Technological and Economic Development of Economy
ISSN: 2029-4913 / eISSN: 2029-4921
2023 Volume 29 Issue 3: 775–795
https://doi.org/10.3846/tede.2023.18345

HOW TO MEASURE PROTECTIONISM IN INTERNATIONAL TRADE IN XXI CENTURY? THE REGIONAL BAROMETER OF PROTECTIONISM – CASE OF POLAND

Agnieszka PIEKUTOWSKA*, Paweł KONOPKA

Faculty of Economics and Finance, University of Bialystok, Bialystok, Poland

Received 24 June 2022; accepted 28 November 2022

Abstract. The purpose of the paper is to present a methodology for measuring contemporary protectionism – based on data from Poland. In light of the difficulties in assessing all trade barriers, an approximation was proposed: the regional barometer of protectionism (RBP). Recognizing that 21st century protectionism is observable only to a certain extent, the research is based on data that reflect the level of this phenomenon – i.e., media releases as well as Global Trade Alert data. In constructing this barometer, the TOPSIS method (a Technique for Order Preference by Similarity to an Ideal Solution) was used. The RBP constructed (for 2009–2020) is the first regional barometer of protectionism. The results of the research reveal the level and dynamics of protectionism in the case of Poland. This RBP improves the methodology of foreign trade analysis by providing a thorough basis for further research into both the effects and causes of protectionism; this paper presents initial explanations for the latter. Furthermore, after the barometer of protectionism is constructed, trade barriers may eventually be included in further research for models designed to explain Polish trade.

Keywords: international trade, trade policy, protectionism, tariffs, non-tariff measures, barometer.

JEL Classification: C43, C61, D81, F14.

Introduction

Both theory and numerous empirical research show the positive effects of trade on development. A study by Dollar and Kraay (2004) found a strong positive effect of trade on growth. Furthermore, their study included evidence from individual cases and from a cross-country analysis that confirmed open trade regimes lead to faster growth. A Frankel and Romer study (1999), meaningfully titled *Does Trade Cause Growth?* found that trade raises income. Furthermore, a study of Davies and Quinlivan (2006) offers evidence of a significantly positive relationship between increased trade and improvements in social welfare, within the context of a multi-country, multi-year panel data analysis. Moreover, according to Krueger (1980),

*Corresponding author. E-mail: *piekutowska@uwb.edu.pl*

experience has clearly demonstrated the importance of access to international markets to provide a channel for more rapid growth than would otherwise be feasible. Accordingly, research shows that trade barriers (including protectionist policies) have a negative impact on this development. The analysis of Kutlina-Dimitrova and Lakatos (2017) quantifies the wide-ranging costs of potential increases in worldwide barriers to trade. It indicates that a coordinated global withdrawal of tariff commitments both from all existing trade agreements and from unilateral preferential schemes coupled with an increase in the cost of traded services would, after three years, result in annual worldwide real income losses of 0.3%, relative to the baseline. Many studies indicate that the cost of trade protectionism exceeds the benefits and that protectionism results in *inter alia* output to fall, inflation to rise in the short run (Barattieri et al., 2021), aggregate income loss and losses to consumers (Fajgelbaum et al., 2020), rise in domestic price that stifles economic growth and depresses investment, and that the number of jobs saved is offset by job losses in export-oriented industries (Abboushi, 2010). Thus, in light of the importance of international trade for development, analysis of trade barriers is well-founded.

The analysis of protectionism is also justified by the influence of protectionist barriers on businesses that trade internationally, or whose supply chains or business otherwise rely on international trade. As the author of the definition of regulatory protectionism – Sykes (1999) – points out: regulatory protectionism carries costs for foreign companies resulting from the adopted and applied regulatory policy that discriminates against them or otherwise harms them in a way that is unnecessary to achieve some real, non-protectionist regulatory target. Trade barriers matter especially for firms who overcame internal constraints and then became more aware of other challenges in their business environment, including tariffs and other trade regulation. As the results of research indicate, SMEs undergo a learning process as they internationalise: firms with experience with foreign markets tend to pay more attention to barriers outside their control (Fliess & Busquets, 2006). The costs of trade barriers certainly have a negative impact on business, however, their estimation (in order to test the strength of their impact) requires, first of all, a diagnosis of the dynamics and scale of protectionism.

While significant progress has been made in liberalising international trade since the creation of the GATT, "the victory is never total" (Baldwin, 2000) meaning that further trade development cannot be taken for granted. Earlier theories of economic development, created on the basis of the neoliberal approach, have not assumed intervention of public authorities – the authorities had only the task of creating appropriate legislation for the free development of economic activities. In recent decades, theories more closely relating to John Keynes' doctrine are more frequent, and they assume the need for intervention by public authorities (Lewandowska et al., 2021). In the first two decades of the 21st century, there have already been huge disruptions related to the global crisis of 2008 and to the COVID-19 pandemic. In such circumstances, there are legitimate concerns that protectionist pressures will increase and undermine the progress made in the past. Therefore, there is a need to take action to stop the spread of protectionism. The first step is to track and measure the phenomenon, as a good diagnosis is the basis of effective action. However, measuring protectionism is challenging.

The conditions for introducing protective measures have evolved significantly in the last hundred years (Żukrowska, 2020). Still, the dominant approaches to the political economy

of trade remain rooted in the study of tariffs and other border barriers, even though national industrial policies as well as regulatory regimes have become significant issues for multinational actors (Chase, 2004). Though the rapid spread of internet that offers fast, borderless and cheaper opportunities for representing products and services lowered the barriers to international trade and significantly expanded the export volume of the World (Akman & Dagdeviren, 2018), protectionism skilfully adapts to prevailing conditions causing countries to implement more sophisticated methods in order to adapt (Sporek et al., 2019). Modern protectionism is characterised, more so than in the past, by non-trade interventions (Vitale, 2020). Traditional barriers, tariffs in particular, lose their importance. What is striking is that while tariffs are the most common measures used in trade liberalisation, they are giving way to more subsidies and export-related actions for protectionist measures. Therefore, an analysis based only on tariffs would likely underestimate levels of protectionism. In the UNCTAD classification (United Nations Conference on Trade and Development [UNCTAD], 2019), almost two hundred different types of non-tariff measures can be found including testing requirements, rules of origin, labelling requirements, measures prohibiting or restricting access to domestic distributors, minimum import prices, and many, many others.

Taking the above into account, the purpose of the paper is to present a methodology for measuring protectionism. In our study, we propose a novel tool that is necessary to analyse barriers in contemporary international trade – the regional barometer of protectionism (for Poland). Currently, there is not a commonly accepted tool that corresponds to the features of protectionism in international trade in the 21st century. Thus, there is a need to build a tool that covers all trade barriers and allows for the continuous analysis of the phenomenon that directly and significantly affects foreign trade. A barometer was constructed using the TOPSIS method (a Technique for Order Preference by Similarity to an Ideal Solution). This method was applied as the barometer was based on many variables and TOPSIS works effectively in different application fields. The main reason of such a wide acceptance of TOPSIS method is because its concept is reasonable, easy to understand and can be applied easily (Zeng & Xiao, 2018). Another argument in favour of using the TOPSIS method is the possibility of taking into account the importance of the variables (weights) used to build the barometer. As a consequence of applying the method, we obtain a synthetic measure of protectionism, which is equivalent to the barometer. This enables a global comparison of the degree of protectionism in terms of time and enables its graphic visualization.

An in-depth analysis of the research results conducted so far shows that, in relation to the foreign trade of individual countries, the analysis of all trade barriers (including non-tariff measures, NTMs) was not cyclically carried out. Regarding the Polish economy and Polish trade, one can distinguish the analysis by Semeniuk (2019), who undertook the analysis of protectionism in the European Union. The conclusion is critical: as EU member states differ in their economic interests, although there is a common market in the EU, the national regulations of individual states are tempted by protectionism. Thus, one can observe "internal" protectionism, which, in the name of particular EU countries, violates their neighbours' economic interests and damages the internal market. Still, the analysis is of descriptive nature (although in-depth) and does not present a methodology or a novel tool that would allow – on its basis – to assess the effects of this protectionism and explain the impact of

protectionism on Polish trade. There are many studies that analyse this problem from the perspective of the gravity model where trade barriers are considered as one of the determinants of foreign trade. In the research by Pomichowski and Parlińska (2018), it was assumed that negative deviations (the difference between the observed values and those predicted in the gravity model) may indicate the presence of barriers to trade aside from tariffs. However, given the degree of protectionism, an assumption based on the discrepancy between the observed and model-derived values will not be necessary, and it will become possible to directly investigate the effects of tariffs and NTMs on trade (Lee & Swagel, 1994). When an important variable is unobservable, proxy variables are frequently used within foreign trade research (e.g., geographic distance as a proxy of transport costs). The results of the studies by Król and Targaszewska (2018) indicate that including equivalent variables may improve the quality of the model producing lower prediction errors.

In light of the difficulties in assessing all trade barriers, our study proposes an approximation: the regional barometer of protectionism (RBP). The constructed barometer (in pilot studies: for Poland) will be the first regional protectionism barometer, making it possible to diagnose the level of protectionism and – in subsequent studies – to include all trade barriers in analysing factors that determine a country's foreign trade. The results of the research will therefore reveal both the level and dynamics of protectionism – for this study regarding Poland – and improve the methodology of foreign trade analysis.

1. Related work

In our review of the literature, studies related to measuring protectionism were the main focus. However, our review also included the topic of barometers used as a tool of research and studies.

So far, there have been many attempts to measure tariff and non-tariff barriers. Great strides in the analysis of protectionism were made by the work of Looi Kee et al. (2009). By estimating ad-valorem equivalents (AVEs) of non-tariff barriers (NTBs) it was possible to encompass all types of trade policy instruments within a common metric. The limitation of such an approach is that the estimations were carried for only one year. Nevertheless, based on the methodology developed by Looi Kee et al. (2013) and Niu et al. (2018) analysed overall protection derived from both tariffs and NTMs for 97 countries over the period 1997–2015. This analysis makes crucial discoveries including, among others, indicating both an increase in overall trade protection during the 2008 financial crisis and an increase in NTMs. However, research based on AVEs of non-tariff barriers have limitations. De Melo and Nicita (2018) indicate numerous limitations in measuring NTMs, including – among others – the availability of data on NTMs coupled with a lack of comprehensiveness and lack of precision in this respect. As far as quantifying the effects of NTMs is concerned, there are a number of econometric challenges like endogeneity, zero trade flows, and difficulty to control for omitted variables.

Taking those challenges into account, further methods of measuring protectionism are needed. Based on the Technique for Order Preference by Similarity to the Ideal Solution (TOPSIS method) Piekutowska and Marcinkiewicz (2020) proposed an original concept of measuring the degree of protectionism (DP). From this, EU member states were ranked and

classified in terms of degree of protectionism for the years 2009–2019. Notwithstanding, analysis for the selected years would be valuable by showing shifts in trade policy that affect international trade.

A breakthrough in protectionism research occurred when the Ministry of Economy, Trade, and Industry of Japan ([METI], 2019) proposed a barometer of global protectionism. The barometer was based on the assumption that the share of newspaper articles dealing with protectionism reflects public interest and should be roughly proportional to movements of protectionism around the world. Although the barometer has its limitations (no possibilities for analysis of individual countries), it should be considered as a major step in improving the method for analysing protectionism dynamics. The development of the METI global protectionism indicator was the impetus for our study. Additionally, this paper – which proposes a regional barometer for individual country – includes an overview of the literature related to the barometer as a research tool and some suggestions for changes, which are presented later in the methodology section.

Economic barometers were popular in the 1920s. However, with the failure of these barometers to accurately predict the beginning of the Great Depression, further research of this type was abandoned by 1931 (Rutkowski, 1971).

When in 1919, the Committee for Economic Research of Harvard University began creating a business barometer published in the Review of Economic Statistics, its first aim was 'to contrive a method of handling business statistics which will make it easy to determine the significance or lack of significance of each item, in indicating current conditions and possibly those of the immediate future' (International Labour Office, 1924). Its accurate forecast of the 1920–1921 crisis – which hit US economy – was why the Harvard barometer was considered successful at the time. During the 1920s barometers gained respect in the scientific community, and by the end of the decade many agencies were established. These included the London and Cambridge Economic Service under the direction of William Beveridge, the Statistical Institute of Paris University, and institutes for economic trend forecast in Vienna, under the direction of Hayek followed by Morgenstern. However, during this period, there was some caution around barometers as evidenced by the Swedish Ministry of Commerce suspending publication of barometers and only resuming it after providing disclaimers for its interpretation by the public. Additionally, in Italy Corrado Gini, the president of the publishing committee, defined the indexes compiled by the Italian committee as a "rain gauge" for forecasting (Favero, 2007).

Skrzywan (1928) defines economic barometers as both a way to depict economic and statistical patterns and a way to predict the state and development of the economic situation. He emphasizes that this method responds to the need for diagnosis, analysis of dynamics and forecast of conditions for the near future. In the case of economic barometers, the use of the induction method directed science towards empirical research. Skrzywan emphasises an important and seemingly universal feature of this method – it is symptomatic. However, it is worth noting, that the creators of economic barriers refrain from promoting these as magic formulas designed to guarantee prosperity. However, as economic barometers were not able to foresee the Wall Street crash, criticism of this method flourished. Moreover, according to Favero, the situation may have been made worse by barometers affecting entrepreneurial choices, meaning that wrong decisions were made based on optimistic forecasters. As Gini

explained it: the reports of meteorological barometers do not affect the weather, whereas the reports of business barometers can considerably influence business trends (Favero, 2007).

Criticism of barometers requires some important remarks regarding their construction and application. It follows that, in the long history of economic barometers, they have been criticised due to their limited ability to predict future economic situations. However, forecasting was not the only purpose for this method. "Indicating current conditions", while stated as an original purpose of barometers by their creators, has faded into the background. Furthermore, creating economic barometers (for forecasting purposes) requires determining variables of business fluctuations. In the case of constructing barometers, two kinds of factors may be used: (1) factors which are likely to have a material effect or (2) factors which reflect economic life. Here, a distinction should be made between "indices", which show relative positions, and "barometers", the purpose of which is the prediction of the future (International Labour Office, 1924). Still, many de facto indices (especially those focused only on diagnosis) are called barometers; thus, the two terms are often treated synonymously.

Sarason (2000) argues that past inadequacies of barometers of economic change have not been used as a pretext to prevent the search for better ones. This argument was made in the framework of community psychology regarding barometers of community change, but it is still applicable here. The observation made by the author is: we should devote some of our energy to constructing barometers that serve as early detectors of the one thing we can count on: constant change.

Nowadays, barometers are relatively widely used. This may result, inter alia, from the high dynamics of many processes – not only economic ones. This raises the need to analyse the constantly changing situation. As a method of analysis, barometers are used not only to assess the business cycle (including, among others, the innovation barometer, the competitiveness barometer, the job offers barometer and the occupation barometer). Barometers are also used in legal sciences (e.g., legislative barometer) and political science (election barometer).

The methodology for constructing barometers is varied and depends on the subject of the analysis and the data sources used. For example, the Job Offers Barometer for Poland is based on the inflow of job offers during the month; its values are given in the form of an index of percentage points. The barometer has been counted since 1999. From 2004 to 2008, this barometer was created using press offers in cooperation with Gazeta Wyborcza due to the high percentage of job offers published in this newspaper. Advertisements posted on the internet have been analysed since 2008 (Gałecka-Burdziak & Pater, 2015). For an occupational barometer, which shows the chances of finding a job in a given occupation within the next year and within a given area in Poland, it is emphasised that this barometer is qualitative research that uses, among other things, the knowledge and experience of public employment services employees (Nowak & Pankiv, 2018). The opinions of respondents were also the source for the innovation barometer – Innobarometer – a European Commission study, the last edition of which took place in 2016. It should be noted that it was more of a sociological instrument than an economic measure as it was based on a survey about attitudes and actions related to innovation policy (Hoffmann, 2015). The survey method was also used as the basis for a competitiveness barometer – the results of which are based on the assumption that they can only be compared in a relative way (in this case against another company) (Flak & Głód, 2014).

It follows that, despite criticisms of economic barometers particularly during the 1930s, in the 21st century barometers are widely used in analysis even in fields beyond the social sciences. It seems that the main objection to this tool, i.e. the very limited possibilities of forecasting, did not discourage further research regarding its use. Rightly so because the essential and rarely criticized function of barometers is their ability to diagnose the state of affairs and dynamics of many phenomena. In particular, this function is of great value in cases of latent phenomena that cannot be easily identified, such as in modern protectionism.

2. Data and methodology

Recognizing protectionism as a phenomenon that is – at least partially – not observable, the research is mainly based on data that reflect the level of this phenomenon – i.e., media releases. It is based on the assumption that the number and frequency of media releases reflect the interest in a given phenomenon; the greater and more frequent the releases, the higher the dynamics of a given phenomenon. As Dooley and Corman (2004) stated, many societal phenomena are studied by analysing their representation in media-related texts like news articles. It is assumed that media artefacts mirror the social activity occurring in the environment; therefore, the observed dynamics are assumed to reflect the environmental dynamics.

Data on media releases including the word "protectionism" (and taking into account noun declension in the Polish language) were obtained from an information agency that monitors the media in Poland. The dataset covers all kinds of media including TV, radio, internet, social media, and press during the period between January 2005 and December 2020 (Figure 1). In order to ensure the highest quality of data, the results come from the media

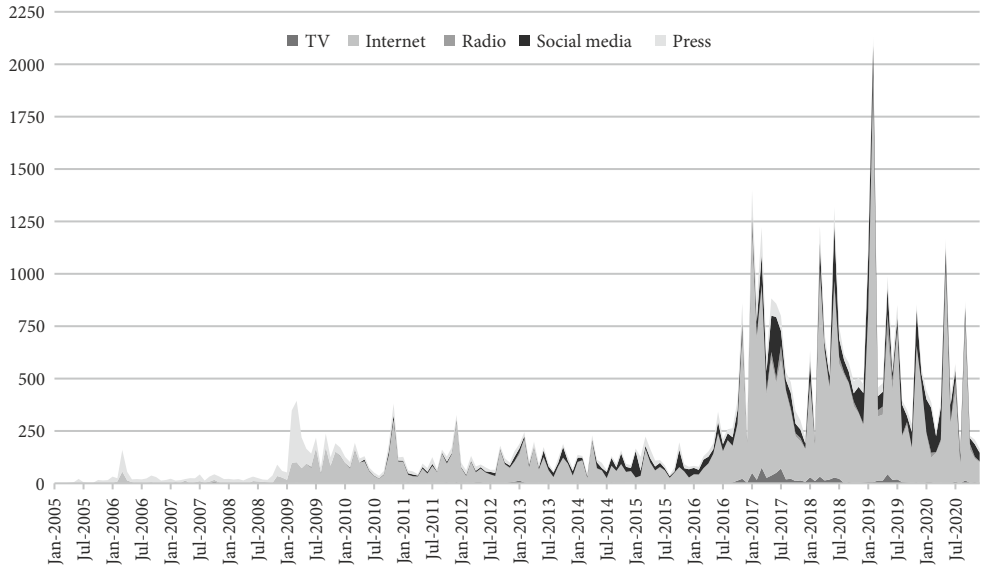

Figure 1. Number of media releases on protectionism in the Polish media between January 2005 and December 2020 (source: authors' own elaboration based on data from the information agency, 2022)

database with the largest number of sources on the market. This includes: the Internet which includes approx. 5 million internet sources; social media which includes Facebook, Twitter, YouTube, Instagram, internet forums, blogs, and opinion blogs; press monitoring which includes 1100 national, regional, industry and specialist press titles (including dailies, weeklies, monthlies); and RTV monitoring which includes results from the review of nationwide, regional, and local programs from about 100 radio and TV stations. The dataset of results covers 46,357 media releases that contain at least one reference to protectionism. It must be noted that in the initial period of the analysis, TV news may have been underestimated due to limited archival resources. In subsequent stages of the analysis explained later, TV data were excluded in the construction of the barometer for other reasons.

A significant variation in the number of media releases on protectionism in Poland is observable in the data. Media interest was by far the highest in the last four years of the analysis. As shown in Table 1, the source of most media messages was the internet (69% of all releases on protectionism), followed by press and social media (13% each).

An important feature of media releases is the information reach as it reflects the interest in a publication (in this case: interest in releases on protectionism). In the entire analysed period, the information reach was 566 million, and the highest level was recorded in 2017 (Figure 2).

Since our research takes into account five kinds of media, the first step was to identify the relationships between these variables. For this purpose, the Pearson correlation coefficient was calculated (Table 2).

The high correlation between most different kinds of media is not surprising (taking into account, among other things, mutual organisational links in the structure of media). Nevertheless, this is important information because the exclusion of media characterised by high correlation prevents duplicate information and simplifies the construction of the barometer. Hence, newspaper releases (press releases, PR) and social media releases (SMR) were ultimately used to build the barometer of protectionism.

At the next stage of research, we gathered data on interventions that indicate the rise/fall of protectionism in relation to Poland. In this regard, we used the Global Trade Alert database that records all diverse trade policy interventions. A crucial feature of the GTA database is that it evaluates and categorizes each intervention as either "red interventions" (RIs) when the intervention almost certainly discriminates against foreign commercial interests or "green interventions" (GIs) when the intervention liberalizes trade. As Evenett (2019) explained, whether or not an instrument is classified as harmful or liberalizing "is one of the attractive features of this initiative". From the GTA database we selected all trade interventions that affect Poland with red indicating an increase in protectionism and green indicating a decrease in protectionism. Since the GTA database was launched in 2009, interventions between January 2009 and December 2020 were selected (Figure 3). Most of the interventions that affected Poland between 2009 and 2020 were protectionist interventions. However, 32% of the interventions reduced protectionism.

Descriptive statistics of all variables are presented in Table 3.

Table 1. Breakdown of media releases (by type) on protectionism in the Polish media between January 2005 and December 2020 (source: own elaboration based on data from information agency, 2022)

Type of media	Internet	Press	Social media	Radio	TV	Total
Share in all information	69.15%	13.14%	13.04%	2.64%	2.03%	100%
Information reach	an indicator that estimates the number of contacts with a given publication; reaching is a feature assigned to a specific publication, not to the source, and concerns the real behaviour of recipients – the ways and frequency of using communication channels					566.3 mln
Information range	an indicator showing the potential number of people who may have contact with the message from a given source; range is a feature assigned to a specific source, not to a publication					8.4 bln

Table 2. Correlation table for each kind of media*(source: own elaboration based on data from the information agency, 2022)

	TV	Internet	radio	social media	press
TV	1				
Internet	0.604954*	1			
Radio	0.75879*	0.645203*	1		
Social media	0.538365*	0.626207*	0.549278*	1	
Press	0.386476*	0.354742*	0.297592*	0.222447 (*p-value = 0.0026*)	1

Note: Univariate correlations where* represents statistical significance at the 0.2% level.

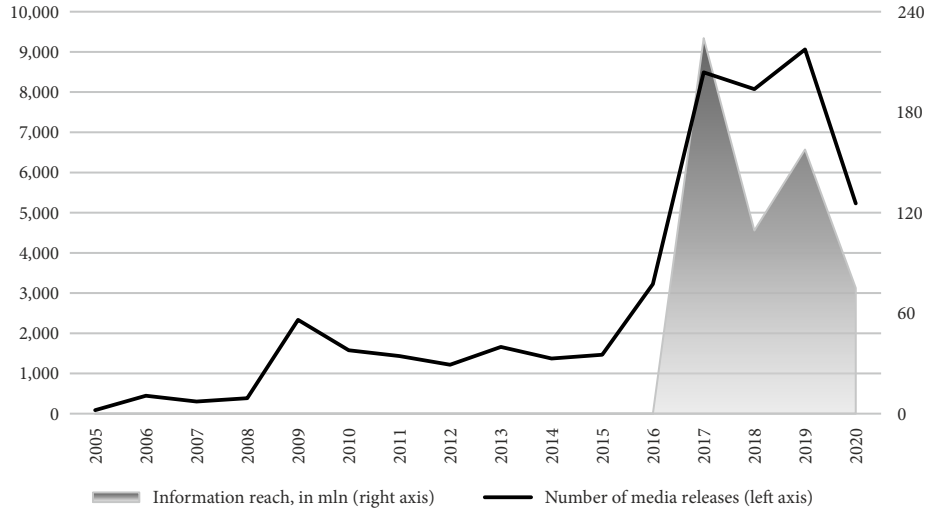

Figure 2. Number and information reach of media releases on protectionism in the Polish media between January 2005 and December 2020 (source: authors' own elaboration based on data from the information agency, 2022)

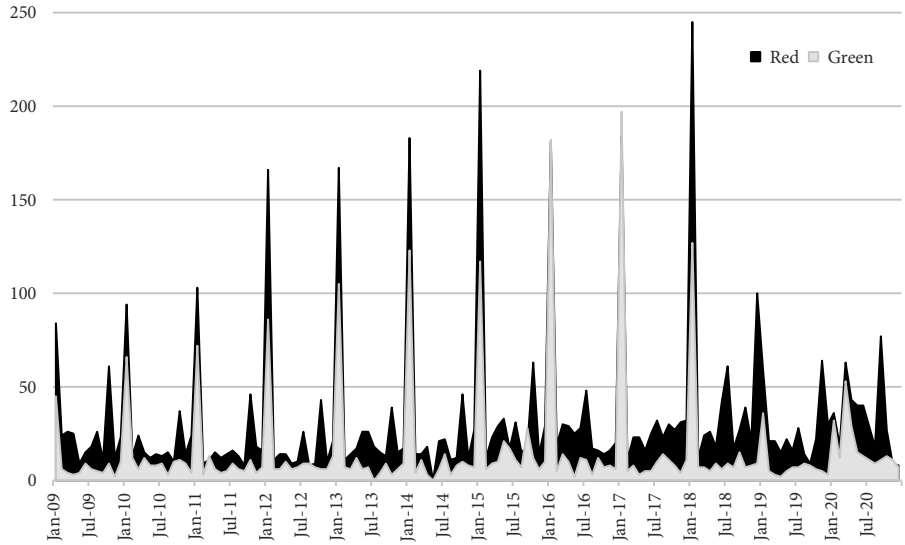

Figure 3. Trade interventions that affect Poland between January 2009 and December 2020 (source: authors' own elaboration based on Global Trade Data, 2022)

Table 3. Basic descriptive statistics of variables (source: own elaboration, 2022)

Variable:	Mean	StDev	CV	Max	Min
SMR	41.99	55.54	132%	293	0
PR	35.75	36.88	103%	293	7
RIs	33.08	40.63	123%	245	0
GIs	15.88	29.74	187%	197	0

In the next step, a barometer was constructed using the TOPSIS method (a Technique for Order Preference by Similarity to an Ideal Solution). This method was applied because the barometer was based on many variables including social media releases (SMR), press releases (PR), red interventions (RIs), and green interventions (GIs). We assumed that the greater the number of SMRs, PRs, and RIs, the higher the protectionism, and, conversely, the greater the number of GIs, the lower the protectionism.

The TOPSIS method presented by Hwang and Yoon (1981) is based on the concept of reference points and is consistent with theoretical foundations defined by Professor Zdzisław Hellwig (1968). This method also refers to the work of Kahneman and Tversky from 1979, which presents a general theory of preferences dependent on reference points. The TOPSIS method is based on the comparison of objects with both the best (ideal) and the worst (anti-ideal) solutions. The more preferred object will be the one that, based on the values of the adopted criteria, is the closest to the ideal solution and farthest from the anti-ideal solution.

The TOPSIS method has many practical applications: in the selection of investment projects (Amiri, 2010; Mahmoodzadeh et al., 2007), in the selection and ranking of service providers (Bottani & Rizzi, 2006), in research on negotiation (Roszkowska et al., 2013), and in

the study of corporate financing risk (Konopka, 2021). A review of the various applications of the TOPSIS method can be found in both Behzadian et al. (2012) and Zavadskas et al. (2016).

The conception of the TOPSIS method may be described in following steps:

Step 1. Determination of decision criteria, sets of assessments of criteria values and a finite set of assessed objects. Let

$$W_i = \left[x_{i1}, x_{i2}, \ldots, x_{in}\right] - \text{object representation,} \tag{1}$$

where x_{ij} is a value of i – object with respect to the j – criterion; where w_i is a month and the object is identified with the month in which the barometer value is determined.

Step 2. Definition of a set of weights w_j for the criteria (j = 1, 2,…, n) that sum to one:

$$w_1 + w_2 + \ldots + w_n = 1. \tag{2}$$

Step 3. Determination of normalised values of decision criteria. The purpose of normalisation is to put the data into a form in which its values can be compared. There are many normalisation formulas in the literature (Hwang & Yoon, 1981; Trzaskalik, 2014; Roszkowska et al., 2013). For the purpose of this research, linear normalisation was used and was defined by the following formula:

$$z_{ij} = \begin{cases} \dfrac{x_{ij} - \min\limits_i x_{ij}}{\max\limits_i a_{ij} - \min\limits_i a_{ij}} \text{for the 'benefit' criteria,} \\ 1 - \dfrac{x_{ij} - \min\limits_i x_{ij}}{\max\limits_i x_{ij} - \min\limits_i x_{ij}} \text{for the 'cost' crietria.} \end{cases} \tag{3}$$

Step 4. Calculation of normalised weighted values of decision criteria. The normalised i-object with the vector weights has the form:

$$\tilde{W}_i = \left[\tilde{x}_{i1}, \tilde{x}_{i2}, \ldots, \tilde{x}_{in}\right], \tag{4}$$

where $\tilde{x}_{ij} = z_{ij} w_j$.

Step 5. Designation of reference variants.

The ideal (I) solution will be:

$$W^+ = [\max_i \tilde{x}_{i1}, \max_i \tilde{x}_{i2}, \ldots, \max_i \tilde{x}_{in}]. \tag{5}$$

The anti-ideal (AI) solution will be:

$$W^- = [\min_i \tilde{x}_{i1}, \min_i \tilde{x}_{i2}, \ldots, \min_i \tilde{x}_{in}] \tag{6}$$

for $i = 1,...,m, j = 1,\ldots,n$.

Step 6. Determination of the distance of normalised weighted objects from the ideal and anti-ideal variant, i.e., the values:

$$d_i^+\left(\tilde{W}_i, W^+\right) = \sqrt{\sum_{j=1}^{n}\left(\tilde{x}_{ij} - \max_i \tilde{x}_{ij}\right)^2} \tag{7}$$

and

$$d_i^-\left(\tilde{W}_i, W^-\right) = \sqrt{\sum_{j=1}^{n}\left(\tilde{x}_{ij} - \min_i \tilde{x}_{ij}\right)^2}. \tag{8}$$

The study assumes that d_i and d_i^+ are Euclidean metrics [1].

Step 7. Calculation of the value of the synthetic measure according to the formula:

$$V_T\left(W_i\right)=\frac{d_i^-\left(\tilde{W}_i,W^-\right)}{d_i^+\left(\tilde{W}_i,W^+\right)+d_i^-\left(\tilde{W}_i,W^-\right)}. \tag{9}$$

A synthetic measure in each period (of a given object) is a value that satisfies the condition:

$$V_T\left(W_i\right)\in\left[0,1\right], \tag{10}$$

where higher values of $V_T\left(W_i\right)$ mean higher levels of protectionism in the present study.

The weights for all variables (Table 4) were determined on by the objective weighting method – i.e. based on the coefficient of variation. According to this approach, the greater the level of variability of a given variable, the higher the weight (more on this method in Roszkowska et al., 2013).

Table 4. Weights of variables (source: own calculation, 2022)

	SMR	PR	RIs	GIs
Weights	24.2%	18.9%	22.5%	34.3%
I	0.242	0.189	0.225	0
AI	0	0	0	0.343

3. Results and discussion

It can be observed that in January of each year, with the exception of 2020, the index of protectionism was the highest (Figure 4). This is unsurprising as the majority of interventions that affect trade are implemented in January. These interventions are often influenced by decisions connected with the national budget, and, in most countries, the fiscal year starts in January. As far as seasonality is concerned, in case of protectionism this is common and frequent pattern of changes noticed in may research like in case of studies by Fajgelbaum et al. (2020), by Mladenović et al. (2016) and Nakuja and Kerr (2013).

This seasonality may affect the perception of the general trend; therefore, the barometer is presented on an annual basis as an average in a given year (Figure 5).

The level of protectionism shown by the barometer (the maximum value equals 1) was not very high throughout the analysed period. Furthermore, there was a clear pattern of rising protectionism between 2009 and 2017. In 2017 the protectionism barometer peaked followed by a period of decline, although the dynamics of this decline were small. This is largely in line with the analysis of protectionism at a time when one of the main circumstances shaping global trade relations was the US-China trade war. As Puślecki (2022) emphasizes, this trade war was not only a matter for one country, but it was a world issue. While January

[1] The most popular and frequently used is the Minkowski metric, and its special case is the Euclidean metric (for p = 2).

2018 is considered the beginning of this conflict (Bown, 2019), the public may express a certain feeling in advance as to the shaping of events in the nearest future. This relates to appealing to public opinion, for instance, in the form of polls. Here, it is worth to recall Gallup quotation of Talleyrand's words: "The only thing wiser than anybody is everybody" (Gallup, 1955). Still, according to Viani (2019), the direct impact on EU trade of the protectionist measures adopted by the United States was limited, however with high risks in the automotive sector. That confirms our findings explained farther on.

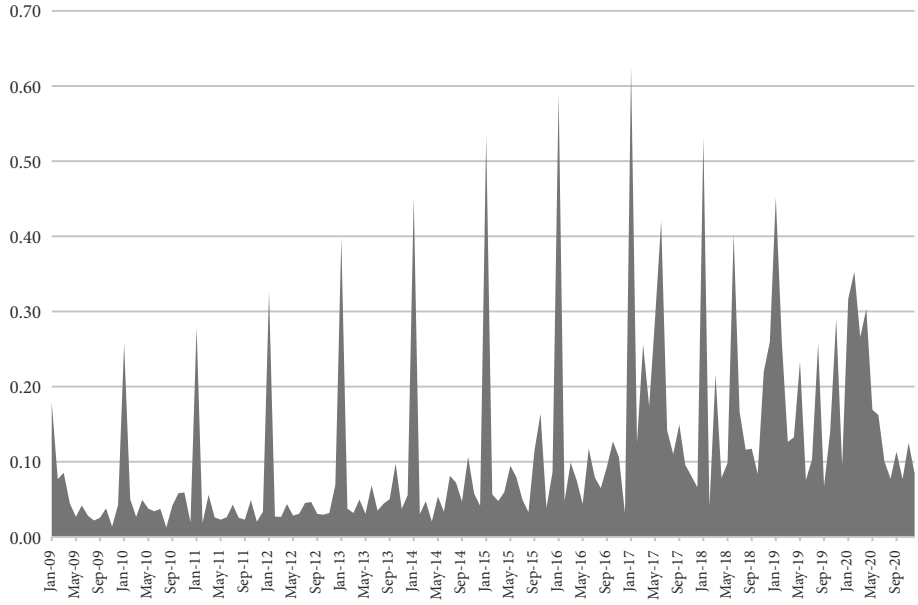

Figure 4. Regional Barometer of Protectionism for Poland (monthly index between January 2009 and December 2020) (source: authors' own calculations, 2022)

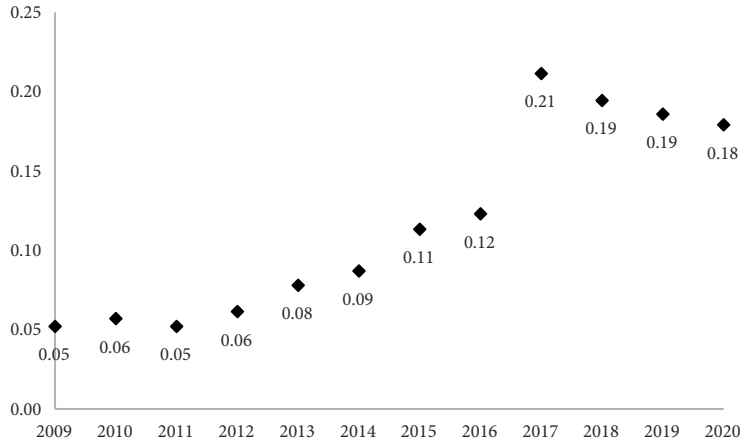

Figure 5. Regional Barometer of Protectionism for Poland between 2009 and 2020 (source: authors' own calculations, 2022)

Based on this pattern, the question then arises: what were the reasons for the high protectionism that affected Poland in 2017? The answer to this question requires a qualitative analysis based on the legal acts and decisions that form the basis of trade interventions. Moreover, searching for an answer to the question about the reasons for protectionism may be based on the subjective (who intervenes) or the sectoral approach (which sectors involved protectionist interventions). The full analysis of the causes of protectionism that affected Poland goes beyond the scope of this study. Notwithstanding, GTA data from 2017 analysed using the sectoral approach, showed that the automotive sector that was most affected in Poland. At the same time, media release analysis for 2017 indicates a great media interest in actions aimed at this sector. The high interest in interventions harming the Polish automotive sector is understandable when considering the importance of this sector for the Polish economy and Polish exports. In 2017, exports within only category 87 (according to HS code, i.e., vehicles other than railway or tramway rolling stock and the parts and accessories thereof) accounted for 12% of total exports from Poland (UN Comtrade Database, 2022).

Moreover, the analysis of trade interventions that affected Poland between 2009 and 2020 revealed that Poland was affected mostly by Chinese interventions with 26.6% of all protectionism interventions that affected Poland implemented by China. In the case of Chinese trade interventions, the year 2017 was unique in some ways. EU countries including Poland were significantly affected by Chinese protectionist interventions. The average effectively applied tariff for EU products entering the Chinese market in 2017 was 8.75% compared to 1.4% and 2% for entrance into the American and Japanese markets, respectively (Dadush et al., 2019). Moreover, according to an analysis of GTA data, in 2017, the sector of motor vehicles, trailers and semi-trailers was the most affected by China's protectionist interventions. Vehicle and vehicle parts – the largest product category of EU exports to China in 2017 – faced an effectively applied tariff of nearly 20%. It was only in 2018 that China adopted measures to reduce vehicle tariffs to an average of 13.8% (Dadush et al., 2019).

In searching for an explanation for the high protectionism against Polish trade, we have found a high correlation between the barometer of protectionism and the value of Polish export between 2009 and 2020 (Figure 6). While there are a few studies on the effects of protectionism on export (e.g., Henn & McDonald, 2014), the impact of trade (value/dynamics) on protectionism is not investigated. Still, a study of Hu et al. (2019) shall be mentioned here as it investigates how Technical Barriers to Trade affect firm export performance. What is crucial, the results show the importance of business adjustments to trade barriers: although both the export value and export volume declined, empirical results show that Chinese exporters to the EU not only adjust their product quality to meet the requirements, but also upgrade their product quality in other dimensions. It follows that, in further research on the relationship between trade and protectionism, business response must be taken into account.

Yet, protectionism is a policy of protection against foreign competition – like from foreign exporters. With rising export from trade partners, greater competition may intensify protectionist tendencies. It follows that there may be a two-way causality between protection-

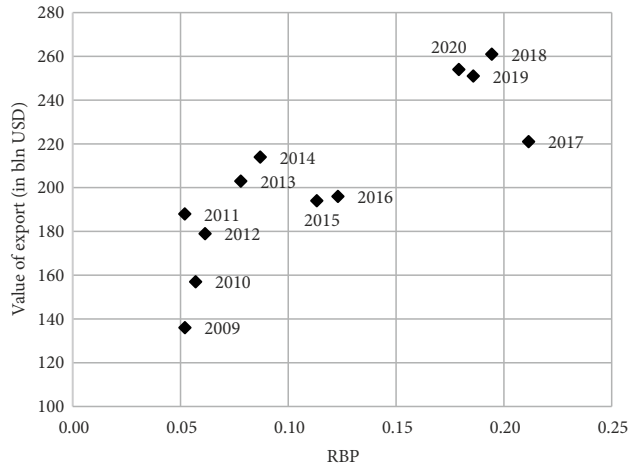

Figure 6. Regional Barometer of Protectionism for Poland versus Polish export between 2009 and 2020 (source: authors' own calculations, 2022)

ism and trade. Such a relationship occurs in international trade and has been examined by, among others, Henriques and Sadorsky (1996) specifically the relationship between export and growth. Nevertheless, additional research is required to evaluate the impact of a dynamic of export on the scale of protectionism. The results of our research are only an impetus for further analysis in this regard considering the many other variables explaining protectionism.

Finally, since no country that trades internationally operates in a vacuum, the global context must be taken into account. By 2017 more than 50% of exports from G20 countries were subject to harmful trade measures, up from 20% in 2009. Still, protectionist threats made by the US Administration in 2017 have been followed by real actions during 2018 (Gunnella & Quaglietti, 2019). During the meeting in March of 2017, G20 Finance Ministers failed to renew their long-standing commitment to free trade and to pledge to resist any kinds of protectionism (Kutlina-Dimitrova & Lakatos, 2020). That was a clear reflection of rising protectionist sentiment and served as an indicator of shocks ahead of rising protectionism in 2018. At the time, just over 70% of goods exported internationally faced one or more policy-induced trade distortions when competing in foreign markets (Evenett, 2019). With 3,145 measures introduced across the world, the number of protectionist policies peaked in 2018. The trade war was triggered in June 2018 when the US imposed high tariffs on steel and aluminium imports from Canada, Mexico, and EU member states – a move followed by a series of retaliatory measures (Zanhouo, 2021). Considering the information above, the highest protectionist barometer for Poland in 2017 can be explained – at least partly – by the existing and perceptible pressure of increasing protectionism in 2018. Yet, it would be very valuable to investigate the business response to the perceived increase in protectionism, which was not included in our research. However, thanks to the construction of the RBP, our research could be a basis for further research in this scope.

Conclusions

Tracking contemporary protectionism is a challenge for many reasons, one being that countries use an enormous range of widely differing, non-tariff measures. Considering the harmfulness of the "beggar-thy-neighbour" trade policies, undertaking the analysis of protectionism is justified and necessary.

The aim of this paper was to construct a regional barometer of protectionism for Poland. The barometer has been presented; however, the final result of the barometer should be considered on an annual (not monthly) basis. This is not due to the construction of the barometer, but rather to the seasonality with which trade interventions are introduced. Nevertheless, the barometer on an annual basis is also useful as it clearly shows certain trends in the analysed period.

The regional barometer is a useful tool and adds value to international trade research. Firstly, it allows for the diagnosis of the level and dynamics of protectionism directed towards a given country (in the case of this research – regarding Poland). Secondly, identifying the level of protectionism prompts an analysis of the explanatory causes. Thirdly, the barometer – as an approximation of all trade barriers – can significantly contribute to analyses that explain a country's foreign trade. Until now, all trade barriers, as an unobservable variable, were most often not included in the models explaining the country's export or import.

Our results show that in the case of Poland, there is a clear trend in the barometer – it increases from 2009 to 2017 and decreases after 2017. Still, the level of RBP is not very high with its highest value at 0.21 compared to 1, the maximum value of the barometer (the barometer takes values in the range [0–1]).

Once the barometer of protectionism was constructed, the analysis explaining a given state of affairs became possible (and reasonable). The dynamics of protectionism is influenced by several factors (including the trade policy of trading partners, economic situation, and political tensions). Explaining all factors goes beyond the aim of this research and is a premise for further analyses. However, some explanatory circumstances were identified. First, Chinese trade policy towards the EU (including Poland) and high protectionism in the automotive sector, which is very important for Polish exports. Second, a growing competition from Polish exports. Third, an increase in protectionist sentiment globally in 2017 with threats of protectionism made by the US administration in 2017 that were acted upon in the following year.

Finally, the results of our research constitute a premise for further analyses on Polish trade. Due to the construction of an approximation for all trade barriers, it will be possible to complement the models explaining Polish foreign trade. Until now, the variable relating to trade barriers has not been taken into account in the models explaining the dynamics and structure of Polish trade. Hence, RBP can be used in other models, including forecasting ones. Moreover, thanks to the construction of RBP, it is possible – in subsequent studies – to examine the strength of the impact of the trade barriers on the dynamics of Polish trade and answer the question to what extent Polish trade is sensitive and how resistant to the trade barriers. Such research has not been conducted so far and would be of great value. Additionally, based on the RBP, it would be valuable to search to what extent trade barriers affect businesses that trade internationally, or whose supply chains or business otherwise rely on international trade.

While there were some studies diagnosing the level of protectionism for selected countries, most of them were not continuous. An important feature of the presented protectionism barometer for Poland is the fact that it covers a span of 12 years (based on the most recent data available at the time our survey began).

Still, there are a few limitations of the regional barometer. Firstly, it should be emphasised that the purpose of the constructed barometer was not to forecast protectionism in relation to Poland. The purpose of the barometer was to diagnose the level and dynamics of the phenomenon; thus the construction of an approximation of trade barriers is an added value. Secondly, the barometer of protectionism is constructed for Poland only. It would be desirable to construct the RBP for other countries, which would make a comparison of the level of protectionism possible. However, the construction of the barometer for other countries brings a certain challenge. We, like many other creators of barometers including the METI barometer, have adopted the assumption that the share of media releases about protectionism reflects public opinion; however, for other countries, the choice of media types may be different than for the RBP for Poland. This is due to the interconnectedness of different types of media in a given country and may be country-specific. Thirdly, the challenge of data availability remains constant. On the one hand, our barometer was a response to the lack of data on contemporary protectionism, which, as explained, is characterized by the use of veiled means that are less visible. On the other hand, the barometer is based on media releases. Not all of them may be publicly available and access to them may be determined by the functioning of the media monitoring agency in the country.

Notwithstanding, the lack of a perfect, universally accepted method of measuring protectionism should not be a deterrent, but rather a strong incentive for further research. The presented research is a part of the constantly changing scientific debate on the measurement of trade protectionism which creates a premise for the constant development of methods and tools in this respect.

Acknowledgements

We would like to thank Margaret Leigh Avera – Grantee of the Fulbright English Teaching Assistant Program – for diligent proofreading of the manuscript.

Funding

This research was funded by the National Science Centre, Poland [Grant number DEC-2021/05/X/HS4/00091].

Author contributions

Conceptualization: A.P.; data curation: A.P.; software, P.K.; formal analysis, A.P., P.K.; funding acquisition: A.P.; investigation: A.P.; methodology: A.P., P.K.; validation: P.K.; visualization: A.P., P.K.; project administration: A.P.; writing – original draft: A.P., P.K.; writing – review & editing: A.P., P.K.

References

Abboushi, S. (2010). Trade protectionism: Reasons and outcomes. *Competitiveness Review*, *20*(5) 384–394. https://doi.org/10.1108/10595421011080760

Akman, E., & Dagdeviren, M. (2018). Discovering what makes a SME website good for international trade. *Technological and Economic Development of Economy*, *24*(3), 1063–1079. https://doi.org/10.3846/20294913.2016.1266709

Amiri, M. P. (2010). Project selection for oil-fields development by using the AHP and fuzzy TOPSIS methods. *Expert Systems with Applications*, *37*(9), 6218–6224. https://doi.org/10.1016/j.eswa.2010.02.103

Baldwin, R. E. (2000). *Regulatory protectionism*, *developing nations and a two-tier world trade system* (CEPR Discussion Paper, 2574).

Barattieri, A., Cacciatore, M., & Ghironi, F. (2021). Protectionism and the business cycle. *Journal of International Economics*, *129*, 103417. https://doi.org/10.1016/j.jinteco.2020.103417

Behzadian, M., Otaghsara, S. K., Yazdani, M., & Ignatius, J. (2012). A state-of the-art survey of TOPSIS applications. *Expert Systems with Applications*, *39*(17), 13051–13069. https://doi.org/10.1016/j.eswa.2012.05.056

Bottani, E., & Rizzi, A. (2006). A fuzzy TOPSIS methodology to support outsourcing of logistics services. *Supply Chain Management*, *11*(4), 294–308. https://doi.org/10.1108/13598540610671743

Bown, C. P. (2019). *US-China trade war: The guns of August*. Trade and Investment Policy Watch. https://doi.org/10.1080/17538963.2019.1608047

Chase, K. A. (2004). From protectionism to regionalism: Multinational firms and trade-related investment measures. *Business and Politics*, *6*(2), 1–36. https://doi.org/10.2202/1469-3569.1067

Dadush, U., Domínguez-Jiménez, M., & Gao, T. (2019). *The state of China – European Union economic relations* (Bruegel Working Paper No. 2019/09). Bruegel.

Davies, A., & Quinlivan, G. (2006). A panel data analysis of the impact of trade on human development. *The Journal of Socio-Economics*, *35*(5), 868–876. https://doi.org/10.1016/j.socec.2005.11.048

De Melo, J., & Nicita, A. (2018). *Non-tariff measures: Data and quantitative tools of analysis* (FERDI Working Paper No. 218). Development Policies.

Dollar, D., & Kraay, A. (2004). Trade, growth, and poverty. *The Economic Journal*, *114*(493), F22–F49. https://doi.org/10.1111/j.0013-0133.2004.00186.x

Dooley, K., & Corman, S. (2004). Dynamic analysis of news streams: Institutional versus environmental effects. *Nonlinear Dynamics*, *Psychology*, *and Life Sciences*, *8*(3), 259–284.

Evenett, S. J. (2019). Protectionism, state discrimination, and international business since the onset of the Global Financial Crisis. *Journal of International Business Policy*, *2*(1), 9–36. https://doi.org/10.1057/s42214-019-00021-0

Fajgelbaum, P. D., Goldberg, P. K., Kennedy, P. J., & Khandelwal, A. K. (2020). The return to protectionism. *The Quarterly Journal of Economics*, *135*(1), 1–55. https://doi.org/10.1093/qje/qjz036

Favero, G. (2007). *Weather forecast or rain-dance? On inter-war business barometers* (Department of Economics, University Ca' Foscari of Venice Research Paper No. 14/WP/07). https://doi.org/10.2139/ssrn.1016001

Flak, O., & Głód, G. (2014). Barometr konkurencyjności przedsiębiorstw. Wyniki badań empirycznych. *Przegląd Organizacji*, *1*, 12–17. https://doi.org/10.33141/po.2014.01.03

Fliess, B., & Busquets, C. (2006). *The role of trade barriers in SME internationalisation* (OECD Trade Policy Working Paper No. 45).

Frankel, J. A., & Romer, D. H. (1999). Does trade cause growth? *American Economic Review*, *89*(3), 379–399. https://doi.org/10.1257/aer.89.3.379

Gallup, G. (1955). The absorption rate of ideas. *Public Opinion Quarterly*, *19*(3), 234–242. https://doi.org/10.1086/266568

Gałecka-Burdziak, E., & Pater, R. (2015). Ile jest wolnych miejsc pracy w Polsce? *The Polish Journal of Economics*, *279*(5), 171–186. https://doi.org/10.33119/GN/100855

Global Trade Alert. (2022). https://www.globaltradealert.org/

Gunnella, V., & Quaglietti, L. (2019). The economic implications of rising protectionism: A euro area and global perspective. *Economic Bulletin Articles*, 3. European Central Bank. https://www.ecb.europa.eu/pub/economic-bulletin/articles/2019/html/ecb.ebart201903_01~e589a502e5.en.html

Hoffmann, B. (2015). Barometr innowacji? W poszukiwaniu uniwersalnych miar i wskaźników innowacyjności. *Rynek – Społeczeństwo – Kultura*, *1*(13), 18–30.

Hellwig, Z. (1968). Zastosowanie metody taksonomicznej do typologicznego podziału kraju ze względu na poziom rozwoju oraz zasoby i strukturę wykwalifikowanych kadr. *Przegląd Statystyczny*, *4*, 307–326.

Henn, C., & McDonald, B. (2014). Crisis protectionism: The observed trade impact. *IMF Economic Review*, *62*(1), 77–118. https://doi.org/10.1057/imfer.2014.4

Henriques, I., & Sadorsky, P. (1996). Export-led growth or growth-driven exports? The Canadian case. *Canadian Journal of Economics*, *29*(3), 540–555. https://doi.org/10.2307/136249

Hu, C., Lin, F., Tan, Y., & Tang, Y. (2019). How exporting firms respond to technical barriers to trade? *The World Economy*, *42*(5), 1400–1426. https://doi.org/10.1111/twec.12786

Hwang, C. L., & Yoon, K. (1981). *Multiple attribute decision making: Methods and applications*. Springer. https://doi.org/10.1007/978-3-642-48318-9

International Labour Office. (1924). *Economic barometers* (Report submitted to the Economic Committee of the League of Nations). http://www.ilo.org/public/libdoc/ilo/ILO-SR/ILO-SR_N5_engl.pdf

Japanese Ministry of Economy, Trade and Industry. (2019). *White paper on international economy and trade 2019*. Part 2.1. (METI). https://www.meti.go.jp/english/report/data/wp2019/wp2019.html

Konopka, P. (2021). *Metody wielokryterialnego podejmowania decyzji w badaniu ryzyka finansowania przedsiębiorstw.* Wydawnictwo Uniwersytetu w Białymstoku.

Król, A., & Targaszewska, M. (2018). Zastosowanie zmiennych zastępczych w modelach hedonicznych. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, *507*, 106–114. https://doi.org/10.15611/pn.2018.507.10

Krueger, A. O. (1980). Trade policy as an input to development. *The American Economic Review*, *70*(2), 288–292.

Kutlina-Dimitrova, Z., & Lakatos, C. (2017). *The global costs of protectionism* (Policy Research Working Paper, No. 8277). World Bank. https://doi.org/10.1596/1813-9450-8277

Kutlina-Dimitrova, Z., & Lakatos, C. (2020). Workers are also consumers, and protectionism drives up costs for all consumers. In E. Doyle (Ed.), *Tariffs and the future of trade* (pp. 92–97). Greenhaven Publishing.

Lee, J. W., & Swagel, P. (1994). *Trade barriers and trade flows across countries and industries* (NBER Working Paper, 4799).

Lewandowska, A., Stopa, M., & Inglot-Brzęk, E. (2021). Innovativeness and entrepreneurship: Socio-economic remarks on regional development in peripheral regions. *Economics & Sociology*, *14*(2), 222–235. https://doi.org/10.14254/2071-789X.2021/14-2/12

Looi Kee, H., Nicita, A., & Olarreaga, M. (2009). Estimating trade restrictiveness indices. *The Economic Journal*, *119*(534), 172–199. https://doi.org/10.1111/j.1468-0297.2008.02209.x

Looi Kee, H., Neagu, C., & Nicita, A. (2013). Is protectionism on the rise? Assessing national trade policies during the crisis of 2008. *Review of Economics and Statistics*, *95*(1), 342–346. https://doi.org/10.1162/REST_a_00241

Mahmoodzadeh, S., Shahrabi, J., Pariazar, M., & Zaeri, M. S. (2007). Project selection by using fuzzy AHP and TOPSIS technique. *World Academy of Science, Engineering and Technology International Journal of Industrial and Manufacturing Engineering*, *1*(6), 270–275.

Mladenović, J., Lepojević, V., & Janković-Milić, V. (2016). Modelling and prognosis of the export of the Republic of Serbia by using seasonal Holt-Winters and ARIMA method. *Economic Themes*, *54*(2), 233–260. https://doi.org/10.1515/ethemes-2016-0012

Nakuja, T., & Kerr, W. A. (2013). Protectionism or legitimate regulations: What can trade partners expect from the new US food safety regime? (Commissioned Paper, 165920). *Canadian Agricultural Trade Policy Research Network*, 4, 1–19.

Niu, Z., Liu, C., Gunessee, S., & Milner, C. (2018). Non-tariff and overall protection: Evidence across countries and over time. *Review of World Economics*, *154*(4), 675–703. https://doi.org/10.1007/s10290-018-0317-5

Nowak, J., & Pankiv, L. (2018). Zmiany na rynku pracy a efektywność kształcenia w Polsce. *Zeszyty Naukowe Politechniki Śląskiej. Seria: Organizacja i Zarządzanie*, *123*, 313–323.

Piekutowska, A., & Marcinkiewicz, J. (2020). Protectionism in International Trade: The case of the European Union member states. *European Research Studies Journal*, *23*(2), 728–740. https://doi.org/10.35808/ersj/1618

Pomichowski, P., & Parlinska, M. (2018). Analiza handlu międzynarodowego Polski z krajami sąsiadującymi z zastosowaniem modelu grawitacyjnego. *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu*, *20*(5), 174–178. https://doi.org/10.5604/01.3001.0012.6704

Puślecki, Z. W. (2022). Increase of protectionism between USA and China and modern international business. *SunText Review of Economics and Business*, *3*(3), 163. https://doi.org/10.51737/2766-4775.2022.063

Roszkowska, E., Brzostowski, J., & Wachowicz, T. (2013). Szacowanie wag zagadnień negocjacyjnych na podstawie metod wielokryterialnych. In W. Sikora (Ed.), *Metody i zastosowania badań operacyjnych w gospodarce, finansach i szkolnictwie wyższym* (pp. 209–227). Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Rutkowski, J. (1971). Podstawowe metody regulowania współczesnej gospodarki kapitalistycznej. *Ruch Prawniczy, Ekonomiczny i Socjologiczny*, *33*(1), 205–221.

Sarason, S. B. (2000). Barometers of community change. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp. 919–929). Springer. https://doi.org/10.1007/978-1-4615-4193-6_37

Semeniuk, P. (2019). *Economic protectionism in the European Union*. Polish Economic Institute.

Skrzywan, W. (1928). Barometry gospodarcze. *Ruch Prawniczy, Ekonomiczny i Socjologiczny*, *8*(3), 298–310.

Sporek, T., Czech, A., Fronczek, M., & Kos-Łabędowicz J. (2019). *Pomiędzy polityką a ideologią – globalne wyzwania współczesnej gospodarki światowej*. Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach.

Sykes, A. O. (1999). Regulatory protectionism and the law of international trade. *The University of Chicago Law Review*, *66*(1), 1–46. https://doi.org/10.2307/1600385

Trzaskalik, T. (2014). *Wielokryterialne wspomaganie decyzji. Metody i zastosowania*. Polskie Towarzystwo Ekonomiczne.

UN Comtrade Database. (2022). https://comtrade.un.org/data/

United Nations Conference on Trade and Development. (2019). *International classification of non-tariff measures*. UNCTAD. https://unctad.org/system/files/official-document/ditctab2019d5_en.pdf

Viani, F. (2019). The latest protectionist trade trends and their impact on the European Union. *Banco de Espana Economic Bulletin*, *2*, 6–19.

Vitale, A. (2020). Protectionism and the global trade stagnation. *Przegląd Europejski*, *4*, 147–153. https://doi.org/10.31338/1641-2478pe.4.20.12

Zanhouo, A. K. (2021). Does protectionism matter in the time of pandemic? *ShowCASE*, *116*, *3–6.* https://case-research.eu/files/?id_plik=6729

Zavadskas, E. K., Mardani, A., Turskis, Z., Jusoh, A., & Nor, K. M. (2016). Development of TOPSIS method to solve complicated decision-making problems – An overview on developments from 2000 to 2015. *International Journal of Information Technology* & *Decision Making*, *15*(03), 645–682. https://doi.org/10.1142/S0219622016300019

Zeng, S., & Xiao, Y. (2018). A method based on TOPSIS and distance measures for hesitant fuzzy multiple attribute decision making. *Technological and Economic Development of Economy*, *24*(3), 969–983. https://doi.org/10.3846/20294913.2016.1216472

Żukrowska, K. (2020). Wojna handlowa USA–ChRL i jej konsekwencje. *Krakowskie Studia Międzynarodowe*, *17*(1), 63–87. https://doi.org/10.34697/2451-0610-ksm-2020-1-003