Politická ekonomie
2023, Volume 71, Issue 4
https://doi.org/10.18267/j.polek.1393
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VŠE / PRAGUE UNIVERSITY OF ECONOMICS AND BUSINESS

Insights into the Political Economy of Protection: The Case of International Trade in Agricultural Goods

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Abstract

In most cases, the rules of the game in international trade are shaped by political economy, but this interplay is more noticeable in politically sensitive sectors such as agriculture. The balance between domestic political interests and the considerations concerning international relations changes over time in response to the joint action of a variety of factors, and this is mirrored in the multilateral trade regime governing this sector. Combining a broad set of empirical evidence available at the international level, this paper aims to capture the pattern of tariff and non-tariff protectionism in the global agricultural trade. The investigation leads to some stylized facts emerging from the selected data and provides interesting conclusions on the behaviour of governments in the equation of balancing domestic interests with the need for international collaboration. The pattern of protectionism in international trade in agricultural products is tariff--based, with a tendency towards softening of this protection in both developed and developing economies. Tariff protection is accompanied by a much lower level of non-tariff protection, where the most frequently used instrument is sanitary and phytosanitary standards, for reasons dictated partly by the specific nature of the sector.

Keywords: Protectionism, agriculture, tariffs, non-tariffs measures, trade

JEL Classification: F10, Q17, P45

Citation: Kicsi, R., Burciu, A., Buta, S., Bostan, I., Stanciu, P. (2023). Insights into the Political Economy of Protection: The Case of International Trade in Agricultural Goods. *Politická ekonomie*, 71 (4), 447–472, https://doi.org/10.18267/j.polek.1393

1. Introduction

Over centuries, governments have intervened in trade flows for reasons dictated either by the imperatives of developing certain sectors of their national economies, or to ensure domestic demand for certain products, or under pressure from interest groups, or for strategic reasons. The historical roots of protectionist systems go back to the "protectorate", which was a specific form of organization found in the territories conquered by the Roman Empire; with the emergence of economic nationalism in the Western world, the spirit of protectionism also crossed over into the economic landscape via the principles of mercantilism (Kicsi, 2013). The following pages of history record a steadily evolving pattern of protectionist measures.

During the post-war era, there were obvious developments in the liberalization of international trade flows (Kerr, 2010; Krpec Hodulák, 2012). Many restrictions were inherited from the Great Depression of the early 1930s and the Second World War, a time that was viewed as a dark age not only for the international trading system but for the entire world economy (Baldwin, 2006; Evenett, 2019).

Despite these efforts at liberalization, protectionist temptations have not vanished; on the contrary, over the decades they have sharpened, triggering a series of trade conflicts in which developed economies have been the most important players. Rising against the wave of economic disturbances such as the collapse of fixed exchange rates, the oil crises, the economic development of major countries and emerging markets in the Asia-Pacific (Gilpin, 2000; Kerr, 2004), the new protectionism has resulted in measures other than the traditional ones, becoming more veiled and more difficult to identify; these often took the form of administrative decisions, technical safety rules, health rules, *etc*., supposedly aimed at guaranteeing consumer health, national security, counteracting unfair trade policies, *etc*. (Burciu *et al*., 2010; Bednář, 2019).

One of the strongest arguments put forward by advocates of protectionist policies and, with some reservations and in some contexts, even by the free traders, is that of infant industries. Under Article XVIII of the GATT (1986), recourse to protection or other measures affecting imports is justified by economic development policies aimed at raising living standards. Contracting parties must be given additional facilities to maintain flexibility in their tariffs so that they are able to provide the protection required by the establishment of a particular industry. Beyond a strong intuitive appeal, many economists find this argument convincing because it does not conflict with the principle of comparative advantage but, on the contrary, allows it to be valued and, consequently, to allocate resources efficiently. Protecting vulnerable or underdeveloped sectors thus seems right and even sensible (Dunn and Mutti, 2004). Despite an apparent consensus with common sense, there is still a lot of discussion surrounding the difficulties of designing and implementing policies to protect emerging or strategic sectors (Samuelson and Nordhaus, 2010). Firstly, if protection is granted to sectors that are erroneously selected a priori, then the cost to society can be heavy; this

is because tariff protection by its very nature entails a social cost as the prices paid by consumers on a protected market are higher than on a free market. Brazil's attempt to stimulate its domestic computer industry by banning the import of most foreign-made computers under legislation introduced in 1984 is eloquent in this respect. As well as being unable to keep up with global developments in technology, the products were much more expensive than if they had been imported, which clearly contradicts the principle of comparative advantage. The high price of computers also affected the competitiveness of other economic sectors, which, combined with other factors, led the government to abandon this philosophy of economic development (Samuelson and Nordhaus, 2010). Of course, there are also examples of countries confirming that protection of emerging sectors makes them successful, Japan being one of them (Koshiro, 1986). Another problem is that protectionist policies, initially intended to be temporary, raise the temptation towards permanence and very often protect sectors with no future (M. Friedman and R. Friedman, 1990).

It is therefore natural to question the arguably exceptional nature of protectionism in the agricultural sector. The presumption that agriculture is a special sphere of influence for interest groups in developed economies had led to the dominance of case studies from these economies in most of the research, studies that showed that interest groups in agriculture, given their vulnerability, were able to maintain the protection they enjoyed much more effectively than those in manufacturing (Thies, 2015). The trade-off between domestic policy concerns and international relations issues changes over time as a result of a number of forces such as the geopolitical context, the market situation in agriculture, the relative power of domestic policy makers and the paradigms shaping agriculture and food policies. Consequently, the multilateral trade regime affecting the agricultural sector has experienced considerable transformation in the last decades of the 20th century and the first decades of the 21st century (Tangermann, 2017). This is also due to the fact that structural changes in world agricultural trade impose new challenges and opportunities especially on developing economies in their efforts to redress their balance of payments and develop export-oriented agricultural sectors (Zhang, 2016).

In this context, this paper aims to capture an insight into the transformations that have shaped the pattern of protectionism in world agricultural trade flows over the last decades of the 20th century and the first decades of the 21st century. The literature is still rather lacking in providing aggregate pictures of the evolution of tariff and non-tariff protectionism in the agricultural sector at the global level and within categories of economies (developed and developing), which opens up a research niche where our paper is focused. Combining an extensive set of empirical evidence, such cross-country research expands the area of knowledge and draws valuable conclusions on the behaviour of governments in the equation of balancing domestic interests with the need for international cooperation.

The paper is further structured as follows. Section 2 reviews a number of important contributions to the development of the relevant literature. Section 3 describes the research design and

Section 4 discusses some stylized facts to which the empirical analysis pointed. Finally, Section 5 outlines some conclusions and possible future research avenues.

2. Literature Review

2.1 Theory of protectionism in brief

Although free trade is advocated in the liberal tradition as the best policy of a country for foreign economic exchange (Smith, 1776), in practice trade has never been conducted free of restrictions of one kind or another, whether by more obvious or more veiled and difficult-to-perceive measures.

The theory of protectionism has its roots in the well-known *Report on Manufacturing* (Hamilton, 1791), historically acknowledged as an early articulation of the thesis of modern protectionism aimed at industrializing the nation (Bairoch, 1995; Magnuson, 2006) based on the infant industry argument, in support of which it explicitly proposed economic policy measures. The idea of an American system built on a critical approach and effective protection of infant industries, but at the same time consistent with Smith's principles, was further developed by Carey (1852) and Patten (1890). In Europe, the National System of Political Economy (List, 1841) triggered an impact in protectionist circles similar as the Wealth of Nations had on the pro-liberals (Irwin, 1997). The Listian argument was intrinsically rooted in the ideal of the economic development of the nation, and a key role in the concept of List was assigned to the customs system, as an instrument of protection, with the exclusive role of industrial education of the nation. In other words, protection is legitimate and effective only in the case of industry, since restricting imports of raw materials and agricultural products would affect the development of the industry; moreover, the development of agriculture is fostered by the establishment of a domestic industry. In the same vein, J. S. Mill (1848) advocated the use of protectionist tariffs, especially in the case of developing nations, in order to naturalize a foreign industry, perfectly suited to the particular conditions of that country.

In the interwar years, the theoretical corpus dealing with the mechanisms of the international economy was substantially enriched by the contribution of Mihail Manoilescu and the viewpoint from which he approached the issue of international trade. The impact of Manoilescu's ideas in the developing world, and especially in Latin American countries, can be explained primarily by the fact that they responded to the realities they faced, unlike the classical and neoclassical theory of international trade, which was more in accordance with the imperatives of the industrialized West (Todosia, 1986). While falling within the same thematic repertoire, Manoilescu tackled the issue of protectionism from a different point of view than Friedrich List and other protectionists (Manoilescu, 1986; Pohoață, 2007). He grounded his theory of protectionism in the question of labour productivity. Manoilescu's protectionist system, unlike that postulated by

List, also extends to agriculture, by virtue of the same productivity criterion; Manoilescu believed that agricultural sectors with high labour productivity, similarly to industrial sectors, must also be supported by protectionist measures in order to ensure their continuity.

International trade is, by its very nature, an area where regulation causes conflicts of interest; consumers want to enjoy the benefits of free trade, while producers want to restrict trade to protect themselves from foreign competitors. The state, through its own mechanism of function, is a potential threat to any sector; with its power to prohibit or coerce, to give or take money, the state can help or hurt many sectors of the economy. The only way the state can raise funds, allowed by the laws of a civilized society, is by taxation (Stigler, 1971). However, this power makes it vulnerable to interest groups that would seek to exploit this state power so as to maximize their own benefits (Grossman and Helpman, 1994). Moreover, protectionist tendencies in a majority system extend beyond tariffs, as manifested in many forms today (Rickard, 2012).

2.2 Agricultural protectionism

The modern academic discourse on agricultural protectionism is dominated by a number of fundamental and driving themes, complemented, especially in recent decades, by several niche and emerging themes, suggesting that this area of knowledge is still seeking its own distinct physiognomy.

Essentially, the fundamental themes are related to international trade and agricultural protectionism in general and the outcomes/effects of intervention policies on agriculture.

The introduction of agriculture on the negotiating agenda in the Uruguay Round and the transformations in the international regime applicable to agricultural products after this round have set the scene for a fervent debate on the emergence of a new style of protectionism, legitimized by health, environmental or ethical considerations. In this context, Mahe (1997) anticipated that, as the importance of processed food products in the agricultural trade was increasing, and as consumer expectations regarding health, environmental, ethical and hedonistic attributes were rising, information on the intrinsic characteristics of these products, as well as on production methods, would become increasingly important in international negotiations. Coupled with this was the belief that failures of the free market mechanism, such as imperfect competition, information asymmetry, risk and uncertainty, high transaction costs, *etc*., need to be corrected through a sophisticated legal system and public intervention. Likewise, Campbell and Coombes (1999) qualified the results of the Uruguay Round as contradictory because, while the Agreement on Agriculture led to tariffication, *i.e.*, reductions in tariffs and other variable duties, it provoked major nations to extend also to agriculture the informal barriers framed in environmental and health language (so-called green protectionism), which had previously affected only industrial goods.

In the early 2000s, the renegotiation of the Agreement on Agriculture raised the question

of amending it to include "non-trade concerns" and the opportunity to preserve support measures if they have positive effects on other sectors. Within this framework, the multifunctionality of agriculture has become a key policy concept in the negotiations on agriculture, setting the ground for an ongoing debate on the non-trade aspects of agricultural trade liberalization and the extent to which it is justified to undermine the GATT rules in the interest of domestic policy considerations (Potter and Burney, 2002; F. Smith, 2000). While it is widely accepted that agricultural production results in both positive and negative externalities, the discourse on multifunctionality often focuses on the public benefits of agriculture or of certain approaches to farming or farm management, becoming intrinsically related to support for agriculture (Dibden and Cocklin, 2009). It is not surprising, therefore, that this concept of multifunctionality has been presumed to underpin a veiled protectionism and that, in the second half of the 20th century, agricultural protectionism was an expression of a manner of fostering the multifunctional roles of agriculture (Moon, 2010). In the USA, the term is seldom explicitly accepted, but rather the term farmland conservation programme is preferred to label policies designed to assist agricultural producers in generating public benefits related to farmland, which nevertheless suggests an implicit acceptance of the idea of multifunctionality. However, the EU has widely used the conceptual framework of multifunctional agriculture, as well as the European model of agriculture, to justify subsidies. Moreover, over time, preferential trade agreements have progressively incorporated standards that do not directly address the trade issues, the motivations varying from protectionist concerns to political institutions and levers of power (Grossman *et al*., 2021; Lechner, 2016; Montanari, 2007).

Despite agreements negotiated under the auspices of the GATT and the WTO, today the levels of protectionism are much higher in agriculture than in industry, coupled with other domestic support instruments such as subsidies, which distort the pattern of international trade, the allocation of factors of production and the distribution of income (Disdier *et al*., 2008). This protectionist behaviour and the longevity of WTO membership also triggers numerous international trade disputes in this sector, which manifests itself as another of its peculiarities (Anderson, 2010a; Götz *et al*., 2010).

The driving themes, well developed and highly relevant to the structure of the research area, focus on the problematics of food standards and food sustainability as legitimating sources of current agricultural protectionism.

When discussing food standards, the literature generally distinguishes between three main types that stem from the consumers' concerns (Brom, 2000; Swinnen and Vandemoortele, 2009). The first type covers issues of concern to all consumers, with food safety being a key element. The main purpose of food safety standards is to provide consumers with food that is safe for their health. The second type is quality standards which are not aimed at safety, but are of particular interest to certain categories of consumers and may be linked to personal lifestyle choices. Both types of standards have an impact on producers' profits and consumers' expected utility. The third

category relates to public standards that govern social and environmental issues by virtue of a society's ethical values; they affect producers' profits but have no effect on consumers' expected utility. Illustrative examples of these are the ban on the use of child labour and limiting carbon dioxide emissions in the production process. Following this conceptual framework, Swinnen and Vandemoortele (2009) reason that the politically optimal level of different standards varies according to the impact on producers and consumers and the relative lobbying power of those affected by these standards. They characterize the connection between food standards and protectionism as complex and shaped not only by their nature, but also by potential disparities in implementation costs, production costs and compliance between domestic and foreign producers. The findings have been confirmed by more recent studies, which deepen the analysis and question the rationale for governments to adopt such standards and the nexus between protectionism and sustainability (Aranda *et al*., 2019; Carrère *et al*., 2018; Kareem *et al*., 2018; Mgeni *et al*., 2018; Tyson and Meganingtyas, 2022).

One of the most visible features of economic development is the relative decline of the agricultural sector and of its contribution to the value added in national economies. When discussing the main drivers of change in the global agricultural sector in recent decades, some of the literature shows that the international position of the sector, *i.e.*, the net position of each country in international trade in agri-food products (net importer or net exporter) has also been affected by shifts in consumption patterns, productivity growth in agriculture relative to non-agricultural sectors and trends in government assistance to farmers compared to producers of other tradable goods (Anderson, 2010b; Serrano and Pinilla, 2012). The pace of globalization, resulting in a rapid decline in transaction costs due to the information revolution, lower transport costs, *etc*., has also altered the patterns of production, consumption and hence of trade in agri-food commodities. In this process of transformation, countries are concerned, on the one hand, about the sustainability of their supply chains and, on the other, about their vulnerability to price volatility, which might provide them with a greater incentive to protect their agricultural sectors (Garmann, 2014) or to alternate between import-oriented food security models and import substitution models to ensure food self-sufficiency (Smutka *et al*., 2016). However, a number of studies challenge the virtues of such macroeconomic policy responses, suggesting that during periods of stronger domestic food market protection, food inflation is more likely to occur, threatening the sustainability of supply and food security (Erokhin, 2017) and that policies aimed at boosting demand for certain products through discriminatory instruments against other products may be ineffective (Olabisi *et al*., 2021).

Amid the emerging holistic/multidimensional approach to food security under globalization and sustainable development goals, a growing suite of ethical principles complements the protectionist policy discourse, especially in developed economies. Despite efforts to harmonise agri-food systems with the free market logic, such ethical priorities dictated by food security and sustainability imperatives have fuelled a renewed interest in defining a normative basis for market regulation (Wilkinson, 2015).

Emerging themes are still underdeveloped and marginal, mainly covering issues of public and political support and attitudes towards agricultural protectionism.

Literature investigating public attitudes toward multifunctional agriculture reports that US citizens feel that the major roles of multifunctional agriculture are national food security and environmental services (Moon *et al*., 2017) and that they are in favour of protecting agriculture (Moon and Pino, 2018). In fact, previous studies have shown that the determinants of trade policy formulation relate to both producers and consumers, the latter being important players in the game of protectionism, especially in the agriculture of developed countries, which, as a paradox of development, tend to protect this sector more than developing countries (Weinberg and Bakker, 2012). The consistent and sustained public support for agricultural protectionism in developed economies still poses many questions for occupational and ideological approaches in researching trade policy preferences. In this respect, Naoi and Kume (2011) have concluded that consumers think similarly to producers about the issue of food imports by virtue of two mechanisms, namely sympathy for farmers and projection of their own job insecurity. The heterogeneity of individual preferences on trade policies is related to regional factors, namely the share of the population employed in agriculture; Ito *et al*. (2019) provide empirical evidence in support of this view, arguing that people living in regions with high proportions of agricultural workers are inclined to support import restrictions, even if they do not work in agriculture. More recent cross-disciplinary approaches even suggest a link among collectivist ideology, *i.e.*, political trust, and antipathy to imports, especially in Asian countries, even when these countries have strongly promoted socialist policies for transition and market opening (Tsai and Pan, 2022). Such regional factors also influence, via the public choice mechanism, the trade policy preferences of politicians, in the sense that electoral pressures divert politicians away from free trade goals (Horiuchi and Saito, 2010). In larger constituencies with a high proportion of the population employed in agriculture, election candidates are more likely to declare their support for protectionism (Ito, 2015). These findings reinforce the results of previous studies which have shown that when political competition increases, the average level of agricultural subsidies increases, and vice versa (Hee Park and Jensen, 2007).

The persistence of some forms of government support to agricultural producers has become a clear feature of the agri-food sector in developed countries, although economic theory converges on the idea that, on the one hand, at the national level, the costs of these forms of support are passed on to consumers, while the benefits reach a small segment of society, and, on the other hand, at the international level such protection mechanisms affect free competition and the growth opportunities of developing countries. The characteristics of the institutional system, reflected in variables such as the nature of constituencies, the number of key institutional actors, the fragmentation of the political spectrum, *etc*., complement economic factors and explain the origins of agricultural protectionism and its persistence in developed countries (Thies and Porche, 2007). However, as Trebilcock and Pue (2015) argue, it is rather difficult to establish whether the regulatory rationales commonly invoked to justify the exceptional character of agriculture are applicable

only to this sector; moreover, even if this exceptional character is accepted, the policy instruments used by governments often do not seem to be the most effective, especially if one considers the rather high costs passed on to consumers.

However, in international trade the rules of the game are a matter strongly linked to the political economy in any sector, but this connection is more noticeable in the agricultural and food production sectors, which have always been extremely politically sensitive (Tangermann, 2017). The political power of the agricultural sector in most countries stems from a mixture of factors such as misguided efforts to alleviate rural poverty, consumer fears of possible food shortages, political efforts to offset the radical approaches of many municipal bodies, bureaucratisation and, last but not least, the near-universal propensity of policy-makers to support domestic politics at the expense of international relations when choices have to be made (Hillman, 1980).

The thematic agenda of agricultural protectionism is rounded off by several niche themes, which, although tangential to the field, address topics of concern, the most clearly articulated being the issue of biodiversity conservation and the use of biotechnology in agriculture.

Biotechnology is still a controversial topic. On the one hand, its virtues in supporting increased productivity and efficiency in agriculture and the potential benefits to producers and the environment are acknowledged, but on the other hand, concerns are still expressed about product quality and potential impact on human health, especially in Europe (Torgersen, 2002). Based on the observation that the input of genetically modified ingredients in food cannot be identified either before or after purchase, the literature points to the emergence of a potential pitfall arising from information asymmetry, of the type of the famous "lemon" market (*i.e.*, the bad cars) explained by Akerlof (1970). He addresses the nexus between quality and uncertainty and concludes that trust is an essential element in economic models and that informal written guarantees are preconditions for trade and production, and where these guarantees are vague/undefined, business will suffer. By virtue of the same mechanism, if food products containing GM inputs can be produced at lower costs, there is a risk that they will prevail, despite consumers' desire to buy products that do not contain such ingredients. Mandatory labelling schemes combined with domestic restrictions on GM crops could therefore lead to an increase in overall welfare in many cases, while trade bans would reduce overall welfare in many cases (Eggert and Greaker, 2011).

At the same time, international trade has become a vehicle for the spread, often unintentional, of invasive species, including agricultural pests and diseases, which can pose a risk to agricultural productivity, the economy, the environment and the ecosystem equilibrium, which is why the literature considers them to be market failures correctable by the enforcement of protective measures, tariff or non-tariff, when there is no possibility of eliminating the risk of invasion. Such measures, originally legitimate, can turn into disguised protectionism, since public policies designed to control such situations are susceptible to pressure from interest groups, resulting in import tariffs that go beyond what is considered socially optimal (Margolis *et al*., 2005). Phy-

tosanitary problems affect the commercial value of products and consequently imperil the development and trade of many developing exporting economies because many importing countries, especially in Europe and America, impose much stricter standards than those prevailing internationally (Youm *et al*., 2011). Often, the use of biosecurity restrictions as veiled protectionist options is quite difficult to highlight because it requires an assessment of anticipated harms and risk preferences, which differ across countries, coupled with heterogeneous standards and inadequate information. Lawley (2013) provides empirical evidence of the protectionist use of border inspections in the USA and also evidence suggesting that the extent of border inspection of certain vegetable imports into the USA responds to terms-of-trade considerations consistent with the fact that these imports are perishable and that the USA covers a significant share of regional trade in these products. Each nation has the right to set its own sanitary and phytosanitary standards based on scientific data, and such differences have the potential to complicate trade. In addition to this, there is also a grey area of sanitary and phytosanitary (SPS) measures that can be manipulated for political interest, with importing nations being able to impose such measures under the precautionary principle even in the absence of evidence of risk. In this context, scientific progress towards improving the capacity and accuracy of commodity testing and genomic diagnostics offers importing nations the opportunity to apply sanitary and phytosanitary standards as a form of veiled protectionism, a situation that can be balanced by the willingness of exporters to apply such tests before the goods enter the foreign supply chain (Gleim *et al*., 2020). However, the application of protectionist measures in the name of ecosystem security, as in other circumstances, results in equivocal effects and is likely to harm consumer welfare above all (Lichtenberg and Olson, 2020).

3. Research Design

In order to capture the pattern of protectionism in international trade in agri-food commodities, we conducted longitudinal quantitative descriptive research. In line with the literature (Dulock, 1993), this research provides a systematic description of trends in the evolution of agricultural protectionism over a long period of time, profiles the features of this phenomenon and the cross-country disparities by tracing the central tendency, variability and frequency with which it occurs, and observes and documents the protectionist behaviour of the world's countries. Given the nature of this research, there is no manipulation or control of the variables and there is no focus on determining any causal relationships. The desired result is to advance the knowledge foundation from which hypotheses and causal relationships can be identified and tested by further studies.

In the related literature, protectionism is often identified from the use of import restrictions; the formal definitions of protectionism, which are quite few, however, point out that these restrictions are mainly concerned with the import of goods and tend to refer to some type of policy intervention, namely taxing imports (Evenett, 2019a). However, protectionism can no longer be understood solely as policy intervention such as taxation; governments use quite an extensive array

of measures to favour domestic producers and discriminate against the commercial interests of foreign entities. Non-tariff measures (NTMs) are policy measures, other than regular tariffs, that can have an economic impact on international trade in goods by changing the quantity of goods traded and/or prices (UNCTAD, 2022). Traditional measures such as quotas and price controls are designed to influence trade, while technical measures, such as sanitary and phytosanitary standards and technical barriers to trade, are mainly aimed at protecting health, safety and the environment.

Two broad categories of measures are covered in this research, namely tariffs as applied under the most-favoured nation (MFN) regime during the period 2005–2020 and non-tariff measures applied to agricultural products during the period 1994–2020. The analysis was carried out at two levels, namely at the global level and across economies based on their development status (as classified by UNCTAD).

Both categories of data are reported by the World Trade Organization, which collects and provides complex country-specific data over extended time periods concerning government interventions in the form of tariffs on trade flows, sectors affected, number and categories of measures implemented, *etc*. The WTO Integrated Statistical Information Portal also provides information on non-tariff measures applied by WTO members in trade in goods (agricultural and non-agricultural); it lists the main categories of measures implemented, the countries imposing them, the products subject to them, *etc*. The main protectionist instruments (tariff and non-tariff) and related information are described in Table 1.

Table 1: Data description

Variable/description	Detailed query	Source
MFN agricultural products simple average duty (percent)	Reporting countries	WTO STATS (WTO, 2022b)
Non-tariff measures	Number of measures Reporting countries	
Anti-dumping	Number of measures Reporting countries	
Countervailing	Number of measures Reporting countries	
Safeguards	Number of measures Reporting countries	
Sanitary and phytosanitary	Number of measures Reporting countries	Integrated Trade Intelligence Portal (WTO, 2022a)

Source: Authors' own elaboration

Typically, the limitations of descriptive models tend to limit the generalizability of the data. In this case, the lack of generalizability of the data is minimized by covering as many countries of the world as possible for which data were available. The disparity between the spans of time for which the available data were collected might be seen as another vulnerability. As mentioned above, the agreements negotiated in the 1990s and early 2000s led to a tariffication, *i.e.*, a conversion of non-tariff measures into bound tariffs, which may explain the availability of much more comprehensive data on tariffs applied in international trade in agricultural products only since the 2000s. However, descriptive research provides overall means and information on the distribution of variables in relation to these means, which are the most reliable measures of the central tendency, respectively of the variability, of a distribution and have the highest stability.

Combining an extensive body of policy interventions over the past decades, systematically identifying tariffs and non-tariff measures that have been implemented, we aim to develop a comprehensive insight into how protectionism has been featured in international agricultural trade.

4. Results and Discussion

This section discusses a series of stylized facts emerging from selected data on the use of tariffs and non-tariff measures in international trade in agricultural products, especially in the first decades of the 21st century.

The first stylized fact that results from the data examined is that the main instruments of protection are of a tariff nature. This can also be explainable by the provisions of the agreements negotiated and adopted within the WTO. The original GATT agreement also covered trade in agricultural products, but its content allowed the contracting parties to intervene in imports through non-tariff measures such as quotas or to subsidize exports. Trade in agricultural products was distorted mainly by export subsidies, which were not normally allowed for industrial products. The new agreement, launched in 1995, established new rules on market access, governed by the principle of the prevalence of tariffs.

However, the Agreement on Agriculture does not preclude the application of non-tariff measures on imports under GATT or other WTO agreements applicable to traded goods in general (industrial or agricultural). Such measures include those imposed under balance of payments provisions, general safeguard provisions, general exemptions, the Agreement on the Application of Sanitary and Phytosanitary Measures, the Agreement on Technical Barriers to Trade or other general WTO provisions not specific to agriculture (WTO, 1995).

Considering tariff protectionism only, a second stylized fact emerges, namely a tendency for the average level of tariff protection to decrease. Thus, the data in Table 2 show that, globally, the central pattern has been a reduction in the level of tariffs applied under the MFN regime by all countries of the world, albeit with an uneven distribution. The lowest level was applied by Hong

Kong, Singapore and Macao (0.2%), while very high levels, above the central trend, were applied by Egypt (over 66%), Korea (56.9% in 2016, with a relatively constant trend), and Norway (over 60%, with a downward trend in recent years). It is also notable that, although there is some downward movement, the maximum level of MFN duties is still high.

Table 2: Descriptive statistics of global picture of tariffs applied to agricultural products under MFN regime between 2005 and 2020

	Statistics															
Year	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
N	25	164	130	126	120	113	126	164	129	125	130	120	117	164	130	84
Mean	19.94	11.74	16.45	15.92	15.09	15.05	15.57	10.93	14.31	14.50	15.00	14.68	14.58	10.48	14.91	13.62
Median	18.80	10.65	14.50	14.20	13.55	14.20	14.60	10.40	13.20	13.00	13.10	13.85	12.80	9.85	13.65	11.95
Std. dev.	12.80	11.56	10.61	10.74	9.43	8.61	10.18	10.69	8.46	9.52	9.76	9.55	9.85	10.53	9.87	8.69
Min	2.7	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Max	66.6	65.1	66.4	66.4	66.1	49.4	66.3	66.7	52.7	60.6	60.5	61	63	63	65	56.8

Source: Authors' own calculations

The next stylized fact emerges from the cross-country comparison (reported in Table 3), which suggests that, as regards the central tendency in tariff protection, there are no striking disparities between developed and developing economies, but there are large gaps between the maximum levels applied. It can be seen that the average levels of tariffs applied under the MFN regime in the two categories of economies are converging and are on a downward trend. In both categories, the distribution around the central trend is uneven, indicating large fluctuations from one country to another, but these fluctuations are slightly smoothed in the case of developing economies. One explanation may be linked to the fact that in developing economies, especially those with lower levels of development, agriculture, beyond being the main source of comparative advantage, continues to make an important contribution to the creation of GDP and therefore the interest in its protection is quite strong in all these countries. This observation is also confirmed by the more abrupt discrepancies noted between the maximum levels of tariffs applied in the two groups of countries. Thus, while in developed economies maximum tariff protection did not exceed 62% during the period under consideration (in the case of Norway in 2006) and is on a downward trend, in developing economies it has been almost constant at around 63–66%, the most protectionist countries being Cameroon (66.7% in 2018, although in the previous period it had averaged around 21%), Egypt (between 60% and 66% over the whole period) and Korea (56.8% in 2015).

Table 3: Descriptive statistics of tariffs applied to agricultural products under MFN regime by groups of economies (2005–2020)

	Developed economies							Developing economies						
	Mean	**Median**	**SD**	**Min**	**Max**	**Sum**	**Count**	**Mean**	**Median**	**SD**	**Min**	**Max**	**Sum**	**Count**
2005	16.87	14.20	5.24	13.50	22.90	50.60	3	20.36	19.15	13.53	2.70	66.60	448.00	22
2006	19.18	13.80	16.11	1.20	61.10	326.00	17	15.23	14.30	9.62	0.00	65.10	1599.30	105
2007	17.86	13.80	15.36	1.30	57.80	303.60	17	16.24	14.50	9.78	0.00	66.40	1834.90	113
2008	16.93	12.90	14.58	1.30	59.00	338.50	20	15.73	14.50	9.93	0.00	66.40	1667.30	106
2009	14.46	11.05	10.67	1.30	43.20	289.20	20	15.21	14.25	9.21	0.00	66.10	1521.20	100
2010	14.63	11.35	10.74	1.30	49.40	263.30	18	15.12	14.50	8.21	0.00	48.50	1436.80	95
2011	16.31	12.30	13.92	1.40	55.80	293.50	18	15.44	14.60	9.49	0.00	66.30	1667.90	108
2012	14.85	12.00	12.25	1.20	53.20	267.30	18	14.66	13.85	9.52	0.00	66.70	1524.50	104
2013	14.79	12.20	12.12	1.20	51.30	266.20	18	14.24	14.60	7.78	0.00	52.70	1580.20	111
2014	14.32	11.55	12.08	1.20	51.20	257.80	18	14.53	13.90	9.09	0.00	60.60	1554.70	107
2015	13.71	11.20	10.80	1.20	43.60	246.70	18	15.21	14.45	9.62	0.00	60.50	1703.40	112
2016	13.27	11.15	10.15	1.20	39.90	238.80	18	14.93	14.50	9.47	0.00	61.00	1522.50	102
2017	13.64	10.25	10.90	1.20	42.10	245.50	18	14.75	13.50	9.69	0.00	63.00	1460.60	99
2018	14.52	11.20	11.89	1.20	44.90	246.90	17	14.56	13.90	9.37	0.00	63.00	1471.00	101
2019	13.33	11.25	9.84	1.20	40.40	240.00	18	15.17	14.05	9.89	0.00	65.00	1698.50	112
2020	12.90	10.65	10.60	1.20	40.10	180.60	14	13.76	12.40	8.33	0.00	56.80	963.40	70

Source: Authors' own calculations

Within the WTO, it was agreed that the member countries with developed economies would reduce import tariffs on agricultural products by up to 36% over a six-year period starting in 1995 (with a minimum 15% reduction on each product), while developing economies committed to reduce tariffs by 24% (with a minimum 10% reduction on each product) over a 10-year transition period (WTO, 1995). Therefore, the data reported in the above table reflect the situation after the implementation of the provisions of the Agreement.

The picture is completed by the results of the frequency analysis, displayed in Tables 4 and 5, which leads to the fourth stylized fact, namely that on the global scale, most of the world's countries have resorted to moderate tariff protection, applying tariffs below 20%, regardless of the group to which they belong. The data in Table 4 also show an increasing trend in the number of countries that have reduced their tariff protection to the 1–10% interval. There still remain a small number of countries applying more incisive tariff protectionism (with levels above 40%).

Table 4: Frequency statistics of worldwide distribution of tariffs applied under MFN regime to agricultural products in 2005–2020

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bin	**Frequency**															
0	0	3	2	2	2	2	2	2	2	2	2	2	3	3	4	2
10	3	33	31	31	27	25	30	35	36	33	36	37	35	35	34	29
20	12	62	68	69	68	67	69	66	73	66	63	57	57	62	68	41
30	7	15	18	13	16	13	16	11	12	17	20	17	15	11	17	8
40	1	2	3	3	3	2	3	4	3	3	4	4	3	3	2	2
50	1	5	6	6	3	4	4	1	1	1	3	1	2	2	3	1
60	0	0	1	1	0	0	1	2	2	2	1	1	1	1	1	1
70	1	2	1	1	1	0	1	1	0	1	1	1	1	1	1	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Authors' own calculations

Across country groups, as noted above and as can be observed in Table 5, most countries focus on protection levels up to 20%, but in the group of developing economies the frequency of occurrence of protection cases above 20% is much higher than in the group of developed economies. At the same time, over most of the period covered, there is a steadiness in this distribution, with the exception of 2020, when there is a clear trend showing a shift of developing economies towards more moderate levels of protection, perhaps also due to the context of the pandemic crisis.

Table 5: Frequency statistics of distribution of tariffs applied to agricultural products under MFN regime by groups of countries in 2005–2020

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Developed economies																
Bin	**Frequency**															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	4	4	4	5	5	5	5	6	6	7	8	8	7	7	7
20	2	8	9	12	11	10	9	10	9	9	8	7	7	7	8	5
30	1	2	1	1	2	2	2	1	1	1	1	1	1	0	1	0
40	0	0	0	0	1	0	0	1	1	1	1	2	1	2	1	1
50	0	2	2	2	1	1	1	0	0	0	1	0	1	1	1	1
60	0	0	1	1	0	0	1	1	1	1	0	0	0	0	0	0
70	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Developing economies																
Bin	**Frequency**															
0	0	3	2	2	2	2	2	2	2	2	2	2	3	3	4	2
10	3	29	27	27	22	20	25	30	30	27	29	29	27	28	27	22
20	10	54	59	57	57	57	60	56	64	57	55	50	50	55	60	36
30	6	13	17	12	14	11	14	10	11	16	19	16	14	11	16	8
40	1	2	3	3	2	2	3	3	2	2	3	2	2	1	1	1
50	1	3	4	4	2	3	3	1	1	1	2	1	1	1	2	0
60	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
70	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Authors' own calculations

Table 6: Descriptive statistics of global situation of anti-dumping and countervailing measures on agricultural products in 1994-2020

	Anti-dumping							Countervailing						
Year	Mean	Median	St. dev.	Min	Max	Sum	Count	Mean	Median	St. dev.	Min	Max	Sum	Count
1994	0.05	0	0.22	0	1	3	62	0.04	0	0.20	0	1	1	24
1995	0.16	0	0.71	0	5	10	62	0.08	0	0.28	0	1	2	24
1996	0.11	0	0.41	0	2	7	62	0.08	0	0.41	0	2	2	24
1997	0.21	0	0.81	0	4	13	62	0.00	0	0.00	0	0	0	24
1998	0.27	0	0.58	0	3	17	62	0.13	0	0.34	0	1	3	24
1999	0.27	0	1.01	0	6	17	62	0.04	0	0.20	0	1	1	24
2000	0.37	0	1.10	0	8	23	62	0.00	0	0.00	0	0	0	24
2001	0.27	0	0.61	0	2	17	62	0.00	0	0.00	0	0	0	24
2002	0.47	0	1.08	0	5	29	62	0.00	0	0.00	0	0	0	24
2003	0.21	0	0.63	0	3	13	62	0.17	0	0.38	0	1	4	24
2004	0.27	0	0.75	0	4	17	62	0.13	0	0.34	0	1	3	24
2005	0.13	0	0.59	0	4	8	62	0.00	0	0.00	0	0	0	24
2006	0.19	0	0.62	0	3	12	62	0.00	0	0.00	0	0	0	24
2007	0.16	0	0.49	0	2	10	62	0.00	0	0.00	0	0	0	24
2008	0.10	0	0.43	0	3	6	62	0.04	0	0.20	0	1	1	24
2009	0.18	0	0.61	0	4	11	62	0.04	0	0.20	0	1	1	24
2010	0.05	0	0.22	0	1	3	62	0.21	0	0.51	0	2	5	24
2011	0.13	0	0.78	0	6	8	62	0.08	0	0.28	0	1	2	24
2012	0.08	0	0.27	0	1	5	62	0.00	0	0.00	0	0	0	24
2013	0.10	0	0.39	0	2	6	62	0.08	0	0.28	0	1	2	24
2014	0.16	0	0.61	0	3	10	62	0.13	0	0.45	0	2	3	24
2015	0.15	0	0.51	0	3	9	62	0.00	0	0.00	0	0	0	24
2016	0.19	0	0.60	0	4	12	62	0.13	0	0.34	0	1	3	24
2017	0.15	0	0.60	0	4	9	62	0.04	0	0.20	0	1	1	24
2018	0.29	0	1.09	0	6	18	62	0.29	0	0.69	0	2	7	24
2019	0.03	0	0.18	0	1	2	62	0.25	0	0.61	0	2	6	24
2020	0.02	0	0.13	0	1	1	62	0.38	0	0.88	0	4	9	24

Source: Authors' own calculations

Table 7: Descriptive statistics of global status of sanitary and phytosanitary measures notified and safeguard measures implemented on agricultural products in 1994–2020

	Sanitary and phytosanitary							Safeguards						
Year	Mean	Median	St. dev.	Min	Max	Sum	Count	Mean	Median	St. dev.	Min	Max	Sum	Count
1994	–	–	–	–	–	–	–	0.00	0	0.00	0	0	0	42
1995	–	–	–	–	–	–	–	0.00	0	0.00	0	0	0	42
1996	–	–	–	–	–	–	–	0.00	0	0.00	0	0	0	42
1997	–	–	–	–	–	–	–	0.05	0	0.22	0	1	2	42
1998	1	1	–	1	1	1	1	0.02	0	0.15	0	1	1	42
1999	–	–	–	–	–	–	–	0.07	0	0.26	0	1	3	42
2000	1	1	–	1	1	1	1	0.10	0	0.30	0	1	4	42
2001	–	–	–	–	–	–	–	0.21	0	0.42	0	1	9	42
2002	1	1	–	1	1	1	1	0.10	0	0.30	0	1	4	42
2003	1	1	–	1	1	1	1	0.07	0	0.26	0	1	3	42
2004	1	1	0	1	1	2	2	0.07	0	0.26	0	1	3	42
2005	1.33	1	0.58	1	2	4	3	0.19	0	0.40	0	1	8	42
2006	1	1	0	1	1	3	3	0.02	0	0.15	0	1	1	42
2007	4.05	2	5.41	1	24	81	20	0.02	0	0.15	0	1	1	42
2008	7.10	3	15.74	1	80	206	29	0.00	0	0.00	0	0	0	42
2009	6.65	2	12.33	1	56	153	23	0.07	0	0.26	0	1	3	42
2010	5.15	2	9.02	1	47	139	27	0.02	0	0.15	0	1	1	42
2011	1.76	1	1.56	1	12	167	95	0.00	0	0.00	0	0	0	42
2012	1.81	1	2.08	1	13	170	94	0.02	0	0.15	0	1	1	42
2013	1.98	1	2.00	1	16	208	105	0.02	0	0.15	0	1	1	42
2014	1.92	1	1.67	1	9	177	92	0.12	0	0.33	0	1	5	42
2015	1.94	1	2.33	1	24	240	124	0.05	0	0.22	0	1	2	42
2016	2.40	2	2.62	1	21	206	86	0.02	0	0.15	0	1	1	42
2017	1.21	1	0.61	1	4	51	42	0.00	0	0.00	0	0	0	42
2018	1	1	0	1	1	3	3	0.00	0	0.00	0	0	0	42
2019	–	–	–	–	–	–	–	0.00	0	0.00	0	0	0	42
2020	–	–	–	–	–	–	–	0.00	0	0.00	0	0	0	42
2021	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Source: Authors' own calculations

The next stylized fact is that most non-tariff measures applied by the world's countries fall into the sanitary and phytosanitary standards category, with the other three categories being used rather sparingly.

Countervailing measures (Table 6) and safeguard measures (Table 7) are very seldom applied. Slightly more interest can be noted for anti-dumping interventions (Table 6), up to a maximum of 6 applied in 1999 by the USA and 8 applied in 2000 by India.

Given the nature of the sector, it is clear that sanitary and phytosanitary measures are more frequently used as interventions in imports of agricultural products.

The empirical evidence reported in Table 7 shows a central upward tendency in the use of such measures, but with an uneven distribution against this trend, suggesting that in some countries the propensity for such measures is higher than in others. The highest number of SPS measures was applied by Peru in 2008 (80), 2009 (56) and 2010 (47).

5. Conclusions

Combining a comprehensive set of empirical evidence available at the international level, this paper aimed to frame the pattern of tariff and non-tariff protectionism in global agricultural trade. The investigation led to several stylized facts emerging from the selected and processed data, as follows.

The first stylized fact illustrates that government interventions in trade flows are mainly tariff-based. This fact is also a consequence of the commitments made by WTO members that the use of tariffs as a means of protection should prevail. The original GATT agreement also covered trade in agricultural products, but its content allowed contracting parties to intervene in imports through non-tariff measures such as quotas or subsidizing exports.

In terms of tariff protectionism, the last two decades have seen a downward trend in the average level of protection provided by tariffs applied under the MFN regime by all countries in the world, though with an irregular distribution, which can be regarded as a second stylized fact.

A cross-country examination of the comparative trends by country category reveals a third stylized fact showing that there are no sharp disparities between developed and developing economies as regards the central tendency of tariff protection in the agricultural sector, but there are large differences in the maximum levels applied. The average levels applied under the MFN regime by the two groups of countries are converging and, furthermore, they are on a downward trend. In both groups the distribution around the central trend is uneven, indicating large oscillations across countries, but these fluctuations are slightly smoothed in developing economies.

The fourth stylized fact depicts that globally, in terms of distribution/frequency, most of the world's countries have applied moderate tariff protection, with tariffs below 20%, irrespective of their development category. There is also a clear upward trend in the number of countries that have reduced their tariff protection to the 1–10% range. By group of countries, most of the countries focus on protection levels up to 20%, but in the group of developing economies, the frequency of cases of above 20% protection is much higher than in the developed ones.

Further, the fifth stylized fact highlights that in terms of non-tariff protection, most measures applied by the world's countries fall into the category of sanitary and phytosanitary standards, with relatively little use of other categories of non-tariff instruments. Empirical evidence points to a central trend of increasing recourse to such measures, but with an uneven distribution along this trend, indicating a higher propensity for such measures in some countries than in others.

To conclude, we can assert that the pattern of protectionism in international trade in agricultural products is tariff-based, with a tendency towards softening of this protection in both developed and developing economies. Tariff protection is accompanied by a much lower level of non-tariff protection, where the most frequently used instrument is sanitary and phytosanitary standards, for reasons dictated partly by the specific nature of the sector. These results provide useful insights not only for researchers but also for policy-makers, all the more so as agricultural products have for a long time been a rather sensitive topic on the agenda of international negotiations, not only as products of vital importance for a country (especially in the context of crises of various origins), but also as the main source of comparative advantage for developing economies. As more data will become available, new research questions may be answered, thus expanding the area of knowledge: How has the protectionist pattern in international trade in agricultural products evolved compared to that in industrial products? How do governments interfere with trade flows in agricultural and industrial products in crisis environments (economic, social, military)? Are WTO commitments or domestic pressures more powerful in such circumstances?

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