PRACE NAUKOWE
Uniwersytetu Ekonomicznego we Wrocławiu

RESEARCH PAPERS
of Wrocław University of Economics

Nr 413

Dimensions of Regional Processes in the Asia-Pacific Region

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Publishing House of Wrocław University of Economics
Wrocław 2015

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Layout: Barbara Łopusiewicz

Proof-reading: Barbara Cibis

Typesetting: Beata Mazur

Cover design: Beata Dębska

Information on submitting and reviewing papers is available on websites
www.economia.ue.wroc.pl
www.wydawnictwo.ue.wroc.pl

ISSN 1899-3192
e-ISSN 2392-0041

ISBN 978-83-7695-569-8

The original version: printed

Publication may be ordered in Publishing House
ul. Komandorska 118/120, 53-345 Wrocław
tel./fax 71 36-80-602; e-mail: econbook@ue.wroc.pl
www.ksiegarnia.ue.wroc.pl

Printing: TOTEM

Contents

Part 3. Risks & Challenges

Introduction

Asia and Pacific's growing importance to the rest of the world is widely acknowledged today. The dynamics of Asian economic development have tremendously impacted global trade relationships and regional cooperation. Thus, it is with great pleasure that we deliver another volume of Research Papers on Asia-Pacific economic issues.

This year we present 19 papers by various authors who examine the Asia-Pacific region from different perspectives. We decided to group them into 3 Chapters:

- Cooperation and trade
- Economy and policy
- Risks & challenges

Papers grouped in the First Chapter describe newly emerging regional trade architecture. You will find there a few analyses of general nature and regional scope (J. Dudziński, A. H. Jankowiak, E. Majchrowska) and some studies on specific trade agreements (A. Klimek writes about Shanghai Free Trade Zone, A. McCaleb and G. Heiduk try to find out what motivates China's cities to establish partner agreements with cities in Asia, B. Michalski analysing U.S.-Republic of Korea Free Trade Agreement, while M. Maciejewski and W. Zysk look for opportunities for Polish exports in the trade agreement between EU and Vietnam).

The Second Chapter is the most diverse one. It is devoted mostly to economic policy issues (including financial sector). S. Bobowski, L. Zyblikiewicz and K. Żukrowska look at the main threads in Asian regionalism. P. Pasierbiak and K. Łopacińska analyse the movements of Chinese capital. M. Dziembała and S. Mazurek deal with the subject of innovation supporting growth and development.

Articles in the Third Chapter are focused on extraordinary events influencing economies and development of the Asia-Pacific region. J. Pera prepared an assessment of risk of APEC countries, based on the country risk classification method and selected indexes of internal stability. A. Kukułka and B. Totleben analyse the impact of natural disasters on gross capital formation in Southeastern Asia. Finally, T. Serwach and M. Grabowski and S. Wyciślak deal with synchronization of business cycles and contagion of crises.

We sincerely hope that all the articles will be of great value to those who want to understand the role of Asia-Pacific economies in the global economy. Through various interests of authors, our volume provides a valuable insight into the problems of this region.

All the papers where submitted for the 8th international scientific conference "Dimensions of Regional Processes in the Asia- Pacific Region" which took place in

November 2015 at Wroclaw University of Economics, under the patronage of Polish Ministry of Foreign Affairs, Ministry of Science and Higher Education and the Ministry of Economy.

We appreciate your time and consideration, and we look forward to the submission of your own good work. We also appreciate the time and effort of our peer reviewers. Thank you!

Bogusława Drelich-Skulska, *Anna H. Jankowiak*, *Szymon Mazurek*

PRACE NAUKOWE UNIWERSYTETU EKONOMICZNEGO WE WROCŁAWIU
RESEARCH PAPERS OF WROCŁAW UNIVERSITY OF ECONOMICS nr 413 • 2015

Dimensions of Regional Processes in the Asia-Pacific Region

ISSN 1899-3192
e-ISSN 2392-0041

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COMMODITY AND INCOME TERMS OF TRENDS AS A MEASURE OF BENEFITS IN CONTEMPORARY INTERNATIONAL TRADE (BASED ON THE EXAMPLE OF SELECTED ASIAN COUNTRIES)

CENOWE I DOCHODOWE *TERMS OF TRADE* JAKO MIERNIKI KORZYŚCI Z HANDLU ZAGRANICZNEGO WE WSPÓŁCZESNYM HANDLU MIĘDZYNARODOWYM (NA PRZYKŁADZIE WYBRANYCH KRAJÓW AZJI)

DOI: 10.15611/pn.2015.413.01
JEL Classification: E64, F10, F40

Summary: In contemporary international trade, commodity terms of trade do not provide an appropriate reflection of the benefits and competitiveness of foreign trade of individual countries and world regions. It is income terms of trade, i.e. the purchasing power of exports, which offer a much more accurate measurement of benefits yielded by foreign trade and criterion of its profitability. The latter indicator – unlike commodity terms of trade – captures also the impact of another important factor, i.e. export volume. Commodity terms of trade provide a fairly accurate reflection of the benefits and competitiveness of foreign trade for primary commodities. The role of these commodities in contemporary international trade, however, has considerably decreased over the years. At the same time, the share of manufactured goods has been rising in the last decades, also in the exports of developing countries (particularly China and other Asian countries, e.g. Vietnam).

Keywords: terms of trade, international trade, world prices, developing countries.

Streszczenie: W warunkach współczesnego handlu międzynarodowego cenowe terms of trade nie odzwierciedlają w sposób właściwy korzyści i konkurencyjności handlu zagranicznego krajów i regionów. Znacznie lepszym miernikiem korzyści osiąganych z handlu zagranicznego i kryterium jego opłacalności są dochodowe *terms of trade*, czyli siła nabywcza eksportu. Wskaźnik ten ujmuje bowiem także – w odróżnieniu od cenowych *terms of trade* – wpływ istotnego czynnika, jakim jest w obecnych warunkach wolumen eksportu. Cenowe *terms of trade* w miarę poprawnie odzwierciedlają korzyści i konkurencyjność handlu zagranicznego w przypadku dóbr podstawowych (surowce i żywność). Rola tych ostatnich we współczes-

nym handlu międzynarodowym jest jednak znacznie mniejsza niż dawniej. Przy tym udział wyrobów przemysłu przetwórczego rośnie w ostatnich dekadach znacząco, także w wywozie do krajów rozwijających się (zwłaszcza do Chin i inych krajów azjatyckich, np. Wietnamu).

Słowa kluczowe: terms of trade, handel międzynarodowy, ceny światowe, kraje rozwijające się, Azja.

1. Introduction

In the literature – whether by foreign or Polish authors – terms of trade are considered a highly important synthetic indicator (measure) reflecting the directions and magnitude of the impact of prices on foreign trade and economic growth of individual countries and world regions. In the majority of the publications (of both scientific and utilitarian nature), however, terms of trade are understood as a synonym for commodity or net barter terms of trade (CTOT).

Under the present conditions of international trade, where manufactured goods account for much more than half of the total trade, and their share in exports of the world's largest exporter – China – is even above 90%, certain doubts arise as to the validity of CTOT as the right measure of benefits and efficiency of foreign trade and its impact on economic growth. Those doubts are expressed particularly in publications focused on China and the so-called new industrialised economies.

The aim of this study is to make an attempt to answer the following questions: are CTOT – under the present conditions of international trade – an accurate measure of the benefits and profitability of foreign trade, and if so – to what extent? Or do other types of terms of trade (which also capture the export volume) offer a more accurate picture? The research study was conducted based on selected Asian economies.

The first part of the study provides a synthetic approach to the *terms of trade* category as shown in the literature, particularly in relation to the Prebisch-Singer hypothesis. The second part of the paper offers an analysis of CTOT of the world's largest exporter – China – and selected Asian economies which are different in terms of both export structures and dynamics of the export volume (Vietnam, Saudi Arabia). Next, the results are analysed against the dynamics of total exports and GDP. In the following part of the paper, the analysis focuses on changes in the so-called income terms of trade (ITOT) against the dynamics of the export volume. In conclusion, the main findings are summarised. For the purpose of the study, the statistical descriptive method was used.

In general, the study covers the years 2001-2014. The analysis of the GDP dynamics, however, focuses on the period 2005-2014 to offer a better reflection of the impact of new price tendencies witnessed after 2003. The data used in the paper is derived mostly from the UNCTAD and IMF databases.

2. Terms of trade as a criterion of benefits from foreign trade

Terms of trade belong to the most important concepts in the theory and practice of international economic relations. The publications on this subject emphasise that this category is a synthetic measure of benefits (and competitiveness) of a given economy's external trade. The theory of international economic relations uses the *terms of trade* category to describe individual groups of commodities exported and imported by individual countries or world regions (e.g.: [Dudziński 2007, pp. 91-93]). Studies of long-term price relations in international trade were pioneered by R. Prebisch and H. Singer, who in the first half of the 20th century analysed price relations for developing and developed countries. They formulated a thesis which argues that the terms of trade of primary-commodity-based economies (i.e. the developing countries) gradually deteriorate over time [Sarkar, Singer 1992[1]; Bleaney, Greenaway 1993; Lutz 1999; Block, Sapsford 2000]. This hypothesis has remained a hot topic of discussion ever since.

Recently the focal point of such analyses has been shifting from commodities to countries [Kersti, Crowe 1997; Ziesemer 2010]. It is related to an interesting and more widely discussed issue of the so-called manufacture to terms of trade, i.e. declining prices of manufactured goods in developing countries' exports relative to prices in developed countries' exports [Maizels 2000; Zhihai, Yumin 2002; UNCTAD 2005; Chakraborty 2013].

In the subject literature several types of terms of trade are known (commodity, income, factoral, etc.), yet it is the commodity (or net barter) terms of trade which are usually subject of the in-depth analyses. In statistical terms, this category is defined as dynamics of export prices relative to import prices over a period of time. This kind of approach – which reduces this category solely to price relations – is present both in the majority of scientific publications on international trade, and statistical yearbooks (*Handbook of Statistics* published by UNCTAD [2013, pp. 218–224] or *Yearbook of Foreign Trade Statistics of Poland* by the Central Statistical Office in Poland [2014, p. 49]).

What should be emphasised here is the aforementioned fact that terms of trade are considered a certain measure of profitability of, or benefits and gains from, foreign trade. Some authors even claim that they measure "the magnitude of gains and losses" [Guzek 2006, p. 87], whereas improving terms of trade "increase the real income" [Świerkocki 2011, pp. 81–82] and "indicate changes in gains enjoyed by countries involved in trade" [Bożyk et al. 1998, p. 242].

K. Marczewski – in an interesting monograph addressing the problem of prices in Polish external trade – argues that prices in foreign trade presented in the form of various relative indicators are "measures of foreign trade's competitiveness and of gains on this trade generated for the welfare of the society" [2014, p. 11].

[1] See also the vast body of literature presented there.

The problem of impact of the terms of trade on changes in GDP and the welfare of nations and regions is also addressed by many authors [Basu, McLeod 1992; Fosu, Gyapong 2010]. They usually point out that the impact of international trade prices on the economic growth has become substantially greater in the 21st century [Adler, Magud 2013, p. 24]. It may be related to the increased role of foreign trade in contemporary economy (in the years 2000-2013 the share of the world's export in the global GDP increased from 24 to 31%)[2].

Table 1. Exports to GDP ratios and manufactured goods as % of total exports in the years 2000 and 2013 (%)

Country/region	Exports to GDP ratio*		Manufactured goods as % of exports	
	2000	2013	2000	2013
World	24	31	73	63
Developing countries	34	35	57	61
Developed countries	21	28	78	68
China	23	26	88	94
Saudi Arabia	44	52	11	14
Vietnam	55	84	42	74

Note: * Total exports of goods and services as % of GDP

Source: UNCTAD [2015].

In the following parts of the paper, tendencies in CTOT in the 21st century are shown, based on the world's largest exporter – China – and selected Asian countries with different commodity structures and different dynamics of exports. On the one hand, Saudi Arabia is analysed, as one of the major oil exporters in the world, with a stable, commodity-based structure of exports (with the share of manufactured goods ranging from only 11 to 14 percent of exports). The second country subject to analysis is Vietnam, which has been reporting very high dynamics of exports (a nearly 10-fold increase) and GDP (approx. 6-fold growth). The latter economy has undergone a major shift in the commodity structure of exports (the share of manufactured goods surged from 42% in 2000 to 74% in 2013) – see: Table 1.

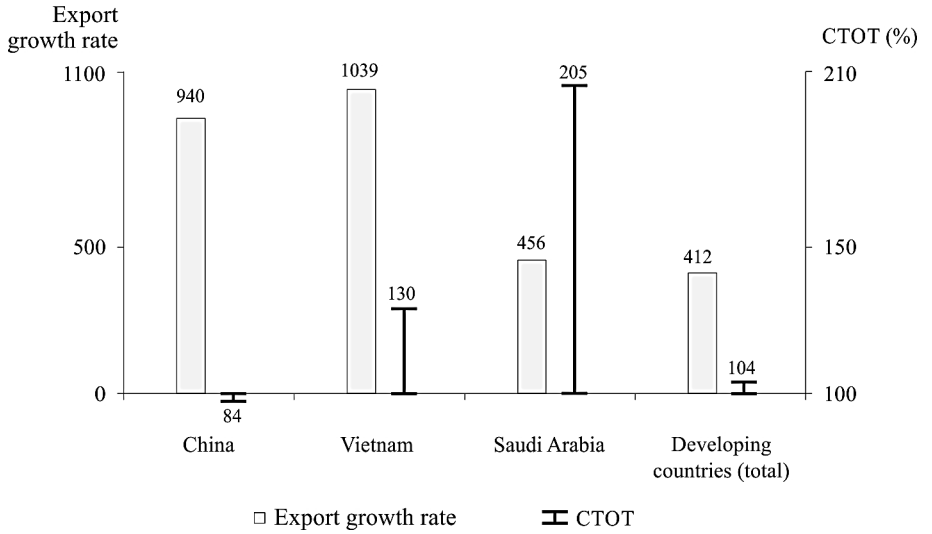
3. CTOT changes in selected Asian countries in the 21st century

The 21st century has been witnessing major transformations in price relations concerning the two main commodity groups. The prices of primary commodities nearly tripled between 2000 and 2014 (or doubled, if fuels are excluded), while the prices of manufactured goods increased by slightly more than 30%[3]. These new price

[2] Own calculations based on [UNCTAD 2014].

[3] Own calculations based on IMF [2015]. For more on this topic, see e.g.: Dudziński [2012, pp. 744–754].

relations were reflected in the levels of CTOT by countries (see: Fig. 1). Particularly rapid changes in this category were reported for countries with primary-commodity-oriented exports, such as Saudi Arabia.



Note: The year 2000 = 100

Fig. 1. Export growth rates and CTOT in selected Asian economies in the years 2000–2014

Source: UNCTAD [2015].

CTOT in the trade of oil exporting countries improved more than two fold over the analysed period. A particularly high increase was observed in 2013 for countries rapidly increasing their exports: Kazakhstan (with TOT at 230), Oman (240), Russia (245), Venezuela (255) and Angola (257) [UNCTAD 2013, pp. 218-224]. A relatively low growth in CTOT for the entire group of developing countries (see: Fig. 1) is related to the considerable increase in the value of manufactured goods relative to total exports in this group of countries (still above 50% – despite a decline in the 21st century)[4].

It is also worth to observe deterioration in CTOT in the exports of developed countries (by 3%). It results from a very high share of manufactured goods in their total exports (nearly 70%). What should be emphasised is the dramatic fall in CTOT in China's exports, which decreased between 2000 and 2013 by as much as 25% (in 2014, however, it slightly increased – see: Fig. 1). It was, naturally, related to a very high share of manufactures in China's exports (approx. 94% in 2013 – see: Table 1) and a substantial share of commodities in the country's imports (over 70%). China was exporting considerable quantities of manufactured goods at low, highly

[4] Own calculations based on UNCTAD [2015].

competitive prices, thus significantly contributing to the aforementioned changes in price relations to the disadvantage of the manufactured goods. At the same time, China's very high demand for primary commodities boosted the dynamics of the global prices of these commodities [Dudziński 2014, pp.164-175], hence the world literature presents views which claim that China is seemingly "improving" the CTOT of its foreign partners [Robertson 2012[5]; Francis 2007, pp. 13-25].

In the light of the earlier considerations concerning the directions of CTOT's impact on both individual economies and economies of entire regions (criterion of profitability in foreign trade, effect on real income), as well as the analysis of changes in CTOT in the 21st century, it may be highly interesting to investigate the growth rates of exports and GDP over this period as the measures reflecting the impact of CTOT on the benefits of international trade and the country's real income.

As seen in Fig. 1, China's exports – in terms of total value – increased more than nine-fold between 2000 and 2014 (940). Saudi Arabia, in turn, which is an economy with much higher dynamics of CTOT, also reported a significant growth in its exports (456), yet it increased considerably slower (twice as slowly, to be precise) than China's.

Based on the above analysis, it may be concluded that unlike the high dynamics of exports in Saudi Arabia, which can be explained with favourable changes in the country's CTOT, the surge in China's exports cannot be related in any way to the changes in its CTOT. To large extent, a similar conclusion can be drawn for Vietnam; its exports reported an even more dramatic growth than China's [Champonniere, Cling 2009, pp. 101-130; Nhien, Lan 2015], yet its CTOT – only a moderate increase (by 30%). In Saudi Arabia, in turn, where CTOT more than doubled, exports increased more than twice as slowly as in Vietnam. It is also worth to point out that the dynamics of Saudi Arabia's total exports was similar to that observed for the entire group of developing countries, where the overall growth in CTOT was merely symbolic (by 4%).

The analysis indicates clearly that, under present conditions of international trade, CTOT can be hardly considered a measure of benefits from the foreign trade or a criterion of external trade profitability.

Assuming that the effects of changes in CTOT on changes in the real income or welfare of the society are reflected in a country's or region's GDP growth rate, it seems worthwhile to compare changes in CTOT with the dynamics of GDP in the years 2005-2014, i.e. in the period when the new price relations started affecting the GDP growth rates[6]. It should be emphasised, however, that there are many reasons behind changes in the dynamics of GDP – price movements in foreign trade figures are only one of those determinants – however significant.

In this context, the extremely high dynamics of China's GDP, averaging as much as 10% annually between 2005 and 2014 is worthy of attention[7]. This GDP growth

[5] And the list of references there.

[6] Commodity prices in international trade began to surge in the years 2003-2004, see e.g.: IMF [2015].

[7] Own calculations based on UNCTAD [2015].

rate is strictly related to the aforementioned strong expansion of the country's export. It has no relation, however, to the tendencies in China's CTOT.

The average annual GDP growth rates for Saudi Arabia, Vietnam and developing countries as a group were rather similar and ranged from 5.7% (developing countries as a group) to 6.4% (Vietnam)[8]. Nevertheless, we should bear in mind the significant differences between those countries in terms of the dynamics of changes in their CTOT. While CTOT in Saudi Arabia more than doubled (205), in Vietnam they increased by only 30%, and for developing countries as a group, they remained practically unchanged (at 104).

In general, it may be concluded that the aforementioned views on the direction of CTOT's impact on foreign trade and real income of countries and regions are not supported – to a large extent – by the economic reality of the first half of the 20th century. China is an evident, even model example of this phenomenon. It should be mentioned here that a similar situation was observed for many developing countries with high shares of manufactured goods in their export structures or significantly increasing the share of these goods in their exports (e.g. Vietnam). It should not be forgotten, however, that the Prebisch-Singer hypothesis was based on the analysis of international trade in the early 20th century. In that period, primary commodities not only played an important part in the world's export, but also dominated the exports of developing countries.

4. Commodity versus income terms of trade

Price is only one of the factors determining profitability of the external trade. Domestic costs of production related to labour productivity and efficient employment of the factors of production are of equal importance [UNCTAD 2005, p. 88]. According to R. Findley, falling export prices resulting from lower labour productivity can contribute to a country's welfare despite the deteriorating terms of trade [Świerkocki 2011, p. 83].

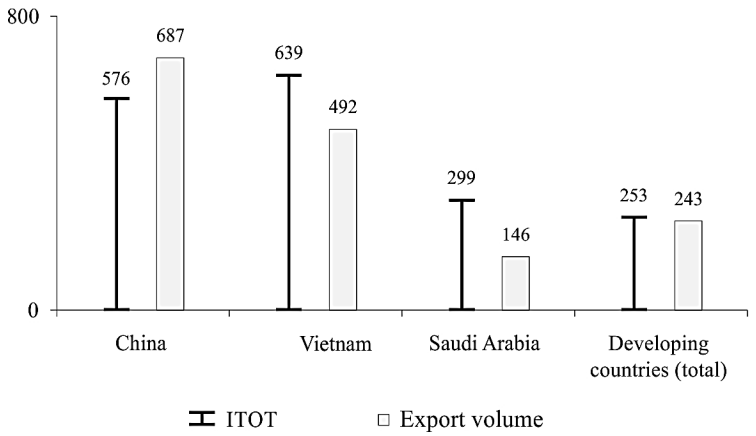
In the case of manufactures – due to their considerably higher elasticity of supply – export volume is a category which gains in importance as the determinant of total exports profitability . Export volume is much more relevant to manufactured goods than it is to primary commodities, owing to the latter group of products' low elasticity of supply (and demand) [UNCTAD 2005, pp. 90-91]. In this context, another fact should be emphasised, namely that the share of manufactured goods in the total exports of developing countries increased from approx. 10% in the 1950s to nearly 65% at present [Chakraborty 2013; UNCTAD 2015].

In the literature it is usually pointed out that under dynamically increasing labour productivity in the industry, a country (exporter) may receive higher import volumes in return for the same volume of factors of production involved in exports, even if

[8] Own calculations based on UNCTAD [2015].

CTOT are deteriorating [UNCTAD 2005, p. 101; Dudziński 2007, p. 92]. China is an obvious and good example supporting this hypothesis, as it has the power to raise competitiveness of its exports by adopting a low-price policy. In the case of food and raw materials, on the other hand, it is still the price which remains the major factor influencing the exports and which is determined by the global demand and supply (the so-called world price).

In the present circumstances, where manufactures account for the vast majority of the global international trade, including the group of developing countries, income terms of trade (also known as the purchasing power of exports) are a better measure of benefits from the trade. As opposed to commodity terms of trade, these indicators also capture the impact of export volume. Deterioration of price relations in international trade alone does not need to imply negative consequences for the income from exports, provided it is compensated by a stronger increase in the export volume [Dudziński 2007, p. 92]. At the same time, as raised in the literature, ITOT are better measures of gains from external trade if "they change in reaction to economic growth" [Świerkocki 2011, p. 84].



Note: The year 2000 = 100.

Fig. 2. ITOT and export volume for selected Asian economies in the years 2001-2014

Source: UNCTAD [2015].

In this context it seems interesting to analyse the changes in ITOT in the years 2001-2014 and compare and contrast the results of this analysis with the changes in CTOT as shown above. In Fig. 2, which presents tendencies in indicators describing the dynamics of export volume and its purchasing power (ITOT), a significant relationship between the two categories can be easily observed for countries and regions with high shares of manufactures in their total exports (China, Vietnam and developing countries as a group). This relationship can be best seen for the group of

developing countries as a whole; in this case the values of both indicators are almost identical, as there are hardly any changes in CTOT.

In the case of China, the purchasing power increases much less rapidly than the exports volume as a result of the highly unfavourable CTOT. The opposite can be observed for Saudi Arabia, where the purchasing power of exports is much higher than export volume, owing to very favourable CTOT[9]. Generally, it can be concluded that in the contemporary world economy, ITOT is a much better indicator capturing the impact of price relations (or more broadly – external development factors) on the economic growth, than the traditional and popular CTOT.

5. Conclusion

The findings presented in this study concerning selected Asian economies allow several general conclusions to be formulated. Firstly, under the present conditions of the international trade, CTOT does not offer an accurate reflection of gains and competitiveness of external trade of individual countries and world regions.

Secondly, ITOT, i.e. the purchasing power of exports, is a much better measure of gains in external trade and criterion of its profitability. Unlike CTOT, this indicator captures also the impact of another crucial factor, namely the export volume.

Thirdly, CTOT are a fairly accurate measure of the benefits and competitiveness of the external trade for primary commodities (raw materials and food). The role of the latter group of commodities has significantly diminished over time, whereas the share of manufactures has been considerably increasing over the last decades, affecting also the exports from developing countries (particularly China and the so-called new industrialised economies). As a result, the conditions of international trade have changed substantially as compared to the first half of the 20th century when the Prebisch-Singer hypothesis was developed.

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[9] Which is why countries highly dependent on export of primary commodities are affected by their falling prices. For instance, it is the reason behind Russia's and Venezuela's difficult economic situation in 2014-2015, when the global markets were hit by dramatic falls in oil prices.

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