> US \$ are converted into € at the current conversion rate of \$1 = €0.90.

where  $\overline{\Delta P^f}$  is the arithmetical average of  $\Delta P^f$ .<sup>10</sup> The share  $\omega^f$  is set to 55%, in line with the World Shipping Council's quantification of the share of fuel costs in total ship operating costs at 50% - 60% (Mallidis et al, 2018; Mundaca et al., 2021).

The extent of the hike in sea freight prices is highly contingent on the price of emission allowances,  $P^{ETS}$ . This currently hovers below €70/tCO<sub>2</sub>, but recent forecasts suggest that it may rise to around €90/tCO<sub>2</sub> in 2026 (Reuters, 2024), before approaching €146/tCO<sub>2</sub> by 2030 and potentially reaching €194/tCO<sub>2</sub> in 2035 (BloombergNEF, 2024). Nonetheless, the future development of the EU ETS carbon price is somewhat uncertain, with other recent projections of the 2030 price ranging from around €90/tCO<sub>2</sub> to just below €200/tCO<sub>2</sub> (Marcu et al., 2024). In view of this uncertainty, we assess the potential impacts of the EU ETS' extended scope under three carbon price scenarios: (i) €90/tCO<sub>2</sub>, (ii) €150/tCO<sub>2</sub>, and (iii) €200/tCO<sub>2</sub>.

Table 1 documents the expected increase in commodity import prices that are solely attributed to the extension of the EU ETS to maritime transport.<sup>11</sup> Overall, the effect on commodity import prices is expected to be relatively muted, with the average increase in product-specific import prices not expected to exceed 1.7%, even if the carbon price reaches €200/tCO<sub>2</sub>. This is largely due to the fact that maritime transport costs typically constitute a minor

**Table 1**  
**EXPECTED INCREASE IN IMPORT PRICES BY PRODUCT DUE TO THE EXTENSION OF EU ETS TO MARITIME TRANSPORT**

Product classification	Assumed EU ETS price (€/tCO <sub>2</sub> )		
	€90	€150	€200
Products of agriculture, hunting and related services	1.1%	1.9%	2.5%
Products of forestry, logging and related services	1.2%	2.1%	2.8%
Fish and other fishing products; aquaculture products; support services to fishing	0.9%	1.5%	2.0%
Mining and quarrying and construction	1.9%	3.2%	4.3%
Food products; beverages and tobacco products	0.6%	1.1%	1.4%
Textiles; wearing apparel; leather and related products	0.9%	1.5%	2.0%
Wood and of products of wood and cork, except furniture; articles of straw and plaiting materials	1.3%	2.1%	2.8%
Paper and paper products	0.6%	1.0%	1.3%
Coke and refined petroleum products	0.8%	1.3%	1.8%
Chemicals and chemical products	0.5%	0.9%	1.2%
Basic pharmaceutical products and pharmaceutical preparations	1.1%	1.9%	2.5%
Rubber and plastic products	0.7%	1.1%	1.5%
Other non-metallic mineral products	2.2%	3.7%	5.0%
Basic metals	1.1%	1.9%	2.5%
Fabricated metal products, except machinery and equipment	1.1%	1.9%	2.5%
Computer, electronic and optical products	0.3%	0.5%	0.6%
Electrical equipment	1.7%	2.9%	3.8%
Machinery and equipment n.e.c.	1.8%	3.0%	4.0%
Motor vehicles, trailers and semi-trailers	0.9%	1.5%	1.9%
Other transport equipment	0.1%	0.1%	0.2%
Furniture and other manufactured goods	1.4%	2.4%	3.2%
<b>Average increase</b>	<b>0.8%</b>	<b>1.3%</b>	<b>1.7%</b>

Sources: Authors' calculations using Eurostat and UNCTAD data.

Notes: These expected increases in import prices only reflect the impact of the EU ETS extension to maritime transport, and do not reflect any increase in shipping prices due to other developments, such as those related to the situation in the Red Sea.

<sup>10</sup> This calculation of  $\overline{\Delta P^f}$  assumes a 50/50 split between intra-EU and extra-EU voyages.

<sup>11</sup> As such, these expected increases in import prices do not reflect any increase in shipping prices due to other developments, such as those related to the situation in the Red Sea.

share of the value of the imports (see Chart 1). In terms of product heterogeneities, the commodities expected to register the most pronounced hikes in their import prices are those that are relatively expensive to import by sea, as suggested by the analysis illustrated by Chart 1. These include *Other non-metallic mineral products*, followed by *Mining and quarrying and construction* and *Machinery and equipment n.e.c.* In contrast, the import price of products like *Other transport equipment* is not expected to register any material change, largely due to the fact that the sea transport cost for this commodity is only a small part of its underlying import value.

*“Overall, the effect on commodity import prices is expected to be relatively muted, with the average increase in product-specific import prices not expected to exceed 1.7%, even if the carbon price reaches €200/tCO<sub>2</sub>”*

The economic effects of the product-specific import price shocks are simulated using MaCGE-MOD – a static Computable General Equilibrium (CGE) model for Malta (Cassar et al., 2023).

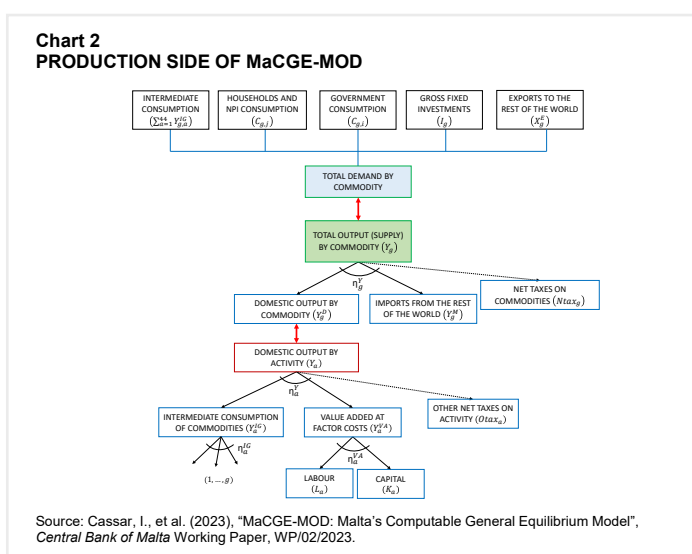
*“The economic effects of the product-specific import price shocks are simulated using MaCGE-MOD – a static Computable General Equilibrium (CGE) model for Malta”*

### MaCGE-MOD

MaCGE-MOD is a multi-input, multi-output and multi-sectoral CGE model calibrated on the 2015 Social Accounting Matrix (SAM) for Malta. The latter is highly disaggregated, encompassing all the transactions involving 44 different production activities and commodities, six institutional sectors, and four types of taxes, faithfully capturing the circular flow of income in the Maltese economy. This makes MaCGE-MOD a suitable tool to study the transmission mechanism of the import price hikes estimated above. The model is static, and the economic impact of a shock simulated in MaCGE-MOD reflects the total effect in the medium run once all direct, indirect and induced effects have propagated through the economy.

The production side of the model is illustrated in Chart 2. Each of the 44 activities in the model makes optimal use of intermediate goods, labour, and capital to produce domestic output, which in turn can be disaggregated into 44 different commodities. The total supply of each commodity is a constant elasticity of substitution (CES) aggregate of the output produced domestically and imports. In turn, each commodity can be either exported or consumed locally. In general, MaCGE-MOD is underpinned by a number of neoclassical assumptions, having production and consumption decisions based on optimality conditions. Moreover, the perfectly competitive structure of markets does not allow for the generation of profits for producers.

Within MaCGE-MOD, commodity import prices depend solely on foreign prices and a nominal exchange rate, both considered to be exogenous. Any shock to import prices will be expected to affect overall commodity prices in the economy, which in turn should dampen intermediate and final demand for the same commodities. The economic effects of the new EU ETS regulation are simulated assuming a Leontief technology between domestic production and imports, essentially considering the total supply of a particular commodity in the Maltese economy as a fixed bundle



of the quantity produced domestically and imports. This modelling choice reflects the reality that as a small open economy with limited natural resources, Malta relies heavily on import activity and cannot easily substitute towards domestic production as import prices soar.

## Simulation results

The main macroeconomic effects resulting from the respective commodity-specific hikes in import prices documented in Table 1 are presented in Table 2. The higher import prices push overall prices upwards, as reflected by the consumption deflator.<sup>12</sup> Higher prices lower the economy's overall export competitiveness and also dampen domestic demand, in turn causing a decline in investment, imports and labour demand. This negatively affects households' disposable income, who in turn consume less in real terms. The net effect on Malta's real GDP is expected to range between -0.12% and -0.26%, depending on the price of emission allowances. This drop is largely driven by the pronounced decline in private consumption and investment but is somewhat cushioned by a fall in imports. Turning to fiscal developments, government receipts drop in absolute terms, driven by lower tax revenues and fewer transfers received from financial and non-financial corporations, and households. Nonetheless, the ratio of government receipts-to-GDP improves due to a stronger deterioration of GDP, relative to government receipts. Government expenses remain stable, with the government expenses-to-GDP ratio increasing solely due to the decline in GDP. Overall, the effect on public finances is negative (i.e. deficit increasing).

The aggregate simulation results mask potential heterogeneities in the shock's impact at the *industry* and *product* level. To start uncovering such developments, Chart 3 depicts the anticipated effect on commodity prices due

**Table 2**  
**MAIN MACROECONOMIC EFFECTS OF THE EU ETS EXTENSION TO MARITIME TRANSPORT**

(per cent deviation from baseline)

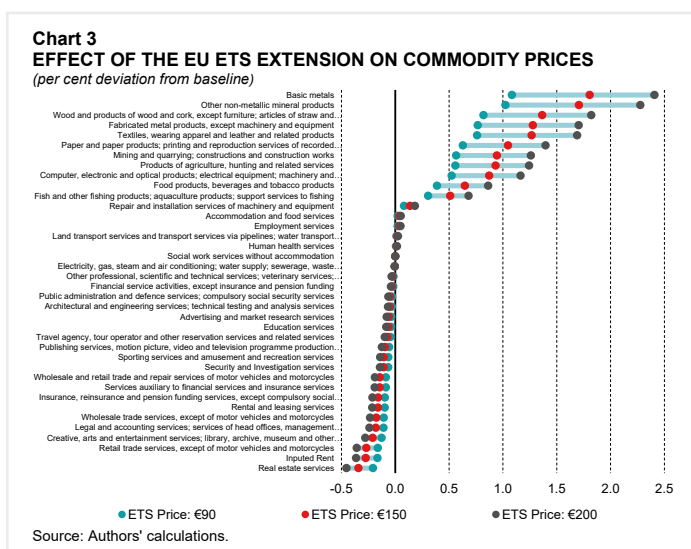
	Assumed EU ETS price (€/tCO <sub>2</sub> )		
	€90	€150	€200
<b>Price and cost developments</b>			
Consumption deflator	0.11	0.19	0.25
GDP deflator	-0.18	-0.29	-0.39
<b>Economic activity (constant prices)</b>			
Real GDP	-0.12	-0.19	-0.26
Private consumption	-0.31	-0.52	-0.69
Government consumption <sup>(1)</sup>	0.00	0.00	0.00
Gross fixed capital formation	-0.61	-1.01	-1.35
Exports (goods and services)	-0.05	-0.08	-0.10
Imports (goods and services)	-0.18	-0.30	-0.41
Real disposable household income	-0.31	-0.51	-0.68
Household saving ratio <sup>(2)</sup> (% of disposable income)	0.00	0.00	0.00
<b>Fiscal developments (% of GDP)</b>			
Total receipts	0.06	0.07	0.09
Total expenditures	0.09	0.15	0.21
Government balance	-0.04	-0.08	-0.12
<b>Labour market</b>			
Employment	-0.19	-0.33	-0.44

<sup>(1)</sup> Government consumption is not impacted in real terms as this is assumed fixed.

<sup>(2)</sup> Household savings are expressed as a % of real disposable household income and the resulting % deviation represents the percentage point deviation of this ratio from the baseline.

<sup>12</sup> The decline in the GDP deflator is largely driven by a relatively large positive change in the import deflator resulting from the underlying shock to import prices.

to the inclusion of the shipping industry within the EU ETS. As expected, the most pronounced price hikes are expected for commodities that are shipped to Malta and would therefore be subject to higher import prices. Overall, commodity price changes are expected to be generally contained, with increases limited to less than 2.5% even if the EU ETS price reaches €200/tCO<sub>2</sub>.<sup>13</sup> Inevitably, these price movements also carry implications for Malta's export competitiveness. This analysis suggests that Maltese exports of commodities directly affected by higher import prices are expected to decline by 0.5%-1.2% in real terms, depending on the underlying carbon price. In contrast, *services* are typically expected to become cheaper as the shock propagates across the economy – an effect driven mainly by subdued economic activity that is expected to lead to drops in the marginal costs of services. As a result, most of the *services* sectors' output becomes more price-competitive, leading to higher real exports. These include the output of the *Creative, arts and entertainment activities*, which, given the sector's relatively high importance to Malta's export activity, cushions some of the impact of the underlying shock on Malta's overall exports.



**Table 3**  
**IMPACTS ON REAL GVA BY ACTIVITY FROM THE EU ETS EXTENSION TO MARITIME TRANSPORT**  
(per cent deviation from baseline)

	Assumed EU ETS price (€/tCO <sub>2</sub> )		
	€ 90	€ 150	€ 200
Manufacture of basic metals	-0.75	-1.24	-1.65
Manufacture of other non-metallic mineral products	-0.63	-1.04	-1.39
Manufacture of fabricated metal products, except machinery and equipment	-0.62	-1.02	-1.36
Mining and quarrying and construction	-0.59	-0.99	-1.31
Manufacture of computer, electronic and optical products, electrical equipment, machinery and equipment n.e.c., motor vehicles, trailers and semi-trailers, other transport equipment and of furniture; other manufacturing	-0.57	-0.94	-1.25
Manufacture of paper and paper products, printing and reproduction of recorded media; manufacture of coke and refined petroleum products, chemical products, basic pharmaceutical products and pharmaceutical preparations and rubber and plastic products	-0.51	-0.84	-1.12
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	-0.51	-0.84	-1.11
Manufacture of textiles, wearing apparel and leather products	-0.43	-0.72	-0.96
Crop and animal production, hunting and related service activities	-0.43	-0.72	-0.96
Inputted rent	-0.42	-0.70	-0.93

Source: Authors' calculations.

<sup>13</sup> For reference, the European Commission (2021) estimated that at an ETS price of €55 by 2030 (in 2020 values), most commodities relevant for European trade would experience a price increase limited to 0.5% by 2030. Only the price change of *iron ore* (0.3%-0.7%) and *cereals* (0.3%-0.6%) was envisaged to potentially exceed 0.5%.



*“Commodity price changes are expected to be generally contained, with increases limited to less than 2.5% even if the EU ETS price reaches €200/tCO<sub>2</sub>”*

With the close mapping between commodities and activities in the Maltese SAM, the product-specific results outlined above are closely reflected in the shock's impact at the sectoral level. To illustrate this, Table 3 outlines the ten sectors with the strongest drop in their real gross value added (GVA) following the EU ETS extension to the shipping industry. In line with *a priori* expectations, these comprise the industries intrinsically linked to the commodities subject to the strongest price increases. These activities, mostly concentrated in the *manufacturing* sector, make relatively intense intermediate use of the commodities most hit by the price shock in their production and are thus exposed to higher input prices.

## Conclusions

In view of the extension of the EU ETS to cover the emissions in maritime transport, this article assesses the implications of potential hikes in commodity import prices for the Maltese economy. Using data on Malta's trade flows and sea transport costs, this analysis suggests that the increase in Malta's commodity import prices solely due to the extension of the EU ETS to maritime transport should be limited to less than 2%, even if the EU ETS price reaches €200/tCO<sub>2</sub>. This is largely due to shipping costs typically constituting a relatively small share of the value of Maltese imports. Nonetheless, the higher import prices are expected to raise overall consumer prices and lower private consumption, investment and exports, although the net adverse effect on economic activity will be partially cushioned by a fall in imports. This work also uncovers heterogeneities at the *product* and *sectoral* level, with the commodities and industries directly exposed to the higher import prices expected to register the most pronounced negative economic effects.

While these results are largely in line with *a priori* expectations, a number of caveats must be highlighted. First, this work only considers the effects that might be realised when the extended EU ETS is fully implemented as from 2026. In the shorter term, the economic effects will likely be less pronounced as shipping companies are required to surrender allowances *in lieu* of only a proportion of their verified emissions, i.e. 40% in 2024 and 70% in 2025. Moreover, it is assumed throughout that any rise in freight shipping costs resulting from the extension of the EU ETS is fully reflected in higher import prices, with no changes to the underlying profit margins of shipping companies or importers. This work also does not consider the ongoing situation in the Red Sea and the lengthier voyages resulting from shipping route diversions. Such diversions result in higher fuel consumption, which, besides the direct impact on overall shipping costs, also likely generate higher emissions, further pushing the EU ETS cost upwards. Moreover, besides the direct impact of higher freight shipping rates, Malta could also experience some spillovers from other countries' import price shocks, which are not considered in this study.

Given that the inclusion of maritime transport within the EU ETS is still in its relative infancy, the full repercussions of this reform can only be dissected once more information comes to light. In particular, much will depend on the evolution of the carbon price at which the shipping industry must purchase emission allowances. Moreover, any changes in shipping companies' strategies and decisions could have a determining effect on the impact of the recent extension to the EU ETS. For instance, recent analyses already show a stronger presence of more efficient vessels moving around Europe, as shipping companies aim to minimise the costs associated with the EU ETS (Drewry, 2024).

While this analysis considered just one facet of the potential repercussions from the extension of the EU ETS to maritime transport, there are other considerations which, while important, are left for future work. These include possible efforts by shipping companies to avoid ETS-related costs by diverting traffic to nearby non-EU ports, which could have implications for Malta's role as a transshipment hub in the Mediterranean and could also result in supply-side bottlenecks especially if the number of cargo shipments to Malta falls as a result of the possible re-routing of existing shipping routes. It would also be useful to analyse the impact of other environmental policies within the Fit-for-55 package, such as the applicability of the EU ETS to passenger ships, and the phasing out of free allowances for the aviation sector. Such analyses would ensure that any unintended adverse economic effects from recent environmental reforms are identified and used to inform policy.

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