Колотушкина Д. Д.

Студент факультета международной экономики и управления,

Международная экономика и торговая политика

Уральский государственный университет

г. Екатеринбург

REVIEV OF A PAPER: “GLOBAL DISTRIBUTION CONSUMPTION: NICKEL, COPPER AND IRON.”

Аннотация: в современной экономике анализ потока веществ играет важную роль, и авторы анализируемой статьи были обеспокоены растущим потреблением материалов. Цель их исследований состояла в том, чтобы понять поток веществ в мировой торговле и очевидное потребление названных материалов в разных странах, что, как считается, помогает уменьшить истощение природных ресурсов. Цель этого исследования состояла в том, чтобы определить всемирный материальный поток никеля, меди и железа в мировой торговле между 231 страной и регионом и изучить видимое потребление материалов как глобальное систематическое явление.

Ключевые слова: экономика, медь, никель, железо.

Annotation: in today's economy, the analysis of the flow of substances plays an important role, and the authors of the analyzed article were concerned about the growing consumption of materials. The aim of their research was to understand the flow of substances in global trade and apparent consumption of named materials in different countries, which believed to help to reduce natural resource depletion. The goal of this study was to identify the worldwide material flow of nickel, copper, and iron in global trade among 231 countries and regions, and to examine the apparent consumption of the materials as a global systematic phenomenon.

Keywords: economy, copper, nickel, iron.

Part I: Summary of the paper

K. Nakajima et al. are worried about growing use of different minerals (nickel, copper, iron) due to rapid development of renewable energy sources, which requires infrastructure capacity. The aim of their research was to understand the flow of substances in global trade and apparent consumption of named materials in different countries, which believed to help to reduce natural resource depletion. Economists specified the complexity of measuring these indicators due to lack of appropriate statistics, so they utilized an MFA approach (material flow analysis). The main problem was to assess correctly the share of one or another substance in a final good.

The fundamental basis for material flow analysis appeared in a study of W. Leontief (1966)[1], where he described the state of the stock and flow of economic structure on the use of input-output model. This model shaped the knowledge of interaction of different parts of economy and showed how combination of resources (inputs) can achieve certain production goals (outputs). Then, R. Ayres, famous ecological economist, implemented material balance principle in the model of national economy[2].

Using the BACI (is the International trade database developed by the CEPII which allow one to choose commodities by high level of product disaggregation) researchers defined commodities, which assumed to contain nickel, copper and iron (together or separately) The measure of substance i flow from country p to q as part of commodity k follows:

$$t_{pq}^{(k,i)} = v_{pq}^{(k)} + r_{pq}^{(k,i)} + s_{pq}^{(k,i)};$$

where

[1] W. Leontief, Input - output Economics. New York: Oxford University Press, 1966.
[2] R. U. Ayres, and A. V. Kneese, "Production, consumption and externalities," American Economic Review, vol. 59(2), pp. 282-297

$v_{pq}^{(k)}$ *is k volume of trade,*

$r_{pq}^{(k,i)}$ *is a ratio of products in commodity group k, which contain substance i,*

$s_{pq}^{(k,i)}$ *is a substance i content rate (the last indicator was compounded from various sources or estimated within a special model from previous study of these economists[3]).*

Consequently, authors of this study accounted the international trade flow of nickel, copper and iron and computed apparent consumption of these minerals for 231 countries. They also supplemented the results with visual maps of the largest global flows through international trade and apparent consumption distribution.

Authors argued that government should take more responsibility and perform effective actions to minimize waste of the natural resources, enhance the effectiveness of its consumption. They underlined the necessity of creating the visual maps, which indicate the material stocks and flows over time to forecast the global demand and contribute to improving recycling efficiency. Economists revealed that apparent consumption in BRICS (excluding China) and N-11 countries is comparatively low and, thus, has the potential to great hike because of predicted population and economic growth so they suggest strengthening recycling measures beforehand.

Part II: Analysis in the framework of International economics

The pattern of increasing material flow through international trade, described in this paper, corresponds to the accelerating process of globalization and growing interdependence among countries, mentioned by Bowen and Wu (2012).[4] However, the issue studied in this article is not much related to fundamental international economics theory, but rather refers to ecological economics, which I find one of the crucial part of economics science nowadays due to growing environmental challenge (risk of

3 Nakamura, S. , Nakajima, K. , Kondo, Y. and Nagasaka, T. (2007), The Waste Input-Output Approach to Materials Flow Analysis. Journal of Industrial Ecology, 11: 50-63. doi:10.1162/jiec.2007.1290

4 Harry P. Bowen & Jennifer Pedussel Wu, 2011. "Immigrant Specificity and the Relationship between Trade and Immigration: Theory and Evidence," Discussion Paper Series 2011-01, McColl School of Business, Queens University of Charlotte, revised 13 Jul 2012.

climate change)[5]*. So I can conclude, that the issue raised by the authors is quite important and worth to pay attention to.*

Furthermore, while doing the analysis of the present paper I learnt a new source to obtain international trade data – BACI (Base pour l'Analyse du Commerce International) database. It was developed by the CEPII (leading French center for research and expertise on the world economy, which contributes to the policy making process through its independent in-depth analyses on international trade, migrations, macroeconomics and finance). BACI helps researchers to deal with UN Comtrade database problem of inconsistent trade data between countries that export commodities and those that import them, This source can be very useful for my future research in the framework of international economics or in a field of master thesis issues.

I would also like to mention the disadvantage of this study I found during the first reading. The structure of the text sometimes makes it obscured, tricky to understand by reason of incorrect iteration (e.g. the first indent of 3.1).

With regard to policy recommendation, I can state I share their point that authorities should care more about the resource governance, as the importance of issue grows over time and.

I also consider their finding about the potential of increasing material consumption in BRICS (excluding China) and N-11 countries as a very important one, because many of these countries tend to show intensive (when inputs are using more productively) economic growth in the nearest future.

[5] Paris Agreement". United Nations Treaty Collection. 8 July 2016.

References:

1. *W. Leontief, Input - output Economics. New York: Oxford University Press, 1966.*
2. *R. U. Ayres, and A. V. Kneese, "Production, consumption and externalities," American Economic Review, vol. 59(2), pp. 282-297*
3. *Nakamura, S. , Nakajima, K. , Kondo, Y. and Nagasaka, T. (2007), The Waste Input-Output Approach to Materials Flow Analysis. Journal of Industrial Ecology, 11: 50-63. doi:10.1162/jiec.2007.1290*
4. *Harry P. Bowen & Jennifer Pedussel Wu, 2011. "Immigrant Specificity and the Relationship between Trade and Immigration: Theory and Evidence," Discussion Paper Series 2011-01, McColl School of Business, Queens University of Charlotte, revised 13 Jul 2012.*
5. *Paris Agreement". United Nations Treaty Collection. 8 July 2016.*