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INTERNAL AND EXTERNAL ASPECT OF CHANGES IN EXCHANGE RATE (METHODOLOGICAL AND THEORETICAL ANALYSIS)

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Abstract

In the paper the phenomena related to the tendencies in the exchange rate have been analysed basing on a new methodological approach to the category of foreign trade. The approach includes the so-called internal and external aspect of foreign trade. The approach proposed in the paper proves to be very helpful in the analysis of the phenomena in today's economy.

Keywords: exchange rate, methodology of economics, open economy macroeconomics.

JEL classification: F59, F41.

Introduction

In textbooks, foreign trade is usually and explicitly defined as exchange of goods (and services) with foreign partners[1]. **Two aspects** can be distinguished within this approach, following the differences among the activities undertaken with foreign entities. Some of those activities are performed in foreign markets, in direct relationships with foreign partners. It is those activities that are commonly identified as foreign trade (exports-imports contracts, payments in foreign currencies).

Nevertheless, most of the activities within foreign trade, usually those supporting and servicing the basic trade, are performed in the **country of origin** (e.g. Poland) and involve foreign partners, even though they are related to foreign trade. Typical examples include: transportation, freight forwarding (delivery to the border), customs clearance, expertise and control of the freight before its shipment or after delivery, harbour service, etc. Those activities are considered an element of foreign trade, both in theory and practice. They differ, however, from all the other activities within foreign trade. The first difference is related to the fact that the above-discussed activities are regulated by internal law of given country (e.g. Polish law). Secondly, the clearing between the two parties is based on the local currency (e.g. Polish zloty).

As a result, my proposal is to call this aspect of foreign trade **internal** (reflecting its "nature"), even though it represents a part of the activities comprising traditional **foreign trade**. The activities which allow distinguishing this particular aspect of foreign trade, despite their "intra-economic" character, play naturally an important part in foreign trade; no transaction could be ever completed without them.

The operations of entities which deal with foreign trade may be considered in either internal aspect, or an external one, the latter understood in particular as all the other activities performed in foreign markets and related directly to contracts with a foreign partner.

The aim of this paper is to analyse the character of the impact of the two aspects of foreign trade on the nature, mechanism and functioning of one of the basic theoretical categories in foreign trade – exchange rate.

Directions of changes of exchange rate

Depreciation is one of the most significant phenomena related to the functioning of a currency and its exchange rate in contemporary economy. It is defined as the fall in the purchasing power of a given currency, accompanying inflation, i.e. general price rise[2].

It should be emphasised, however, that the term depreciation is widely used in the scientific literature and encyclopaedias both in relation to the purchasing power of a currency in the **domestic market** and – relatively more often – in relation to changes in the **exchange rate**. The second approach predominates – which seems natural – in textbooks on international economic relations.

Decreasing purchasing power of a currency has naturally consequences not only to the domestic market but **also** to foreign trade, which is reflected in the changing exchange rate.

This approach refers to different aspects of the price of money as a specific commodity. According to K. Lutkowski[3], for instance, the price of money is on the one hand the inverse of the inflation rate, which reflects the internal aspect. On the other hand, exchange rate can also be seen as the price of money thus reflecting the **external aspect** of price. This approach is, therefore, utterly consistent with the above-presented concept of two aspects of foreign trade.

Let us analyse the issue of depreciation, applying the methodological approach distinguishing between two aspects of foreign trade.

General price rise in the domestic market, i.e. inflation, implies depreciation of given currency. It means that the purchasing power of the currency is falling, or in other words – less goods and services can be purchased with one unit of the currency. The higher the inflation rate, the faster the decline in the purchasing power, i.e. the faster the depreciation rate. This phenomenon is related, however, to only one aspect of depreciation – internal, describing the phenomena occurring in the domestic economy. In this aspect, the effects of inflation can also refer to foreign trade, e.g. exports, but they are still **internal** (e.g. rising costs of production of goods for export resulting from inflation).

While decreasing its purchasing power in the local market, given currency can be subject to **depreciation in the external aspect**, i.e. in relation to other currencies, which also has certain consequences to the exchange with abroad. This phenomenon is reflected in the changes of **exchange rate** of given currency in relation to other currencies. The scale and direction of this change is determined by two factors. The first one is inflation rate (and so the

depreciation rate of given currency) in the local market. The second factor is the depreciation rates of individual currencies in their local markets, resulting from the impact of "intra-economic" factors (inflation and depreciation in individual countries), and exchange rate policies adopted by individual countries (e.g. interventionism in exchange rate markets, level of interest rate, etc.). As a result, the directions and scale of changes of exchange rate for a currency are not a simple resultant of inflation rates in local markets of individual countries since – as already mentioned – exchange rates are determined by much more factors.

It should also be stressed that given currency not necessarily has to depreciate in external aspect (despite inflation and depreciation in internal aspect), which is the case when other currencies experience much more depreciation in internal aspect (higher inflation rates in local markets). In this case, the exchange rate of given currency will improve in relation to other currencies, i.e. its appreciation (in the external aspect) will be observed in spite of inflation and depreciation reported in the local market. This kind of phenomenon is observed in Poland quite frequently, and this problem will be discussed in more detail further below.

In the literature – especially practical – more and more often a new term **"depreciation of exchange rate"** for the external aspect of depreciation may be found. It seems that this term is a good reflection of that phenomenon and stresses the uniqueness related to different prices of money. It is also utterly consistent with the two-aspect methodological approach presented is this study.

Simultaneous impact of the two aspects of foreign trade on the operations of entities involved in the exchange with abroad can be easily observed for the category of export profit as a category of effectiveness in foreign trade. This category can be found with the following formula[4]:

$$Z_e = C_d * K_w - K_p,$$

where:

C_d – price denominated in a foreign currency;

K_w – exchange rate;

K_p – production (and distribution) costs for a commodity destined for export.

The price denominated in a foreign currency is related to the external aspect of foreign trade, whereas production costs reflect the internal aspect. The last element of the equation, exchange rate, is a category which focuses the impacts of both aspects.

Nominal and real changes of exchange rate

The above-presented methodological approach proves to be useful also to explain the nature of changes in exchange rates of both **nominal** and **real** character. Constant change of the exchange rate for given currency involving its weakening (more and more units of local currency in exchange for one unit of foreign currency) is known as **nominal depreciation**. It takes into account, however, only **external** aspect of foreign trade (changes in relations between given currency and foreign currencies). For **domestic business entities** it is of great importance, however, to relate those exchange rate changes (i.e. changes in the purchasing power of the local currency in relation to foreign currencies) to the purchasing power of the currency in the local market (**internal aspect** of the suggested methodological approach). This relationship will determine the real impact of the purchasing power of the currency on the balance of export transactions (profit or loss on exports). Exporters will not be satisfied with the changes in PLN exchange rate e.g. to USD (nominal depreciation) **if its rate is lower than inflation rate**. The latter contributes to a rise in prices of resources, fuels and labour costs thus determining the dynamics of costs of production for export. Inflation is then not fully compensated for by an increase in export profit (as a result of a slower depreciation in the external aspect, i.e. depreciation of the exchange rate)[5].

We can, therefore, conclude that it is in exporters' interest that the nominal depreciation rate in the external aspect (depreciation of exchange rate) is at least as high as the inflation rate. Otherwise, we are not dealing with real depreciation of the currency (despite its nominal depreciation) but with **its strengthening in relation to other currencies** (if the phenomenon is approached from domestic exporters' point of view). For this reason, this phenomenon is commonly defined as **real appreciation**.

In practice, it is a more complex issue, as while calculating real exchange rate the nominal exchange rate is not adjusted by domestic prices but by the relation of domestic prices (costs) to foreign prices (costs)[6]. If this relation is equal to 1, the nominal and real exchange rates are identical. In business practice, however, such a situation is very rare[7]. Higher growth rate of foreign prices (costs) than that of the local ones improves the competitiveness of our producers thus triggering off relative depreciation of exchange rate[8].

It should be emphasised here that real appreciation occurs even though given currency might depreciate in nominal terms both in the internal and external aspect, as the phenomenon of real appreciation is determined by relation of changes in the purchasing power of currency

(price of money) in both aspects: internal and external (i.e. when the inflation rate exceeds the dynamics of changes in exchange rate). If the dynamics of changes in the purchasing power in the two aspects were opposite (i.e. inflation rate in the domestic market slower that the dynamics of the rate of depreciation of the exchange rate), the processes of nominal depreciation in both aspects would also be accompanied by **depreciation in real terms**.

As evidence to the above considerations, we can use the data presented in Table 1, where the periods of appreciation and depreciation of Polish zloty exchange rate were shown in real and nominal values, calculated with the effective exchange rate (taking into account the structure of Polish payments in foreign currencies). Since Poland's accession to the European Union, we have been observing the appreciation trend of our currency (nominal appreciation from May 2004 to May 2007 amounted to 25.6%). This upward trend, however, had been preceded, from early 2002 to April 2004, by depreciation of 25%[9].

It should be noted at the same time that the above-presented processes of real appreciation of Polish zloty were reported in spite of simultaneous nominal depreciation of our currency in the internal aspect. Inflation rate in that period amounted to: 3.5% in 2004, 2.1% in 2005, and 1.0% in 2006, to reach nearly 2% in the year 2007[10].

Those phenomena are therefore a good presentation of the earlier theoretical considerations, substantiating the methodological approach suggested.

As already shown, while analysing the category of export profit, the two-aspect methodological approach is also useful to explain the effects of depreciation (and devaluation) in the **export effectiveness** sphere. It is a well-known fact that weakening of given currency increases – at least short-term – competitiveness of exports. In the mechanism of this impact, widely discussed in the literature of the subject, we can also distinguish between internal and external aspect (as it increases the export profit).

In the **internal aspect**, the change of exchange rate (devaluation or depreciation) raises prices when they are converted to the local currency thus improving the conditions of operations for exporters as compared to other local market players.

In the **external aspect**, devaluation (depreciation) provides an opportunity for reduction of prices denominated in foreign currencies – given constant prices at the local market – thus improving competitiveness of exporters in the international market in relation to business entities from other countries operating in that market[11].

Table 1. Periods of appreciation and depreciation of Polish zloty exchange rate (change in the selected periods, as %)

Types of exchange rate	1st quarter 2003 – 1st quarter 2004	1st quarter 2004 – 1st quarter 2005	1st quarter 2005 – 1st quarter 2006	1st quarter 2006 – 1st quarter 2007
Nominal effective	-7.16	+12.8	-0.19	-1.40
Real effective adjusted by local prices	-13.16	+28.35	-1.71	-2.53
Real effective adjusted by producer's prices	-7.33	+25.24	-4.01	-0.62
Real effective adjusted by unit labour costs	-27.88	+14.96	-9.63	-12.65

Source: IBRKiK (2007a), p.60.

Nominal and real appreciation

Similar considerations – based on the methodological procedure proposed – can be made with relation to **appreciation** and related phenomena. The process of absolute fall in prices in the local market – defined as deflation – is accompanied by a phenomenon of **nominal appreciation**, which is considered at the moment in the internal aspect. The phenomenon of strengthening of a currency in relation to other currencies (less units of local currency per unit of foreign currency) is known as **nominal appreciation in external aspect** (nominal appreciation of the exchange rate). While comparing and contrasting the two phenomena and their dynamics, we arrive at the category of appreciation (or depreciation) in **real terms**. As already mentioned, **this concept originates at the comparison of both aspects of foreign trade** and is evaluated from the viewpoint of **domestic business entities** (especially exporters).

We are dealing with **real appreciation** when the rate of appreciation of the local currency in the external aspect (nominal appreciation of exchange rate), i.e. growth of its purchasing power in relation to other currencies, is **higher** than the deflation rate in the local market (i.e. nominal appreciation in internal aspect). If, however, the deflation rate in the local market (i.e. increase of its purchasing power in this market) is **lower** that the rate of appreciation of given currency in relation to other currencies then – from the viewpoint of local business entities – **real depreciation** of given currency is observed, even though the currency appreciates in nominal terms at the same time. In this case, exporters receive **relatively more units of local currency** than producers selling their products in the local market. The impact of exchange rate changes is similar as in the case of external depreciation (and devaluation – under the fixed exchange rate). Similar situation is observed– in the

macroeconomic scale – when the *terms of trade* index improves, i.e. absolute export prices and import prices fall, when the preceding fall less dynamically. The concept of real depreciation – even though it is not often applied in such a situation – can be arrived at by **analogy** of the earlier-mentioned term of nominal depreciation and related phenomena.

Conclusions

Basing on the discussion presented above, it can be observed that the methodological approach proposed in the paper is very helpful while explaining the nature of complex phenomena in the more and more complicated business environment. It enables as well more precise organisation of considerations and terms used. It seems that it can also be applied to the analysis of other categories in international economic relations, such as: prices in foreign trade or export profit.

Notes

[1] Jahrmann (1991), p.23, Rymarczyk (2005), p.17, Białecki, Januszkiewicz, Oręziak (2007), p.108, Gostomski (2003), p.11-12.

[2] It is noteworthy that – according to D. Rosati and R. Michalski – the 10-volume Grolier Universal Encyclopaedia, published in 1940, did not contain the entry "inflation" while providing the definition of the word "deflation". See Rosati, Michalski (1989), p.7.

[3] For more on the subject see: Dudziński (2000).

[4] For more details see: Dudziński (2006b), pp.131-133.

[5] See the above-presented formula for export profit.

[6] Begg, Fisher, Dornbusch (1992), pp.300-301, Krugman, Obstfeld (2007), p.150-152, Świerkocki, (2004), p.194.

[7] IBRKiK (2007a), p.63.

[8] It should be noted here that effective exchange rate is defined as the quantity of foreign currency per unit of the local currency, so the rise of his Exchange rate is defined as appreciation and its fall – as depreciation. See e.g. Świerkocki (2004), p.194.

[9] Przystupa (2007), p.60.

[10] IBRKiK (2007b), p.59.

[11] Dudziński (2006a), pp.21-23.

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