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# Analysis of Export Restrictions and their Impact on Metals World Markets

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## Abstract.

**Background/Objectives:** This article is devoted to the analysis of the World Trade Organization export restriction rules in the field on Metals World Markets. **Methods/Statistical Analysis:** The study is based on the results of the legal analysis of the World Trade Organization rules in the field of export restrictions the change of which is complicated by many factors in current political and macroeconomic situation. The economic analysis of the export restrictions influence on the world economies was performed based on the governmental statistical data. Moreover, this analysis revealed the effect exerted by these restrictions on producers and consumers of the metal. **Findings:** There is an increasing trend in international trade to regulate export and import flows by implementing export restrictions. This tendency affects significantly trade in metals. Several factors – unequal geographic distribution and indispensability of certain metals in production processes – make significant effect from restrictive export policies in metals sector. Despite many attempts World Trade Organization members did not agree yet to negotiate their rules in the field of restrictions policy within multilateral rounds. This policy gives an advantage to downstream consumers that are using the metal in question. To the contrary, it undermines conditions of local raw materials producers. For the world market it will clearly mean losses for metals consumers which will be slightly offset by trade gain of raw materials producers. These results were obtained by comparing the theoretical research and practical experience of countries and they add value to the existing methods of restrictions implementation evaluation. **Applications/Improvements:** The authors provide several suggestions for importing countries that can effectively offset negative effects from export restrictive policies on their economies.

**Keywords:** Export, Impact, Metals, Restrictions, World Markets

## 1. Introduction

Despite the current globalization trends in the international trade and increased interdependence of economies, there is an increasing tendency in the 21st century towards implementation of export restrictions in order to regulate the export and import flows. In particular, this development is typical for supply and export flows of raw materials. Indeed, in the period from the 80s till 90s of the last century prices for raw materials remained relatively stable. However, starting from 2000s the demand for raw materials experienced dramatic increase caused by the growing demand of major emerging countries. As a result, raw materials prices have skyrocketed having an historical peak in 2007. The financial crisis of 2008-2009 has slightly reversed this trend. Strong boost in demand caused by scarcity in certain raw materials motivated many countries rich of natural resources to regulate their exports and trade.

Among raw materials metals sector accounts for the lion's share of export restrictions. According to the OECD study1, more than a third of exports of metals like thorium (63%), the metal group of niobium, tantalum, vanadium (54%), tungsten (52%) and magnesium (46%) were subject to some form of export restrictions in 2012. Considering that many metals are indispensable elements of various production processes, many countries are to some extend vulnerable to availability of these natural resources.

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Furthermore, as metals are not distributed equally among different countries, export restrictions introduced by the countries engaged in extracting and smelting activities can have a significant diverse effect on metals trade world-wide, affecting their availability and price level.

This article will analyze recent developments in the use of export restrictions, provide the legal definition as well as give a historical overview of export restrictions-related rules within multilateral negotiating rounds. It will also identify the economic nature of an export restriction and the impact this measure can have on availability of metals and their price. Furthermore, the authors will explore the main objectives that can motivate an exporting metals country to apply an export restriction and study what might be the potential counter-actions of a country facing the export restriction policy towards its import flows.

## 2. Concept Headings

### 2.1 Definition of Export Restrictions

There is a variety of measures that are used by the countries which are inclined to regulate export and import in the metals sector. Among the ones that are used most commonly are export taxes, export bans and duties, dual pricing, as well as anti-dumping, countervailing duties and various technical standards. All these measures have different legal treatment under the World Trade Organization (WTO) and the General Agreement on Tariffs and Trade (GATT) rules, some being considered illegal and some in compliance with international agreements. For example, in accordance with WTO/GATT rules anti-dumping and countervailing duties are considered to be the legal remedies that a WTO member can impose on import volumes of a third country in case of injurious dumping practices or industry subsidization. Other measures as export duties are prohibited under the WTO/GATT rules with some exemptions. To the contrary, measures like export taxes are not enough regulated and the legality of their application remains ambiguous in majority of the cases. However, all these measures have something in common: in case of metals their application can significantly affect import and/or export volumes and strike the trade balance among metals users and suppliers. Furthermore, contrary to the natural market forces those measures are applicable by a certain country in order to create adjustments to the metals flows. In majority of cases it also affects the metal price world-wide.

As noted above, the 1994 GATT does not include any rules related to export taxes. In practical terms it means that WTO members can impose them unilaterally. Exemption of this rule is created by direct prohibition of concrete export taxes, if a country has agreed for these concessions while acceding to the World Trade Organization. In particular, this situation applies to the newest WTO members, like Russia, Viet Nam and China. For example, according to the agreement reached before China's WTO Accession, this country committed to abolish the majority of export restrictions already imposed. However, if this rule is not explicitly mentioned in a member's WTO Accession Protocol, a country is not bound by any obligations.

The 1994 GATT provides rules related to export restrictions in Article XI. More precisely, Article XI states that "no prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any other contracting party[2]". Thus, if one reads only this part, one gets an impression that this article explicitly prohibits quantitative export restrictions in any forms, whether through quotas, import or export licenses or other measures. Conversely, paragraph 2 of the same Article 11 provides exceptions to the general rule. In particular, it says: "export prohibitions or restrictions temporarily applied to prevent or relieve critical shortages of … products essential to the exporting contracting party" and "import and export prohibitions or restrictions necessary to the application of standards or regulations for the classification, grading or marketing of commodities in international trade[3]". Thus, as there is no definition of "products essential to the exporting party", "critical shortages", the interpretation of this article leaves much room for subjective interpretation and creates ambiguity on the use of the Article 11.

In addition to that, Article 20 contains a broad list of exceptions that can be applied to the general prohibition of quantitative export restrictions. In particular, they provide exemptions related to protection of public morals, human, animal or plant life or health, management of the import and export of gold and silver, protection of intellectual and industrial property, national treasures of artistic, historic or archaeological value, as well as obligations of international commodity agreements[4].

There are several WTO Dispute Settlement cases related to the interpretation of the provisions of exemption under GATT Article 20. One of the recent cases related to metals is the case China – Measures Related to the Exportation of Various Raw Materials where China was accused by the European Union, Mexico and the United States in use of illegal export restrictions. In fact, the complainants blamed that China had imposed export quotas on bauxite, coke, fluorspar, silicon carbide, and zinc, as well as certain intermediate products incorporating some of these inputs. In order to defend its position, China based its argumentation on exceptions of Article 20. Indeed, China argued that these export restriction were needed in order to conserve scarce and exhaustible natural resources. Though, both WTO Dispute Settlement Panel and then Appellate Body did not support Chinese reasoning stating that "export restrictions are not an efficient policy to address environmental externalities, when these derive from domestic production rather than exports or imports … The pollution generated by the production of goods consumed domestically is not less than that of the goods consumed abroad[5]". In fact, this WTO Dispute Settlement ruling has defined certain limits of using Article 20 exemptions, noting that in case of natural resources conservation the restrictions cannot apply only to export, they should also apply to domestic production or sales.

This case clearly demonstrates the ambiguity of WTO export restrictions rules. In the absence of new multilateral commitment, it will take some time to have the clarity in the export restrictions implementation.

Speaking about multilateral trade negotiations, it is worth noting that the issue of export restrictions has been discussed for a very long time. Indeed, already while drafting the GATT Agreement in 1947, there were some suggestions to include export restrictions-related disciplines. During negotiations on the text of the Havana Charter some parties expressed their opinion that in some countries export duties have the same purpose as import duties in others and that they had to be negotiated too. In particular, the case of raw materials has been discussed. Several decades later during the negotiations of Tokyo Round in 1979, export restrictions were again on the agenda: "In the light of the examination referred to, participants agree upon the need to reassess in the near future the GATT provisions relating to export restrictions and charges, in the context of the international trade system as a whole, taking into account the development, financial and trade needs of the developing countries. They request the contracting parties to address themselves to this task as one of the priority issues to be taken up after the Multilateral Trade Negotiations are concluded[6]."

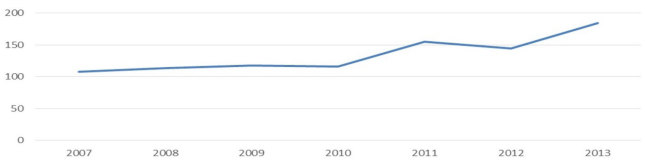
Also during the next Uruguay Round in 1987 there were some attempts to find an agreement on tariff barriers and non-tariff measures, however after 8 year of discussions, when the Uruguay Round was finally sealed, the rules on export restriction were ultimately left out.

The issue of export taxes rules has been raised again during the Doha Round. This time it has been the European Union who played a proactive role by bringing a proposal to the attention of negotiating parties. The EU's proposal contained the elimination of export taxes "by all WTO members with the possibility for developing and least developed countries to maintain certain export taxes[7]." However, the broad list of developing countries (Argentina, the Bolivarian Republic of Venezuela, Brazil, Egypt, India, Indonesia, Namibia, Philippines, South Africa and Tunisia) did not agree with this proposal noting that there is no legal basis to negotiate these issues in Doha Round. They also underlined that export restrictions are needed for economic development and growth. Thus, these developments have clearly demonstrated that elimination of these instruments does not correspond to the interests of the developing countries.

## 2.2 Recent Developments in the Use of Export Restrictions

For industrial raw materials the pattern of supply and demand itself has also changed over time. For decades, main demand for industrial raw materials was driven primarily by industrial growth in the developed economies. However, since the early 2000s accelerating economic growth in emerging countries like China, India and Brazil has increased global demand for raw materials[8].

As it can be seen in Figure 1, the same developments can be observed in metals sector, where the increased




Note: The minerals covered are: bauxite and alumina and copper ores and copper blister and anodes. The metals are: aluminium, refined copper, refined lead, refined nickel, refined tin and refined zinc.

**Figure 1.** Global exports of non-ferrous minerals and metals (in mil. tonnes).

**Source:** World Metal Statistics[9].

global demand has contributed to a significant expansion of international trade. Indeed, according to the World Metals Statistics[9] export volumes in metals and minerals increased from 2007 to 2013 from 107,883 to 183,901 mln tons constituting a raise of 41%.

However, the issue of export restrictions has a major impact on trade in metals and metals pricing. According to the OECD Inventory[1], seven per cent of the 2012 total gross trade value of minerals and metals were subject to export restrictions in 28 countries.

Several factors make concerns about restrictive export policies in metals sector even more acute. The first is that natural resources of metals are not distributed equally between the countries. As a result, only few of them produce metallic raw materials. Thus, it is very common that world production of metals is dominated by a few exporting countries trading with many importing countries. For example, while nickel is mined in at least 30 countries, zinc in 40 countries and silver in more than 50 countries, global supply of other minerals is concentrated in a small number of countries[10]. Thus, 79% of rhodium world production is concentrated in South Africa. China accounts alone for 95% of world production of rare earth minerals, 87% of antimony and 84% of tungsten. Some 60% of chromium production, used mostly by chemical and metallurgical industries, was produced in South Africa and Kazakhstan, which together account for 99% of all currently known chromite reserves. Figure 2 demonstrates the production of some metals world-wide[11].

Another factor which increases concern about restrictive export policies is that in many production cases there are few or no substitutes available for certain metals, which makes other countries dependent on imports of certain metals. For example, for many high-tech applications metals such as cobalt, platinum, rare earths and titanium are indispensable. Though often needed only in tiny quantities, these metals are increasingly essential for the development of technologically sophisticated products in view of the growing number of their functionalities. Hydrogen-fuel based cars require platinum-based catalysts. Electric-hybrid cars need lithium batteries and rhenium super alloys are a vital input for modern aircraft production[12].

These two factors help to explain why the impact of export restrictions in metals sector is usually very large and extensive.

## 2.3 Economics of Export Restrictions

As noted earlier, mineral deposits are often concentrated in few countries as well as metals production. Therefore, countries exporting minerals and metals are often "large" in relation to the world market. It means, when a producing country uses an export restriction, world market prices are affected. The effect of imposing an export tax by a large country is well described by the Figure 3 representing consequences for domestic and world market.

Indeed, Figure 3 (left) demonstrating development of domestic markets shows that imposition of an export tax will lower the domestic price. In this case it will be beneficial for domestic consumers to use the metal or mineral in question as an input in their production process. The rectangle *a* represents the government revenue after the tax has been implemented. Figure 3 (right) demonstrates the consequences for the world market. Indeed, in case of a large country implementing an export tax the world price will go up, reaching the level of domestic country's

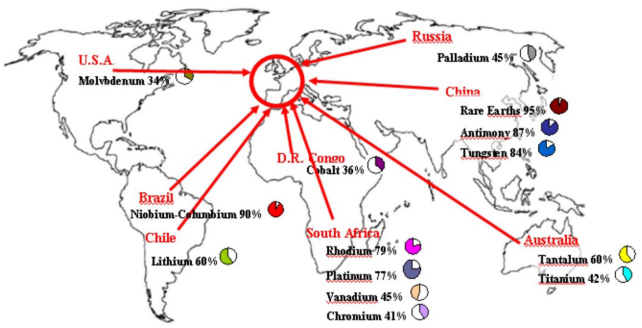



**Figure 2.** Metals world-wide production.

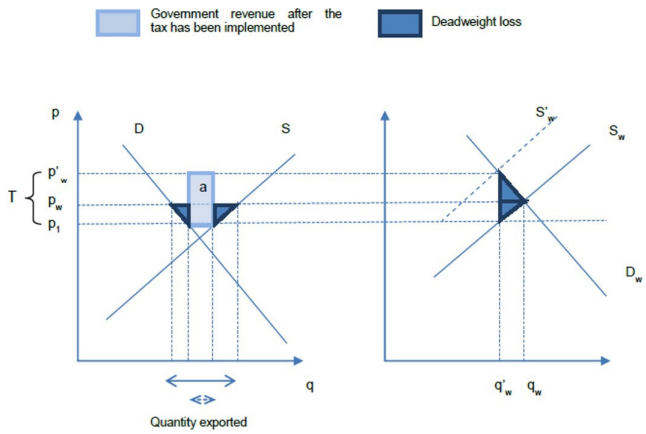



**Figure 3.** Impacts of export tax imposition.
**Source:** Natural resources and non-cooperative trade policy[14].

price including export tax value. It will clearly mean losses for the world market consumers which will be slightly offset by trade gain of foreign producers.

Thus, it is clear that export restrictions have a re-distributional effect on the welfare of the country which introduces such a measure. This policy actually gives an advantage to downstream consumers that are using the metal or mineral in question. In this way the production of downstream consumers is in better conditions than the production of foreign consumers. This theoretical conclusion is confirmed by practical examples. For instance, after introduction of Indonesian controversial export ban on metals, many multinational companies took the decision to build domestic smelters in Indonesia. Indeed, Indonesian government confirmed that soon after introduction of export ban over 60 companies have begun – or have provided assurances of their intention – to build domestic smelters in order to be able to export processed minerals[13]. Another example is metal scrap restriction that has been introduced by South African authorities in 2013 with the objective to fight illegal trade. In the article that describes the positive effects of the new system has been noted that South Africa's "downstream manufacturing sectors, including automotive manufacturing, car parts, batteries, valves, pumps, taps and many more"[14]… will also benefit of this new measure.

Speaking about the negative consequences, it is important to note that the raw material production in the country introducing export restrictions is discouraged and employment and wages may fall in the sector[15].

One should also not forget about the effect related to the elasticity of demand. As noted by another researcher[16] in the case of high elasticity, welfare losses can be greater. However, if we take a mid-long term perspective, countries that are experiencing difficulties to export restrictions might decide to invest in new resource-substituting or resource-saving technologies. In this case the demand for the metal or mineral in question may also shrink in long run.

## 3. Discussion

Considering that export restrictions can have a significant impact on trade in metals, here we would like to explore the main benefitting effects for a country imposing export restrictions as well as possibility of counter-actions that can be used by importing countries in order to offset the negative effect on their production.

Firstly, export restrictions on metals and minerals can favor the production of downstream industries of a country imposing this measure. Especially, it can happen, if a metal is rarely available and its input cannot be easily substituted. The advantage of having access to a cheaper raw material can be of significant benefit when considering a downstream user that processes the raw material directly. For example, a smelter transforms ore into metal. In this case export restrictions introduced on raw material can extensively subsidize downstream industries of a country. From another perspective, this measure can undermine the situation of raw materials producers of a country imposing export restrictions. If policy makers consider that producing raw materials is a less important priority than developing domestic downstream production, this argument may not be of particular concern. For example, due to export ban on aluminum and copper scrap, many raw materials companies in Turkey have been closed. However, Turkish based smelters have been better off than their foreign competitors having an excess to undistorted and cheap raw material.

Secondly, a significant number of countries use export restrictions to generate government revenue. In the short or mid-run it can be an advantageous policy. However, a lot depends of the reaction of importing countries. If the latter decide to look for alternative sources of supply, the global demand might drop. As a result, the government revenue of a country imposing an export restriction might fall as well.

Thirdly, it is well known that trade in certain metals can be a subject of illegal activities. Introduction of export restrictions can be used as a measure to control export flows. For instance, in 2011 in response to illegal mining of its antimony resources, Chinese government closed around 100 illegal and unlicensed mines[17]. This measure led to a sudden and sharp increase of the global price for this metal.

Last but not least, export restrictions on metals can help to preserve exhaustive natural resources. Indeed, companies may have incentives to invest in more resource-efficient technologies and extract minerals more efficiently. Certainly, there are certain limits of resource-efficiency that can be introduced; therefore, the level of extraction can be lowered in the mid-long run. However, it is not always the case. For example, as it has been described above, an export restriction on metals scrap from South Africa has been introduced due to environmental concern. Another objective was, however,

to develop local downstream industry that benefits from cheap and available metals supply. Despite the imposition of the restrictive measures for environmental reasons on Chinese export of molybdenum in 2007, the statistics showed that to the opposite the Chinese production of molybdenum has risen continually since 2004 and even more dramatically since 2007 when the export quota was implemented[18]. However, this example can also show that the country might simply use different objectives as officially announced.

Discussing the strategies of the countries imposing export restrictions on metals, it is important to consider what can be the counter-policies of importing countries that do not have developed domestic production of the metal in question, but need to import the product for a downstream industry input. As has been demonstrated earlier, these countries will be affected as prices for metals under export restrictions will raise.

In order to find a solution, downstream industries of these countries can invest in resource-efficient technologies. It may be also of good strategy for the state to promote research into alternative technologies aiming to substitute and/or diversify set of metals as input in strategic industries. Development of recycling related technologies can play an important role in facilitating access to metals.

Furthermore, this issue can be brought to the multilateral level of discussion. This strategy is actively developed by the European Union, who brought the mandate to negotiate the issue of export taxes at the WTO's Doha negotiating level. In some other cases positive ruling of the WTO Dispute Settlement mechanism can change the policy of a country imposing export restrictions. For instance, after the ruling in Rare earth case China complied with all obligations, which reduced the pressure level at the rare earth market[19]. In addition, in response to a WTO ruling in May 2015, China dropped its export taxes on germanium and indium, the latter of which has been under pressure due to incidents of fake trade. It subsequently replaced the export tax with purchasable export licenses covering a total of 158,000 tons[20].

Furthermore, the importing country can implement policies in order to facilitate exploration of new sources of metals locally or in regions that are potential exporters. For example, one of the impacts of the restricted Chinese export of rare earth has been a rush to develop rare earth capacities in countries that have it[21].

Another solution might be to reduce or eliminate any import tariff of a metal that is subject to export restrictions. It will offset the negative effect the import restriction will have on the price and downstream consumers of the importing country.

## 4. Conclusions

Since the early 2000s accelerating economic growth in emerging countries has increased global demand for raw materials. Despite raising globalization trends there is an increasing tendency to regulate export and import flows by implementing export restrictions.

Export restrictions in metals sector accounts for a very significant share. In addition, several factors make restrictive export policies in metals sector even more critical. The first is that there is not equal geographic distribution of natural resources between the countries. As a result, for certain metals there are only few producers world-wide. Another factor which increases concerns about restrictive export policies is that in many production processes there are few or no substitutes available for certain metals. This makes importing countries totally dependent on imports of certain metals.

As well demonstrated in the article, export restrictions can be used in many different forms, however, all these measures have one common feature: in case of metals their application can significantly affect trade volumes and strike trade balance among metals users and suppliers.

As the legal analysis has shown, WTO rules do not have clear provisions on all categories of export restrictions. In particular, there are no provisions related to export taxes. The issue of export restrictions has been discussed in multilateral rounds since drafting the GATT Agreement in 1947. Yet, even during the last WTO Doha Round WTO members did not agree to negotiate progress further.

The economic analysis demonstrated that export restrictions have a re-distributional effect on the welfare of the country which introduces such a measure. This policy actually gives an advantage to the downstream consumers that are using the metal or mineral in question. To the contrary, it undermines conditions of the raw materials producers. In global terms it will evidently mean losses for the world market consumers which will be slightly offset by trade gain of the world raw materials producers.

Analyzing practical examples in global trade of metals, the authors concluded on the main benefitting effects for a country imposing export restrictions. Among those are:

- Export restrictions on metals and minerals can favor the production of downstream industries of the country imposing a restriction.
- A country can use export restrictions to generate government revenue.
- Introduction of an export restriction can be used as a measure to control export flows and to fight illegal trade activities.
- Export restrictions on metals can help to preserve exhaustive natural resources.
- Certainly, also an importing country might introduce several counter-policies that reverse the effect of export restrictive policies on their economies. The authors provide several suggestions that can effectively offset negative effects. The main proposals include:
- Investing in resource-efficient technologies.
- Promoting research into alternative technologies with aim to substitute and/or diversify set of metals as input in the strategic industries.
- To bring the issue of export restrictions to the multilateral level of discussion or to address directly within the WTO dispute settlement mechanism,
- Importing country can also implement policies in order to facilitate exploration of new sources of metals locally or in the regions that are potential exporters,
- In addition, it might be suggested to reduce or eliminate any import tariff of a metal that is subject to export restrictions.

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