

**National Bank of Georgia**

**The Effective Exchange Rates of Lari**

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## I Introduction

The effective exchange rates (EERs) are indicators to grasp Georgia's international competitiveness in terms of its foreign exchange rates that cannot be understood by examining only individual exchange rates between Lari and other currencies. Hence, EERs are important economic indicators for policy-makers and economic agents alike.

The nominal effective exchange rate (NEER) constitutes a summary measure of the external value of a country's currency with regard to the currencies of its most important trading partners. The NEER is particularly useful in gauging exchange rate movements and their potential bearing on import prices and export demand. However, international competitiveness is affected not only by the exchange rate but also by domestic and foreign price movements. For example, even when the nominal effective exchange rate of Lari remains unchanged, the relative competitiveness of Georgian goods increases when the inflation rate of its trading partner is higher than that of Georgia. Considering this, the nominal effective exchange rate is adjusted to incorporate inflation rate differences. The real effective exchange rate (REER) – obtained by deflating the nominal rate with appropriate price or cost indices – is the most commonly used indicator of international price and cost competitiveness and as an indicator has its greatest relevance over a longer-term horizon.

Even though the use of REER indices as measures of international competitiveness is widespread, they are not free of shortcomings. In particular, the notion of international competitiveness is quite broad and difficult to conceptualize at an economy-wide level, as it is firms rather than economies that compete in international trade. Hence, “international competitiveness indicators” should ideally be developed at a microeconomic or firm level and should try to capture all aspects relevant in international trade, including product quality, innovation, and reputation. The REER is therefore to be seen as a rather narrow concept that does not take into account the latter aspects of “international competitiveness”. However, the utilization of REERs can be justified by the fact that firms are heavily influenced in their international trade performance by economy-wide developments. Among these developments, changes in the exchange rate, prices and costs are generally the macroeconomic variables with an important impact on firms engaging in external trade.

The primary aim of this paper is to calculate the effective exchange rates of Lari using the methodological framework adopted by the European Central Bank (ECB) for calculating EERs, which in turn is based on the methodology published by the Bank for International Settlements (BIS). Following the BIS approach, exports are double-weighted in order to account for competition in third markets. In addition, the EERs calculated in this way will be compared to EERs computed with methodological framework used by National Bank of Georgia.

## II Methodological features

In order to construct the set of EERs, a number of methodological issues had to be addressed. These related to: (i) the trade basis upon which the weights for the indices had to be computed; (ii) the selection of the currencies of Georgia's trading partners to be included in the EER indices; (iii) the type of weighting scheme and the method for capturing competition in third markets; and (iv) the choice of deflators to derive the real counterparts of the EER indices for measuring Georgia's international price and cost competitiveness.

### II. 1 Trade basis

According to general practice, EERs in most countries are computed using manufacturing trade flows as defined in the Standard International Trade Classification (SITC), i.e. excluding agricultural, raw material and energy products. However, as some of the main trade partners of Georgia (Ukraine, Kazakhstan) do not have data according to this classification, the trade basis for Georgia are selected under the classification of Broad Economic Categories (BEC). Based on the 2007 Georgia's trade, food and beverages (BEC code 1) and industrial supplies (BEC code 2) accounted for almost 80% of total export and almost 44% of total trade (Table II.1). According this, the nominal and real EERs of Lari are calculated using trade flows defined by code1 and code2 under the BEC classification.

**Table II.1 Trade basis**

BEC Code	Share in Total Export	Share in Total Trade
Food and beverages [BEC code 1]	23,15	16,00
Industrial supplies nes [BEC code 2]	55,74	27,68
Fuels and lubricants [BEC code 3]	3,72	14,49
Capital goods (except transport equipment), and parts and accessories thereof [BEC code 4]	3,49	13,57
Transport equipment, and parts and accessories thereof [BEC code 5]	9,18	10,98
Consumption goods nes [BEC code 6]	4,68	13,03
Goods nes [BEC code 7]	0,04	4,25

Sources: United Nations Commodity Trade Statistics Database

## II. 2 Trading partners and weights

The criterion for selecting the trading partners for calculating the effective exchange rates is following: each partner country should have an individual share of no less than 1 percent of Georgia's total trade of food and beverages and industrial supplies (Table II.2). According to this criterion, 15 countries are selected. This group of partner countries covers almost 80% of Georgia's external trade in above-mentioned categories of goods in 2007.

Table II.2 shows that, in terms of simple trade shares, Georgia's two main trading partners are Ukraine and Turkey with the same shares in total trade of around 14%. The weights of the next three most important trading partners- Russian Federation, USA, and Azerbaijan – are 10%, 7%, and 6% respectively. Almost all the other trading partners have a share of less than 5% reflecting the wide dispersion of Georgian external trade.

**Table II.2 Trading partners**

Partner Country	Simple share in Georgia's total trade of code1 and code2 <sup>1)</sup>	Total weight in the EER index
Armenia	4,46	4,91
Azerbaijan	5,65	5,71
Bulgaria	2,45	1,64
Canada	2,79	2,34
China	2,31	5,30
France	1,68	2,97
Germany	4,24	7,35
Italy	2,03	4,04
Kazakhstan	2,97	4,77
Russian Federation	9,69	14,36
Switzerland	5,41	0,85
Turkey	13,70	21,32
Ukraine	14,35	17,35
United Kingdom	1,53	2,91
USA	6,71	4,17

Sources: United Nations Commodity Trade Statistics Database

- 1) Simple import and export shares in Georgia's food and beverages and industrial supplies total trade in 2007 excluding "third-market" effects.

## II. 3 Weighting method and capturing third-market effects

The Lari NEERs are constructed by applying total trade weights (following the geometric weighting principle) to the bilateral exchange rates of Lari against the currencies of the trading partners.<sup>1</sup>In formal terms; the NEER of Lari is defined as follows:

$$\text{NEER} = \prod_{i=1}^N (e_{i, \text{Lari}})^{w_i} \quad (\text{II.1})$$

where N stands for the number of competitor countries in the reference group against which the external value of Lari is measured,  $e_{i, \text{Lari}}$  is an index of the exchange rate of the currency of partner country i with regard to Lari, and  $w_i$  is the total trade weight assigned to the currency of the trading partner i.

The total weights incorporate information on both exports and imports. The import weights are the simple shares of each partner country in total Georgian imports from the partner countries. Exports are double-weighted in order to account for “third-market effects”, i.e. to capture the competition faced by Georgian exporters in foreign markets from both domestic producers and exporters from third countries.

The double weighting of exports is performed in accordance with the BIS methodology presented in Turner and Van't dack (1993). Following the BIS approach, it is assumed that Georgian exports are destined for H foreign markets. These markets are not only the domestic markets of the N competitor countries comprising the reference group against which the external value of Lari is measured, but also the domestic markets of other countries, termed henceforth “rest of the world” (ROW) for convenience (where  $H > N$ ). It is further assumed that the N competitor countries are the only suppliers in the H foreign markets and that exports of selected goods (food and beverages, industrial supplies), as well as the domestic output of these sectors of the countries not included in the reference group (i.e. the ROW countries), do not compete with goods produced by the competitor countries in the reference group. If, therefore,  $X_j^a$  denotes the gross export flows in the reference period from Georgia to market j, then the shares of each market in total exports are:

$$x_j = X_j^a / \sum_{j=1}^H X_j^a, \quad j=1,2,\dots,H \quad (\text{II.2})$$

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<sup>1</sup> All exchange rates are expressed in terms of national currency per Lari so that an increase in the resulting index implies a nominal effective appreciation of Lari.

The subsequent adjustment of these export shares to capture third-market effects yields the double-export weights of each partner country, that is:

$$W_i^x = \sum_{j=1}^H (S_{i,j} X_j), \quad i=1,2\dots N \quad (II.3)$$

$S_{i,j}$  is the share of country  $i$ 's supply in market  $j$ , which is obtained as:

$$S_{i,j} = S_{i,j}^a / \sum_{i=1}^N S_{i,j}^a \quad (II.4)$$

where a  $S_{i,j}^a$ , (for  $i \neq j$ ,  $i=1,2,\dots,N$ , and  $j=1,2,\dots,H$ ) denotes the gross export flows from country  $i$  to market  $j$  and a  $S_{i,i}^a$ , (for  $i=1,2,\dots,N$ ) represents the gross domestic production destined for the domestic market of country  $i$ .

The import weight of competitor country  $i$  is not subject to any adjustment and, consequently, coincides with its simple import share ( $m_i$ ) in total Georgian imports from the  $N$  partner countries, that is:

$$W_i^m = m_i = m_i^a / \sum_{i=1}^N m_i^a, \quad i=1,2\dots N \quad (II.5)$$

Where  $m_i^a$  denotes the gross import flows in the reference period to Georgia from country  $i$ .

The overall trade weights of each partner country are then obtained as the weighted average of the doubled-weighted export weights and the simple import weights, that is:

$$W_i = \left( \frac{X^a}{X^a + m^a} \right) W_i^x + \left( \frac{m^a}{X^a + m^a} \right) W_i^m, \quad i=1,2\dots N \quad (II.6)$$

where  $X^a = \sum_{j=1}^H X_j^a$  denotes the exports of Georgia to the  $H$  foreign markets and  $m^a = \sum_{i=1}^N m_i^a$  denotes the imports of Georgia from  $N$  partner countries.

These overall weights are calculated separately for each category of goods- one for foods and beverages and another for industrial supplies.

In order to illustrate how the double-export weights are derived, all the elements required for their computation appear in Tables II.3 and II.34 for food and beverages and industrial supplies groups respectively. Consider, for instance, the case of the food and beverages; Panel 1 in Table II.3 reports the simple percentage share of Georgian export destined for each of the 15 partner countries and each of the ROW countries ( $x_j$ ). It can be seen that 16.51% of Georgian exports go to Armenia,





**Table II.4 EER Weights' Calculation**

Industrial Supplies																															
															ROW																
	Armenia	Azerbaijan	Bulgaria	Canada	China	France	Germany	Italy	Kazakhstan	Russian Federation	Switzerland	Turkey	Ukraine	United Kingdom	USA	Austria	Belarus	Belgium	Czech Rep.	Finland	Greece	India	Israel	Latvia	Netherlands	Poland	Spain	United Arab Emirates	Other	Total	
<b>1. Georgia Exports</b>																															
Georgia Exports	3,56	10,9	8,11	10,1	2,74	1,06	0,98	2,63	20,5	1,12	1,18	20,9	0,05	0,01	0,11	1,12	0,00	1,00	1,13	0,69	1,06	0,11	0,02	0,66	0,00	1,92	0,06	1,27	7,09	100	
<b>2. Supply structure matrix</b>																															
Armenia	<b>81,81</b>	0,00	0,02	0,01	0,00	0,00	0,02	0,00	0,01	0,01	0,13	0,00	0,06	0,00	0,00	0,01	0,01	0,17	0,00	0,04	0,00	0,00	0,97	0,01	0,20	0,03	0,06	0,04	0,01		
Azerbaijan	0,00	<b>72,30</b>	0,00	0,00	0,00	0,00	0,00	0,00	0,17	0,05	0,01	0,06	0,04	0,00	0,00	0,00	0,06	0,00	0,00	0,00	0,00	0,01	0,00	0,49	0,02	0,00	0,01	0,09	0,06		
Bulgaria	0,95	0,12	<b>41,36</b>	0,02	0,01	0,02	0,07	0,15	0,09	0,02	0,09	1,10	0,18	0,03	0,01	0,36	0,35	1,32	0,31	0,54	6,48	0,10	0,23	0,09	0,13	0,55	0,47	0,03	0,28		
Canada	0,04	0,04	0,04	<b>61,35</b>	0,60	0,16	0,17	0,12	0,18	0,04	0,59	0,15	0,11	1,40	3,67	0,17	0,10	2,50	0,31	1,25	0,56	3,83	0,98	1,43	2,08	0,38	0,54	1,47	2,89		
China	1,00	0,35	3,14	1,83	<b>93,43</b>	0,41	0,86	1,21	16,54	1,65	0,78	2,03	6,41	1,08	1,33	0,58	2,52	6,07	1,21	5,73	8,14	36,13	8,55	8,84	7,84	4,05	7,70	34,16	26,50		
France	1,13	0,34	3,94	0,35	0,25	<b>86,51</b>	3,16	2,82	0,70	0,57	6,32	1,54	1,06	2,45	0,25	5,04	2,71	18,60	7,69	6,68	11,10	3,35	3,70	3,23	8,08	10,15	25,37	5,20	5,05		
Germany	1,97	1,69	15,25	0,96	1,00	5,82	<b>86,92</b>	4,62	4,42	3,10	24,97	4,25	8,41	4,25	0,86	63,74	28,82	27,24	66,65	28,72	19,98	9,76	8,18	27,22	39,37	55,77	23,94	9,57	15,97		
Italy	1,97	1,32	12,43	0,48	0,30	3,21	2,90	<b>86,58</b>	1,38	1,02	7,75	2,44	2,90	1,43	0,31	14,05	9,87	5,14	10,78	6,34	33,36	4,61	6,84	7,52	4,79	12,35	20,56	9,19	6,79		
Kazakhstan	0,12	0,80	0,00	0,02	0,29	0,04	0,07	0,40	<b>26,54</b>	1,01	0,50	0,13	1,03	0,05	0,01	0,00	2,71	0,02	0,21	0,52	0,44	0,07	0,01	8,70	0,85	0,23	0,15	0,66	0,29		
Russian Federation	4,38	9,49	2,32	0,09	0,78	0,08	0,48	0,53	40,12	<b>89,17</b>	7,37	3,64	17,17	0,38	0,20	0,71	0,00	2,48	3,04	34,27	4,15	4,33	3,96	28,45	9,98	4,01	1,21	1,96	3,69		
Switzerland	0,15	0,07	1,04	0,58	0,12	0,94	1,71	1,16	0,18	<b>0,15</b>	<b>33,66</b>	0,56	0,34	0,52	0,21	9,13	0,79	1,55	2,33	2,45	3,90	1,65	2,73	1,77	1,87	1,77	5,76	2,06	2,02		
Turkey	0,00	4,61	9,43	0,02	0,04	0,06	0,12	0,20	2,99	0,40	0,57	<b>79,15</b>	1,52	0,14	0,06	0,13	0,89	0,27	0,18	0,12	3,98	0,10	2,91	0,10	0,40	0,71	1,20	12,55	0,97		
Ukraine	4,78	5,92	8,70	0,05	0,04	0,03	0,11	0,35	4,28	2,15	0,18	1,74	<b>58,82</b>	0,03	0,04	0,82	49,84	0,15	2,00	0,40	0,67	3,30	1,66	6,81	0,63	4,05	0,58	3,20	1,68		
United Kingdom	0,28	2,33	1,83	0,52	0,32	1,59	1,83	0,92	1,22	0,35	2,75	1,26	1,18	<b>85,17</b>	0,48	2,62	0,92	14,96	4,00	7,61	3,97	15,73	10,91	3,35	8,04	4,58	8,15	8,55	5,57		
USA	1,42	0,63	0,48	33,72	2,83	1,15	1,57	0,93	1,19	0,32	14,34	1,95	0,77	3,06	<b>92,58</b>	2,63	0,41	19,54	1,32	5,33	3,23	17,05	48,37	1,98	15,72	1,37	4,31	11,26	28,24		
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
<b>3. Double-export weights</b>																															
Export weights	2,93	7,91	3,78	6,60	9,66	3,16	9,46	6,15	5,69	12,39	1,19	18,74	3,16	2,05	7,15																
<b>4. Import weights</b>																															
Import weights	5,01	3,83	1,05	0,18	5,47	1,89	6,21	3,86	0,65	7,48	0,91	34,92	24,63	2,13	1,78																
<b>5. Overall weights</b>																															
Overall weights	4,09	5,62	2,25	3,00	7,31	2,45	7,64	4,86	2,86	9,64	1,03	27,82	15,21	2,09	4,14																

3.46% to Azerbaijan, 0.41% to Bulgaria, etc. The supply structure matrix of the competitor countries is presented in the second panel of Table II.3. Each element in this panel ( $S_{i,j}$ ) – excluding those on the main diagonal – represents the percentage of food and beverages produced in a competitor country (that is, one of the reference group of countries  $N$  appearing in the rows of Panel 2) and exported to one of the foreign markets (i.e. another competitor or ROW country among the  $H$  appearing in the columns of Panel 2). The elements on the main diagonal of the supply structure matrix ( $S_{i,i}$ ) stand for the percentage of food and beverages produced domestically in each of the competitor countries. Taking the first column of Panel 2 as an example, it can be seen that in Armenia 95.36% of food and beverages come from domestic production, while 0.04% is imported from Bulgaria, 0.11% from Canada, and so on – where  $95.36\% + 0.04\% + 0.11\% + \dots + 0.07\% = 100\%$ . To obtain the double-export weights – shown in the third panel of Table II.3 – each row of the supply structure matrix (Panel 2) is multiplied by the simple export shares (Panel 1), as defined in equation (II.3). For instance, the double-export weight of 15.78% assigned to Armenia in the NEER index is obtained as  $(16.51\% \times 95.36\%) + (3.46\% \times 0.00\%) + \dots + (5.74\% \times 0.02\%)$ . It measures the competition which Georgian exporters face from Armenian producers both in the Armenian market as well as in each of the remaining  $H-1$  markets considered. Out of the 15.78%, only 15.74% ( $16.51\% \times 95.36\%$ ) originates from the competition faced in the Armenian market. The rest comes from the competition in other markets and its level depends on the amount of Georgian exports to, as well as the relative importance of Armenian exports in, each of these markets.

Some technical aspects underlying the elements on the main diagonal of the supply structure matrix (the second panel of Tables II.3 and II.4) deserve some additional clarification. This issue relates to the internally produced supply of goods destined for the domestic market in each partner country. These figures had to be estimated. Specifically, as the data on the gross domestic product (GDP) of the food and beverages have not been available directly it was computed in the following way: first, data on final consumption expenditure were collected from National Accounts. Second, weight of food and beverages in CPI basket were found and next it was assumed that share of food and beverages in final consumption expenditure are approximately same. Finally, based on this information total consumption of food and beverages were computed and after subtracting import of these goods from it production of food and beverages consumed domestically were computed.

As for industrial supplies, share of manufacturing sector in the GDP was calculated and used as the proxy for the value of industrial supplies produced domestically. Subsequently, exports of industrial supplies for each country were subtracted from the computed gross value of the production of industrial goods in order to identify production for domestic use.

In conclusion, combining the double-export weights (third panel of Tables II.3 and II.4) with the simple import shares (panel four in the aforementioned tables) as described in equation (II.6) yields the overall trade weights (panel five in these tables).

After overall weights are calculated for each code, the total weight for each country is calculated in the following way:

$$W_i^{\text{total}} = \alpha W_i^{\text{code1}} + \beta W_i^{\text{code2}}$$

where  $W_i^{\text{code1}}$  and  $W_i^{\text{code2}}$  are overall trade weights of each partner country for foods and beverages (code-1) and for industrial supplies (code-2) respectively.  $\alpha$  and  $\beta$  are shares of food and beverages and industrial supplies in total trade of these goods with 15 partner countries respectively. Total weights

calculated in this way are given in Table II.3. according to which the highest total weight is assigned to Turkey (21,32), than comes Ukraine with 17,35 and Russia with 14,36.

**Table II.5 Trade Weights**

Partner Countries	Overall Weights		Total Weights
	Food and Beverages	Industrial Supplies	
Armenia	6,45	4,09	<b>4,91</b>
Azerbaijan	5,88	5,62	<b>5,71</b>
Bulgaria	0,50	2,25	<b>1,64</b>
Canada	1,09	3,00	<b>2,34</b>
China	1,54	7,31	<b>5,30</b>
France	3,96	2,45	<b>2,97</b>
Germany	6,82	7,64	<b>7,35</b>
Italy	2,50	4,86	<b>4,04</b>
Kazakhstan	8,37	2,86	<b>4,77</b>
Russian Federation	23,22	9,64	<b>14,36</b>
Switzerland	0,50	1,03	<b>0,85</b>
Turkey	9,10	27,82	<b>21,32</b>
Ukraine	21,37	15,21	<b>17, 35</b>
United Kingdom	4,46	2,09	<b>2,91</b>
USA	4,23	4,14	<b>4,17</b>

The overall trade weights are also presented in Table II.2 along with the simple shares of the partner countries in total (food and beverages and industrial supplies) Georgian trade (i.e. imports plus exports). A simple comparison between the two sets of weights for each grouping reveals the practical implications of accounting for third market effects. Those trade partners, which are important suppliers of these types of goods and compete strongly with Georgian exporters in third markets, in particular Turkey and Ukraine, tend to have larger total trade weights than their corresponding simple shares in total Georgian trade would imply.

In concluding the presentation of the double export weighting scheme, some technical aspects underlying the trade weight computations should be mentioned. As regards the composition of the supply of food and beverages and industrial supplies to the ROW markets, this has been explicitly introduced in the supply structure matrix to encompass competition faced by Georgian exporters in the domestic markets of countries other than those included in the reference group of trading partners. The inclusion of the ROW markets has the advantage of bringing informational gains into the computation of the double-export weights as it accounts more comprehensively for export competition over a wider area, that is, an area which is not confined to the competitor countries making up the reference group. For the computation of the double export weights to be performed, however, the supply of both types of categories by domestic producers of the ROW countries has to be disregarded because these countries do not form part of the reference group against which the Lari's external value is measured. This yields a supply structure matrix with the dimensions  $N \times H$  and the number of markets (H) exceeding the number of suppliers (N).

The exclusion of the own-production effect for the ROW countries is not without shortcomings, as it could, under certain circumstances, introduce some bias in the computation of the double-export weights. The

sort of bias for instance is related to the cases where a competitor country in the reference group has its main trading partners in the ROW. In such case, the double-export weight of this country could be expanded relative to that of another competitor country whose trading partners are mainly among the countries forming the reference group. Overall, however, the gains in computational accuracy achieved through the application of the BIS approach outweigh the costs incurred by adopting a simpler procedure, i.e. one completely disregarding the competition faced in markets outside those of the reference group countries.

## II. 4 Deflators, base period and frequencies

Lari REERs measure the competitiveness of Georgian suppliers in terms of prices or costs relative to their trading partners. These indicators are defined as the relative prices between Georgia and its partner countries expressed in a common currency and are constructed by deflating the NEER index using appropriate price or cost indices. The general expression for the REER is therefore:

$$\text{REER} = \prod_{i=1}^N \left( \frac{d_{\text{Lari}} e_{i, \text{Lari}}}{d_i} \right)^{w_i} \quad (\text{II.7})$$

where  $d_i$  and  $d_{\text{Lari}}$  are the deflators for partner country  $i$  and Georgia respectively.

The specification of the REER in terms of the choice of appropriate price (or cost) deflators is important issue. Here, the aim must be to use the deflator that has the most direct bearing on international price (or cost) competitiveness. The use of export prices would seem the most appropriate from the outset. However, it proves to be a rather narrow concept, as it does not take into account inputs into the firm's production from other sectors, including services. The latter factor, coupled with data quality and availability considerations, renders deflation of EERs by CPI or GDP deflators a good alternative. Furthermore, developments in costs – in particular wages – are relevant for firms, so cost-based REERs, such as those deflated by unit labor costs, can also be computed.

In the case of Georgia, only consumer prices (CPI) are being used to measure the competitive position of the country, due to a lack of timely and comparable data on other measures of prices and costs. The advantages of consumer prices are the following: they are calculated based on a basket of goods that is fairly comparable across countries, much statistical effort goes into ensuring their accuracy, they are rapidly available and they are published at fairly high frequency for a wide range of countries.

The base period for all EER indicators is the January of 2007 (2007 January = 100). With regard to the data frequency of the series, the NEER index is available daily, as it constitutes a summary measure of short-term foreign exchange market developments. The REER indices are available monthly.

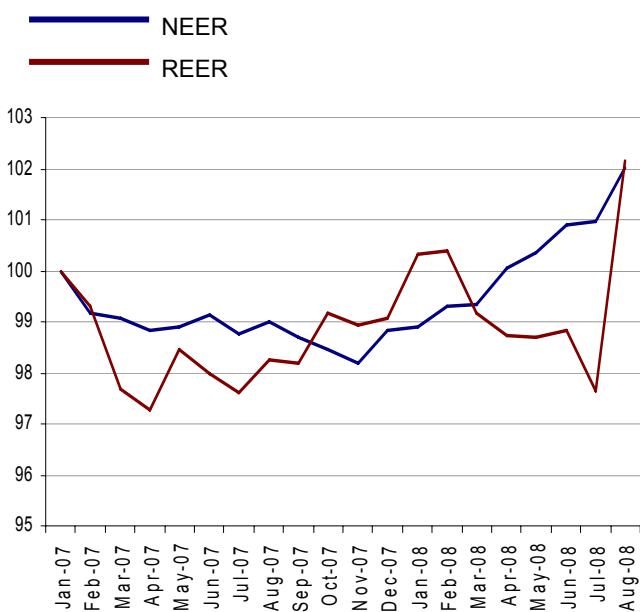
### III Effective Exchange Rates

#### III.1 Recent Developments of Georgia's Competitiveness

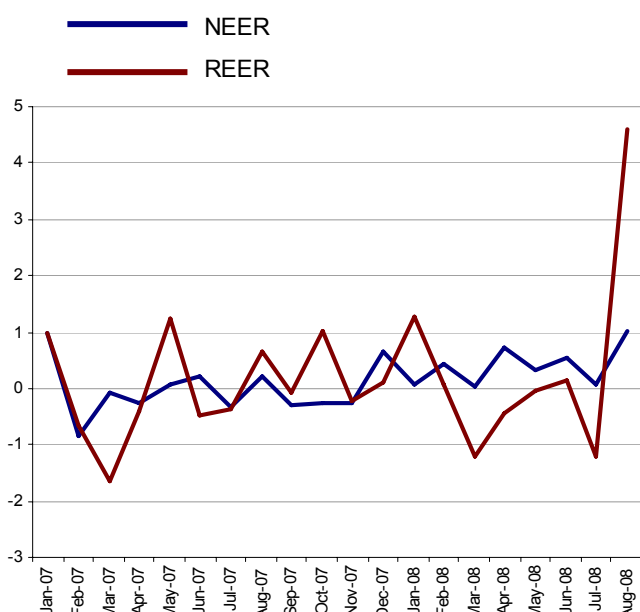
The international price competitiveness of Georgia was volatile throughout 2007, gradually increased during the first two quarters of 2008, and showed a sharp decrease in August 2008 (chart III.1). This is reflected in corresponding changes of the REER indicator developed in this paper. According to the CPI deflated EER index with regard to competitor countries, the overall decrease in Georgia's competitiveness between January 2007 (the base period) and August 2008 (the cut-off date), which is reference period, amounted to roughly 2%. Moreover, REER in August 2008 appreciated by 4.6% compared to its value in previous months meaning a large decline in price competitiveness of Georgia in August. This sharp appreciation of REER may be related to Lari's appreciation against all its partner country currencies during August. Furthermore, in 10 out of 15 partner countries CPI decreased in August compare to July while in Georgia CPI increased from 124.6 to 128.8 (3.4%). This fact in turn was somehow related to unstable situation in Georgia, especially conflict with Russia.

**Chart III.1 NEER and REERs of Lari 2007-2008**

(Monthly, 2007 January=100)



(Monthly, percentage change)



As for nominal external value of Lari, it was relatively stable during 2007 while it started appreciation in 2008 reaching the highest level in August (chart III.1). This fact may be related to gradually appreciation of Lari against all its partner country currencies during 2008, especially in August.

To conclude, recent developments in Georgia as well as in its main trade partner countries caused appreciation of the REER indicator of Lari and thus decreased the international price competitiveness of Georgia.

### III.2 EERs VS EERs calculated by NBG

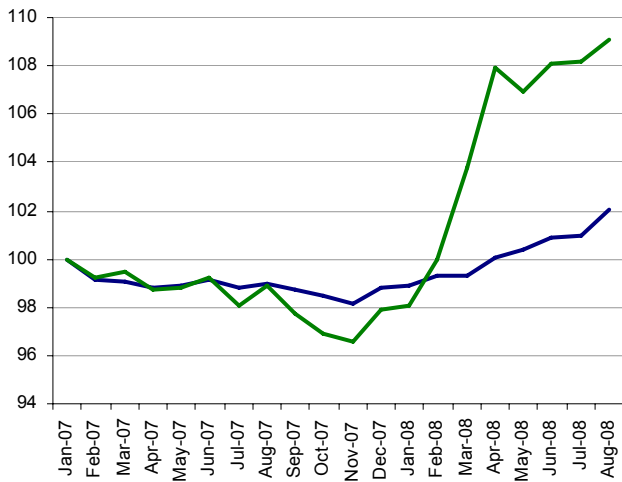
The effective exchange rates calculated in this paper differs from effective exchange rates calculated by national Bank of Georgia (chart III.2). Part of this is related to methodological issues. One of the reasons is the difference between the types of weighting scheme according to which total trade weights

**Chart III.2 NEER and REERs of Lari 2007-2008**

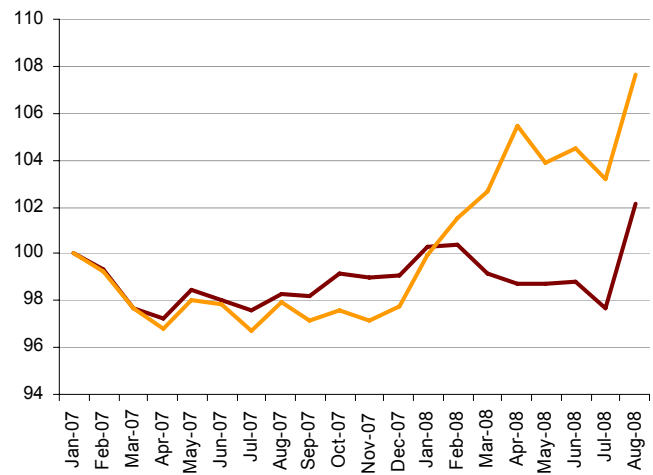
— NEER  
— NEER calculated by NBG  
— REER  
— REER calculated by NBG

(Monthly, 2007 January=100)

**Nomial Exchange Rates**

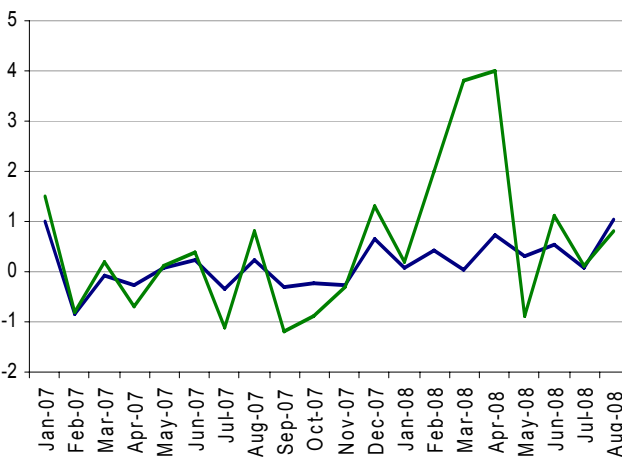


**Real Exchange Rates**

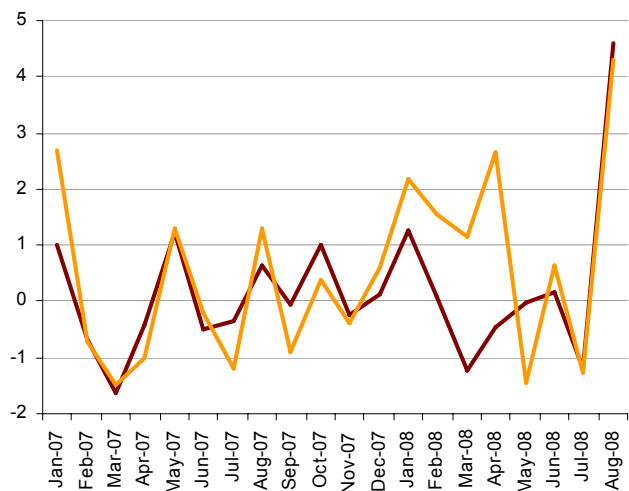


(Monthly, percentage changes)

**Nomial Exchange Rates**



**Real Exchange Rates**



are assigned to each partner country. Specifically, NBG computes weights as a simple share in total trade excluding third-market effects while this paper uses double-weighted export shares to capture the

competition faced by Georgian exporters in foreign markets from both domestic producers and exporters from third countries. Second is the trade basis upon which the weights for the indices are computed. For instance, NBG uses total trade including energy products while this paper uses only food and beverages and industrial supplies as trade basis to compute these indices. Another is the currencies against which Lari's external value is measured. The number of partner countries in NBG methodology is 12 compare to 15 in this methodology, excluding Bulgaria, Canada, Chine and Kazakhstan and including Netherland.



## IV Conclusions

This paper has focused on providing an in depth description of the methodological framework underlying the calculation of the effective exchange rate (EERs) indices for Lari. This framework uses double-export weights to capture third market effects and delivers EER indices that summaries exchange rate movements and measures changes in Georgia's price competitiveness with regard to main trading partners. In line with the established practice, Lari real effective exchange rates (REERs) obtained through the implementation of this framework use price deflators in order to capture various facts of the Georgia's price competitiveness in a sufficiently comprehensive manner. Moreover, the paper has addressed a number of methodological issues specific to the case of Georgia, such as calculating overall weights separately for food and beverages and industrial supplies and by weighting them computing total weight for each partner country. Finally, the paper has compared the EER indices calculated by this framework with the EER indices computed by National Bank of Georgia.

As far as the results are concerned, the computed indices show decrease in the price competitiveness of Georgia between January 2007 (the base period) and August 2008 (the cut-off date). This development is found to be primarily attributable to the increase in nominal exchange rate of Lari against the currencies of most of the Georgia's trading partners. This picture holds true for REER, as differing movements in price deflators between Georgia and its main trading partners have been rather small compared with the nominal appreciation of Lari.

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