



# **THE EUROPEAN UNION ALUMINIUM INDUSTRY**

THE IMPACT OF THE EU TRADE MEASURES ON THE  
COMPETITIVENESS OF DOWNSTREAM ACTIVITIES

## **EXECUTIVE SUMMARY**

June 2019

GRUPPO DI RICERCHE INDUSTRIALI E FINANZIARIE - GRIF “FABIO  
GOBBO”

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## Disclaimer

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This project has been funded with support from FACE - The Federation of Aluminium Consumers in Europe. GRIF “Fabio Gobbo” was asked by FACE to carry out an independent study with the aim of establishing a constructive and transparent exchange of views on the competitiveness of the aluminium value chain in the European Union with a specific focus on trade policies on unwrought aluminium and their impact on manufacturers of aluminium semi-finished products. To have consistent information and to ensure the robustness and the comparability of the quantitative analysis for well-informed design of policies, the study only relies on data provided by institutional sources and independent third parties, having market recognition for reliability. While also benefitting from the industry knowledge of FACE stakeholders, any views expressed herein, including interpretation(s) of policies, reflect the current views of the author(s), which do not necessarily correspond to the views of FACE. Reproduction, publication and reprint are subject to prior written authorisation of the authors.

The study is available at: <https://face-aluminium.com/wp-content/uploads/2019/06/2019-LUISS-Study.pdf>

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## Key findings

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- The competitive advantage of the EU aluminium industry lies in the technological leadership of the downstream segments, i.e. producing semi-finished products for many end-user industries.
- The downstream segments account for about 70% of the annual turnover of EU aluminium industry and for nearly 92% of the total industry employment.
- In the last twenty years, the EU aluminium industry has experienced massive structural changes with a strong decline of aluminium primary production and underinvestment being the leading trend.
- Rising dependency on imports of unwrought aluminium and intensifying competition from third countries are increasingly becoming key factors influencing the competitiveness of EU downstream activities.
- Other than unwrought aluminium, EU has constantly worsened its trade balance in all segments of semi-finished aluminium products over the period 2000-2017.
- EU import tariffs on unwrought aluminium have been ineffective in sustaining primary aluminium production, while they are imposing additional costs to downstream transformers and potentially repealing the effects of trade measures on semi-finished products.
- It can be estimated that up to 17.8 billion euros was the extra cost of the tariff for unwrought aluminium for EU downstream producers over the period 2000-2017. In the same time, import tariffs have resulted in additional revenues for EU primary and secondary (recycling) producers, as well as additional incomes for primary producers with duty-free access to EU internal market.
- From a policy perspective, EU trade measures should be placed in a broader industrial policy framework aimed at preserving and possibly reinforcing the competitiveness of the downstream activities and, in turn, of the EU aluminium industry as a whole.
- To this end, the study suggests to abolish import tariffs on unwrought aluminium, to define *ad-hoc* measures for primary and secondary production and to provide incentives to downstream transformers to expand their innovative and technological capabilities, to improve their sustainability in a circular economy perspective, and to enhance, including with the tools of the so-called fourth industrial revolution, the relationships with relevant end-user industries.

## Executive summary

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### Context and objectives of the study

The aluminium industry is an industry that is essential to the economy of modern countries as it provides a range of highly differentiated products, from those for final consumption to the intermediate inputs that are required for many high-tech industries. Aluminium is currently used as an input material in the manufacturing of investment goods (automotive, shipbuilding, aerospace, building and construction, mechanical and electrical engineering), and consumer goods (like mobile devices, computers, recreational vehicles, household appliances, etc.). Regarded as one of the most sustainable metals, aluminium is increasingly used by companies strongly committed to improving their environmental performance.

The global aluminium industry has undergone fundamental changes in recent years in terms of geographical relocation of production and consumption, degree of concentration and integration, development of new end-use markets, increasing financialisation, and international trade. Globally, China's role has increased substantially in all segments of the aluminium value chain as well as in the consumption of aluminium products, to the detriment of North America and the EU.

The decline in the EU aluminium industry has been particularly severe in the upstream segments of the value chain, causing an increasing unwrought aluminium deficit and rising costs of raw materials. This trend has, in turn, progressively affected the competitiveness of downstream companies, which represent the bulk of the EU aluminium industry in terms of turnover, value added and employment.

The structural changes in the aluminium industry have sparked renewed interest in trade policies' role in driving economic development and in influencing the competitiveness of the manufacturing sector as a whole. The aluminium industry was recently at the core of the international debate on protectionist measures mainly because of the decision taken by the US administration to impose additional import tariffs on aluminium products. In the EU, the aluminium industry is one of the sectors that has featured most prominently in the anti-dumping investigations which have taken place since the conclusion of the Uruguay Round.

As a result, the need for a comprehensive revision of trade rules has become increasingly clear, to take into account the greater complexity of international production and to place those measures in a broader industrial policy framework.

Against this background, the purpose of this study is threefold:

- to provide a comprehensive overview of the EU aluminium industry value chain;
- to quantitatively estimate the economic impact of the EU import tariffs on unwrought aluminium in terms of additional costs imposed on other segments further down the value chain;

- to strategically assess the role of import tariffs on unwrought aluminium as an industrial policy instrument for promoting the competitiveness of downstream activities and the EU aluminium industry as a whole.

Some policy recommendations are finally made with the aim of preserving the technological leadership, as well as possibly restoring the industrial competitiveness, of firms producing semi-finished products, while also helping the EU to achieve its sustainability and industrial renaissance targets.

### Overview of the EU aluminium industry

The aluminium industry includes a range of activities along the value chain. They can be divided into 3 main segments:

1. upstream, including all the producers of the raw material from the unwrought mineral, namely the extractors (mining and quarrying) and the primary aluminium smelters;
2. downstream, involving a broad group of producers manufacturing high differentiated outputs (so-called “wrought aluminium”, “semi-finished,” “semis,” or “mill products”) by rolling, extruding, casting and drawing unwrought aluminium into various forms;
3. aluminium recycling and remelting, comprising producers of aluminium alloys (recyclers/remelters) from metallic waste and scrap generated either as a by-product of manufacturing or from recycled goods.

For the purpose of this study, recycling and remelting activities are included in the upstream segment as they both produce unwrought aluminium for the downstream transformers.

The EU aluminium industry encompasses more than a thousand companies, directly employs about 230.000 employees and is indirectly responsible for around 1 million jobs.

Lacking raw material (i.e. bauxite), the EU aluminium industry is actually characterised by few facilities which produce alumina (the white powder produced by the refining of bauxite) and by a limited number of companies which use alumina to produce primary aluminium in any form (commodity ingots and value-added products, such as slabs, billets, foundry alloys, and wire rods). Hundreds of small- and medium-sized vertically non-integrated firms are involved in the manufacturing of aluminium semi-finished products, such as extrusions, flat-rolled products, castings, foil, wire and slug.

It can be estimated that the aluminium downstream sector now accounts for about 70% of the annual turnover of the EU aluminium industry and for nearly 92% of the total employment in the industry, compared to 5% of the primary segment and 2% of the secondary segment. Secondary aluminium is produced by recycling and remelting aluminium-bearing scrap and/or aluminium-bearing materials.

The global positioning of primary aluminium production has dramatically changed over the last twenty years. China’s role has increased substantially to the detriment of North America and the EU.

Since 2008, the EU’s production of primary aluminium shrank by 30%. A decreasing number of EU member states have operating aluminium smelters. Some primary aluminium producing countries, such as Italy, the UK, and the Netherlands, have significantly curtailed or definitively ceased their production in the last few years. As a result, the EU lost more than one quarter of its smelting capacity in the period from 2008 to 2017. The process of disinvestment is almost certain to continue, as Alcoa recently announced the closure of its three aluminium smelters in Spain.

Since 2004, the EU has produced more secondary (that is unwrought aluminium produced by recycling and remelting scrap and waste) than primary aluminium. As of 2017, however, secondary aluminium output has not yet matched pre-crisis levels.

As for semi-finished products, global manufacturing of aluminium extrusions, flat-rolled products (FRPs) and aluminium castings more than doubled over the period from 2000 to 2017. China has driven much of this expansion, now representing around 50% of global output of aluminium semis. The EU production of aluminium FRPs and aluminium castings has increased in the period from 2000 to 2017, but at a significantly slower pace than at the global level. In 2017, the EU production of aluminium extrusions was even slightly below 2000 levels, although global production has tripled in the same period. As a result, the EU's share in global manufacturing of semi-finished aluminium products has constantly declined, from 29% in 2000 to 14% in 2017.

Germany, Italy, and France are the largest producers of semi-finished products in the EU, representing about 62% of the EU's total production in 2017. Germany further strengthened its leadership in the manufacturing of aluminium semis over the last few years and now constitutes about one third of the total production in the EU. France, Italy and Spain have roughly maintained their share of total EU production. Other EU member states have progressively seen their relative production shrink, cumulatively representing less than one quarter of EU total output in 2017.

#### Trade flows of unwrought and wrought aluminium products

Over the period from 2000 to 2017, the EU's trade balance has consistently worsened in all segments of the aluminium value chain.

EU imports of unwrought aluminium increased significantly during the period from 2000 to 2017. In particular, imports in 2017 were 69% higher than in 2000. Although EU exports of unwrought aluminium to third countries showed a significant upward trend over the last ten years, these exports only constitute a negligible quantity of EU trade flows, corresponding on average to roughly 4% of the imports. Between 2000 and 2017, the trade deficit of unwrought aluminium has thus steadily worsened.

In the same period, the EU trade balance in aluminium semi-finished products has also deteriorated.

Structurally being a net exporter of FRPs, the EU has experienced an increasing trade deficit in the last four years. FRPs now account for the vast majority of the EU imports of semis (about 70%). The EU's reliance on imported aluminium extrusions has also grown rapidly in recent years. In 2017, the EU net imports of aluminium extrusions were more than five times higher than in 2000. Finally, the EU is currently a net importer of aluminium castings, including aluminium road wheels as one of the main product categories. Much of the growth of EU imports of aluminium semis is due to the increase of Chinese imports to the EU. In 2017, the amount of aluminium extrusions imported from China was about 36 times higher than in 2000, imports of Chinese FRPs increased by 20 times, while the imports of aluminium casting from China rose 46 times.

A notable exception to the EU trade imbalance is the trade surplus registered in the aluminium waste and scrap sector since 2002. This surplus has even increased over the last few years, notwithstanding the fact that secondary production is actually regarded as the most energy efficient method of producing aluminium—especially for countries with high energy and carbon costs and significant availability of secondary raw material. As waste and scrap are typically used as input for secondary production, the positive EU trade balance should be interpreted as an outflow of raw materials, although these are of

low quality and are very expensive to sort and process. Asian countries, such as China and India, are markets to which an increasing quantity of waste and scrap has been exported.

### EU trade policies on unwrought aluminium

A complex system of import tariffs currently applies to unwrought and wrought aluminium products.

With regard to unwrought aluminium, after two successive autonomous temporary suspensions, adopted in 2007 and 2013, the conventional customs duty rates are respectively 3% for not alloyed aluminium, 4% for aluminium slabs and billets and 6% for foundry alloys. Unwrought aluminium can be imported into the EU duty-free from countries having signed Preferential Trade Agreements (PTAs) with the EU and from less developed countries (SPGA) covered by the Generalised Scheme of Preferences (GSP).

Over the period 2000-2017, about half of the imports of unwrought, not alloyed, aluminium originated from countries with duty-free access to the EU market. The share of duty-free imports has increased in periods in which imports are sensibly lower in quantity, such as during the economic crisis. Among countries subject to the tariff, Russia accounts for slightly less than 38% of the EU's total imports of unwrought, not alloyed, aluminium, also representing about 63% of the total imports subject to the tariff. Conversely, Mozambique (17%) and Iceland (16%) are the main exporters among duty-free countries.

The share of imports of aluminium alloys which were duty-free averaged 75% during the period 2000-2017. Among countries with duty-free access to the EU internal market, Norway and Iceland are by far the leading exporters, accounting together for 57% of the EU's imports of slabs and billets and 47% of the EU's imports of foundry alloys. Among countries subject to duties, the UAE accounts for slightly less than 18% of total EU imports of alloyed slabs and billets in 2017 (equivalent to about 55% of the total imports subject to duties in the same year) and 16% of total EU imports of foundry alloys (about 39% of the total imports subject to duties in the same year).

EU trade policy also offers companies the option of processing imported products without paying any duty. Companies can temporarily import raw materials or semi-manufactured goods from various countries, assemble or transform them so as to re-export the products for final consumption in third countries. In the period 2000-2017, the inward processing procedure was extensively used by EU companies both for not alloyed aluminium (averaging 43% of the total import subject to duties) and aluminium alloys (averaging 39% of the total import subject to duties).

### Estimates of the impact of import tariffs on unwrought aluminium on the aluminium industry value chain

The adoption of import tariffs is meant to increase prices of both imported and domestic goods. Given the regional market conditions and the structural characteristics of the EU aluminium industry, there is an incentive for domestic producers of unwrought aluminium, including those with duty-free access to the EU internal market, to align their prices with the highest possible level, namely the duty-paid price. This theoretical prediction is largely confirmed by findings of many studies focusing on the aluminium industry.

The price increase induced by import tariffs imposes extra costs on companies operating in segments further down the value chain, in particular on downstream transformers, while simultaneously representing a net transfer of financial resources to upstream activities.

As such, they correspond to extra revenues for primary and secondary producers (in addition to revenue for EU customs). EU primary and secondary aluminium producers should in principle use the additional revenues to compensate for cost differences with respect to extra-EU competitors as well as to invest in improving their products and production technologies. Moreover, as a result of current PTAs, extra costs for EU downstream transformers also represent additional revenues for primary producers based in countries from which primary aluminium can be imported on a duty-free basis (mainly Norway, Iceland, and Mozambique).

Increasing international competition from developing countries and limited bargaining power vis-à-vis their customers have mostly prevented EU downstream transformers from further passing through the extra costs imposed by import tariffs down the value chain, thus progressively squeezing their margins and putting further pressure on their survival, in particular on SMEs. Whenever partial or full pass-through is possible, import tariffs would still result in higher prices of semi-finished products to the detriment of EU end-user industries and final consumers.

Total estimated cumulative extra costs sustained by EU aluminium downstream industry, net of inward processing, range from €9.7 to €17.8 billion in the period 2000-2017. Those additional expenses represent up to 75% of the turnover of the European downstream aluminium industry in 2015. This also implies yearly average extra costs ranging between €529 million and €1 billion.

**Impact on downstream transformers of the EU import tariffs on unwrought aluminium (2000-2017, € billion - real 2018)**

Scenario	Cumulative extra-costs for EU downstream transformers	Duty revenues (net of inward processing)	Extra revenues		
			EU primary producers	Primary producers with duty free access to the EU	EU secondary producers
Lower bound	9,7	1,4	2,6	2,5	3,1
Upper bound	17,8	3,9	4,8	4,6	5,8

*\* Duty revenues are net of inward processing of unwrought aluminium.*

*Source: Authors' own elaboration.*

The largest share of the extra costs translated into extra revenues for remelters and refiners based in the EU producing secondary aluminium (33% of total extra costs). The price increase due to the EU import tariffs also led to extra revenues for EU smelters (28% of total extra costs) and for primary producers based in countries from which primary aluminium can be imported on a duty-free basis (26% of total extra costs).

### Assessing EU trade measures on unwrought aluminium from an industrial policy perspective

At the EU level, the task of supporting the aluminium industry was mainly left to trade rules, including the use of import tariffs as the main industrial policy measure. National measures were primarily aimed at sustaining existing upstream activities by lowering their energy costs, often as a part of a wider



regulatory intervention for energy-intensive sectors. National governments were also left with the burden of dealing with the economic and social consequences of shuttered smelting facilities.

The import tariffs on unwrought aluminium were mainly justified by the need to prevent EU smelters from reducing their production or even shutting down their facilities, eventually moving them to countries with low energy and labour costs, as well as lax environmental regulations. In turn, this would make more difficult for EU producers of semi-finished products and end-user industries to reliably and competitively source unwrought aluminium and aluminium products.

The customs duty on imports of unwrought aluminium has not worked as expected in achieving the EU objectives.

The EU's production of primary aluminium has decreased significantly because of the major curtailments and shutdown of numerous EU smelters. More than 11,300 jobs were lost in the upstream segment, including in the alumina and metal supply sectors, in the period 2002-2015. Consequently, the EU trade deficit regarding unwrought aluminium has considerably worsened and will be further exacerbated with the closure of additional smelters.

In 2017, the EU's primary aluminium production was about 27% of the EU's apparent consumption of primary aluminium. Furthermore, in the same year, as a consequence of several smelter closures, the total installed smelting capacity in the EU was instead equal to 30% of the EU's apparent consumption of primary aluminium. The increasing demand for primary aluminium has been met by rising imports. Dependence on imported unwrought aluminium for the production of aluminium semi-finished and finished products has thus steadily increased.

No increases in production capacity or new entries in the unwrought aluminium segment are expected in the EU member states in the next few years. This will further increase the EU's dependence on imports, as unwrought aluminium consumption is expected to grow, though at a slower pace than in the past.

Import tariffs, having failed to sustain the EU's primary aluminium production, have negatively affected the competitiveness of other segments of the value-added industrial chain, especially downstream users that are not able to pass through the price increase of unwrought aluminium.

An effective protection of segments further down the value chain would necessitate sourcing unwrought aluminium at the lowest possible costs, leaving aside any issues related to security and continuity of supply. The adoption of import tariffs works exactly in the opposite direction by potentially counteracting the effects of trade measures in downstream segments (i.e. import tariffs on semi-finished products). Not surprisingly, many countries such as China have adopted policies to make unwrought aluminium cheaper as to explicitly confer a cost advantage on domestic manufacturers of semis.

The overall effects are clearly visible. In 2017, EU production of aluminium extrusions was slightly below 2000 levels, although global production has tripled in the same period. The production of aluminium FRPs and castings has increased compared to 2000, but at a significantly slower pace than on the global level. In the period 2000-2017, the EU's trade balance has constantly worsened in all sectors of aluminium semi-finished products, as consumption of semi-finished aluminium products has increased at a compound growth annual rate of 3% in the same period.

The impact has been different depending on the specifics of downstream producers, with specialised SMEs inevitably suffering more than vertically integrated companies. Better performing companies

have generally been characterized by long-standing customer relationships—based on geographical proximity, flexibility and customization—with end-user industries.

The autonomous temporary suspension of customs duty, adopted in 2007 for not alloyed aluminium and in 2013 for aluminium slabs and billets, which was primarily intended to reduce input costs for downstream aluminium users while preserving the profitability of the upstream segment, has failed to reverse the described trends.

### Industrial policy recommendations for the competitiveness of the EU aluminium industry

The competitive advantage of the EU aluminium value chain undoubtedly lies in the technological leadership of the downstream activities. From a broader industrial policy perspective, it is thus essential to provide all the right support to maintain this leadership and possibly reinforce the economic and industrial competitiveness of firms producing semi-finished products and using aluminium products.

Overall this report's findings suggest the following policy recommendations:

- Import tariffs on unwrought aluminium should be abolished. A customs duty on unwrought aluminium should not be regarded as the right policy instrument, as it artificially raises downstream costs without offering any appreciable results in supporting upstream production.
- The maintenance of primary aluminium production can be justified only through recognising its strategic value for the entire EU economy. Government intervention may be required to avoid being totally dependent on imports.
- Secondary aluminium production should be encouraged through appropriate support schemes other than customs duties (e.g. by promoting innovative sorting and separation technologies, consistent product design, etc.) and by creating incentives for the secondary raw materials produced in the EU to be increasingly recycled and reused domestically.
- Maintaining the technological leadership and possibly reinforcing the competitiveness of the EU's semi-finished transformers would require policy measures other than simply reducing the costs these firms incur while procuring the inputs and intermediates. The suggested removal of import tariffs on unwrought aluminium would generate additional financial resources (estimated between 530 million and 1 billion euros per year) for EU downstream transformers' investments. Incentives for downstream transformers should be primarily directed at expanding their innovative, research and technological capacities and at improving their sustainability, resource efficiency and environmental performances from a circular economy perspective.
- Finally, improving the competitiveness of the whole EU aluminium value chain requires enhancing, including with the tools of the so-called fourth industrial revolution, the collaborations and the relationships between EU semi-finished transformers and relevant end-user industries.