ECONOMETRIC ANALYSIS OF THE RELATIONS BETWEEN AVAILABLE INCOME

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Abstract:

The tax system and the tax burden, as we have identified in previous statistical analyzes are factors that can support development, insofar as they are balanced between different categories of taxpayers and apply at a level accepted by them. In practice, the efficiency of taxes, as revenues to the state budget, is adjusted by their collection rate, which, for various reasons - subjective or objective - varies in significant proportions at the state level.

Keywords: *dynamics, analysis,income,econometric,*

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Introduction

Because, as we have shown, in Romania the collection rate is among the lowest, and tax revenues throughout the transition period have been a major constraint on promoting public investment as a support for development, we will further analyze the direct link between the various categories of revenues subject to taxation and GDP dynamics. In this way, it can be highlighted whether the persistence of poverty in Romania, respectively the reduced dynamics of its reduction is an effect of applying an inadequate fiscal model to the distribution system of potential income / gain of taxpayers or depends more on the tax burden and perception to this social responsibility. From the analysis of the considered data series we then move on to the development of a panel model, to identify the link between a) adjusted gross disposable income of households, gross domestic product and employee remuneration and b) poverty rate, budget expenditures and remuneration of employees.

Research methodology

1. The nature of the series

a. "GDP - Gross Domestic Product" series

Gross domestic product at market prices, current prices, in PPS per capita (Gross domestic product at market prices, PPS per capita) is tested. The stationarity tests for the level series are applied.

Table no. 1. Testing the grossness of the gross GDP series

Date: 2000 2016

Exogenous variables: individual effects

Automatic selection of the maximum offset

Automatic gap length selection based on SIC: 0 to 2

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.93673	0.0017	26	402
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	1.96368	0.9752	26	402
ADF - Fisher Chi-square	27.9052	0.9975	26	402
PP - Fisher Chi-square	29.5627	0.9948	26	416

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

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The Levin, Lin & Chu test rejects the hypothesis that the GDP series has unit root in the panel. The Im, Pesaran and Shin W-state, ADF - Fisher Chi-square and PP - Fisher Chi-square tests do not reject the unit root hypothesis for the individual series. Since the series is not stationary in level, we test the stationarity of the GDP series calculated by simple differentiation, ie: d(GDPit) = GDPit¬ – GDPi,¬t-1.

The tests are presented in the following table.

Table no. 2. Testing the stationarity of the differentiated GDP series
Exogenous variables: individual effects
Automatic selection of the maximum offset
Automatic gap length selection based on SIC: 0 to 2

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.9770	0.0000	26	382
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	201.174	0.0000	26	382
PP - Fisher Chi-square	197.829	0.0000	26	390

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

The Levin, Lin & Chu test rejects the hypothesis that the series (GDP) has unit root in the panel. The tests Im, Pesaran and Shin W-state, ADF - Fisher Chi-square and PP - Fisher Chi-square reject the unit root hypothesis for the individual series.

Given the test results, in econometric models, the series GDP - Gross domestic product at market prices, current prices in PPS per capita (Gross domestic product at market prices, Current prices, PPS per capita) can be used in level, only for the panel as a whole, and if it is used to estimate individual effects, then it will be differentiated.

b. Series "Adjusted gross disposable income of households per person in PPS"

The seasonality of the VSPA series - Adjusted gross disposable income of households per person in PPS is tested. Stationarity tests are applied for level series.

Table no.3. Gross VSPA series stationarity testing
Date: 2005 2015
Exogenous variables: individual effects
Automatic selection of the maximum offset
Automatic gap length selection based on SIC: 0 to 2

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.33562	0.0004	26	256
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.86368	0.8061	26	256
ADF - Fisher Chi-square	45.5011	0.7257	26	256
PP - Fisher Chi-square	73.4814	0.0265	26	261

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

The Levin, Lin & Chu test rejects the hypothesis that the VSPA series has unit root in the panel and also the PP - Fisher Chi-square test rejects the unit root hypothesis for the individual series. Although the Im, Pesaran and Shin W-state and ADF - Fisher Chi-square tests do not reject the unit root hypothesis for the individual series, we will consider the Phillips-Perron type test, due to the small number of degrees of freedom, the individual series has only 11 records, corresponding to the period 2005-2015.

As such, in econometric models, the series VSPA - Adjusted Gross Disposable Household Income per Person in PPS (Adjusted Gross Disposable Household Income per Person in SPA) can be used level, in econometric equations.

c. Series "Remuneration of employees per hour worked, in euro"

The stationarity of the ULC series is tested - "Compensation of employees per hour worked, in euro" (Compensation of employees per hour worked, euro). Stationarity tests are applied for level series.

Table no. 4. Gross ULC series stationarity testing
Date: 2000 2017
Exogenous variables: individual effects
Automatic selection of the maximum offset
Automatic gap length selection based on SIC: 0 to 2

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.99330	0.0000	26	401
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.58502	0.2793	26	401
ADF - Fisher Chi-square	69.1961	0.0555	26	401
PP - Fisher Chi-square	101.697	0.0000	26	415

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

The Levin, Lin & Chu test rejects the hypothesis that the ULC series presents unit root in the panel and also the PP - Fisher Chi-square and ADF - Fisher Chi-square tests reject the unit root hypothesis for individual evenings. Although the Im, Pesaran and Shin W-state test does not reject the unit root hypothesis for individual series, we will still consider the Phillips-Perron type test, due to the small number of degrees of freedom (individual series have 17 records, corresponding to the period 2000- 2016). Consequently, in econometric models, the ULC series - Remuneration of employees per hour worked, in euros can be used in level, in econometric equations.

d. "Share of total general government expenditure in GDP" series

The stationarity of the series The share of total general government expenditure in GDP (%) is tested. The stationarity tests for the level series are applied.

Table no.5. Testing the seasonality of the series Share of total general government expenditure in gross GDP (%)

Date: 2000 2016

Exogenous variables: individual effects

Automatic selection of the maximum offset

Automatic gap length selection based on SIC: 0 to 3

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.48500	0.0000	28	427
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.66618	0.0000	28	427
ADF - Fisher Chi-square	110.377	0.0000	28	427
PP - Fisher Chi-square	86.1330	0.0060	28	447

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

The Levin, Lin & Chu test rejects the hypothesis that the CHELT series presents unit root in the panel and also the Im, Pesaran and Shin W-state tests, ADF - Fisher Chi-square and PP - Fisher Chi-square reject the unit root hypothesis for the individual series. Consequently, in econometric models, the series The share of total general government expenditure in GDP (%) can be used in level, in econometric equations.

e. "Poverty Risk" Series

The stationaryness of the series is tested the risk of poverty (limit point 60% of the median income equivalent after social transfers), thousands of people (RPR60) and in percentages (RPR60P), respectively the risk of poverty (limit point 70% of the average equivalent income), thousands of persons (RPR70) and in percentages (RPR70P). The stationarity tests for the level series are applied.

e1. At-risk-of-poverty (60% of median equivalent income, after social transfers), thousands

Table no.6. Testing the seasonality of the series Poverty risk (limit point 60% of the median equivalent income, after social transfers) thousands of gross persons

Date: 2000 2016

Exogenous variables: individual effects

Automatic selection of the maximum offset

Automatic gap length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.22314	0.0000	26	277
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.83641	0.0023	26	277
ADF - Fisher Chi-square	88.0676	0.0013	26	277
PP - Fisher Chi-square	81.6686	0.0054	26	286

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

The Levin, Lin & Chu test rejects the hypothesis that the RPR60 series has unit root in the panel and also the Im, Pesaran and Shin W-state tests, ADF - Fisher Chi-square and PP - Fisher Chi-square reject the unit root hypothesis for the individual series. Consequently, in econometric models, the RPR60 series - the risk of poverty (limit point 60% of the median income equivalent to social transfers), thousands of people can be used in the level.

e2. Poverty risk (60% of median equivalent income, after social transfers), percentages

Table no.7. Testing the series' stationarity Risk of poverty (60% of median equivalent income, after social transfers) gross percentages

Date: 2000 2016

Exogenous variables: individual effects

Automatic selection of the maximum offset

Automatic gap length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.24678	0.0000	26	300
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.75987	0.0392	26	300
ADF - Fisher Chi-square	72.7609	0.0302	26	300
PP - Fisher Chi-square	68.5415	0.0618	26	317

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

The Levin, Lin & Chu test rejects the hypothesis that the RPR60P series has unit root in the panel and also the Im, Pesaran and Shin W-state tests, ADF - Fisher Chi-square and PP - Fisher Chi-square reject the unit root hypothesis for the individual series. Consequently, in econometric models, the RPR60P series - the risk of poverty (limit point 60% of the median income equivalent to social transfers), in percentages can be used at the level.

e3. At-risk-of-poverty (limit point 70% of average equivalent income), thousands of people

Table no.8. Stability test of the series Poverty risk (limit point 70% of the equivalent median income) thousands of people

Sample: 2000 2016

Exogenous variables: individual effects

Automatic selection of the maximum offset

Automatic gap length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.61901	0.0001	26	280
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat				
ADF - Fisher Chi-square				

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

The Levin, Lin & Chu test rejects the hypothesis that the RPR70 series has unit root in the panel and also the Im, Pesaran and Shin W-state tests, ADF - Fisher Chi-square and PP - Fisher Chi-square reject the unit root hypothesis for the individual series. Consequently, in econometric models, the RPR70 series - the risk of poverty (limit point 70% of the average equivalent income), thousands of people can be used in the level.

e3. Poverty risk (cut-off point 70% of average equivalent income), percentages

Table no.9. Testing the stationaryness of the series Poverty risk (limit point 70% of median equivalent income) percent

Date: 2000 2016

Exogenous variables: individual effects

Automatic selection of the maximum offset

Automatic gap length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.48139	0.0065	26	304
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.99376	0.1602	26	304
ADF - Fisher Chi-square	63.5402	0.1310	26	304
PP - Fisher Chi-square	90.8120	0.0007	26	316

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Testul Levin, Lin & Chu respinge ipoteza conform căreia seria RPR70P prezintă rădăcină unitate în panel. Testul PP - Fisher Chi-square resping ipoteza de rădăcină unitate pentru seria individuală. Testele Im, Pesaran and Shin W-stat, ADF - Fisher Chi-square și PP - Fisher Chi-square nu resping ipoteza de rădăcină unitate pentru seria individuală, dar pragul de acceptare este relativ modest (16%, respectiv 13%). Vom lua în considerare testul de tip Phillips-Perron, datorită numărului mic de grade de libertate pentru seria individuală. În consecință, în modelele econometrice, seria RPR70P – *riscul de sărăcie (punct limită 70% din venitul mediu echivalat), procente* poate fi folosită în nivel.

2. Panel type econometric models

The links between the variables, on two coordinates, are further tested

a) The link between the adjusted gross disposable income of households, the gross domestic product and the remuneration of employees

b) The link between the poverty rate, budget expenditures and employees' remuneration

2.1. The link between adjusted gross disposable income of households, gross domestic product and employee remuneration

It examines the link between adjusted gross disposable income of households (per capita, in PPS), gross domestic product (at market prices, current prices, in PPS, per capita) and the remuneration of employees (per hour worked, in euros).

The model tested is as follows:

$VSPA_{i,t} = a0 + a1GDP_{it} + a2ULC_{it} + \mu_i + \gamma_t + e_t,$

where

VSPAi, t - adjusted gross disposable income of households (per capita, in PPS), in country i, year t;

GDPit - gross domestic product (at market prices, current prices, in PPS, per capita), in country i, year t;

ULCit - remuneration of employees (per hour worked, in euros), in country i, year t;

μi - individual country-specific effect i, invariable over time;

γt - the specific effect of year t, invariable in cross section;

eit¬ - error variable (idiosyncratic error);

a0, a1, a2 - homogeneity coefficients of the model.

The link between income and GDP is expected to be positive (a1> 0) and also the link between income and employee remuneration is positive (a2> 0).

a. Homogeneous panel

A homogeneous model (without individual effects between countries, or over time) of the type:

$VSPA_{i,t} = a0 + a1GDP_{it} + a2ULC_{it} + e_t,$

The results are presented in the following table:

Table no.10. VSPA regression analysis - GDP, ULC, homogeneous panel

Dependent variables: VSPA

Method: Pooled EGLS (Period SUR)

Date (adjusted): 2005 2016

Remarks included: 12 after adjustment

Cross-sections: 26

Total (balanced) observations in the panel: 287

Linear estimation after one-step weighting matrix

Period SUR (PCSE) standard errors & covariance (d.f. corrected)

Variabile	Coeficient	Std. Error	t-Statistic	Prob.
C	4263.949	341.3476	12.49152	0.0000
GDP	0.409000	0.014891	27.46702	0.0000
ULC	181.0728	17.09574	10.59169	0.0000

Weighted Statistics

R-squared	0.820258	Mean dependent var	2.299829
Adjusted R-squared	0.818992	S.D. dependent var	3.711332
S.E. of regression	0.945256	Sum squared resid	253.7563
F-statistic	648.0198	Durbin-Watson stat	1.995469
Prob(F-statistic)	0.000000		

The panel does not include Malta and Luxembourg, due to the lack of EUROSTAT data on adjusted gross disposable income of households for those countries.

The model was estimated using the SUR [Seemingly Unrelated Regression] method, a method that takes into account the possibility of correlating errors between countries (the possibility that a shock, such as a crisis, may affect all countries at some point).

The model is significantly econometric, and the coefficients are statistically significant. The model explains 82% of the dynamics of disposable income of households. The coefficients have the anticipated sign: â1 = 0.409> 0, which means a positive impact of GDP on the disposable income of households and also â2 = 181.07> 0, ie the effect of wages is also positive.

b. Individual effects induced by the remuneration of employees

In order to verify the existence of individual effects specific to each country, a model of the following type is constructed:

VSPAi, t = a0 + a1GDPit + (a2 + μi) ULCit + et,

that is, the distribution by country of the effect induced by workers' remuneration on disposable income of households is analyzed. The estimated model is as follows:

Tabelul nr.11. Analiza de regresie VSPA – GDP, ULC, țări

Dependent variables: VSPA

Method: Pooled EGLS (Period SUR)

Date (adjusted): 2005 2012

Remarks included: 8 after adjustment

Cross-sections: 26

Total (balanced) observations in the panel: 208

Linear estimation after one-step weighting matrix

Period SUR (PCSE) standard errors & covariance (d.f. corrected)

Variabile	Coeficient	Std. Error	t-Statistic	Prob.
C	1266.805	418.9756	3.023576	0.0029
GDP	0.474534	0.028413	16.70156	0.0000
μ-ULC-AT	302.1375	33.64024	8.981431	0.0000
μ-ULC_BE	179.6938	22.82558	7.872471	0.0000
μ-ULC_BG	329.7082	138.9527	2.372809	0.0187
μ-ULC_CY	382.1617	44.58587	8.571365	0.0000
μ-ULC_CZ	340.1873	68.57779	4.960605	0.0000
μ-ULC_DE	315.5233	29.10741	10.83997	0.0000
μ-ULC_DK	106.5499	24.17892	4.406729	0.0000
μ-ULC_EE	250.2690	70.36989	3.556478	0.0005
μ-ULC_EL	480.1727	45.75947	10.49341	0.0000
μ-ULC_ES	272.6447	35.25187	7.734191	0.0000
μ-ULC_FI	208.2319	29.25852	7.116967	0.0000
μ-ULC_FR	288.1425	24.33783	11.83928	0.0000
μ-ULC_HR	308.5524	54.65273	5.645690	0.0000
μ-ULC_HU	403.5228	71.35606	5.655060	0.0000
μ-ULC_IE	70.19941	34.82977	2.015500	0.0453
μ-ULC_IT	343.8378	32.46830	10.58995	0.0000
μ-ULC_LT	646.8752	82.61135	7.830342	0.0000
μ-ULC_LV	451.3019	79.77962	5.656857	0.0000
μ-ULC_NL	166.5684	28.75894	5.791884	0.0000
μ-ULC_PL	590.7132	82.80153	7.134085	0.0000

Variabile	Coeficient	Std. Error	t-Statistic	Prob.
μ-ULC_PT	499.7201	50.49056	9.897299	0.0000
μ-ULC_România	237.8409	109.1191	2.179645	0.0306
μ-ULC_SE	200.8107	33.21068	6.046570	0.0000
μ-ULC_SK	386.9534	68.22529	5.671701	0.0000
μ-ULC_SL	287.0379	40.27344	7.127225	0.0000
μ-ULC_UK	281.7867	28.67356	9.827407	0.0000

Weighted Statistics			
R-squared	0.999949	Mean dependent var	235.8502
Adjusted R-squared	0.999941	S.D. dependent var	376.5072
S.E. of regression	0.997792	Sum squared resid	179.2060
F-statistic	129820.4	Durbin-Watson stat	2.164396
Prob(F-statistic)	0.000000		

The model does not include Malta and Luxembourg, due to the lack of EUROSTAT data on adjusted gross disposable income of households for those countries.

Like the previous model, the SUR (seemingly unrelated regression) method was used in the estimation, which takes into account the possibility of correlating errors between countries. The structure between countries and the dynamics of GDP positively influence the evolution of the gross disposable income of households. The impact coefficient is â1 = 0.4745, which means that a one-unit increase in GDP is associated with a 0.4745-unit increase in household income. In the model, the effect of remuneration on the gross disposable income of households was distributed by country (a2 coefficients were associated with μi). The individual effects (country specific) are statistically significant and positive

c. Individual effects induced by employee remuneration and GDP change

In the model with country-specific effects, the evolution of GDP was not distributed by including individual impact coefficients (at country level), because the GDP series is only stationary globally (in the panel), and the individual GDP series is not stationary. In order to verify the existence of specific effects induced by the structure between countries and the dynamics of GDP, the theoretical model was modified, taking into account the fact that, individually, GDPi is a non-stationary series in level, but stationary after the first difference. Built model is:

$VSPAi, t = a0 + (a1 + \delta i) \cdot d(GDPit) + (a2 + \mu i) \cdot ULCit + et,$

where are the individual coefficients that measure the impact of GDP at the level of each country on the disposable income of households. The estimated model is as follows:

Table no.12. VSPA regression analysis - GDP, ULC, countries

Dependent variables: VSPA

Method: Pooled EGLS (Period SUR)

Data (adjusted): 2005 2016

Remarks included: 12 after adjustment

Number of countries included: 26

Total number of comments: 287

Linear estimation after one-step weighting matrix

White period standard errors & covariance (d.f. corrected)

Variabile	Coeficient	Std. Error	t-Statistic	Prob.
C	604.0904	346.7618	1.742091	0.0828
δ-GDP_BE	0.315292	0.002859	110.2938	0.0000
δ-GDP_BG	0.503317	0.044450	11.32329	0.0000
δ-GDP_CZ	0.662889	0.006096	108.7408	0.0000
δ-GDP_DK	0.280968	0.005781	48.59879	0.0000
δ-GDP_DE	0.435475	7.61E-05	5723.585	0.0000
δ-GDP_EE	0.357339	0.015435	23.15177	0.0000
δ-GDP_IE	0.081932	0.000183	447.6964	0.0000
δ-GDP_EL	0.571760	0.003689	154.9998	0.0000
δ-GDP_ES	0.499468	0.004632	107.8281	0.0000
δ-GDP_FR	0.601805	0.014187	42.42002	0.0000
δ-GDP_HR	0.123592	0.001159	106.6177	0.0000
δ-GDP_IT	0.716215	0.006127	116.8978	0.0000
δ-GDP_CY	0.583844	0.004497	129.8273	0.0000
δ-GDP_LV	0.450571	0.022397	20.11775	0.0000
δ-GDP_LT	0.360860	0.005657	63.78476	0.0000
δ-GDP_HU	0.738928	0.008524	86.69038	0.0000
δ-GDP_NL	0.704582	0.006780	103.9221	0.0000
δ-GDP_AT	0.609911	0.008247	73.95672	0.0000
δ-GDP_PL	0.776610	0.015623	49.70811	0.0000
δ-GDP_PT	0.420173	0.002807	149.7007	0.0000
δ-GDP_România	0.920809	0.002145	429.3115	0.0000
δ-GDP_SL	0.489105	0.006024	81.19162	0.0000

Variabile	Coeficient	Std. Error	t-Statistic	Prob.
δ-GDP_SK	0.410153	0.019699	20.82153	0.0000
δ-GDP_FI	0.144762	0.009618	15.05164	0.0000
δ-GDP_SE	0.473790	0.009097	52.08219	0.0000
δ-GDP_UK	0.789365	0.021381	36.91899	0.0000
μ-ULC_BE	342.7257	7.443863	46.04138	0.0000
μ-ULC BG	483.5703	50.81456	9.516373	0.0000
μ-ULC_CZ	-61.50618	26.40163	-2.329636	0.0207
μ-ULC_DK	316.6042	4.474448	70.75827	0.0000
μ-ULC_DE	384.5940	12.80320	30.03891	0.0000
μ-ULC_EE	649.5339	8.730889	74.39494	0.0000
μ-ULC_IE	613.6844	13.10280	46.83613	0.0000
μ-ULC_EL	344.7216	22.00666	15.66442	0.0000
μ-ULC_ES	274.9839	12.55269	21.90638	0.0000
μ-ULC_FR	188.3058	1.828522	102.9825	0.0000
μ-ULC_HR	1055.379	40.67801	25.94471	0.0000
μ-ULC IT	61.26577	8.518105	7.192418	0.0000
μ-ULC_CY	231.1969	16.33415	14.15421	0.0000
μ-ULC_LV	595.6490	1.072487	555.3903	0.0000
μ-ULC_LT	1085.150	75.81816	14.31253	0.0000
μ-ULC_HU	-172.2917	31.32432	-5.500255	0.0000
μ-ULC_NL	-80.62669	3.495186	-23.06793	0.0000
μ-ULC_AT	140.1713	2.862859	48.96200	0.0000
μ-ULC_PL	-135.8778	17.25702	-7.873771	0.0000
μ-ULC_PT	657.8751	27.00713	24.35931	0.0000
μ-ULC_România	-881.9978	97.05186	-9.087903	0.0000
μ-ULC SL	310.1286	14.92830	20.77454	0.0000
μ-ULC_SK	653.2798	3.464983	188.5377	0.0000
μ-ULC_FI	621.8544	2.092678	297.1573	0.0000
μ-ULC_SE	228.5653	1.893515	120.7095	0.0000
μ-ULC_UK	-56.30121	10.49076	-5.366745	0.0000

Weighted Statistics

R^2	0.999602	Mean dependent var	103.9863
Adjusted R^2	0.999513	S.D. dependent var	126.9360
S.E. of regression	0.991760	Sum squared resid	230.1597
F-statistic	11293.56	Durbin-Watson stat	2.033145

Conclusions

The homogeneity coefficient (â0 = 604.0904) is positive and significant at the 5% threshold (0.0828: 2 = 0.0414 <0.05). Otherwise, all coefficients in the model are statistically significant, at the standard threshold of 1%, the model as a whole is econometrically significant (F-statistic = 11293.56 and the associated probability is Prob (F-statistic) = 0.000000), and the errors are not autocorrelated (Durbin-Watson = 2.033145). The model explains in 99.96% the variation of the disposable incomes of the households.

As in the previous model, disposable income is positively correlated with the remuneration of employees in 20 of the 26 countries analyzed, between 2005 and 2015. Exceptions are the Czech Republic, Hungary, Poland, Romania, the Netherlands and the United Kingdom.

Regarding the individual (country-differentiated) effect of GDP on household disposable income (δ-dGDP coefficients), all impact coefficients are positive and are much higher than the average in countries for which the impact of ULC is negative. Compared to the average value (value in the homogeneous model, â1 = 0.409), the δ-dGDP coefficients are 0.6629 for the Czech Republic, 0.7389 for Hungary, 0.7766 for Poland, 0.9208 for Romania, 0.7046 for the Netherlands and 0.7894 for the United Kingdom.

For Romania, the model extracted from the panel is:

VSPA_RO = 604.09043 + 0.92081 · GDP_RO - 881.99783 · ULC_RO

which means that, in Romania, in the period 2005 - 2015, the main factor that led to the increase of the disposable income of the households was the GDP dynamics and less the evolution of the employees' remuneration.

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