



INCLUDING GEORGIA AND UKRAINE IN ICP 2017

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INTRODUCTION

The paper covers the Eurostat project to provide Georgia and Ukraine with the guidance and support they needed to participate in the Eurostat-OECD comparison for 2017. Georgia's and Ukraine's participation in the Eurostat-OECD comparison was not an end in itself, but the means to an end: namely, their inclusion in the 2017 ICP global comparison. The 2017 global comparison will be an amalgam of six regional comparisons of which the Eurostat-OECD comparison is one. As participants in the Eurostat-OECD comparison, Georgia and Ukraine will be included in the global comparison.

Participants in Eurostat-OECD comparisons are required to provide all the data needed to compare them with the other participants in the comparison. The project was designed to assist Georgia and Ukraine to meet this requirement in line with Eurostat-OECD methodology and the resources available to them. Neither country was a newcomer to international comparisons. Both were participants in the ICP global comparisons for 2005 and 2011 and before that both participated in the European Comparison Program in the 1990s. As a result, their NSIs – the National Statistics Office of Georgia (Geostat) and the State Statistics Service of Ukraine (SSSU) - already had experienced personnel in place which has made implementation of the project easier.

The project started in 2017 and will finish at the end of 2019. Three areas of assistance were identified: (1) data collection, (2) data validation and (3) the calculation of PPPs. The objective was to ensure that, in each of these three areas, Georgia and Ukraine adhered to the Eurostat-OECD PPP Manual and, with respect to data collection, followed the specific survey guidelines issued by Eurostat and the OECD. Assistance in the conducting of price surveys and other data collections was provided throughout 2017 and in the first half of 2018. Assistance in the validation of price and other data collected was provided in the second half of 2017, throughout 2018 and in the first quarter of 2019. Assistance in the calculation and aggregation of PPPs started in the first quarter of 2019 and is ongoing. Assistance was provided through missions to the countries (two per country per year) and through email.

To familiarize Geostat and the SSSU with the Eurostat-OECD PPP Program and to give their staff the opportunity to meet participants in the 2017 comparison from other NSIs, the project provided for the two NSIs to attend the PPP Workshop that was held in May 2018 in Paris, the PPP Working Group which is convened every year in mid-November in Luxembourg and the ECP Country Meeting held in September 2019 in Vienna.

IMPLEMENTATION

The data collections that Geostat and the SSSU have had to carry out are listed in Table 1 (Geostat) and Table 2 (the SSSU). The tables were drawn up during the inaugural missions (February 2017). They identify the surveys that had to be organized together with their coverage, timing and frequency. As the blueprints for data collection, they were central to the monitoring of the project. The Eurostat-OECD methodology that Geostat and the SSSU had to follow was explained in detail during the inaugural missions. In subsequent missions (October 2017 and April 2018) the price statisticians of the two NSIs were thoroughly briefed on how to use the computer software designed to edit the prices collected.

Consumer goods and services: Prices were collected in the capital cities from a wide range of CPI and non-CPI outlets during the period Q3 2017 to Q2 2018. They were converted to annual national prices for 2017 using temporal and spatial adjustment factors constructed with CPI data. The inter-country validation of annual national prices covered all 37 European countries in the Eurostat comparison, but the basic heading price levels of the two countries were compared mainly with each other and with those of countries thought to be more or less similar, countries such as Bulgaria, Czechia, Hungary, Montenegro, North Macedonia, Romania, Serbia, Slovakia and Turkey. In general the prices of the two countries look to be reliable and representative indicators of their price levels and of similar quality to those of other participants.

Equipment goods: Prices were collected from a variety of sources in Q3 and Q4 2017. The price level indexes appear credible and, except for domestically produced items, generally mirror the exchange rate.

Construction: For Eurostat-OECD comparisons countries price a small sample of fictitious construction projects that cover three kinds of structures: residential buildings, non-residential buildings and civil engineering works. The projects are described in detail in a bill of quantities. As statistical offices do not usually have the expertise in-house to price the bills of quantities, they have to outsource the task to consultants which is expensive. The bill of quantities approach is not followed in other ICP regional comparisons (except the CIS which uses a variant of the approach). Instead, the *ICP approach* is used. This involves pricing lists of three types of inputs - materials, labour and equipment hire - and providing weights that show the mix of the three input types for the three kinds of structures. Unweighted PPPs are calculated for each type of input. These are then weighted and aggregated to obtain PPPs for the three kinds of structures. In order to link the Eurostat-OECD comparison with other ICP regional comparisons a small number of participants in the Eurostat-OECD comparison apply both approaches. Geostat and SSSU used the ICP approach they were linked to the Eurostat-OECD comparison through the participants that priced both approaches. The comparison between the two countries indicated that their price levels of materials, equipment hire and labor are broadly similar. The comparison of all 12 countries confirmed the plausibility of the price data of Georgia and Ukraine.

Housing services: Both the price approach and the quantity-quality approach for housing services are used in Eurostat-OECD comparisons, but only the quantity-quality approach was used for Georgia and Ukraine. It involves calculating quantity ratios and adjusting them by quality ratios to obtain volume ratios with which to derive PPPs indirectly. To test the suitability of the approach, a comparison was made early in 2018 between Austria and Georgia and between Austria and Ukraine using data for 2016. The per capita volume index obtained for Georgia (29.4 with Austria 100) was considered realistic as was the per capita volume index obtained for Ukraine (32.7 with Austria 100). More recently, the comparison has been repeated with the three linking countries – Austria, Finland and France - with data for 2017. The per capita volume index for Georgia (28.6 with link countries combined 100) and the per capita volume index for Ukraine (34.9 with link countries combined 100) confirm that the quantity-quality approach is the right approach for both countries.

Collective services, education and hospital services: Ukraine used the input-price approach for the three services. Georgia used the input-price approach for collective services and the output-price approach for education and hospital services. Georgia, like other participants in Eurostat-OECD comparisons, reported as well the data needed for the input price approach for education and hospital services. This provides a fallback position when the output-price approach cannot be implemented and a link between the Eurostat-OECD comparison and the other ICP regional comparisons all of which apply the input-price approach. Comparisons with other countries considered to be similar to Georgia and Ukraine suggest that their input-price data are of comparable quality and equally realistic. Compensation of employees includes actual and imputed social contributions. This information has not been collected. The SSSU took the ratios of actual and imputed social contributions paid by government from the national accounts. In Georgia there are no social contributions paid by government to its employees.

The output-price approach for education requires data on student numbers in full time equivalents by ISCED level and expenditure on education also by ISCED level. Eurostat and the OECD take these data from the in-house database they maintain with UNESCO. In addition to student numbers and expenditures, the approach also requires a country to have been a participant in PISA, the program for international student assessment administered by the OECD. A country's PISA scores are used to derive its quality adjustment factor. As Georgia regularly supplies UNESCO with education data by ISCED level and participated in PISA 2015, its PPPs for education was calculated by the output-price approach. (Although Ukraine regularly supplies UNESCO with education data by ISCED level, it has not as yet participated in PISA. It is expected to participate in PISA 2018 but results will not be available before the end of 2019, too late to be used in the comparison.)

The output-price approach for hospital services uses quasi purchasers' prices (that is administrative prices rather than actual purchasers' prices) for a selection of medical and surgical case types to calculate the PPPs for hospital services. Additionally, the System of Health Accounts' shares of total health expenditure by type of good or service are used in the EKS aggregation of health PPPs. (Total health expenditure is the sum of the health expenditures by households, NPISH and government.) Both Georgia and Ukraine

compile health accounts but only Geostat was able to obtain the quasi prices for the types of medical and surgical cases specified.

Inter-country validation of the two sets of quasi-output prices indicate that Georgia's price level indexes for education and hospital services are credible.

GDP estimates: Countries participating in the Eurostat-OECD comparison are required to provide estimates of expenditure on GDP for 2017 broken down by basic heading according to the Eurostat-OECD PPP expenditure classification and following the accounting rules of the SNA 2008/ESA 2010. Both Geostat and the SSSU estimated expenditure on GDP for 2017 broken down by basic heading in line with the Eurostat-OECD classification. Both sets of estimates look plausible.

Two points to be noted with regard to Ukraine's estimates. Expenditures of households on non-military assistance to the defense force, the wounded and refugees were extracted from household expenditure and reclassified as expenditure of non-profit institutions serving households (under hospital services and social protection). Expenditures by government on gas, water, electricity and heat energy that benefit specific individual households were classified under individual consumption expenditure by government as social protection. (In the opinion of the ICON consultants the expenditures should have gone under housing, but the SSSU is unlikely to make this change as the accounts have already been published and cannot be altered.)

Georgia's GDP includes estimates for narcotics and prostitution. The estimates are made from the expenditure side. No estimates have been made from the production side, the argument being that the activities are already covered by the estimates of the shadow economy on the production side. In other words there is no increase in the GDP. The explicit identification of narcotics and prostitution on the expenditure just reduces the size of the statistical discrepancy.

CALCULATION OF PPPs

The most logical way to include Georgia and the Ukraine in the ICP 2017 global comparison was considered to be as follows:

- First obtain results for Georgia and Ukraine within EU39 with fixity for EU28 and for EU37 at the basic heading level and at the aggregation levels.
- These results can then be included in the EU-OECD comparison for 2017 and the ICP global comparison for 2019:
 - $GEO_UKR/EU-OECD = GEO/EU37 * EU37/EU-OECD$ and $UKR/EU37 * EU37/EU-OECD$
 - $GEO_UKR / Global = GEO/EU37 * EU37/Global$ and $UKR/EU37 * EU37/Global$

(Average prices of Georgia and Ukraine, at least for global core items, should be supplied to the World Bank ICP Unit, but as singleton countries, their price data should not be included in the calculations of inter-regional linking factors.)

To evaluate the provisional ICP 2017 results at the GDP level, the provisional Volume Indexes Per Capita (VIPC) with EU28=100 were compared with the corresponding WDI figures for 2017. The WDI figures are extrapolations of 2011 results.

GDP BY CURRENT PPPS			
	WDI 2017 (in USD)	WDI 2017 EU28=100	ICP 2017 EU28=100
GEO	10 683	25.3	30.5
UKR	8 867	21.0	24.7
USA	59 532	141.0	---
EU28	42 221	100.0	100.0

A comparison at the level of main analytical categories is given below:

	VOLUME INDICES PER CAPITA (EU28=100)			
	ICP 2011 GEO	ICP 2017 GEO	ICP 2011 UKR	ICP 2017 UKR
	GDP	22.5	30.5	24.7
Domestic absorption	27.6	35.2	26.8	31.3
Actual individual consumption	31.2	32.7	34.3	35.7
HH expenditure (nat.)	30.8	32.3	31.3	31.7
HH expenditure (w/o rents)	29.6	31.8	31.2	26.9
Food, non-alcoholic beverages	51.7	45.3	66.7	64.2
Alcoholic beverages, tobacco	40.7	47.6	59.1	65.0
Clothing & footwear	10.1	10.2	22.0	9.4
Housing, etc.	56.4	41.2	57.3	34.4
Furnishings, HH equipment	17.0	20.8	19.7	14.9
Health	45.0	29.2	42.0	48.4
Transport	20.1	26.7	23.3	14.2
Communication	44.6	35.3	28.5	48.2
Recreation & culture	21.0	23.0	11.1	9.0
Education	85.2	89.5	91.8	84.7
Restaurants & hotels	10.5	12.5	6.4	9.1
Miscellaneous	14.2	22.9	12.7	25.6
Individual GG services	20.3	31.2	52.8	61.3
Collective GG services	59.5	67.2	28.6	55.2
GFCF	13.3	31.3	11.6	12.7
Machinery and equipment	17.3	22.3	13.2	13.1
Construction	11.3	54.1	12.6	21.5

Taking into account the time-lag of six years, the big economic and political changes during the six years (especially in Ukraine), the differences in the linking of Georgia and Ukraine to the 2011 global comparison (Georgia linked through Armenia and Russia, Ukraine linked through CIS and Russia) and the differences in the approach of ICP 2011 and ICP 2017, the present results are appropriate for Georgia and Ukraine. Their GDP per capita for 2017 are in line with the GDP per capita of similar countries like Albania, Bosnia

and Herzegovina, North Macedonia and Serbia. The ICP 2017 results via 37 EU countries should be more robust¹.

Tables 3 and 4 in the Annex show the VIPC and the PLI for GDP for the 39 countries in the enlarged EU-OECD comparison.

¹ Linking via only one country only is inappropriate because this transmits all peculiarities of bridge-country to all the linked countries. Take the example of construction from the ICP 2011. The link was done via Russia in the OECD comparison where Russia had a very high PLI (OECD=100): 2011 = ~ 85%. Additionally, its PPP obtained by the input cost approach (global ICP) was very different from that obtained by the bill of quantities approach: input cost approach = ~ 10 RUB (USD = 1); bill of quantities approach = ~ 22 RUB (USD =1). In effect, all CIS countries had very high PLIs for construction. Armenia for example had practically the same PLI as the United Kingdom.

ANNEXES

Table 1: *Revised* Timing and Frequency of Geostat Data Collections for Eurostat-OECD 2017

	Row	Survey	Product list Classification	2017				2018				2019			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Consumer goods and services	A	Food, drinks, tobacco	E15.1			X	X	X	X						
	B	Personal appearance	E15.2			X	X	X	X						
	C	House and garden	E16.1			X	X	X	X						
	D	Transport, hotels, restaurants	E16.2			X	X	X	X						
	E	Services	E17.1			X	X	X	X						
	F	Furniture and, health	E17.2				X	X	X						
Capital goods; Government services	G	Equipment goods	Eurostat 2017				X								
	H	Construction	Eurostat/ICP 2017					X							
	I	Housing services 2016	Quantity approach			X									
	J	Housing services 2017	Quantity approach							X					
	K	Collective services (compensation)	Eurostat 2017						X						
	L	Education (compensation)	Eurostat 2017						X						
	M	Hospital services (compensation)	Eurostat 2017						X						
	N	Education (output price approach)	Eurostat 2017						X						
O	Hospital services (output price approach)	Eurostat 2017						X							
Other surveys	P	GDP 2016 (by basic heading) SNA 1993	Eurostat classification		X			X							
	Q	GDP 2017 (by basic heading) SNA 1993	Eurostat classification						X			X			
	R	Structure of combined health expenditure	SHA classification						X			X			
	S	CPI data for 2017 and 2018 by month	Eurostat classification					X			X				
	T	Spatial adjustment coefficients (Georgia/Tbilisi)	Eurostat classification								X				
	U	Tips (catering, hairdressing, taxis)	Eurostat 2017						X						
	V	Non deductible VAT (capital goods)	Eurostat 2017						X						

SHA = System of Health Accounts. Expenditures of households, NPISH and government combined

Table 2: *Revised* Timing and Frequency of SSSU Data Collections for Eurostat-OECD 2017

	Row	Survey	Product list Classification	2017				2018				2019			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Consumer goods and services	A	Food, drinks, tobacco	E15.1			X			X						
	B	Personal appearance	E15.2			X		X							
	C	House and garden	E16.1			X			X						
	D	Transport, hotels, restaurants	E16.2			X			X						
	E	Services	E17.1			X			X						
	F	Furniture and, health	E17.2				X		X						
Capital goods; Government services	G	Equipment goods	Eurostat 2017			X									
	H	Construction	Eurostat/ICP 2017			X									
	I	Housing services 2016	Quantity approach			X									
	J	Housing services 2017	Quantity approach							X					
	K	Collective services (compensation)	Eurostat 2017						X						
	L	Education (compensation)	Eurostat 2017						X						
	M	Hospital services (compensation)	Eurostat 2017						X						
	N	Education (output price approach)	Eurostat 2017												
O	Hospital services (output price approach)	Eurostat 2017													
Other surveys	P	GDP 2016 (by basic heading)	Eurostat classification		X			X							
	Q	GDP 2017 (by basic heading)	Eurostat classification						X			X			
	R	SHA structure of combined health expenditure ⁽¹⁾	SHA classification						X			X			
	S	CPI data for 2017 and 2018 by month	Eurostat classification					X			X				
	T	Spatial adjustment coefficients (Ukraine/Kiev)	Eurostat classification								X				
	U	Tips (catering, hairdressing, taxis)	Eurostat 2017							X					
	V	Non deductible VAT (capital goods)	Eurostat 2017							X					

⁽¹⁾ SHA = System of Health Accounts combining expenditures of households, NPISH and government

Table 3: Volume Indices Per Capita (EU28 = 100)

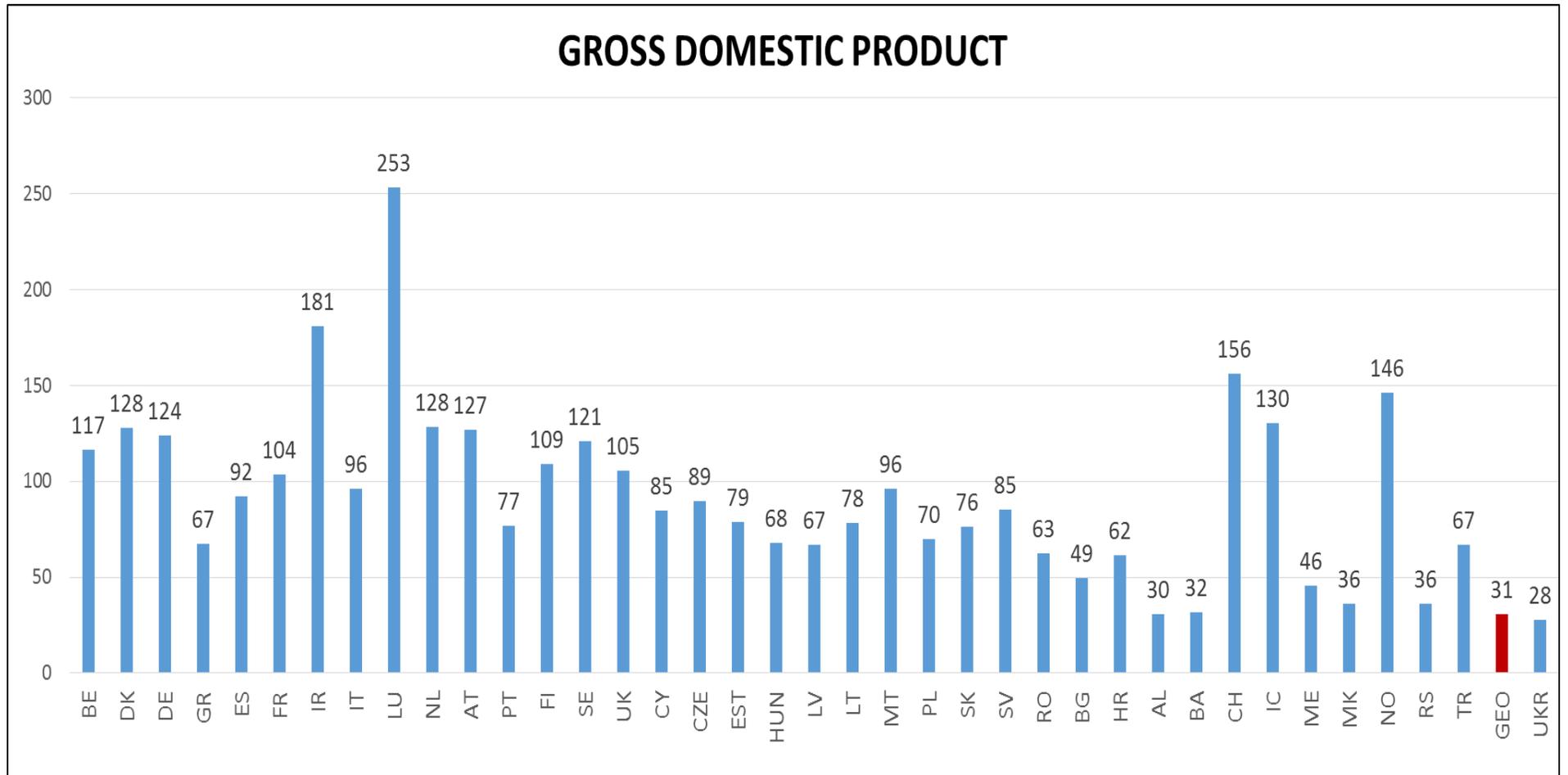


Table 4: Price Level Indices (PPP/XR*100; EU28 = 100)

