Volume 17
Number 2
Summer 2019

ISSN 1854-6935

Managing Global Transitions

EDITOR
Maja Meško

International Research Journal

Managing Global Transitions
International Research Journal
ISSN 1854-6935 · www.mgt.fm-kp.si

INDEXING AND ABSTRACTING
Managing Global Transitions is indexed/listed in the International Bibliography of the Social Sciences, EconLit, IBZ Online, DOAJ, Erih Plus, EconPapers, Cabell's, EBSCO, and ProQuest.

SUPPORTED BY
Slovenian Research Agency.

Revija Managing Global Transitions je namenjena mednarodni znanstveni javnosti; izhaja v angleščini s povzetki v slovenščini. Izid revije je finančno podprla Javna agencija za raziskovalno dejavnost Republike Slovenije iz sredstev državnega proračuna iz naslova razpisa za sofinanciranje izdajanja domačih znanstvenih periodičnih publikacij.

Managing Global Transitions
International Research Journal
VOLUME 17 · NUMBER 2 · SUMMER 2019 · ISSN 1854-6935

https://doi.org/10.26493/1854-6935.17_2

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PUBLISHED BY

University of Primorska Press
Titov trg 4, 6000 Koper, Slovenia
zalozba@upr.si · www.hippocampus.si

The Relationship between Income, Consumption and GDP of Asian Countries: A Panel Analysis

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This paper attempts to scrutinize the co-integration relationship between consumption, income and GDP per capita in panel data series. We have applied unit root test, co-integration test and FMOLS estimation technique to analyze the data. Data covers 11 Asian countries of three income categories – lower middle income, upper middle income and high income. The study contemplated the annual observations of 35 years from 1980 to 2014. Study revealed that the association between consumption and income is stronger in lower and upper middle income countries. The low level of income determines its maximum use predominantly for consumption. The relation between consumption, income and GDP per capita is stronger for lower middle income countries, thereby the countries with higher income generally tend to make big investments.

Key Words: income, consumption, GDP, panel unit roots, panel cointegration
JEL Classification: C23, D31, E21
https://doi.org/10.26493/1854-6935.17.113-127

Introduction

Rationale people always think at margin and cut their coat according to their cloth. This proverb clearly supports the famous Keynesian theory, where consumption is a function of income. Consumption behavior is mostly determined by income level, better income level ensures satisfactory level of consumption. But the influences of regional and cultural differences cannot be ignored to explain people's consumption behavior (how consumers like to spend) as well as their easy access to better earning source. Katona (1960, 22), for example, claimed that the ability to buy is not enough, because consumption expenditures are also dependent on the willingness to buy. This willingness is influenced by individual rationales, such as attitudes and prospects of future income, and by the state of the whole economy, which create a general optimistic (positive) or pessimistic (negative) environment.

Income affects consumption choices and it's very obvious, then these consumption expenditures directly affect gross domestic product (GDP) in any economy. Because consumption is one of the principal components of GDP, especially in less developed countries.

Generally, people never spend their whole earning just for consumption and this remained amount is said as savings in economic theory. So, income is a sum of consumption and savings (which can be said as investment as well). In this point, Keynes (2009, 158) suggested that individuals tend to increase consumption as their income increases, but to a lesser extent. This fundamental psychological law states that as the level of income increases, the difference between income and consumption increases as well.

This paper investigates the relationships between consumption, income and GDP but in per capita form on panel data (sum of cross-section and time series data) for income categorized countries-lower middle income, upper middle income and high income. To ascertain the long run association between consumption, income and GDP, we conducted three different tests of cointegration and FMOLS to measure the strength of relationship between income and consumption.

The main purpose of this paper was to analyze the differences that may appear in association income and consumption variables when differences of income level and country regions exists. This study is emphasizing in a small portion of this broad macroeconomic issue, because there are many other variables rather than income that can influence people's consumption decisions and gross domestic product (GDP).

Data Description

To ascertain the relationship pattern between consumption, income and GDP per capita during 1980–2014, eleven (11) countries of Asia were taken into account on the basis of the data availability. These countries were again divided in 3 categories of income such as lower middle income, upper middle income and high income countries. World Bank classification is used to classify the countries on income base (table 1) following Diacon and Maha (2015).

The variables of interest in this study were: private consumption per capita (expressed in the form of household final consumption expenditure per capita), adjusted net national income per capita and GDP per capita as a proxy of the level of standard of living. All the variables are in natural logarithm form.

TABLE 1 Lists of Country Panel Data

Lower-Middle Income Countries	Upper-Middle Income Countries	High Income Countries
US$ 1,006–3,955	US$ 3,956–12,235	> US$ 12,236
Bangladesh (Southern)	Malaysia (South-eastern)	Singapore (South-eastern)
India (Southern)	Thailand (South-eastern)	Japan (Eastern)
Sri Lanka (Southern)	China (Eastern)	South Korea (Eastern)
Indonesia (South-eastern)		
Philippines (South-eastern)		

NOTES For 2018 fiscal year, GNI per capita is calculated using the World Bank Atlas method. Based on data from The World Bank (http://data.worldbank.org).

TABLE 2 Descriptive Statistics, by Logarithmic Variable

Variable	Lower-middle income		Upper-middle income		High income	
	(1)	(2)	(1)	(2)	(1)	(2)
GDP	6.549	0.725	7.550	1.050	9.720	0.860
Con	6.742	0.639	7.270	0.874	9.480	0.600
Inc	6.469	0.740	7.320	1.000	9.540	0.837

NOTES Column headings are as follows: (1) mean, (2) standard deviation. Definitions: GDP – GDP per capita (current US$), Con – household final consumption expenditure per capita (current US$), Inc – adjusted net national income per capita (current US$).

World Bank provides household final consumption expenditure per capita in constant 2010 US$ for all panel except China. Household final consumption expenditure per capita in constant 2010 US$ data of China was only available from year 1990 in WDI but our data span starts from 1980. So we have taken consumption expenditure per capita data of China in constant 2005 US$ from 1980–2014. Then we transformed household consumption expenditure per capita data of all panel in current US$ using the inflation conversion factors (Sahr 2016), to have the same unit measures. But the other variables (adjusted net national income per capita and GDP per capita) are already in current US$. All the tests were performed in EViews 9.

Major shortcoming of cross-country time series analysis is data quality and comparability. Data collection techniques and coverage, in particular, are not unique and can vary from country to country and from one period to another within the same country. To overcome the problem of data lacking, we selected into analysis only the countries with consistent

data. Because of the different definitions of some indicators (the different measures of gross domestic product per capita, for example), we could not mix the data sources and we have confined to a single one – the World Bank.

The World Bank's country income classification is dynamic: a country can move annually to another category (according to its level of income) and the reference values of gross national income (GNI) per capita vary in time. In our analysis, we have chosen the most recent classification, available for the 2018 fiscal year, to allocate each considered country to a given panel (lower middle, upper middle- and high-income countries). The analyzed time series overlaps over a period of 35 years, from 1980 to 2014.

Background of the Study

With the development of an economy (i.e. higher GDP), purchasing power increases with increased per capita income. Then income raises the consumption expenditures and also raises the standard of living. This flow of income, consumption and GDP per capita is clearly evident from the figures of income classified countries.

The average net income and the average GDP per capita increased stronger than consumption from 2007 (figure 1) but before that they had to consume 100 % of their income with no savings. In upper middle income countries, after 1993, the net average income started to increase with a small drop (from the 1998 to 2004). Though their GDP per capita was unaffected during the period unless the crisis year (2008 to 2009). From 1991, the average net income and the average GDP per capita were always remained above the consumption constantly (figure 3). Although the growth rate of consumption expenditure in lower middle income countries is a bit faster than high income countries.

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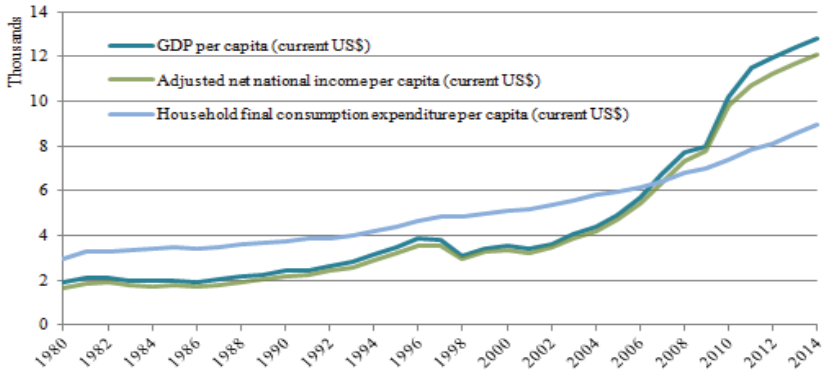

FIGURE 1 Lower-Middle Income Countries (Based on data from The World Bank, http://data.worldbank.org)

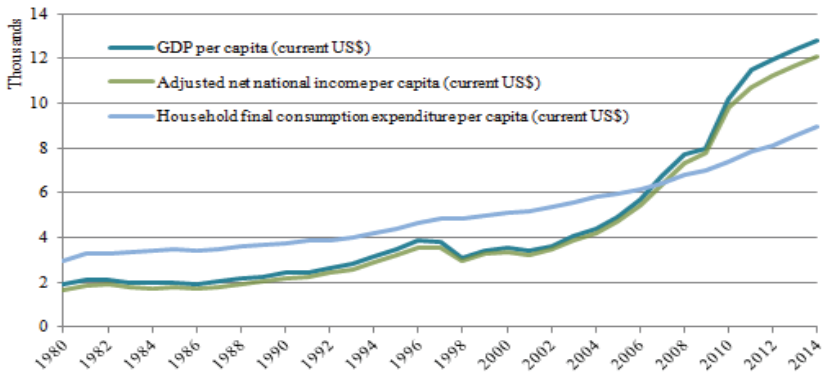

FIGURE 2 Upper-Middle Income Countries (Based on data from The World Bank, http://data.worldbank.org)

The remarkable thing from the above three graphs is that the average net income and the average GDP per capita of upper middle and high income countries has responded quickly during the crisis year than lower middle income countries. But the slope of per capita consumption has increased more (lower middle income countries) than other countries.

Generally, people do not response instantly with increased income and GDP. Because of having habituated with a living standard, it is difficult to change it all on a sudden. So for the adjustment of increased expenditure, people have to cut their savings with the hope that income will restore to the previous value.

Several noticeable facts are evident from South-Asian countries graph-

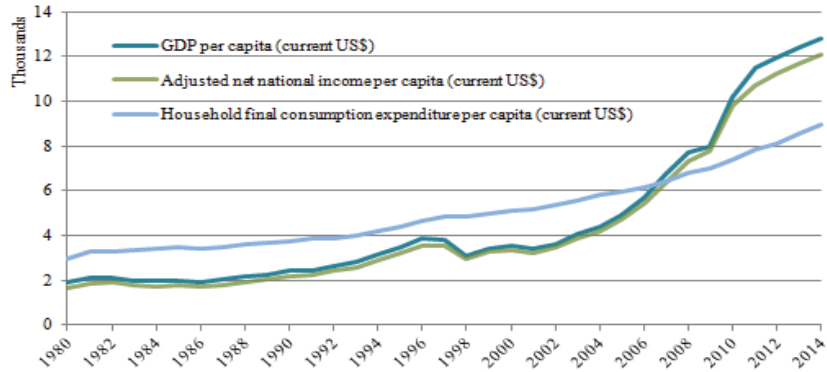

FIGURE 3 High Income Countries (Based on data from The World Bank, http://data.worldbank.org)

ical presentations. Household consumption expenditure per capita was higher than GDP and income per capita as well as their consumption expenditure is increasing consistently with increasing GDP and income per capita from 2008 (lower middle income). Though GDP per capita was higher since 1990's but income per capita experienced fluctuations and started to rise than consumption expenditure per capita from 2005 (upper middle income).

After 1988's, GDP and income per capita is greater than consumption expenditure per capita but experiencing a small drop at the beginning of 2000, the income per capita again started to increase. This characteristics of high income countries of Asia is consistent with Keynes' remarks which is – the difference between income and consumption grows along with the rising levels of income and consumption, with some fluctuations in high income countries. It is very obvious that consumption expenditure increases with increasing level of income and also increases savings that indirectly increases the gross domestic product.

Econometric Methodology

Existence of no unit root in panel data is required to ignore the dubious result of the estimation. Thus, our econometric methodology proceeds in four stages. First, we implement common (Levin, Lin, and Chu 2002 and Breitung 2000) and individual (Im, Pesaran, and Shin 2003, ADF-Fisher Chi-square and PP-Fisher Chi-square define by Maddala and Wu 1999 and Choi 2001) unit root test to ascertain the order of integration of the variables.

We mainly implement the following equation:

$$Con_{it} = \alpha_1 + \alpha_2 \mathrm{Inc}_{it} + \varepsilon_{i1t}. \tag{1}$$

Then

$$\mathrm{GDP}_{it} = \beta_1 + \beta_2 \mathrm{Con}_{it} + \beta_3 \mathrm{Inc}_{it} + \varepsilon_{2it}. \tag{2}$$

Second, conditional on finding that all variables are integrated of order one; we test for panel cointegration to confirm the existence of long run relationship. Given that each variable is integrated of order one, we test for panel cointegration equilibrium relationship between the variables using the approach of Pedroni (1999), Kao (1999) which is Engle-Granger (1987) two step residual based test and Fisher which a combined Johansen test of cointegration.

Pedroni (1999) considers the following time series panel regression

$$y_{it} = \alpha_{it} + \delta_{it} t + X_i \beta_i + e_{it}, \tag{3}$$

where y_{it} and X_{it} are the observable variables with dimension of $(N * T) \times 1$ and $(N * T) \times m$, respectively. Pedroni (1999) derives seven panel cointegration test statistics as well. Of these seven statistics, four are based on within-dimension, and three are based on between-dimension. The seven Pedroni's statistics for testing cointegration are:

Panel v-statistic:

$$Z_v = T^2 N^{\frac{3}{2}} \left(\sum_{i=1}^{N} \sum_{i=1}^{T} \hat{L}_{11i}^{-2} \hat{\varepsilon}_{i,t-1}^2 \right)^{-1}. \tag{4}$$

Panel ρ-statistic:

$$Z_\rho = T \sqrt{N} \left(\sum_{i=1}^{N} \sum_{i=1}^{T} \hat{L}_{11i}^{-2} \hat{\varepsilon}_{i,t-1}^2 \right)^{-1} \sum_{i=1}^{N} \sum_{i=1}^{T} \hat{L}_{11i}^{-2} (\hat{\varepsilon}_{i,t-1} \Delta \hat{\varepsilon}_{i,t} - \hat{\lambda}_i). \tag{5}$$

Panel t-statistic (non-parametric):

$$\acute{Z}_t = \left(\sigma_{N,T}^2 \sum_{i=1}^{N} \sum_{i=1}^{T} \hat{L}_{11i}^{-2} \hat{\varepsilon}_{i,t-1}^2 \right)^{-\frac{1}{2}} \sum_{i=1}^{N} \sum_{i=1}^{T} \hat{L}_{11i}^{-2} (\hat{\varepsilon}_{i,t-1} \Delta \hat{\varepsilon}_{i,t} - \hat{\lambda}_i). \tag{6}$$

Panel t-statistic (parametric):

$$\acute{Z}_t = \left(\tilde{s}_{N,T}^2 \sum_{i=1}^{N} \sum_{i=1}^{T} \hat{L}_{11i}^{-2} \hat{\varepsilon}_{i,t-1}^2 \right)^{-\frac{1}{2}} \sum_{i=1}^{N} \sum_{i=1}^{T} \hat{L}_{11i}^{-2} \hat{\varepsilon}_{i,t-1} \hat{\varepsilon}_{i,t-1} - \Delta \hat{\varepsilon}^{i,t}). \tag{7}$$

Group ρ-statistic:

$$\tilde{Z}_\rho = T\sqrt{N}\sum_{i=1}^{N}\left(\sum_{i=1}^{T}\hat{\varepsilon}_{i,t-1}^2\right)^{-1}\sum_{i=1}^{T}(\hat{\varepsilon}_{i,t-1}\Delta\hat{\varepsilon}_{i,t}-\hat{\lambda}_i). \quad (8)$$

Group t-statistic (non-parametric):

$$\tilde{Z}_t = \sqrt{N}\sum_{i=1}^{N}\left(\hat{\sigma}_i^2\sum_{i=1}^{T}\hat{\varepsilon}_{i,t-1}^2\right)^{-\frac{1}{2}}\sum_{i=1}^{T}(\hat{\varepsilon}_{i,t-1}\Delta\hat{\varepsilon}_{i,t}-\hat{\lambda}_i). \quad (9)$$

Group t-statistic (parametric):

$$\tilde{Z}_t = \sqrt{N}\sum_{i=1}^{N}\left(\sum_{i=1}^{T}\hat{s}_i^2\hat{\varepsilon}_{i,t-1}^2\right)^{-\frac{1}{2}}\sum_{i=1}^{T}\hat{\varepsilon}_{i,t-1}\Delta\hat{\varepsilon}_{i,t}. \quad (10)$$

Now if the variables are cointegrated, the next task to estimate the long-run association of the variables. Various econometric methodologies exists or are proposed for testing cointegrated vectors. For example, the parametric panel dynamic ordinary least squares (DOLS) of Kao and Chiang (2000) which is promising in small samples and performs well in cointegrated panels. But the limitation of the DOLS method is that it does not allow the cross-sectional heterogeneity in the alternative hypothesis. So, to address the cross-sectional heterogeneity, endogenity and serial correlation problem in order to obtain consistent and asymptotically unbiased estimates, we preferred Pedroni (2000; 2001) proposed the group mean fully modified ordinary least squares (FMOLS) estimator.

The panel FMOLS estimator is given as:

$$\hat{\beta}_{\text{FMOLS}} = \frac{1}{2}\sum_{i=1}^{N}\left[\left(\sum_{i=1}^{T}(X_{i,t}-\bar{X}_i)^2\right)^{-1}\left(\sum_{i=1}^{T}(X_{i,t}-\bar{X}_i)W_{i,t}-T\hat{\gamma}_i\right)\right], \quad (11)$$

where

$$W_{i,t} = W_{i,t}-\bar{W}_i-\frac{\hat{\omega}_{2,1,i}}{\hat{\omega}_{2,2,i}}\Delta X_{i,t}\wedge\hat{\gamma}_i = \hat{\Gamma}_{2,1,i}+\hat{\Omega}_{2,1,i}-\frac{\hat{\omega}_{2,1,i}}{\hat{\omega}_{2,2,i}}(\hat{\Gamma}_{2,2,i}+\hat{\Omega}^{\circ}_{2,1,i}). \quad (12)$$

Empirical Results

Following econometric methodology, firstly we tested for the stationarity of the variables which assume common and individual unit root process (table 3).

In the analyzed panels (lower middle, upper middle, high income and total countries), we found that all the three variables – consumption, in-

TABLE 3 Panel Unit Root Tests

(1)	(2)	Test*	Level				1st Difference			
			Constant (p**)		Con. + Trend (p**)		Constant (p**)		Con. + Trend (p**)	
(a)	Con	LLC	5.8714	1.000	0.9722	0.8345	−8.9557	0.000	−11.328	0.000
		IPS	7.1305	1.000	0.7070	0.7602	−8.5622	0.000	−10.449	0.000
		ADF	1.1492	0.999	10.069	0.4344	77.707	0.000	113.005	0.000
		PP	1.1493	0.999	13.331	0.2057	82.807	0.000	314.154	0.000
	Inc	LLC	4.8829	1.000	0.5882	0.7218	−7.4383	0.000	−7.3747	0.000
		IPS	7.0254	1.000	1.8469	0.9676	−8.2154	0.000	−8.4075	0.000
		ADF	0.1538	1.000	3.0167	0.9810	76.008	0.000	71.640	0.000
		PP	0.1632	1.000	2.7118	0.9874	78.501	0.000	72.411	0.000
	GDP	LLC	4.9333	1.000	1.1912	0.8832	−8.3674	0.000	−8.4598	0.000
		IPS	7.1008	1.000	2.5529	0.9947	−8.3133	0.000	−8.5216	0.000
		ADF	0.1137	1.000	1.7469	0.9979	77.045	0.000	72.679	0.000
		PP	0.1170	1.000	1.9902	0.9964	78.517	0.000	73.112	0.000
(b)	Con	LLC	3.6975	0.999	1.6712	0.9527	−4.0156	0.000	−4.9082	0.000
		IPS	4.3450	1.000	1.2712	0.8982	−2.6185	0.004	−4.2405	0.000
		ADF	1.0066	0.985	4.8764	0.5598	19.780	0.003	27.239	0.000
		PP	0.5989	0.996	1.7990	0.9372	30.940	0.000	24.409	0.000
	Inc	LLC	1.5395	0.938	0.1608	0.5639	−5.2143	0.000	−2.5266	0.005
		IPS	3.0380	0.999	0.1241	0.5494	−4.8403	0.000	−4.0012	0.000
		ADF	0.6911	0.995	5.1320	0.5270	33.149	0.000	26.068	0.000
		PP	0.4875	0.998	2.6674	0.8493	33.795	0.000	25.288	0.000
	GDP	LLC	1.5312	0.937	−0.1275	0.4493	−5.4984	0.000	−4.9883	0.000
		IPS	3.0794	0.999	0.3291	0.6290	−4.9337	0.000	−4.0985	0.000
		ADF	0.6236	0.996	3.8189	0.7012	34.119	0.000	26.068	0.000
		PP	0.4261	0.998	2.9814	0.8112	34.150	0.000	25.528	0.000

Continued on the next page

come and GDP per capita – are non-stationary at level and have unit roots in both cases (intercept and intercept plus trend). Further, all the data series are integrated of first order and became stationary after their 1st differencing.

Secondly, we performed cointegration tests since all the variables are integrated of order one in all cases. To investigate the long-run relationship between the variables, we conducted Pedroni Test (Table 4). Pedroni (1999, 666) proved that the null hypothesis of no cointegration between variables is rejected when the calculated panel statistics have large negative values, except for panel v-statistics which take large positive values in this case.

In our study, there is strong evidence that consumption and income are

TABLE 3 *Continued from the previous page*

(1)	(2)	Test*	Level				1st Difference			
			Constant (*p***)		Con. + Trend (*p***)		Constant (*p***)		Con. + Trend (*p***)	
(c)	Con	LLC	−5.463	0.000	0.4137	0.6605	−4.6658	0.000	−5.6408	0.000
		IPS	−2.692	0.003	3.0096	0.9987	−4.68535	0.000	−5.7665	0.000
		ADF	19.893	0.003	0.2834	0.9996	32.450	0.000	37.551	0.000
		PP	20.946	0.002	0.3025	0.9995	32.777	0.000	98.684	0.000
	Inc	LLC	−2.606	0.004	−0.0063	0.4975	−5.5137	0.000	−5.2129	0.000
		IPS	−0.956	0.169	0.6833	0.7528	−4.7199	0.000	−4.3288	0.000
		ADF	9.1376	0.166	2.7349	0.8413	32.638	0.000	27.686	0.000
		PP	6.1911	0.402	1.5105	0.9588	34.686	0.000	26.943	0.000
	GDP	LLC	−2.261	0.012	−0.0129	0.4949	−5.4773	0.000	−5.2990	0.000
		IPS	−0.7810	0.217	0.7112	0.7615	−4.5152	0.000	−4.1333	0.000
		ADF	8.8999	0.179	2.8643	0.8257	31.051	0.000	26.380	0.000
		PP	6.3659	0.383	1.4956	0.9598	33.546	0.000	25.966	0.000
(d)	Con	LLC	2.9769	0.998	1.4853	0.9313	−10.957	0.000	−13.374	0.000
		IPS	5.7269	1.000	2.6740	0.9963	−9.5170	0.000	−12.198	0.000
		ADF	22.048	0.457	15.229	0.8522	129.94	0.000	177.79	0.000
		PP	22.694	0.419	15.433	0.8430	146.52	0.000	437.25	0.000
	Inc	LLC	2.9659	0.998	0.5281	0.7013	−10.673	0.000	−8.9912	0.000
		IPS	5.7899	1.000	1.6543	0.9510	−10.528	0.000	−9.9407	0.000
		ADF	9.9825	0.986	10.884	0.9764	141.79	0.000	125.39	0.000
		PP	6.8418	0.999	6.8898	0.9991	146.98	0.000	124.64	0.000
	GDP	LLC	2.8529	0.998	0.6786	0.7513	−11.392	0.000	−11.043	0.000
		IPS	5.9369	1.000	2.2496	0.9878	−10.535	0.000	−10.038	0.000
		ADF	9.6371	0.989	8.4302	0.9958	142.21	0.000	125.13	0.000
		PP	6.9090	0.999	6.4673	0.9995	146.21	0.000	124.60	0.000

NOTES Column headings are as follows: (1) panel, (2) variable. Row headings are as follows: (a) lower-middle income, (b) upper-middle income, (c) high income, (d) all countries. * Levin, Lin, and Chu Test (LLC) and Breitung assume common unit root process; Im, Pesaran and Shin (IPS), ADF-Fisher Chi-square and PP-Fisher Chi-square assume individual unit root process. ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normal.

cointegrated only in lower middle income countries when an intercept is considered in the time series according to Pedroni cointegration test. However, the calculated tests values reported a combined interpretation in every considered case (for every panel and both associations between variables). We considered the criterion reported by most of the results for each particular situation.

To check the robustness of our cointegration output, we also performed additional tests of cointegration using the methodology proposed by Kao and Fisher (table 5). According to Kao cointegration test, cointegration

TABLE 4 Pedroni Panel Cointegration Tests

	Test	Low (*p***)		Upper-middle (*p***)		High (*p***)		All countries (*p***)	
(1) Con-Inc	(a)	1.8906	0.0293	0.1060	0.4578	1.5418	0.0616	1.4613	0.0720
	(b)	−1.4518	0.0733	−0.2045	0.4190	−0.5922	0.2768	−1.2598	0.1039
	(c)	−1.5896	0.0560	−0.4301	0.3335	−0.4384	0.3305	−1.8461	0.0324
	(d)	−1.4621	0.0719	−1.4830	0.0690	−2.3838	0.0086	−2.9064	0.0018
	(e)	−2.2710	0.0116	0.2552	0.6007	0.3946	0.6534	−1.0802	0.1400
	(f)	−2.8673	0.0021	−0.3493	0.3634	0.1898	0.5753	−2.0777	0.0189
	(g)	−3.4985	0.0002	−1.3473	0.0889	−2.5952	0.0047	−3.3545	0.0004
	(h)	2.4719	0.0067	−0.2494	0.5985	1.4247	0.0771	2.0791	0.0188
	(i)	−2.9270	0.0017	−0.9317	0.1757	−0.5002	0.3084	−1.9229	0.0272
	(j)	−2.9006	0.0019	−1.0755	0.1411	−0.3709	0.3553	−2.3573	0.0092
	(k)	−3.2718	0.0005	−1.5005	0.0667	−2.0208	0.0216	−3.3370	0.0004
Con-Inc-GDP	(a)	0.6378	0.2618	0.9811	0.1633	2.2162	0.0133	1.1724	0.1205
	(b)	−0.1726	0.4315	−0.4642	0.3212	−0.2969	0.3833	−0.0641	0.4744
	(c)	−0.7667	0.2216	−0.9241	0.1777	−0.2103	0.4167	−0.7352	0.2311
	(d)	−0.6955	0.2433	−0.8675	0.1928	−0.7179	0.2364	−0.7472	0.2275
	(e)	−0.6825	0.2474	−0.0820	0.4673	0.6338	0.7369	−0.1204	0.4521
	(f)	−2.4204	0.0078	−0.8524	0.1970	0.1673	0.5665	−0.9587	0.1688
	(g)	−2.3558	0.0092	−0.6719	0.2508	−1.5783	0.0572	−1.9716	0.0243
	(h)	1.0825	0.1395	1.1949	0.1161	2.6124	0.0045	2.1188	0.0171
	(i)	−1.1850	0.1180	−0.5665	0.2855	−0.2071	0.4179	−0.7324	0.2319
	(j)	−1.9470	0.0258	−0.9632	0.1677	−0.2980	0.3828	−1.3825	0.0834
	(k)	−1.9192	0.0275	−0.8800	0.1894	−1.3633	0.0864	−1.7299	0.0418

Continued on the next page

relationship exists between consumption, income and GDP in all panels. Also, Kao test confirmed an association between consumption and income – for upper middle income, high income and all countries, except lower middle income countries.

In addition, applying Fisher cointegration test, the long run association between consumption and income is ensured in the case of lower middle and upper middle income countries when only intercept is considered. Whereas, cointegration relationship exists between consumption and income in all panels when intercept and trend is considered in the time series. The long run relationship is exists only in lower middle income countries when intercept is considered. While, the long-run association between consumption, income and GDP in all the cases – lower middle, upper middle, high income and all countries when intercept and trend is considered in the time series.

Conclusions of the cointegration results are presented below (table 6). Strong long run relationship between consumption and income in lower

TABLE 4 *Continued from the previous page*

		Test	Low (p^{**})		Upper-middle (p^{**})		High (p^{**})		All countries (p^{**})	
(2)	Con-Inc	(a)	−0.3343	0.6310	−1.3268	0.9077	0.2866	0.3872	5.7049	0.0000
		(b)	0.8494	0.8022	0.7687	0.7790	0.6668	0.7476	−0.0437	0.4826
		(c)	0.4445	0.6717	0.3561	0.6391	0.3732	0.6455	−0.7816	0.2172
		(d)	0.4443	0.6716	−1.7624	0.0390	−1.5666	0.0586	−2.3807	0.0086
		(e)	−0.1813	0.4280	1.1049	0.8654	1.3183	0.9063	0.4639	0.6787
		(f)	−1.2331	0.1088	0.4380	0.6693	0.8728	0.8086	−0.2849	0.3878
		(g)	−2.0368	0.0208	−1.7944	0.0364	−1.6634	0.0481	−2.3363	0.0097
		(h)	0.3436	0.3656	−1.6320	0.9487	0.0536	0.4786	4.9098	0.0000
		(i)	−1.0098	0.1563	0.2092	0.5829	0.7121	0.7618	−0.9828	0.1628
		(j)	−1.8523	0.0320	−0.3656	0.3573	0.4063	0.6577	−2.1793	0.0147
		(k)	−2.4298	0.0076	−2.3993	0.0082	−1.9059	0.0283	−4.1455	0.0000
	Con-Inc-GDP	(a)	-0.5447	0.7071	1.1385	0.1275	1.9709	0.0244	3.8527	0.0001
		(b)	0.2810	0.6107	−0.5696	0.2845	−0.0195	0.4922	0.7928	0.7861
		(c)	−0.8559	0.1960	−1.4977	0.0671	−0.7441	0.2284	−0.2056	0.4185
		(d)	−0.7135	0.2378	−1.5375	0.0621	−1.7908	0.0367	−1.3568	0.0874
		(e)	0.1514	0.5602	0.3106	0.6220	1.2509	0.8945	1.1587	0.8767
		(f)	−1.8784	0.0302	−0.8342	0.2021	0.2833	0.6116	0.1187	0.5473
		(g)	−1.8695	0.0308	−0.8595	0.1950	−2.4811	0.0065	−2.4090	0.0080
		(h)	−0.2941	0.6157	1.2805	0.1002	1.9431	0.0260	2.9291	0.0017
		(i)	−0.4935	0.3108	−0.5441	0.2932	0.5611	0.7127	0.4288	0.6660
		(j)	−1.8798	0.0301	−1.4811	0.0693	−0.2213	0.4124	−0.9988	0.1589
		(k)	−1.8114	0.0350	−1.5096	0.0656	−2.5634	0.0052	−2.9392	0.0016

NOTES Row headings are as follows: (1) constant, (2) constant + trend, (a) panel V-statistic, (b) panel rho-statistic, (c) panel PP-statistic, (d) panel ADF-statistic, (e) group rho-statistic, (f) group PP-statistic, (g) group ADF-statistic, (h) weighted panel V-S, (i) weighted panel rho-S, (j) weighted panel PP-S, (k) weighted panel ADF-S.

TABLE 5 Kao and Fisher Panel Cointegration Tests

		Test	Low (p^{**})		Upper-middle (p^{**})		High (p^{**})		All countries (p^{**})	
(1)	Con-Inc	(a)	−0.1677	0.4334	−3.2472	0.0006	−3.0125	0.0013	−2.4617	0.0069
		(b)	5.471	0.7062	5.561	0.4741	14.95	0.0207	25.98	0.1664
	Con-Inc-GDP	(a)	−3.6541	0.0001	−2.2981	0.0108	−4.4524	0.0000	−2.4150	0.0079
		(c)	5.600	0.6919	13.33	0.0381	14.02	0.0294	32.95	0.0342
(2)	Con-Inc	(b)	2.147	0.9762	3.654	0.7233	7.044	0.3168	12.84	0.8839
	Con-Inc-GDP	(c)	2.481	0.9626	8.029	0.2360	6.650	0.3544	17.16	0.6425

NOTES Row headings are as follows: (1) constant, (2) constant + trend, (a) Kao, (b) Fisher (at most 1), (c) Fisher (at most 2). The results are presented from Trace Test; because data are annual, we have chosen 1 Lag interval; probabilities for Fisher Test are computed using asymptotic Chi-square distribution.

middle income and upper middle income panels, but weaker for high income countries. Also, a significant long run association is found between consumption, income and GDP in lower middle income country panels while weaker for other panels. Sample of all countries are mixed for both associations of variables in the analyzed periods. Lastly, condi-

TABLE 6 Summary of Cointegration Tests

	Test	Constant				Constant + Trend			
		(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Con-Inc	(a)	Yes	No	No	Yes	No	No	No	Yes
	(b)	No	Yes	Yes	Yes	–	–	–	–
	(c)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Con-Inc-GDP	(a)	No	No	No	No	No	No	No	No
	(b)	Yes	Yes	Yes	Yes	–	–	–	–
	(d)	Yes	No	No	No	Yes	Yes	Yes	Yes

NOTES Column headings are as follows: (1) lower-mid, (2) upper-mid, (3) high, (4) all. Row headings are as follows: (a) Pedroni, (b) Kao, (c) Fisher (at most 1), (d) Fisher (at most 2). Results are presented at 5 % level of significance.

TABLE 7 Full Modified OLS Estimates

Variable	Country Grouping	Consumption exp.	Income
Consumption exp.	Lower middle income		0.525303 (0.0000)
	Upper middle income		0.583777 (0.0000)
	High income		0.489537 (0.0000)
	All panel		0.538597 (0.0000)
GDP	Lower middle income	0.223537 (0.0146)	0.867593 (0.0000)
	Upper middle income	0.044654 (0.6188)	1.011292 (0.0000)
	High income	0.198412 (0.0000)	0.927010 (0.0000)
	All panel	0.208005 (0.0000)	0.904013 (0.0000)

tional on finding cointegration we calculate panel fully modified ordinary least squares (FMOLS) estimate of the coefficients.

Table 7 represents the results of FMOLS test of the country grouping. All variables are in natural logarithm form. The estimated coefficients from the long-run relationship are quite significant at 5 % level of significance. Income is a key factor of consumption expenditure in all level of income countries. And per capita consumption expenditure and per capita income is highly influential component of per capita GDP in all income grouping countries.

Conclusions

The study presents the relationship between the income, consumption and GDP for a panel of Asian countries over the periods of 1980–2014. In this regard, the research employed essential econometric techniques such as panel unit root tests, panel cointegration tests and FMOLS test to understand the long run relationship between the studied variables. Moreover, the link between the income, consumption and GDP is one of the most examined association in economics.

Cointegration test results establishes the existence of long run equilibrium relation among the targeted series which is in line with Khan and Ahmad (2014). The study revealed that, there is an association between consumption and income. However, the level of income has a greater importance for consumption for the individuals from countries with lower middle and upper middle income levels, but the association between these two variables is weaker in the countries with a high income level. This is also logical in the sense that people from these two-income group (lower middle and upper middle income) spend their maximum on consumption rather than savings and investment opportunities. Large numbers of middle-income households live hand-to-mouth lifestyles with little margin for unexpected negative events (Baker and Yannelis 2017). In fact, sometimes their consumption is more than the income. Generally, variables that predict income growth also predict consumption growth except Japan. In other economies, predictable income growth and predictable consumption growth move in proportion with one another (Campbell and Mankiw 1991). The overall study results support the Keynesian law which demonstrates that consumption is a function of income.

On the other hand, the association between consumption, income and GDP was found significant in all considered panel of countries when intercept and trend is considered. In fact, this relationship became more accentuated for the lower middle income countries. This may be because the economies of lower middle income countries, typically depends on their domestic consumption. Even it also said that uniqueness of Asian economies growth is that their economic growth is mainly driven by the consumption. Above facts are highly influential both in forming the microeconomic support of future economic models and also in designing government policy to insure against income disruptions.

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Aristotle's Chrematistikē and the Current 'Post-Economy'

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Chrematistics (gr. hrematistikē) is not only a new (actually very old, but newly re-discovered) 'word' but simultaneously a completely new 'perspective' in the sense of different thinking and understanding. Moreover, chrematistics is a new paradigm of thinking and, simultaneously, a new methodology of argumentation. In short, it is the paradigm of counter-economical thinking/arguing being based in a precise distinction between economics (gr. oikonomikē) and hrematistikē, which was made by Aristotle in his first book of *Politics.* The aim of this paper is twofold. Firstly, the problem – and the aim – is to (re)open the historically present and simultaneously 'lost' (hidden) distinction between these two crucial categories of our times. Consequently, the aim is to develop a possible understanding of the distinction. Secondly, in this paper, I have also attempted to emphasize some of the usages of the already existing distinction at the level of the theories of philosophy and economy and the possible critiques of latter. The final but by no means lesser emphasis – and its main hypothesis- of the paper is aiming at the problem of our time in the sense that our current problems and crises are not at all possible seriously to grasp in economic, but primarily in the chrematistic categories and the possibilities of that new paradigm of thinking.

Key Words: chrematistics, economy, philosophy, Aristotle, crises
JEL Classification: A12, N00, P16
https://doi.org/10.26493/1854-6935.17.129-148

Introduction

Aristotle was the first thinker to observe the still today mostly unknown, but critical 'qualitative' distinction between two various human retentions and stances (gr. heksis): that of chrematistikē and ekonomikē.[1] Posing, developing, explaining and 'showing' the theoretical difference and distinction between the two has not been historically popular.[2] Nevertheless, the theoretical distinction has been preserved through the centuries, mainly due to the persistence of the Aristotle's books and ideas. It has remained mainly as the forgotten vehicle for possible different methodical

and logical thinking of the foundations of the human condition. Firstly, it was – at least 'nominally' – preserved in the Middle East (approximately ancient Syria and Iraq/Iran of today) through the translations of Greek texts (especially in the 8th and 9th centuries[3]). Secondly, later in the following centuries it persisted in the West mainly due to the various translations from Arabic into Latin language (6th–8th centuries onward).

During the history of the West after the Greek era, Aristotle and 'his' Peripatetics[4] were mainly (dis)located somewhere in the shadow of Plato and his Academia (school of Academics). The importance of his various books and teachings (alternative – in comparison with Plato's way of thinking, mainly in the sense of 'pagan' and not mythological/religious ones) started gaining importance approximately from the 11th and 12th centuries onward. Thanks mainly to the translations of his books – first from Arabic (11th–12th century Spain) and then also from Greek (later on from Latin into modern languages) in later centuries – he somehow has become 'important' for the Western understanding of different human 'things' and actions. As far as the subject of this paper is concerned, the most significnat transition from anonymity to importance about chrematistics (gr. chrematistikē) took place during 13 century, when Aristotle's 'Politics' was – mainly for the 'Papal reasons' – translated under the supervision of St. Thomas Aquinas.[5]

Strangely enough, in this connection and context is at least one significant point: Aristotle was not only the first but simultaneously one of the latest among thinkers who thoughtfully considered the distinction between chrematistikē and ekonomikē, which (somehow on the margins of Western (and in general) thought) persisted approximately until the era of Protestantism. Later, it disappeared; consequently, we are currently in the quite interesting position of its reinvention and even of rethinking the field, not just of economics but that of chrematistics too.

Among Christian theoreticians – Protestants included[6] – it was still possible to find some traces of those ancient Aristotelian distinctions. Where and when the 'science' (now in the sense of Scientia and also of one of the governmental techniques) of economy won the day ('political economy,' mainly among British theoreticians from the times of David Ricardo and Adam Smith) the situation – politically included! – changed in a revolutionary manner. The modern economy was very anti-theoretical (in comparison with Greeks), which meant 'practical' and technical discipline (mainly in the way Bacon methodologically set the agenda[7]) and – as far as our subject is concerned – established specifically on the negation

of the distinction between chrematistics and economy. From that revolutionary point in history onward completely different, modern mind-set was inaugurated which started thinking and understanding almost everything (at least) within the privileged context of the economy. Not only 'economic things' but also all other kinds of phenomena suddenly have become 'based on economy,' 'connected with economy,' 'founded in economy,' 'deductible from economy,' as so on. Human beings, for example for the first time appeared as 'animal laborans,' work started functioning as a 'freedom' and 'value maker,' money revolutionarily was – at the level of understanding and thematisation – located as the central 'part of the economy.' Last but not least, the market started to appear even as the 'invisible hand.'

The list of this and similar fundamental(ist) changes – not only with regard to the ancients but also in connection to the Middle Ages – at the begging of modernity, going on and on and were endless. Everything so to speak was new in the sense of 'economic' (that was historically a revolutionary change and still presents challenge for thinking) and in this or that connected with 'the economy,' consequently the very possibility of distinguishing between chrematistikē and ekonomikē[8] radically disappeared. To put it in more general parlance, Baconian modernity buried the Ancient, mostly Aristotelian, way of thinking (distinguishing included);[9] everything had become somehow 'practical' and technical, even mechanical as visibly opposed to theoretical.[10] For us at this point, it is important to note that the economy literally 'ate' the chrematistics; consequently, chrematistics disappeared in the sense of the possibility of understanding its very existence (being seriously graspable only in connection with ekonomikē).

Exactly that fundamental suppression of the very distinction between chrematistikē and ekonomikē (more generally, of the way of thinking based in the methodology of distinguishing included) presented itself (and today still remains the case) as a literally constitutional act, at least of the modern economy as such.[11] That which is the most important in this connection remains somehow hidden: the blockade of the very possibility of understanding the crucial fact that modern concept – and conceptualisation (methodology and practice included) – of the economy is actually a mixture of both: of chrematistikē and ekonomikē. Consequently, to understand what is going on today in our 'dark times' of (almost permanent) depressions and even desperation at least at the level of 'economy,' one probably should start with Aristotle and his chrematistikē. In my un-

derstanding, that is the dark, hidden side of our moon that should be at least partly enlightened, or better, set as a quite important, probably one of the most essential theoretical problem of our times.

Having said that, I would like especially to emphasize that this is not 'paradox' that one should be able to distinguish between chrematistikē and ekonomikē in order to understand what is going on with our own perishing 'ekonomikē' of today. It is a rather analytical, even methodological, mainly decisive theoretical move at the level of the very beginning of considering our problems of today. The central emphasis in that sense is as follows: our 'economy' (approximately Aristotelian 'ekonomikē') – in its entirety (in double sense of 'existing economy' and of the ways of speaking/understanding that 'economy') – has somehow become the kind of 'cover operation' for something that actually (is) mostly 'belonging' to chrematistikē! The economy (ekonomikē) is covering chrematistikē through the 'operation of revolving,' 'turning upside down' everything that is chrematistical into something that is thematised and even presented and showed as would-be-economical.

Exactly the existence of that kind of 'cover operations' is the emphasis and in the core of the primary thesis of this paper. To put it in slightly different way: I will attempt to develop some elements of the possible 'infrastructure of thinking,' according to (which) probably (and only probably!) it could be possible to (re)think and bring back the very distinction between chrematistikē and ekonomikē, which is mainly forgotten and suppressed. From the distinction[12] – that is the starting point – I will attempt to make some additional moves towards the understanding of chrematistikē itself. It is not possible within the given symbolical and language contexts of today to 'develop meaning,' since the given current circumstances are radically opposite and even hateful to the meaning itself, let alone (its) to understanding in the Greek sense. To put it in a more precise ('Wittgensteinian' way), the meaning of the word is not connected with things, but with its usages (language games) and – in final analysis – with the way of life.

The Centrality and Decisiveness of Locations, Borders, and Horizons of Thinking

As already emphasized, the target of the paper is quite narrow but not 'simple,' as it could appear to today ways of thinking and arguing. The point is to tackle Aristotle's usages and meanings (in the Wittgensteinian sense) of 'his' one 'word' (category), that of chrematistics, or rather that

of chrematistikē and not that of ekonomikē. Of course, both 'things,'[13] chrematistikē and ekonomikē, are very close and connected, but simultaneously they are radically different – and exactly that is the point of this paper – and not the same.

To understand the 'meaning of chrematistikē' one should open and understand at least four various 'things': (1) ekonomikē, (2) chrematistikē, and – of course (which is one of the important points of this paper) – the (3) difference between both, and (lastly and most importantly), one should also understand the (4) dominant context in which previously mentioned 'three things' are 'operating,' and functioning. Without that 'dominant context' (fourth element), comprehension of the problem is not at all possible.

Let us start with the last (fourth) and the most difficult 'thing.' It is dealing with the 'horizons' and contexts of the problem but also in the sense of its 'borders,' 'border-lines,' which are – in Aristotle (Plato too) – in Greek designed as 'horas,' 'horismos' ('horisomai'). To put it in the simplest form, among the main points – especially in Aristotle's kind of theoretisation(s) and inductive thinking – of all his 'analysis and synthesis' (regardless of where they are appearing, in which book, in which part and period of his lifetime) are connected with something which could be termed as the 'method of putting borders.' The 'name' (designation) of that 'bordering the subject' is 'horisomai.' The critical concept presents the very essence of entire Aristotelian 'methodology,' at least in the sense of posing/putting clear-cut-distinctions between various 'things' (let alone phenomena and other 'non-things-things'), and also in the sense of 'non-physical objects.'

So, when one is attempting, for example, to (re)open the question of chrematistikē in the sense of trying to understand Aristotle ('what is he actually thinking and doing here'), he or she should – at the very beginning of problematisation! – pose the problem in a somehow 'larger context.'[14] At least in following senses and meanings:

- Where (why, how) the topic (of chrematistikē, in our case) is appearing in his opus?
- What are the contexts (contextualisations included) and horizons of that 'category' in his works and similar.

The answer is – as far as Aristotle is concerned (and that is the most important for us[15]) – simultaneously very simple, direct, and exact: the context, horizons of the chrematistikē is politics. Moreover, not politics

as such (just in general sense), but at least (and also) in three specific, more concrete meanings of the word:

1. In the meaning of his book of 'Politics' (ta politikē).[16] The distinction between ekonomikē and chrematistikē is the part of the introductory/contextual debate. It is appearing at the very beginning of posing the problem (gr. ta problemata) of chrematistikē, and is even located in the First Book (concluding part) of Politics. Consequently, for Aristotle it is not 'economic' – or similar question and problem – but above everything a political question and problem in the sense of its highest importance. The political importance (politics for Aristotle is 'the highest human capacity) of differentiating between ekonomikē and chrematistikē is beyond question;
2. Consequently, and even more importantly, Aristotle is – exactly in *Politics* – attempting to develop the very 'foundations' for his specific[17] understanding of politics itself. It is not by chance that ekonomikē and chrematistikē (besides 'villages,' 'families,' 'slavery,' 'work,' 'money,' etc.) are appearing at the beginning of the thematisation of political contexts of the good life, the best life, in short the political life, since, for Aristotle, the political life is (as for the 'classical' Greeks) the good life itself.
3. Last but not least – and taken together both previous 'elements' – the importance of the distinction between ekonomikē and chrematistikē for politics in the Aristotelian context is also simultaneously always of the highest ethical meaning, since politics and ethics for him are radically inseparable.[18]

According to Aristotelian 'political methodology' ('politics (and ethics) first,'[19] to put it in the popular parlance of today), that is exactly the most important point dealing with the context and horizons of our entire debate reopening the problem of chrematistikē. If one is not able – or ready – to understand and accept that 'largest' context in the sense of the politics as the first and most important 'not-thing,'[20] than he or she is – so to speak by definition – not capable of understanding what Aristotle (and Greeks) was trying, to pose, emphasise, distinguish, define, and say.

Chrematistics as the Part and Beginning of Technical Life

The next important emphasis one should take into account is dealing with the problem of 'ekonomikē.'[21] The very horizons of Aristotle's kind

of thinking are that of the best (possible, political) life. In that *par excellence* political context, ekonomikē (as a special 'part' of human life and actions simultaneously in the sense of gr. poiesis, approximately 'production') is something strictly 'private,' even in the sense of family privacy. Aristotelian ekonomikē is something that is mostly and primarily connected with *oikos* (household) which is simultaneously the root of the substantive ekonomikē at the level of the concept itself.

Finally, ekonomikē is somehow 'disconnected' (at least confined) with regard to *polis* and also to the 'totality' of the human (political – which is the most decisive) life. Ekonomikē is always a part of somehow larger totality; ekonomikē is rather small with regard to which polis/politics is the larger, more important, and decisive. It is not ekonomikē that is decisive part of human life (of mortals) as it is in modern times (from Bacon, Ricardo, Smith onward), but politikē! Human beings are not grasped as 'economic' beings or 'homo faber,' but radically contrary: as political beings (gr. zoon politikon) . . .

In recent of decades, we have had the opportunity to read and follow numerous research studies and investigations in the field of economics; among them, are those who tried to re-think the problem of economic within the context and in connection with ancient Greeks and Aristotle.[22] On the basis of these new investigations, it is obvious that Aristotle is – bit by bit – becoming one of the most studied and influential authors in the field. Historically speaking, one could say that it is quite normal, since he was the author (besides mentioned Xenophon) who first seriously thematised the subject of the economy itself, and also used the term in the sense of difference and distinguishing that which was not jet distinguished and theoretically thematised before him. However, one should distinguish at least two 'things' in this context of today. One is an attempt of dealing with chrematistikē in the context of the economy (and economic theories, economical way of thinking, economics mindset, etc.). Radically different is one that is posing and observing the problem from another angle, from political perspectives (as Aristotle was doing in his different times in comparison with ours). The 'politics' (remains of politics, something as anti-politics, post-politics) of today is obviously something that is radically different from the meaning of politics and the way of political life that were practiced among ancient Greeks. Last but not least, political contexts of today life in the West (especially) and elsewhere are also adding additional interests for Aristotle, since the West (economy included) is in serious political, economic, and chrematistic troubles.

To put it in medias res form, our (post) 'politics' of today is prevailingly Machiavellian, to be exact and with use of the proper designation. Moreover and more exactly, the free ancient Greeks – at the level of their 'ways of life' – used to live above all political and ethical life. The so-called 'free of today' are living something that is radically different and simultaneously even opposite of the political and ethical life of the ancient Greeks. Our current life is mainly – to put also in twofold form and not yet precisely – that of economy/production and technique/technological; in the last analysis we are living something as anti-political, private (oikos) lifes, 'social lifes,' which is (as mentioned) a theological designation and understanding from the 13th century (Aquinas).

The very distinction between political and social life is here decisive. It is essential for understanding our subject of chrematistics, since the theoretical and political move of Aristotle at that analytical point is not possibly to understood properly without grasping the very meanings and his emphasis on politics and political life in the sense of the good life. We of today – especially in the West (and) living social and technological lives – are somehow participating at the end(s) of some version of the 'Promethean,' technological and not political way of life. We are – publicly or privately, consciously or subconsciously – (still) celebrating Prometheus as one of our highest gods in the sense of technological creativity, efficiency, development, progress. In contrast, the ancient Greeks were – beyond any doubt – thinking and living fundamentally different lives (even opposite) in comparison with ours: that is possible to observe even in the sense that they were (very) extremely harsh with Prometheus himself! He was, literally, chained in their mythological 'Caucasus.' Democracy, for example – typically ancient political Greek invention and not of Romans, let alone of moderns and post-moderns – could exist only within the dominant context of the political and ethical life and not anywhere else (let alone in the contexts and horizons of economics, technology and technical life, preferred by Prometheus and his bellowed 'Prometheans'). These 'aspects' are usually overlooked if not totally suppressed and out of our way of post-modern thinking and understanding the differences between our ways of life and that of the ancients Greeks.

The reason for strongest possible underlying of this kind of differences between our and ancient Greeks is significant mainly for the proper introduction of probably the crucial category for understanding Aristotle at the point of chrematistikē, ekonomikē, politics and ethics included. It

is significant especially because it performs as a rather strange kind of perception, thinking and arguing in comparison with our different ways of life. It is a discourse that is dealing directly with the concrete, specific 'way of life' (and not of production, as we perceive it from Smith, Marx, and onward), which is no longer in existence. Those who are not (which is something that is possible to say about almost all economic investigations of today) sensitive to the outstanding importance of the 'way of life' in Aristotelian thinking are not – literally – able to understand properly his probably most important distinctions and notions, of which chrematistikē (although mostly completely forgotten) definitely is.

Namely, for Aristotle everything is – in this or that way – at least somehow connected if not directly dependent exactly on the 'way of life.' and not on the 'way of production' and so on. That is something of basic importance at least for all animals if not for all living beings, which is possible to study in his books dedicated to the history of animals and similar subjects.[23]

Chrematistics is Not an Economic but Rather a Political and Even an Ethical Problem

At the level of the etymologies of chrematistics of the word Aristotle is using, it is at least necessary to emphasise a few elements.[24]

Hre is a designation dealing with something being necessary, something one must do, should do, and it is dealing with necessity (in the sense 'of the way of life' being of importance for this or that species, human included).

On the other side, the 'hromai,' 'hreomai' designation is aiming at the need, 'to use,' utilise something, even to treat, handle, associate with someone.[25] Hreos in Greek of the time meant several 'things': obligation, debt, fee, commitment, engagement, affair, Hrema – affaire which one need: object, thing, goods, property, money ('hrestes' is lender, creditor, also debtor, etc.).

When Aristotle is using word chrematistics, hrematistikē he is mainly targeting something which is possible – although it is too narrow designation – to render as 'the art of getting wealth'[26] in the sense that the wealth is in the centre of that technical (not political, even anti-political) human activity. Or, to put in another way, chrematistike is not something that is necessary from the point of view of the life and the way of life of the mortals in the sense of human needs and for their survival. Quite the opposite is the case: it has another set of 'reasons and causes' being of importance

for chrematistics. Another causes and reasons, are of 'another genos' or quality of human activity, which could easily become the necessity of its own (but not of 'human nature' as such) and are not connected with human needs (as usually argued) but rather with his/her desires (which is, of course, not the same as needs). Finally, these desires are, by definition, not connected with something that could be fulfilled (as needs, for example), since the very 'logic of desire' is radically different in comparison with that of the needs.

It is also possible to argue about the distinction in other ways. Among them is, for example, also this one closely connected with already emphasized elements. That is the way of argumentation using the language games (Wittgenstein) of nature, since Nature (gr. physis) is a very important – usually crucial – aspect of Aristotle's kind of thinking, also in the sense of his 'teleology' (which could not be developed in this paper).

Aristotle quite often distinguished between (something being) 'natural wealth,' on one side, and something rendered as 'artificial wealth,' on the other. This one could be also found in the first book of *Politics,* although the subject is largely and better treated in his Nicomachean Ethics. In this connection – and at the level of these language games using the *physis* designation – he is basically differentiating between the two: commodities necessary for life (within the given way of life) and other types of wealth, including money or above everything money in the mentioned sense of 'the art of getting wealth.'[27] All these 'things' and actions dealing with necessities with the accumulation of the necessities for the life are always discussed and treated from (mentioned) political and ethical perspectives in the sense of that which is ethically good or not. If something is seen as a part of human needs, necessities of human life, and as ethically good, it is posed, understood and considered as a part of *oikonomia,* 'the household art.' When one tries to grasp the very basic Aristotelian meaning of his ekonomikē, that is always something which is political and ethical designation and not 'neutral.'

On the other side – and that is the importance of the necessity of understanding ekonomikē – it is something that is connected with another, counter-*gen/os/us* and radically different way of (counter) life at least in the sense of money. Money (gr. *nomisma*) is here understood mainly in terms of 'symptom.' To put it in a very direct form, Aristotle's (position) in connection with money is (mainly) strongly emphasizing that there is no limit to riches and property when thought at the level of money. (Pol. 1256b.26-1257a.4) That means that, politicaly and ethically, money

appears as something that is radically different than *ekonomike;* consequently, money is not an 'economic question' (as it usually functions today by definition). To put in the simplest form, the money and 'artificial wealth' (connected to 'endless desires') are the object of 'wealth-getting,' or chrematistics (and not *ekonomikē*), and – besides – which one *should not* mix at the level of analysis.

The thing with chrematistics is, so to speak, simultaneously problematic (for Aristotle, not for us of today, of course) in at least several aspects:

1. In the sense that something that is unlimited is also politically problematical, mainly from the point of view of the political life of mortals in *polis* in the sense of the control of all 'chrematistical things' from the side of the *polis;*
2. If it is politically problematic – and politics is (as already emphasized) the 'highest human/mortal ability' – that means that it is problematical at all levels, and it should be taken with the highest possible care;
3. Simultaneously, it is ethically disregarded in the sense (that is) very closely connected with politics (political life of the mortals) (in that sense) that it is radically un-natural;
4. Politics (and ethics) for Aristotle is taken to be the central 'elements' for good life of humans/mortals, which is also something which is natural for them as the way of life.

To put it in a slightly different way, one kind of acquisition, therefore, in 'the order of nature' is a part of the household art (*ekonomikē*). In accordance with it, that art must procure to supply of those goods, capable of accumulation, which are necessary for life and useful for the community of city or household. That is something natural (in order of nature) in the sense of the way of life of the humans/mortals.

However, there is also another – politically and ethically sharp distinction! – kind of acquisition that is specially called 'wealth-getting' (*chrematistikē*), and that is so called justice; and to this kind it is due that the distinction of the types of wealth is related to the distinction between the *homo (o)economicus* and the *homo chrematisticus* in the sense of two radically, qualitatively (gr. *genos*) different ways of life. The distinction played the central role in Aristotle's 'politics' (which is – as already emphasized – actually 'combination' of politics and ethics differently grasped that today in Machiavellian times), in particular in his theories of the *polis* and of money.

Instead of Conclusion: Towards Understanding the Political Contexts of Ancients

Probably the biggest problem with *chrematistikē* and *ekonomikē* today is possible to define in the sense that it is not at all technical question and problem. As far as Aristotle is concerned, quite the contrary is the case, since in connection with this set of serious analytical problems, Aristotle is clearly emphasizing something decisive for the very possibilities of differentiating between two radically different ways of life. At the very beginning of his *Politics* – and it does not appear by chance precisely at that location – he is emphasizing the 'natural' and simultaneously 'political' (since the 'political' is in Aristotle's philosophy and politics somehow 'harmonized' with the nature) way of life, another is un- and counter-natural and it is functioning counter the previous one.

The importance of that is contained in the fact that *chrematistikē* and *ekonomikē* are not parts and parcel; they are not even elements of the same genos (a kind of 'totality' of the 'whole,' let alone of the same quality and matrix). Rather – and that is the most important element in understanding the difference – they are rather two fundamentally different 'totalities,' also in the sense of the way of life! One way of life is of humans/mortals (*ekonomikē*) in the sense that it is somehow in conformity and harmonized with their nature; another one is the opposite: opposite simultaneously as to *economikē* as well as to human/mortal nature itself. If it is counter-natural, it is also counter human/mortal. In that sense this '*genos* distinction' (qualitative difference) between *chrematistikē* and *ekonomikē* is for Aristotle one of the highest ones as far as the way of life (way of life included) is concerned. It is one of most radical and most important distinctions at/of all.

Among the parts of (possible) 'meanings' of the distinction, one could schematise probably in this direction:

1. The *chrematistikē/ekonomikē* differences are results of radically different ways of life (different lifestyles included) of humans/mortals who practice that or another kind of life;
2. It is different 'genesis' in the sense of various, radically different 'beginnings and formations' (gr. genesis, *genesthai*);
3. Lastly, they are – consequently – generating (ad infinitum in the sense of further developments) different ways of life, styles, and *genesis* in the future . . .

To put it differently, speaking about *ekonomikē* and *chrematistikē,* we

are dealing with something that is so central and important for Aristotle that it could not be overemphasized. Mainly this due to the fact that the 'background' of the distinction is dealing with the concept and idea of community, since his entire 'theory' and philosophy is (that) being fundamentally connected with politics and ethics of political community. That is, of course, the idea and ideal of *polis* centrality (*koinonia politike,* usually translated as 'political association') in his theory. He is searching – that is the superior context of all of his speaking and argumentations on chrematistics – for the possibilities for good life, and exactly that splitting between the two is the main context and also the horizon of (his) posing the chrematistics as the problem.

Undoubtedly, Aristotle is not only posing the difference of *chrematistikē* and *ekonomikē;* he is simultaneously – very clearly – emphasizing the problematics of chrematistikē and (for him it is 'The Problem') and also defending *ekonomikē.* In that sense, Aristotle is not at all 'objective,' 'neutral scientist,' as we are thinking and speaking today in the times of late positivisms, functionalisms, etc. He is rather firmly an 'inner part of the thing,' of 'debate,' and he is obviously taking the side in that 'debate.' His side is *ekonomikē; chrematistikē* is something else, which is for him definitely a big – if not the biggest – problem (of all problems).

What kind of problem and what are the possible dimensions of that problematisation – that is the real question one should address.

1. For Aristotle that is not an 'economic problem,' not the problem of 'production' or efficiency, let alone productivity (that is how we, the moderns and post-moderns are observing the situation);
2. It is not part of *oikos* at all but rather something which is transcending and destroying *oikos* itself (mainly from inside);
3. Chrematistics as a special, problematic way of life is not only something dealing with *oikos,* but – and that is 'the Real' problem for Aristotle – also destroying *polis* itself at the level of its possibilities;
4. It means that *chrematistikē* is blocking and destroying good life at the level of its very possibility (Aristotelian gr. *dynamis*);
5. In other words, chrematistics is the manifold Problem of problems, and in his texts (mainly *Politics* and *Nicomachean Ethics*) is usually grasped, analysed, and also targeted as a political and ethical one (not as a metaphysical, theological, philosophical, economical, or technical problem);
6. Consequently, it is not possible to deal with it from the perspective

of metaphysics, theology, philosophy, economy, and technique (as it was and still it is attempted).

Finally, Aristotle's politics – that is the very core of the Problem of chrematistics – in this context is possible to observe and understand as a simultaneous answer to the Plato's (his teacher) *Politeia ('Republic,' 'State') and Laws* and, at the same time, also as an antidote to the academy ('economics') of antipolitical thinking of today. A methodologically significant emphasis in that connection should be at least this one: Aristotle is not developing any kind of model/form (gr. *eidos*) of the best (city, as for example, later in Western history among various 'utopian') in the sense of Ideal/Idea (Platonist theories). He is also not dealing with any kind of (post)modern forms of 'posing hypothesis' and afterwards looking for the 'proof for it.'

As far as politics is concerned, he is from 'another planet' and from a different – his own school of Peripatetics – kind of mainly political and ethical thinking. It is not by chance that exactly that kind of political thinking is – especially for today – completely unbearable and even unacceptable. He is developing something radically new at least in the sense that his politics is – to put it in the most simplified form – a kind of 'inductive investigation' in Greek way of life and not a deduction (and reduction) from any kind of Ideas (*apriori*) . . . (as it is/is found, for example, in Plato and his numerous followers even today).

When Aristotle speaks for example about *chrematistikē* and *ekonomikē,* he is actually speaking about something which is helping (or not) to 'establish' the good life of the political community or not. When he is introducing categories, for example, of 'natural' and/vs. 'non-natural,' and separating *chrematistikē* and *ekonomikē,* than he is really developing a kind of radical difference: one side of it (economy, *ekonomikē*) he is defending, another *chrematistikē,* attacking, trying (also politically) to block it.

To put it in our language of today and our ways of thinking and understanding, he is not a kind of 'social scientist' as we (post)moderns usually are. He is not even any kind of 'critical'[28] intellectual, since the very concept of critique among Greeks of their days – especially in Aristotle's – is not similar and not the same as from Kant or among moderns, let alone the post moderns of today.

The last emphasis in this connection one should take into account is that Aristotle is actually criticizing *both, ekonomikē* and *chrematistikē* and the relation between them, which is destroying the *ekonomikē* of the *oikos,*

the *oikos* itself and *polis* included. Probably of far the most importance for him in these contexts and 'operations' is the politics (and ethics) as the crucial context of debate. If one is not capable of understanding ultimate decisiveness of the meaning and idea of politics in Aristotle, he or she is – by definition – not capable of understanding his arguments at all.

Notes

1 As far as the economy in narrow sense is concerned, the first one to use the concept of it was Xenophōn (see Xenophōn 1994). He was older (born around 430 BC), and of Plato's generation (430–354 BC); Aristotle was younger, born few decades later (384–322 BC).

2 Peripatetics, Aristotelian school of philosophy and thinking were not influential in their times. They were somehow 'compressed' in between two more popular schools: that of Academics/Platonists and later Stoics. See especially Algra et al. (2005).

3 See Gutas (2012).

4 Label 'Peripatetics' is – literally – aiming at slow walking from place to place, 'traveling on foot,' being on the road, path (gr. *pathos* means path; *peri-pathos* being on the path/road). 'Peripatetic' is also the name of the school of philosophy or teaching of Aristoteles, who conducted lectures and discussions while walking around (in the) Lyceum. In the 4th century BC Lykeion was a marginalized, peripheral, still forested part of ancient Athens where was the location of their school. 'Peripatetics' were an alternative, counter-school of thinking with regard to Academics (critiques of Academics, Aristoteles critique of Plato) who were located in the richest, centre part of Athens and under the supervision of very respectable Plato. Before the introduction of Lyceum Aristoteles – who was even not the Athenian citizen, but foreigner (gr. *metoik*) – was the member of Academia, mainly as a pupil (later also as a teacher) of Plato for almost twenty years. When he – theoretically, methodologically and polemically – broke with Plato, he left Academia and established his new, counter-school of Peri-pathos: Peripathetics.

5 That is historically very important translation since in it – as Hannah Arendt first emphasized in her Vita Activa – Aristoteles' 'zoon politikon' was rendered as 'ens socialis' (lat. for social being). To put it in radical way: Aristotelian 'zoon politikon' (literally: political animal) – through that kind of 'translation' (actually radical re-interpretation!) – suddenly became quite the opposite of the original author's meaning and intentions: a 'social being.' Theoretically speaking, it is not easy to imagine more radical anti-political departure from Aristotle's political thinking in the very name of his Politics. Our task in this connection is – at least – not to repeat the

same 'anti-political sin' in connection to Aristoteles' arguing about *hrematistikē* (and *economikē*). Precisely that is the reason why one should handle the distinctions – let alone the *chrematistikē* itself – with extreme attention and care. For this reason, when dealing with the distinction, one should move very slowly, similarly as within the mine-field.

6 The most important among them was Philipp Melanchthon, see also, for another perspective, Davis (2006).

7 Bacon's 'Organum Novum' (Bacon 2002) with his quasi-empirical methodology, was radical departure from ancients, especially from Aristotle (consequently: from the distinction between chrematistikē and ekonomikē, too). As a matter of fact, it was the time of re-invention of Plato (and Stoics) and radical (explicit) critique of Aristotle. Aristotle already (that was the point of the very 'meaning, sense and importance' of *hrematistikē*) was 'inductive' and not deductive thinker, Bacon's 'induction' was rather something else – based on very, very different 'logic' – which is huge problem not possible to discuss in this paper.

8 Not to mention the (post) modern changes and innovations, which could not be the subject of this paper. For important thematisation, see Henry (1990) and Hunt (1979).

9 Another, probably stronger blow, came from the Papacy and Church which took the direction of ruthless 'Christianisation' of Aristotle (primarily scholasticism, Aquinas), but this is also not possible to tackle in this kind of paper. For some specifics in this level of scholasticism, Aristotle, and the problem of money see in Langholm (1983), classical is in Aquinas (2007).

10 See important study dealing with 'continental perspective' about the economy before Adam Smith in Rothbard (1995).

11 Said from another perspective, one should at least try to think something as Aristotle of our times or in our times, which is position of this paper in the sense of understanding our times through the lenses of Aristotelian theory, methodology, and at least mentioned distinctions. See, for example Fleetwood (1997).

12 Moreover – but it is something which is not possible to develop here – the very methodological position one should take at this (and similar) 'points' of thinking, is as follows: 'That whereof we cannot speak, thereof we must remain silent,' as Wittgenstein intoned it in the closing passages of his Tractatus. (Wittgenstein and Vossenkuhl 2001)

13 As a matter of fact they are not at all 'things' (gr. *ta pragma*), they are actually words (gr. *logoi, topoi*), but in this paper and context I could not develop the distinction between both in the proper way. It is rather another, even more complex topic in connection with which one should necessarily speak at the different level of Aristotle's argumentations taking into ac-

count at least his *Metaphysics, Pery Hermeneias* and his similar books and subjects.

14 This 'larger context' has at least two meaning. One is developed here in the sense of his 'textual analysis,' but the largest context is definitely dealing with the largest possible consequences on our lives of today. In that sense, it is possible to argue about specific economic wars of today at the level of economy as a science and also in context with Aristotle and his understanding the economy and chrematistics. For that largest scientific and also the context of wars, see more in Weintraub (2007).

15 To put it in more radical form: it is not so important what we are thinking about his 'theoretical moves,' what counts at the very beginning is, what Aristotle was trying to pose and say. Exactly that is what should be grasped in order to debate properly, interpret, understand or criticize him and his argumentation at that critical topic of his opus.

16 Differently: it is not by chance that the main/fundamental 'debate' about *chrematistikē* is appearing in *Politics* and not elsewhere. The (gr.) *topos* of the subject, its location is politics, (which means at) the most important points of 'human activity.' Aristotle is not posing the problem of chrematistics within the context of Theology and Nature, for example, or that of Physics or anything similar in the sense of being 'beyond human' and out of reach with regard to human abilities. The opposite is the decisive case: chrematistics is something somehow 'human made' and beyond any doubt result of this or that kind of 'human activity.' That is the decisive for him and for our understanding/interpreting his forgotten outstanding theoretical and methodological 'move.'

17 As a matter of fact, it is 'Greek' (at least Athenian) understanding of politics (in radical difference to 'our' modern and post-modern times) and not only Aristotle's (in the sense of his personal understanding). The difference between the two one could easily understand through the parallel study of Aristotle and Machiavelli, but this is not possible to tackle in this kind of paper.

18 For the radical/revolutionary changes at the level of ethics – especially connected with the appearance of individualism at the 'beginnings' of modernity, see for example Lowry (1991).

19 Aristotle's 'Politics and ethics first' is something which is methodologically radically different in comparison with our today situation in which 'the economy is the first and foundation of everything,' or it has become a 'science' (technology!) of (human) machines and even cyborgs. For good posing and presentation of that kind of argument, see Mirowski (2002).

20 Politics is – by definition– that radical thing which actually is not-thing. Politics is rather 'way of life' or even '*phainomena*' (and not Thing). Politics

is, besides, that typical Greek phenomenon being the very centre of their way of life and – that is the Problem of all problems, as far as our (post) modern 'understanding' is concerned – simultaneously not being able 'to exist' in our times, culture and civilisation!

21 Aristotelian *ekonomikē* is *not* the same as 'economy' from the modern times of Ricardo, Smith onward. *Ekonomikē* for him is *not* something 'largest,' let alone that 'general' or the 'deepest context' and 'basis' of 'all things.' *Ekonomikē* is rather something being necessary from the point of view of human life and the very survival of the mortals (gr. '*hoi thanatoi*' and not '*hoi anthropoi*' in the sense of humans: rather mortals not humans!). However, Aristotle is not thinking as 'survivalist' (Darwin, for example), his is not dealing – let alone stopping thinking – with the something like 'life necessities.'

22 See, for example, in Crespo (2005; 2007), Fleetwood (1997), Langholm (1983), Van Staveren (2001), Weintraub (2007).

23 Aristotle (1991), see also (very important) Lennox (2001).

24 All are from Beekes (2010, 1648–9).

25 It seems that exactly mentioned 'someone' is very (extremely) important in connection with the understanding chrematistics. At the level of this thematisation, we should emphasize only one – maybe even easier – aspect of the problem: that of human beings in the sense that 'someone' is human/mortal. Otherwise we should take into account meaning of the entire 'family' of the word which is connected with something as 'to consult an oracle or a god.' It seem that probably the 'first meaning' of everything connected with the mentioned root '*hre-*,' '*hrema*,' '*hreos*,' '*hreia*' is actually not only connected with, but even derived (analogically) from religious rituals and 'sayings' dealing with these rituals. Unfortunately it is impossible to deal with that layer of meaning in this paper.

26 That is the way how is – for example – rendered in English in Aristotle's Politics, 31, and following, tr. H. Rackham in LOEB Classical Library (Aristoteles 2005).

27 Of course 'the art' is in Aristotel's *tehne,* tehnique and the technology of 'the art of getting wealth,' which is not 'the thing' dealing with economy and taking place within economy, but of the chrematistics and taking place within chrematistics as separate human activity in comparison with economy.

28 Just to mention as for the information (in the sense) how different ways of life we are living in comparison to Greek times: gr. Krites, *kriteuo* (that is historical source for substantive critique) for the Ancient Greek (was and) meant the set of problems connected not with 'science' (or art in the sense of art–critique as in 18th century Europe), but rather with their judges and

judging. Critique was not an intellectual or esthetical endeavour, but rather 'political thing' being and functioning at the level of polis itself. Gr. he *krites* means judge, meaning of gr. *kriteuo* is to judge this or that.

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Who is Influencer and How to Choose the Right One to Improve Brand Reputation?

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The aim of the paper is to provide insight on the emerging community of influencers, which is largely driven by the high impact of social media, has significant power over the perception of brands and companies. These new capabilities require communications professionals who strive for continuous collaboration with target customers through the various social web channels. The paper processed influencers in a well-arranged way, describes its factors and common features for their classification. It describes the main attributes in influencer selection and identification.

Key Words: influencer, categorization of influencers, selection of influencer, brand reputation
JEL Classification: M31, M37
https://doi.org/10.26493/1854-6935.17.149-162

Introduction

The primary activity of influencers is to influence people, fans, and other individuals who follow their communication, behaviour, and presentation. Any person who comes into the role of influencer has a base of supporters who identify with her attitudes or thoughts or are only under the influence of an influencer. Often the influence that this person has over them does not come from rational beliefs, but from sympathy and personal affection. Regardless of the cause of influencer influence, this is a fact that has some aspects of evaluation and measurement. According

to these measures, the influencer can be assessed as significant or, conversely, people with limited activity.

In the age of the ubiquitous Internet, influencers are a new type of independent third party that shapes audience attitudes through blogs, tweets, and other social media (Freberg et al. 2011). Through activities that include expressing their opinions, for example, in product reviews, through tips and tricks videos, to organizing competitions and posting images containing products or services (Bernitter, Verlegh, and Smit 2016).

Utilizing a wide range of social media platforms such as Facebook, Instagram, Twitter and YouTube, social media influencers are well suited to publish product information and the latest promotions for online followers (Markethub 2016).

According to Kaplan and Haenlein (2010), influencers publish their posts on different platforms to express:

- their opinions (e.g. TripAdvisor, Amazon);
- inform about their network (e.g. Twitter);
- share their expertise (e.g. Wikipedia);
- express their passions (e.g. personal blogs, Instagram, Pinterest, Facebook).

Influencers thus gain enhanced competencies in creating sophisticated content, form stories, videos and visuals. Given the scalability of the Internet and the speed of dissemination, these influencers can quickly attract mass audiences and achieve 'fame' through the accumulation of cultural capital. We can see this especially in the field of fashion and lifestyle, aesthetics, health, beauty and other areas (McQuarie, Miller, and Phillips 2013).

For example, several fashion artists play an important role in the fashion industry (Wissinger 2015). One of them is Chiara Ferragni, a well-known Italian influencer thanks to her 'Blonde Salad' blog with 8.2 million Instagram followers. As an influencer, she gains increasing numbers of interested followers who become active and help spread her thoughts through social media (Etter et al. 2018).

Characteristics of Influencer

Cambridge Dictionary even defines influencers, as a person or group that has the power to influence the behaviour and opinions of others. But this is nothing new. For centuries we have had philosophers, artists, activists. They were influencers of the past. Today, influencer is anyone who has

the Internet. Add water in the form of fans and wait for sponsors to rise up. Cha-ching, money!

According to a business dictionary, an influencer is an individual who has the power to influence others' decisions through their own authority, knowledge, position, or relationship.

Whether it is marketing, media (such as news and journalism, as well as social media), the role of influencer is becoming increasingly important. Influencers are becoming increasingly important, especially in the time of information technology and social networks, which significantly change the face of both marketing and newscast. The identification of influencer, that is, a personality that is significant in terms of shaping the views of the follow-up groups, is essential. At present, the analysis of the most influential personalities of a particular user segment is a very important component of marketing communication or media performance. Thus, not only on the Internet, there are different lists of individuals who affect other users, whether through social networks, blogs, or other platforms.

Influencers are sort of a modern creative and media agency. They make videos many times by themselves, sometimes they have a small production team, but mostly it is a one man show. And the media agency because when influencer has hundreds of thousands of well-defined and enthusiastic fans, targeting and reach is a breeze. Influencer marketing is nothing new, only the power of social media has joined it – then we are talking about digital influencers (Hrnčárová 2017).

Social influencers are everyday people who influence shopping decisions, using available technologies such as blogs, microblogs, podcasts, social networking sites, etc. (Singh, Lehnert, and Bostick 2012).

Finnish influencer marketing company PING Helsinki defines influencer as a person who writes blogs, publishes their opinions on YouTube, Snapchat, Instagram and other social channels. For example, they may be athletes or artists, but the main element is that they have their community on social media and are open to producing sponsored and professionally produced content for their followers. Influencer marketing can take various forms in blog posts, videos, or images on influencer social network channels, which means content cooperation. It may be content for a marketing campaign of a company with an influencer name or photo, which means providing content. Influencer marketing can also be used for events, travel trips and workshops, widgets and display ads (Biaudet 2017).

The word influencer is often wrong with the word 'advocate,' but their meaning is not the same. Influencers are not customers but encourage brand or product recommendations. On the other hand, advocate is an existing customer who voluntarily recommends a particular brand or product (Brown and Fiorella 2013).

According to Matthews's article on influencing targeting (2013), customers believe third-party recommendations (bloggers and Instagrammer) more than the brand itself. Influencer does not only bring its own followers but also brings a follower network. If influencer has faithful followers, it can also popularize the brand's website, increase exposure and sales of the company's products through their recommendations or stories about the company's product or service experience.

Other sources describe influencers as individuals who have active followers and are able to direct these followers to act (MarketingProfs 2017)

Keller and Fay (2016) talk about influencers as day-to-day consumers who, more than just an average person, are searching for information, sharing ideas, information, and recommendations with other people. It can be done by voluntarily sharing opinions about products, services that they like or are influencers because of their knowledge, advice and opinions.

The word 'influence' comes from the Latin ad vertere, meaning 'flowing from within.' In a social context, it is the ability to influence the character, development, or behaviour of someone or something, an act or power to produce an effect without apparent force or direct command.

Influencer Categorization

Among the relatively powerful type of influencers in the field of news, but also marketing and other areas of public life are undoubtedly bloggers. They are personalities contributing articles to their own websites that are run on the blog platform. The blog is then a personal space where its creator can insert a variety of information in the form of written text or image and audio-visual documents. Prior to the advent of FB or Twitter networks, blogging has enjoyed great attention. The basic distribution of influencers, according to the size of the followers, can be divided as follows:

- Mega-influencers have more than a million followers. Most often, celebrities who work with big brands are here. These people can be famous, but they do not affect people's behaviour so much. Just be-

TABLE 1 Typology of Influencers

Mega-influencer	Over 1 million of subscribers
Macro-influencer	100,000 to 1 million of subscribers
Micro-influencer	1,000 to 100,000 of subscribers
Nano-influencer	Less than 1,000 of subscribers

cause you know the name of a celebrity doesn't mean that you respect them enough to buy the products they recommend.

- Macro-influencers have a user base ranging from 100,000 to a million followers, brands and companies choose them as their business partners.
- Micro – influencers have from 1,000 to 100,000 followers.
- Nano-influencers are a group that is expected to have more companies decide to cooperate with them in 2019, even though they have less than 1000 followers but have a huge impact on a relatively narrow market.
- Nano-influencers may seem to have too little influence, that they simply do not have enough supporters, but these influencers are often the best people to pick up a brand or product for a narrow or specific location. If the brand follows the relationship with nano-influencers, most people consider it authentic and genuine.

Inkybee marketing software (2016) states that the most important parameter of an influencer is:

- His audience size,
- How often he publishes posts,
- What is his level of engagement.

According to an article called 'Marketers Pair Up with Influencers-and It Works' on web-platform eMarketer (2015), most sellers that use influencer marketing select their influencers based on their social profile and verified attendance data. Site demographic evaluation is a less important criterion in their selection. The surprising finding is that influencers have become almost as important as the traditional opinions of family and friends. 56% of Twitter users say they rely on friends' recommendations and 49% of users say they rely on recommendations from influencers (Swant 2016).

However, not all influencers are equivalent. Sellers generally divide influencers into the following categories:

- celebrities,
- industrial experts and leaders,
- bloggers and various content creators,
- micro-influencers.

Kylie Jenner, with 82.2 million Instagram followers, receives an amount of between $ 100,000 and $ 300,000 for every Instagram sponsored post. Midrange influencers with 400,000 to 1.5 million followers currently earn approximately $ 5,000 for each post. Micro influencers with less than 5,000 followers earn on average less than $ 250 per contribution.

It is precisely marketing-specific content that focuses on a particular product that influencers create and makes it valuable to the brand. Influencers should not only be distributed according to known areas such as food, fashion and entertainment, but can be further divided to reach specific followers/customers.

Selection of Influencer

Being an influencer means more than just getting a big audience. According to Brown and Fiorella, the current influencer marketing paradigm puts influencer in the centre of marketing space. However, they also talk about the theory of placing the customer and not the influencer in the centre of marketing space. The customer is ultimately the one who makes the decision and not the influencer. Trademarks, their marketing messages, and influencers, according to Brown and Fiorella, are planets that circulate around the customer to take his attention. In the first theory with influencer in the central position of the strategic marketing model, traders need to identify people who have a broad outlook in a community of specific interests.

In the second theory, the customer's position is changed to the centre of the circle and a completely new space is formed. Instead of influencer, a customer is in the centre, with followers being now his friends, family, work colleagues, institutions, media, and communities that influence customer purchasing decisions. However, for both models, the first step is the same, namely the identification of the demographics of the targeted audience and the communities in which they are engaged. Here, however, the similarity of the two models begins and ends.

When communities and influencers are identified, the marketing team tries to educate, encourage and motivate the selected influencer to broadcast and share the brand's message through social channels such as blogs

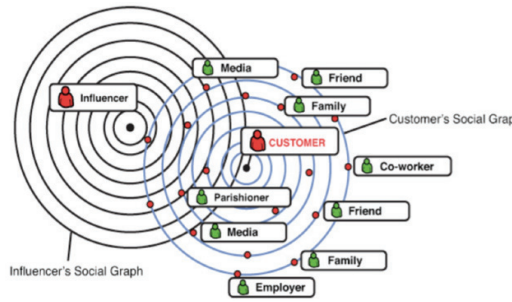

FIGURE 1

Influence Marketing Model with a Customer in the Centre (adapted from Brown and Fiorella 2013)

or Facebook. In this way they engage the audience with prizes or encourage them to share with their own social group (Brown and Fiorella 2013).

A guide for businesses, what to look at before working with some influencer is briefly described below.

- *Professional background and knowledge.* It is quite common to background check a future employee. Influencers should not be an exception. Businesses should look at his education, work, creative competence, image. How people like him. They should be reliable sources of information. This can be tested at an interview or informal debate. Business profiles should always be verified by businesses. I prefer to look at influencers as people we buy service from rather than herd chasers. *Ability to produce creative results.* The company marketing is strengthened by influencers. They should not just be a competitive advantage, but they should also bring expertise and experience. The impact is measured by the size and value of the response it provokes' says Rachel Miller, an influencer marketing manager at TopRank Marketing. The response must be measurable and increase brand value (Escobedo 2017). *Ability to measure brand benefit.* In both math and marketing, there should be a balance between the followers of our star's influence and the number of likes/interactions he has on his posts. Someone who is watched by 34,000 people should not only have 700 likes without any comment. If the numbers don't fit, get away from them. It means that influencer is ineffective or has bought fans. Or both. The impact on the audience and the size of the audience should not be confused (Escobedo 2017).

According to Booth and Matic (2011), influencer impact assessment has a wide range of criteria:

- Number of followers per month (number of visits per month).

- Linking (the number of links to or from a blog).
- Frequency of posts (number of messages/posts over time).
- Blogger media citations (the amount and level of media quoting influencer).
- Industry Score – the number of points it receives from authorities that are key to a sector-related issue (notes, continuity, panel collaboration).
- Evaluation of social cooperation – level of participation in social sites (eg Twitter, other blog communities, LinkedIn, etc.).
- Exposure Index – frequency of responses and observer comments.
- The amount and speed of topic-related posts.
- Qualitative review of posted topics and comments/contributions.
- Identification and suitability of influencer on social networks based on the above variables.

When identifying the right influencer for the company, it is important to know that the chosen name affects the purchase decision. It is important to be specific about what products or services we are considering and what segment is targeted (Brown and Hayes 2008).

An alternative method of identifying the right influencer is to ask those who make decisions, so the company needs to understand exactly what the community is looking for and needs. If it is a multi-productive company, it should have a different set of influencers for each product, in every industrial sector in each country (Brown and Hayes 2008).

To find the right brand influencer, Biaudet (2017) says there are some qualities that influencer should have, such as:

- knowing the product or service and expressing a sincere interest in it,
- should be an expert leader in his area,
- should have the right target audience for the company,
- should know how to produce appropriate content – such as stories, videos, images, posts,
- should understand marketing and be involved in commercial cooperation,
- should have a sufficient number of followers on the relevant social media,

- should have good cooperative skills and should understand the value of their work.

If a company cannot measure the success of its own influencer marketing practices, they will not be able to improve it. Therefore, it is important to measure and demonstrate the results of practices that enable strategies to be optimized to reach the next stage. If companies invest more in influencer marketing, there is also a growing need to measure success (Dorfman 2015).

However, there are no explicit data in influencer marketing that accurately indicate who influenced whom, at what time, where and how. It is measured according to the purpose and the goal set by the company. If the campaign is focused on growth and the goal of becoming as visible and measurable as possible is the number of new potential customers who have learned about their work through this campaign. Thus, if a campaign is focused on engagement, it is measured in amount depending on the number of 'like,' comments, interactions, video viewing, sharing, or clicks. Engagement is an indicator that shows what customers think about a brand not just about the product (Westwood 2017).

According to Harvard Business Review, 75% of businesses said that the identification of influencers is the most difficult step in the process of influential marketing (Staden and Niekerk 2018).

Most influencers were found to be identified only on the basis of:

1. their willingness to participate in the campaign,
2. based on tags or keywords such as 'fashion' or 'fitness,' to specialized demographic features,
3. their social score.

In a discussion with a representative of a well-known influence company, the above approach was confirmed and added that companies use their internal instincts, historical views, and brand preference as an inclusion criterion (Revfluence 2017).

While much research is being conducted on best practices to identify influential actors on social media platforms, many uncertainties remain. Several digital approaches have been developed to identify these individuals, including providing a 'social score' based on their strong links within the network. However, algorithms are performed randomly based on network links based on diffuse models, without involving personal interest, engagement, or meaning that will be realized on an existing network (Groshek 2017).

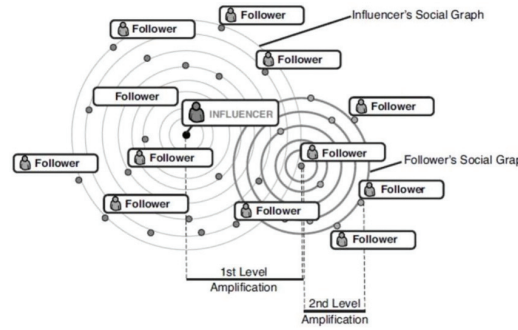

FIGURE 2

Fisherman's Model of Influence Marketing (adapted from Brown and Fiorella 2013)

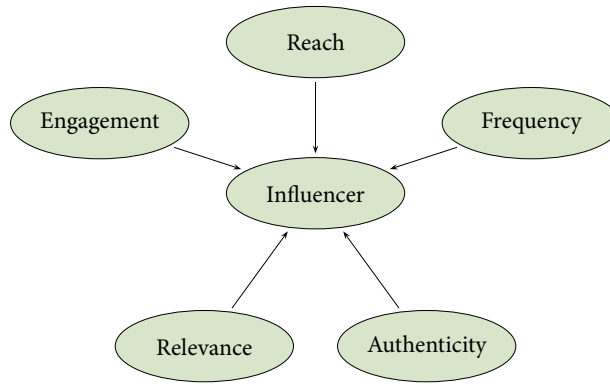

FIGURE 3

Characteristics of Influencer

Fisherman's influencer marketing model helps companies identify potential influencers and their communities, and later uses them as a basis for further research and analysis in this regard. Attentive merchants should use Fisherman's influence marketing model as the first step in their marketing plan. This model suggests applying the concept of 'deciding a wider network to catch as many fish as possible,' which means influencing the largest social community to achieve purchasing results (Brown and Fiorella 2013).

To identify potential influencers, we should pay attention to the following characteristics – relevance, engagement, reach, frequency, authenticity.

Relevance means how the influencer content is matched to the brand management. A company looking for an influencer should know the posts of that influencer. Engagement is an indicator of the interaction between followers and a given influencer in comments, responses, and sharing. The third characteristic is the reach. Businesses should only consider

unique profile or blog visitors if they are focusing on reach. Followers are only relevant if influencer reaches the target audience of that brand. Frequency is the fourth characteristic to be considered when searching for a potential influencer. It means how often influencer publishes posts and how often visitors return to him. One post is not enough to achieve that the followers visit also the brands website.

According to Hamann (n.d.), usually more posts and shares are needed to reach this goal. If influencer publishes high-quality content on a regular basis, readers are more likely to return and influencers who do not publish posts often have fewer loyal followers. The last characteristic is authenticity. Influencers who have less sponsored contributions to the platform they use are mostly truer and more authentic. Also, the brand, service, or product in question is more trustworthy for people if influencer adds a personal story or experience to the post instead of the product review itself.

Conclusion

Influencer marketing is the mainstream, as its effective implementation has a formal impact on the organization's financial as well as strategic policy, regardless of its area of activity. However, the fact remains that each organization requires an individual approach based on many internal as well as external factors that it interacts with when setting their goals.

In an effectively implemented influencer marketing system, each organization should have the following set of areas:

1. What are the requirements for influencer?
2. What channels of communication should be used by the influencer?
3. Which products from our portfolio will fall under the influencer activity?
4. How we measure the ability of influencer to produce creative results?
5. How will we measure the economic and financial contribution of the influencer to the brand or business?

Influencer marketing is a current issue, as it integrates a number of business activities that need to be combined to deliver a functioning and prosperous, long-term business. The choice of influencer marketing is often a challenging and complicated choice that depends entirely on the nature as well as the goals of the organization itself.

The importance and significance of influencer marketing is not continually losing its importance exactly because effective implementation

is based on continuous mapping of the environment and research that is capable of answering many questions, not only in academic field, but also in practice.

Acknowledgments

This paper was supported by Slovak Research and Development Agency under contract APVV-15-0511.

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Population Migration Flows in European Union: Economic Factors and Perspective Statistical Trends

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The economic openness of European Union (EU) countries causes the constant international migration of the inhabitants inside the EU and beyond its borders. This research revealed the international migration flows of EU highlighting the depopulation problems of some EU countries interrelating them with the economic factors of international migration. Analysing the current statistical trends, the projections of population changes were extrapolated in migrants attracting and depopulating EU countries. The statistical probabilities to reduce the emigration were calculated for the most depopulating EU countries.

Key Words: European Union, international migration, population, statistical forecasts
JEL Classification: F47, F62, J11
https://doi.org/10.26493/1854-6935.17.163-188

Introduction

The international migration flows in European Union are growing what means the increasing mobility of its inhabitants. The aggregated emigration of EU-28 countries in 2005 was 1.6 million while in 2016 this indicator increased to 3.0 million inhabitants. The aggregated immigration indicators during this period were 2.6 and 4.3 million persons accordingly. The human capital theory is based on suggestion that inhabitants migrate if the potential growth of earnings exceed migration costs (Foged 2016). The international migration of economic migrants can be temporary which is related to income increase and remittances sending to the country of origin, or permanent settlement of families that migrate when the total gains to the household outweigh financial and non-financial migration costs.

This research aims to analyse the population migration flows in European Union interrelating them with economic factors and statistically extrapolating the current trends to the perspective. The EU will be grouped

into the labor-exporting and labor-receiving EU countries highlighting their economic differences and population changes. The official statistical data of Eurostat and The World Bank was used in this research.

The scientific problem is related to the benefits and disadvantages of international migration what is analysed in literature review of this research. The labor-exporting and labor-receiving countries publish accurate records on the number of international migrants that they produce and attract (Adams and Page 2005). However, the direction of migration flows has the crucial impact on countries' economies what the policy makers must consider promoting the economic growth. The lost of human capital can be observed in depopulating and developing countries when the educated workforce migrates to developed countries because a large fraction of the educated workforce is unemployed there. Since educated workers become one of the scarcest resources in developing countries slowing their development due to a 'brain drain' phenomenon (Fan and Stark 2007). Chen, Kosec, and Mueller (2019) suggested that the decision to migrate and understanding of well-being is time-varying rather than fixed. The inhabitants experiencing adverse economic shock may be more susceptible to emigration. However, observing the long-term economic differences between countries international migrants consider more stable changes in well-being associated with migration.

Literature Review

International migration is one of the most common demographic events in open economies. Sometimes a significant percentage of the particular country's population moves to another countries. The inhabitants can change the country of settlement several times during their life in pursuit of work, business, education opportunities, family creation, improved residential location, or retirement (Otoiu 2014). The classic economic model of the migration decision making suggests that persons analyse the costs of international migration with the value of the income earned in the destination country. Moving from a developing to a developed country is typical way for low-income people to increase their wages and improve their living conditions (Gibson et al. 2019). The most migrants from developing countries inside the EU are the economic migrants evaluating the economic push and pull factors and hoping that migration will provide them a better economic position to take care of their families (Gamso and Yuldashev 2018). Especially the macroeconomic shocks in developing countries are very important factors of emigration including

short-term effects on income and consumption volatility when the households in developing countries are not capable to ensure the satisfactory consumption over economic fluctuations (Mendola 2017).

The international migration of economic migrants has the benefits and disadvantages for the destination countries as well as for the countries of origin. In the standard partial equilibrium labour market model, the growth of immigrant labour supply reduces the native-born employment, average labour costs and increases the profit of businesses (Hatton 2014). Badaoui, Strobl, and Walsh (2017) using the data from the United Kingdom suggest, that while migrants and natives are imperfect substitutes, migrants are close substitutes for other migrants, so that an increase in the stock of migrants lowers the wages of existing migrants but has little impact on natives. Often the immigrants are offered only low-skilled tasks with relatively lower wages, even in case when highly-skilled workers migrate (Dequiedt and Zenou 2013). For destination country's economics the immigration tends to be beneficial by stimulating the performance of the private sector through reduction of costs and induced manufacturing and trade (Egger, Erhardt, and Lassmann 2019).

In the countries of origin, the individuals who expect to migrate are less likely to invest in their native location of residence (Creighton 2013). But the remittances have a significant impact on the development of the countries of migrants' origin, as they are the most stable source of currency, a potential source of savings and future investment for capital formation and development (Ciuciu 2018). The remittances stimulate economics from emigrants reducing the recipient households' levels of poverty and increasing the domestic consumption. However, the decline of labour-force supply effect can be intensified through the refusion of remittances gaining households to participate in domestic labour market (Oldekop et al. 2018). Additionally, Murodova (2018) maintains that the economic behaviour of recipient households usually tends to increase the prices of goods and services in the local domestic market, potentially affecting the entire community, including non-recipient households. Even the international financial aid flows do not reduce emigration in the low and lower-middle income countries. Usually measures that promote development in open economies tend to be associated with higher emigration (Lanati and Thiele 2018).

Waite and Smith (2017) characterized the positive 'win-win-win' outcomes of international migration for the individual migrant and organisations in places of origin and destination. This includes the mutual shar-

ing and learning of good practices to enhance the working processes, cultures and performances. Fassio, Montobbio and Venturini (2019) investigated the impact of high skilled migration on innovation activities and proved it generally positive explained by two reasons. Firstly, skilled migration increases total invention through the direct contributions of immigrant inventors. And secondly, some evidence suggests that enterprises having the internationally diverse workforce tend to be more innovative. Due to transnationalism many migrants in different countries build their social networks that cross geographic, cultural, and political borders. Those cross-border structures often are defined not exclusively on networks, but they also materialize on other social forms including working groups and organizations (Bilecen, Gamper, and Lubbers 2018). Considering interpersonal relations, the international migrants must solve problems related to geographical barriers, herewith maintaining close ties with their family and friends left in their native countries. At the same time, they face the challenge of developing new interpersonal ties in a new cultural context (Lu, Hamamura, and Chan 2017).

International migration is a world-wide phenomenon with implications at economic, social, psychological, individual and collective levels. Among the multiple changes appeared as a result of international migration, is identified even the change of mentality of the immigrants. Commonly the mentality is defined as the most profound cultural element of the community members which is the most durable and the most resistant to changes. But the migration phenomenon affects the mentality changes as a result of particular social influences and of the cultural environment pressure, which are interiorized in mentalities of individuals, changing their judgment and evaluation criterions, and social actions patterns (Cormos 2014).

According to Stancu and Popescu (2018) migration is one of the consequences of globalization, alongside production internationalization, the new global division of labour, the new competitive environment, the state internationalization and the markets globalization. Boghean (2016) in addition to the neoclassical economic theory, which argues that external migration of population is mainly caused by economical differences, highlights the migration transition theory, which is related to a possibility of the temporarily migration to appear through the discovery of 'inflated migration.' An increase in wealth leads to an increase of the migration phenomenon. In most cases the developed countries attracting and keeping highly qualified immigrants have the beneficial alternative to the

decrease of local aging workforce. The sending countries that lack the employment opportunities on the labour market may suffer from 'brain drain' (Collier, Piracha, and Randazzo 2018). So, the return of migrants to their country of origin and the development of efficient return measures have become more prominent on the political agenda of many European countries (Lietaert, Broekaert, and Derluyn 2017). According to Issifou and Magris (2017) the return migration involves two main positive impacts on the countries of origin. The emigrants bring earned financial resources to their domestic economies as they have accumulated savings while working abroad. Using these savings, the returnees are engaged in business activities. As emigrants also have gained new skills and increased their human capital from their foreign residence, they can successfully realize their abilities in the domestic countries usually having a wage premium for their international experience.

Piras (2017) found that human capital is expected to have opposite effects in the sending and the receiving economies. The international migration is expected to be higher, when the mean level of education in the source country is higher and lower when the mean level of education in the destination country is higher. The 'brain drain' is highly related to the international migration of graduated youth which seeks to improve expected future real income streams and employment opportunities. In effect, migration allows an individual to realize higher returns to the human capital over the lifetime and improve the consumption opportunities (Dotzel 2017). The loss of young people is a long-standing demographic phenomenon in less economically developed and non-metropolitan areas of many industrialised countries. Affected by declines in labour force opportunities driven by technological change and increased mechanisation, non-metropolitan communities have historically experienced outmigration of young individuals to urban centres where they pursue education, employment opportunities and a more vibrant social environment (Rowe, Corcoran, and Bell 2017). The international migration motivated by work and employment tend to occur more often in early adulthood when individuals' careers are forming. Choices concerning work, residential mobility and early labour market experiences at this stage have lasting consequences for individuals' subsequent work and life outcomes (Perales 2017). On the policy side, different regions have become increasingly aware of the importance of highly educated individuals for their local economic growth and, thus, have implemented policies that allow them to compete more fiercely to attract and retain them. It is very well

known in regional science that the most educated individuals are also the most internally and internationally mobile tending to relocate multiple times during their lifetimes (Faggian, Rajbhandari, and Dotzel 2017). So, in global economy the international migration is typical phenomenon prompting countries to compete for the high-skilled workforce.

Migration events are directly related to the short-term future uncertainty. The benefits and disadvantages of staying in the country of origin are obvious, but the full benefits of emigration cannot be known in advance, and this ambiguity can be considered as an additional cost. Uncertainty is, furthermore, a subjective cost, because different persons can evaluate it very differently. But the economic and social costs of migration process in most cases are being evaluated and predicted by the potential international economic migrants. The direction of migration flows is directly related to these costs and benefits (Campbell 2019).

Research Methodology

In the beginning of the research the EU migration statistics will be analysed, and the average annual population change rates will be calculated. Using the migration index the EU countries will be grouped into two groups: having the positive and negative net migration flows. The natural increment will be also analysed as the demographic factor of population changes. The crude rate of natural increase and migration index matrix will aggregate the analysis results highlighting the factors of population changes in EU-28 countries.

Secondly, the economic factors of international migration directions in the EU will be analysed. To compare the differences of economic development in the EU-28 as the main international migration factor the dimension index will be calculated of these macroeconomic indicators: GDP per capita, average labour cost per hour worked, labour productivity percentage of EU average, compensation of employees per capita, consumption expenditures of households per capita, and gross capital formation (investments) per capita. The economic differences will be interrelated with the international migration flows. The EU assessment will also be analysed as the international migration promoting factor.

Finally, the statistical projections of EU population in the context of international migration will be extrapolated. The economic development projections of depopulating EU countries will be interrelated with the possibilities to reduce the emigration. The economic differences inside the depopulating EU counties will be highlighted. The statistical trends

of net international migration in immigrants attracting and high emigration EU countries will be given considering the impact of non-EU immigrants on the EU migration statistics. The statistical probabilities to reduce the emigration in most depopulating EU countries will be estimated using the mean-variance method.

The official statistical international migration, demographic, and economic data of Eurostat and The World Bank will be used in the research. The statistical data analysis (dynamic statistics and derivative demographic indicators, dimension index, regression, Spearman correlation, Wilcoxon's test, mean-variance) and visualization (contour and other charts) methods will be employed in the empirical research.

Differences of Population Migration Flows and Natural Increment in European Union

During the last decade (2008–2017) the world population increased by 11.3% from 6.766 to 7.530 billion inhabitants. The population of European Union (EU-28) at the same period grew by 2.1% and at the end of 2017 reached 512.7 million inhabitants. However, the population changes in the EU have different directions: in 18 countries the population growth was observed (Luxembourg, Malta, Cyprus, Sweden, Ireland, United Kingdom, Belgium, Austria, Denmark, France, Netherlands, Finland, Italy, Slovenia, Czechia, Spain, Slovakia, and Germany) while in the rest 10 countries (Lithuania, Latvia, Bulgaria, Romania, Croatia, Greece, Hungary, Portugal, Estonia, and Poland) the population was declining. The average annual population changes of every EU country are shown in figure 1. The highest depopulation is typical for Lithuania and Latvia (–1.33% and –1.29% yearly), whereas the rest 8 countries lose in average from 0.63% (Bulgaria) to 0.04% (Poland) of their population.

The comparative immigration and emigration flow indicators are given in figure 2. The outstanding average annual gross migration (emigration and immigration) was in Germany (1.121 million migrants yearly). Another four EU-28 countries having the highest migration flows were United Kingdom (911.7 thousand), Spain (808.8 thousand), France (595.9 thousand), and Italy (491.2 thousand). In 2008–2017 the migration index (proportion of immigrants to emigrants) of all EU-28 countries that had positive population change indicators (%) was equal or higher than 1 (in range from 1.0 to 3.7), what means that almost in all cases the immigration to these countries exceeds the emigration flows. Otherwise, in the group of countries having the negative average annual population change

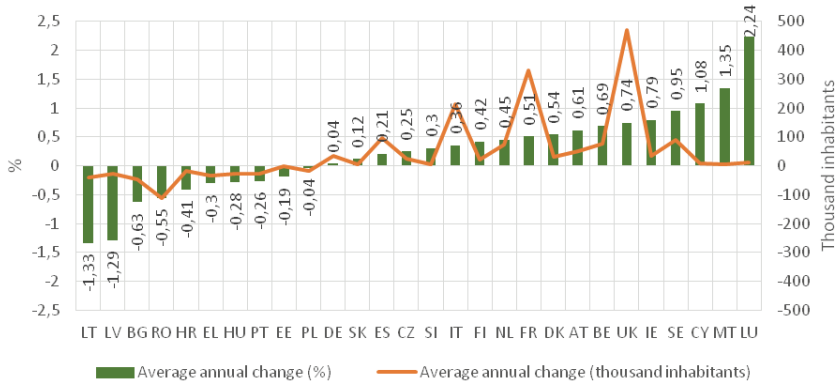

FIGURE 1 Average Annual Population Change of EU-28 Countries in 2008–2017 (based on data from Eurostat, https://ec.europa.eu/eurostat)

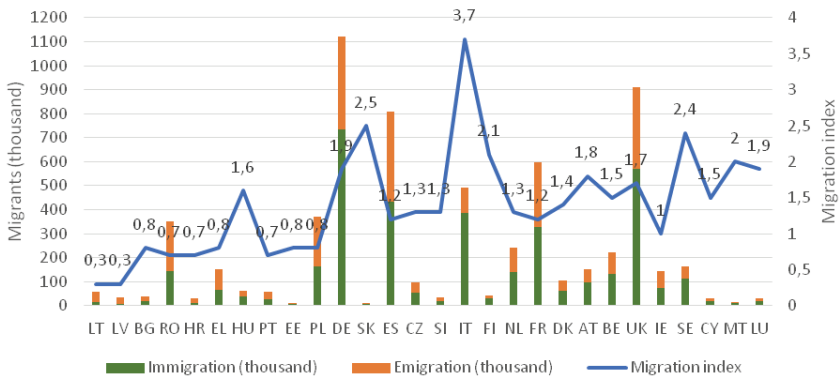

FIGURE 2 Average Annual Immigration, Emigration and Migration Index of EU-28 countries in 2008–2017 (based on data from Eurostat, https://ec.europa.eu/eurostat)

rates (%) the migration index is lower than 1 in all cases except Hungary which in average had 160 immigrants relatively to 100 emigrants. The worst situation was in Lithuania and Latvia where only 30 immigrants formed positive migration flow relatively to 100 emigrants. It is evident that such huge negative net migration causes the rapid depopulation of these two EU countries. In the rest 7 EU countries (Bulgaria, Romania, Croatia, Greece, Portugal, Estonia, and Poland) the migration index is quite stable in range from 0.7 to 0.8 (figure 2).

The second factor of population change during the period is natural increment. Having the population change and net migration indicators

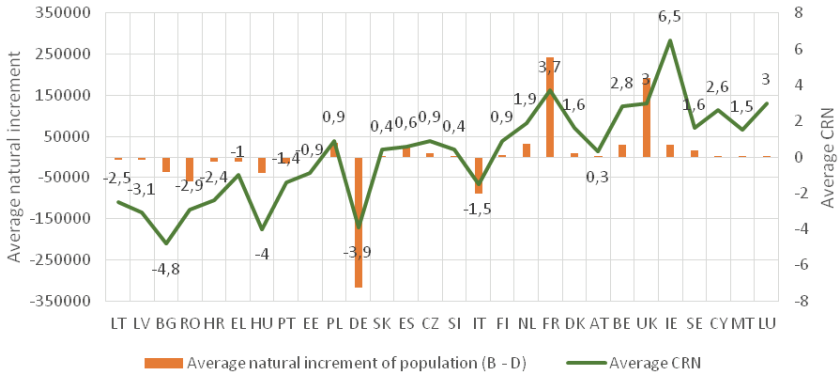

FIGURE 3 Average Natural Increment of Population and CRN of EU-28 Countries in 2008–2017 (based on data from Eurostat, https://ec.europa.eu/eurostat)

the natural increment of EU-28 countries' population was calculated by formula:

$$(B - D) = (P_1 - P_0) - (I - E), \tag{1}$$

where $(B - D)$ is natural increment of population (births minus deaths), $(P_1 - P_0)$ is the net change in population during the period, $(I - E)$ is the mechanical increase/decrease (net migration) of population (immigration minus emigration).

To highlight the problems of negative natural increment in EU-28 countries the average crude rate of natural increase (CRN) was calculated for the period of 2008–2017:

$$\text{CRN} = \frac{B - D}{P} \times 1000, \tag{2}$$

where B is births, D is deaths, and P is population of a country. This relative ratio shows the natural increment to 1000 inhabitants and allows compare the EU countries that have the significant differences of total population.

The analysis results have shown that only two EU-28 countries (Germany and Italy) have negative natural increment in the group of 18 countries with growing population (figure 3). The population growth in these countries is based only on positive net migration flows, while another 16 EU countries ensure their population growth by natural increment and positive net migration of inhabitants. Conversely, from ten EU countries with declining population for nine the negative natural increment is typi-

TABLE 1 Matrix of EU-28 Countries' Population Change, Migration Index and CRN

CRN	Migration index	
	MI < 1	MI ≥ 1
CRN < 0	LT$^{(-)}$, LV$^{(-)}$, BG$^{(-)}$, RO$^{(-)}$, HR$^{(-)}$, EL$^{(-)}$, PT$^{(-)}$, EE$^{(-)}$	HU$^{(-)}$, DE$^{(+)}$, IT$^{(+)}$
CRN ≥ 0	PL$^{(-)}$	SK$^{(+)}$, ES$^{(+)}$, CZ$^{(+)}$, SI$^{(+)}$, FI$^{(+)}$, NL$^{(+)}$, FR$^{(+)}$, DK$^{(+)}$, AT$^{(+)}$, BE$^{(+)}$, UK$^{(+)}$, IE$^{(+)}$, SE$^{(+)}$, CY$^{(+)}$, MT$^{(+)}$, LU$^{(+)}$

NOTES $^{(+)}$ Population of country is growing, $^{(-)}$ population of country is declining.

cal, except Poland which has the CRN of 0.9. The worst fertility situation is in Bulgaria and Hungary that have CRNS of –4.8 and –4.0 accordingly. The CRN of other countries with declining population (Lithuania, Latvia, Romania, Croatia, Greece, Portugal, and Estonia) vary from –0.9 to –3.1.

Three analysed indicators (population change, migration index and crude rate of natural increase) were summarized in matrix that divides the EU-28 countries into four groups (table 1). The bottom right cell includes 16 from 18 countries where population is growing. All these countries have positive net migration flows and natural population increase rates. Two countries (Germany and Italy) have positive net migration but their natural increment is negative. However, the immigration exceeds the negative natural increment, so the population in these countries is growing. Hungary belongs to the same top right cell of matrix, but the negative natural increment is not compensated by immigration, so the population in this country declines. Only Poland is located at the bottom left cell of matrix which has positive natural increment of population but negative net migration flows. As the emigration exceeds the positive natural increment, the population of Poland is slightly declining (in average by 0.04% yearly). Finally, the top left cell of matrix includes 8 countries (Lithuania, Latvia, Bulgaria, Romania, Croatia, Greece, Portugal, and Estonia) where the population is constantly declining, the natural increment of inhabitants is negative, and the emigration from these countries is higher than immigration. This group of EU-28 countries meets the demographic and depopulation problems in the converse context of EU and world's population growth trends.

Analyzing the population migration changes over time the Migration Effectiveness Ratios (MER) were calculated for EU countries in 2007–2016:

$$\text{MER} = \frac{I - E}{I + E}, \tag{3}$$

where I is immigration and E is emigration. MER is defined as the ratio of net migration to gross migration (migration turnover). This ratio measures the relative difference between the effective addition or loss of population through migration and the overall gross movement. For the open economies the circular migration or repeat migration is typical which is the temporary and usually repetitive movement of a migrant worker between home and host areas, usually for the purpose of employment. The MER is able highlight the attractiveness or unattractiveness of a country for international migrants and represents the established pattern of population mobility.

The EU countries were classified into three groups according to MER. The average values of MER in 2007–2016 are given in the brackets:

- Group 1 (MER > 0): Italy (0.55), Slovakia (0.43), Sweden (0.40), Finland (0.36), Luxembourg (0.30), Hungary (0.30), Malta (0.28), Austria (0.27), United Kingdom (0.25), Belgium (0.20), Denmark (0.17), Netherlands (0.14), and France (0.10).
- Group 2 (MER is varying): Germany (0.29), Cyprus (0.25), Slovenia (0.11), Czechia (0.09), Spain (0.04), Ireland (0.01), Greece (–0.08), Portugal (–0.10), Estonia (–0.14), and Croatia (–0.15).
- Group 3 (MER < 0): Latvia (–0.50), Lithuania (–0.48), Poland (–0.17), Romania (–0.16), and Bulgaria (–0.07).

The countries of Group 1 are constantly attracting immigrants while the countries of Group 3 are losing the population every year. The countries in Group 2 have various (positive and negative) MER values in different years. The countries having the significantly changing trends of MER are shown in figure 4.

The most significant positive MER growth was observed in Austria and Malta. Poland has constantly reduced the negative MER from –0.41 to –0.06. This means that these three countries in period of 2007–2016 became more attractive for immigrants. Otherwise, the most declining MER during the same period was in 6 EU countries. In Italy and Hungary after significant decline the MER remained positive. The MER values of Greece, Cyprus, and Portugal became negative however in 2015–2016 they started to grow. The constant MER decline was in Croatia where this rate from 0.24 in 2007 declined to –0.45 in 2016.

The next chapter aims to reveal the economic differences of coun-

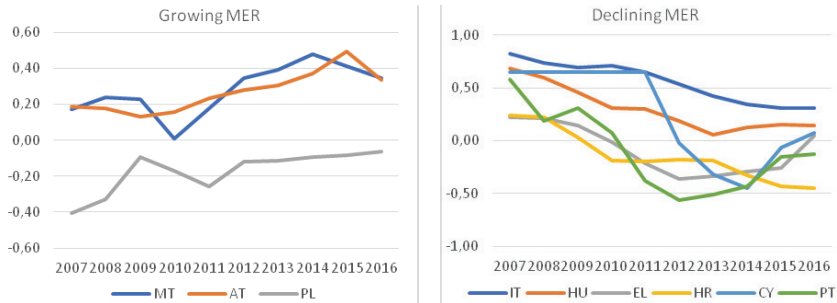

FIGURE 4 EU Countries with the Most Significant Changes of MER

tries having the negative migration flows to the countries attracting immigrants. The obtained migration openness factor when these countries joined the EU will be also considered seeking to evaluate how the membership in the EU shrinks the population of less developed EU countries.

Economic Factors of Migration Directions in the EU

Undoubtedly, the main international migrants in the EU are the economic migrants and the differences of countries' economic development can be considered as main factors attracting immigrants or stimulating emigration. To highlight the economic inequalities inside the EU and interrelate them with the migration flows the gross domestic product (GDP) per capita and average 1 hour labour cost were analysed. The values of these economic indicators in every EU country having the negative net migration (MI < 1) were compared to the averages of EU-28 and the EU countries having the positive net migration flows (MI ≥ 1). The average GDP per capita in MI < 1 group was 13 689 EURO in 2017. In overall EU-28 this indicator was higher by 119.2% (30 000 EURO), while the EU countries attracting immigrants had the average value higher by 166.4% (36 474 EURO). The least migration index (0.3) in period of 2008–2017 was in Lithuania and Latvia where the relative emigration was the highest in the EU, however the GDP per capita of these countries are not the least. The lower indicators are in Bulgaria, Romania, Croatia, and Poland (figure 5).

The average labour cost per hour in MI < 1 countries was 9.7 EURO, while the EU-28 and MI ≥ 1 averages were 26.8 and 27.1 EURO accordingly. So, the employees working in MI < 1 countries earn in average only 35.8% of income compared to other EU countries that attract immigrants. According to this indicator Lithuania and Latvia (MI = 0.3) have higher

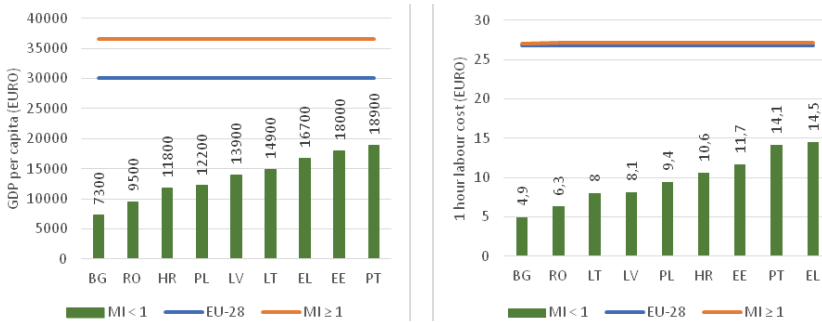

FIGURE 5 GDP per Capita and 1 Hour Labour Cost of MI < 1, EU-28 and MI ≥ 1 Countries in 2017 (based on data from Eurostat, https://ec.europa.eu/eurostat)

wages compared to Bulgaria and Romania where the negative migration balance is not so huge (MI is 0.8 and 0.7).

To compare the differences of economic development as the main international migration factor the dimension index (D_i) was calculated of 6 macroeconomic indicators (year 2017) for every EU-28 country: GDP per capita (GDP), average labour cost per hour worked (LCH), labour productivity percentage of EU average (LPP), compensation of employees per capita (COE), consumption expenditures of households per capita (CEH), and gross capital formation (investments) per capita (GCF):

$$D_i \frac{X_i - X_{min}}{X_{max} - X_{min}}, \tag{4}$$

where X_i is the value of country's macroeconomic indicator, X_{min} is the minimal value and X_{max} is the maximal value of macroeconomic indicator in the EU-28. The dimension index creates the scale in range of [0; 1] to relatively compare the economic differences in the EU. The sum of 6 dimension indices was calculated for every country which allows quantitatively measure the position of a country in the context of EU-28. The range of dimension index sum is [0; 6] where 0 means the least and 6 means the highest relative economic development of the EU countries.

The 9 EU countries of MI < 1 group (Lithuania, Latvia, Bulgaria, Romania, Croatia, Greece, Portugal, Estonia, and Poland) are located between 12 countries having the least sums of dimension indices with values of 1.16 and less (figure 6). Three countries also have relatively low macroeconomic indicators (Hungary, Slovakia, and Czechia) but their international migration balance is positive (MI > 1). The huge emigration paradox of Lithuania and Latvia can be seen in figure 6 even though their eco-

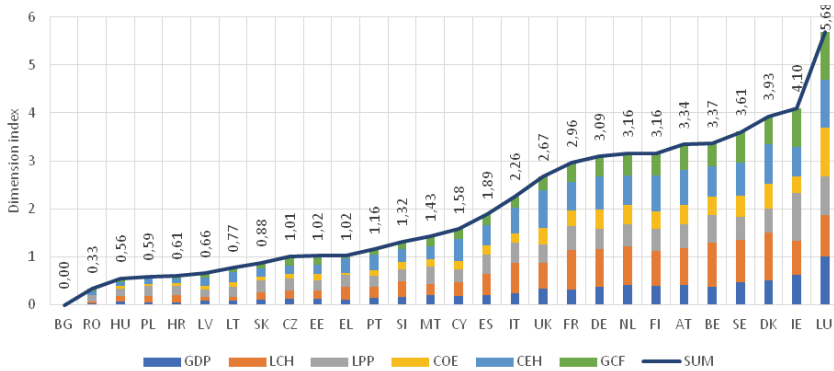

FIGURE 6 Dimension Index of EU-28 Countries' 6 Macroeconomic Indicators in 2017 (based on data from Eurostat, https://ec.europa.eu/eurostat)

nomic indicators are not the worst (22nd and 23rd ranks in the EU-28). As the emigrants of these countries are economic migrants, that can be hypothetically explained by higher expectations of life quality of Lithuanian and Latvian inhabitants compared to Bulgaria, Romania, Hungary, Poland, and Croatia. All 6 analysed macroeconomic indicators are the least in Bulgaria (the sum of dimension indices is equal to 0). The countries having positive net migration flows (MI $\geq$ 1), except Hungary, Slovakia, and Czechia, obtained the sums of dimension indices from 1.32 (Slovenia) to 5.68 (Luxembourg).

The contour charts visualize the statistical dependencies between country's economic development and the directions of international migrant flows (figure 7). The negative net migration balance (MI < 1) is typical only for EU countries having the least investments and GDP per capita values. Conversely, the more developed EU countries attract international migrants (MI $\geq$ 1). The outstanding (top right corner of MI $\geq$ 1 graph in figure 6) GDP per capita (more than 50 thousand EURO) and gross capital formation per capita (more than 10 thousand EURO) indicators have Luxembourg, Ireland, and Denmark.

So, in general the interrelation of country's economic development and the direction of its migration flows is evident. The openness of a country is also very important factor allowing the international migrants easily change the location of residence. The 9 EU countries having the negative net migration flows (MI < 1) accessed the EU in different years: Greece (1981), Portugal (1986), Lithuania (2004), Latvia (2004), Estonia (2004), Poland (2004), Bulgaria (2007), Romania (2007), and Croatia

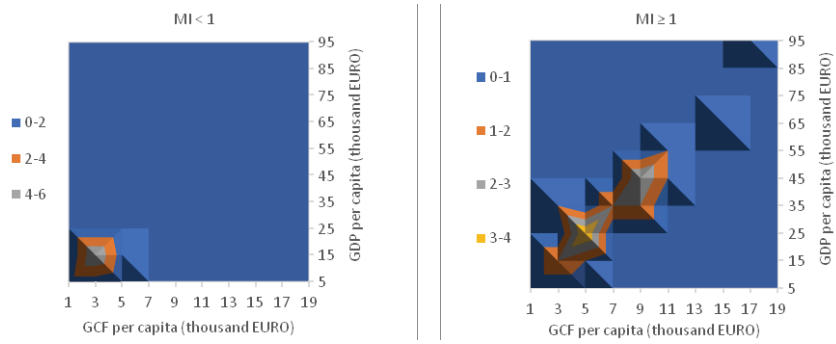

FIGURE 7 Distribution of MI < 1 and MI ≥ 1 Countries According to GDP and Gross Capital Formation (GCF) per Capita in 2017 (based on data from Eurostat, https://ec.europa.eu/eurostat)

(2013). From 9 countries having the negative net migration flows 6 were selected considering these criterions (Lithuania, Latvia, Estonia, Poland, Bulgaria, and Romania):

- The EU accession year is between 1998–2018 (the last 20 years).
- The sum of calculated economic indicators' dimension indices is lower than 20% of maximal possible value of 6 ($\sum D_i < 1.2$).
- The country is EU member for 10 years and more.

The aggregated population of these 6 countries was calculated 10 years before and after EU assessment (figure 8) where the conditional year 'zero' means the country's EU assessment year. The aggregated average annual population decline rates were also calculated before and after EU assessment. The analysis results have shown that in general the country's EU assessment does not increase the value of population decline rate. The average population decrease in 6 analysed countries before EU assessment was –0.44% yearly while after these countries became the EU members the decrease rate turned to –0.34% per year. However, the population decline was reduced only in Estonia, Poland, Bulgaria, and Romania. The depopulation of Lithuania and Latvia after EU assessment increased 1.8 and 1.2 times accordingly (figure 8).

The slowdown of depopulation decrease in most countries after EU assessment can be explained by growing economy and improved living conditions. To highlight the economic growth effect of countries after the EU assessment the GDP per person employed (constant 2011 PPP USD) was compared calculating the average values of 10 years before and after the countries became the EU members (table 2). GDP per person em-

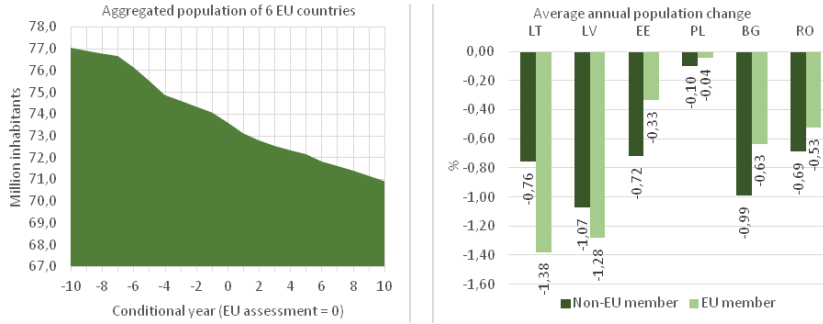

FIGURE 8 Aggregated Population and Average Annual Population Change of 6 EU Countries 10 Years before and after EU Assessment (based on data from The World Bank, https://www.worldbank.org)

TABLE 2 GDP per Person Employed (Constant 2011 PPP USD)

Item	LT	LV	EE	PL	BG	RO
Non-EU member (10 years average)	28 711	26 030	33 528	35 083	27 712	27 043
EU member (10 years average)	51 580	44 820	53 332	50 107	38 771	45 367
Difference (d_i)	22 869	18 790	19 805	15 024	11 059	18 324
Rank	1	3	2	5	6	4

NOTES based on data from The World Bank (https://www.worldbank.org).

ployed is gross domestic product divided by total employment in the economy. Purchasing power parity (PPP) GDP is GDP converted to 2011 constant international dollars using PPP rates. An international dollar has the same purchasing power over GDP that a US dollar has in the United States. The highest GDP per person employed indicator after the EU assessment was in Estonia, however the most significant increase was observed in Lithuania (rank is equal to 1). Latvia was the third country considering the GDP growth. The less impact of country's EU assessment on GDP growth was in Romania, Poland, and Bulgaria (ranks 4–6 accordingly).

Using the data of table 2 the Wilcoxon's test was performed to prove the positive impact on countries' economic growth when they become members of EU. The sums of attributed ranks for negative and positive differences are: $t_- = 0$ and $t_+ = 21$. The statistical hypotheses of the analysis are: the EU membership does not improve (H0) and improve (H1) the country's GDP per person employed indicator. The hypothesis H0 was

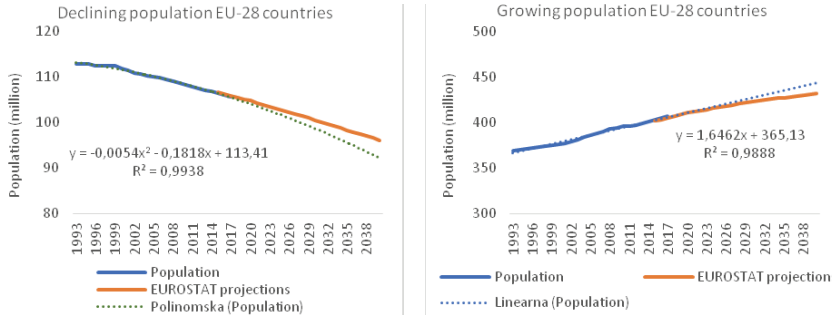

FIGURE 9 Statistical Projections Until 2040 of EU-27 and UK Population (based on data from Eurostat, https://ec.europa.eu/eurostat)

rejected because t_- value was considered as low according to Wilcoxon's test for one set of observations ($n = 6$; $p = 0.05$).

The analysis results allow maintain that economic differences of the EU countries have the crucial impact on the migration directions of EU inhabitants. In most cases the less economically developed countries' EU assessment does not increase its population decline rate. Conversely, the depopulation slowdown effect was observed as a benefit of significant economic growth. However, this is not typical for Lithuania and Latvia, that have not the least macroeconomic indicators in the EU-28, their economic growth after the EU assessment was one of the highest, but these two countries face the problem of the most rapid depopulation compared to other 8 EU countries (Bulgaria, Romania, Croatia, Greece, Hungary, Portugal, Estonia, and Poland) with declining population.

Statistical Projections of EU Population in the Context of International Migration

The statistical prediction models of polynomial and linear regression were developed to foresee the possible aggregated population changes until 2040 in declining (Lithuania, Latvia, Bulgaria, Romania, Croatia, Greece, Hungary, Portugal, Estonia, and Poland) and growing population (according to figure 1 data) groups of current EU-28 countries. These statistical predictions were also compared to the official EU population projections of Eurostat. The statistical models were developed using the 25 years EU population data of 1993–2017 (figure 9).

Predicting the EU population by the polynomial and linear regression models the independent variable x must be considered as the time characteristics where 1993 = 1. The statistical modelling allows maintain that

in the group of countries with declining population the aggregated number of inhabitants should decrease by 12.8% from 105.7 million in 2017 to 92.2 million in 2040. This group of EU countries is expected to lose 13.5 million inhabitants in next 22 years. The official population projections of Eurostat are more optimistic: this group of countries until 2040 will has lost 9.1% or 9.6 million inhabitants. Predictions of linear regression model show that the rest 17 EU countries and United Kingdom together will increase their population by 9.2% (37.3 million) from 406.8 million in 2017 to 444.1 million inhabitants in 2040. The official projections of Eurostat for the second group are more restrained: 432.2 million inhabitants in 2040 (the expected growth is 6.2%). The overall population of EU-27 and UK in 2040 should be 528.4 million inhabitants or 536.3 million inhabitants according to statistical modelling of this research. The difference between the official and estimated predictions is 7.9 million inhabitants (1.5%).

In table 3 the statistical linear regression models were developed to estimate the linear trends of MI < 1 countries' (negative net migration) GDP and gross capital formation (GCF) per capita statistical indicators. Considering that economic differences between the EU countries are the factor of economic migrants' international migration the statistical modelling allows foresee when these economic indicators of MI < 1 countries could reach the 2017 year's levels of MI ≥ 1 and overall EU-28 averages under the circumstances that the average annual growth rates (G (%)) remain the same. The possible equalization of macroeconomic indicators could reduce the emigration from MI < 1 countries. The coefficients of determination (R^2) in table 3 indicate the strength of statistical interdependencies between macroeconomic rates and time characteristics (t) in the statistical models.

The statistical data of 2006–2017 period was used developing the GDP per capita regression models. The conditional time characteristic t is equal to 1 at year 2006 except Greece where the period of 2014–2017 was analysed. The GDP per capita of this country since 2008 (21 800 EURO) was declining until 2014 (16 400 EURO). As the developed regression models aim to extrapolate the growing trend of GDP, the conditional time characteristic t in the model of Greece is equal to 1 at year 2014. Equalizing the linear regression models of GDP per capita growth in each country to the EU-28 (30 000 EURO) and MI ≥ 1 countries' (36 474 EURO) averages of 2017 the years (t) were determined when the countries of MI < 1 group could reach the values of selected datum-levels (figure 10). Having the av-

TABLE 3 GDP and GCF per Capita Statistical Growth Models of MI < 1 Countries

	GDP per capita			GCF per capita		
	G	Statistical model	R^2	*G*	Statistical model	R^2
LT	6.6	GDP = 598.6 · *t* + 7042.4	0.91	8.2	GCF = 171.85 · *t* + 1314.6	0.98
LV	5.4	GDP = 425.52 · *t* + 8009.1	0.70	4.9	GCF = 121.6 · *t* + 1850.2	0.63
BG	6.9	GDP = 287.41 · *t* + 3631.8	0.95	2.1*	GCF = 24.071 · *t* + 1190.7	0.65
RO	6.8	GDP = 325.52 · *t* + 4909.1	0.81	4.1	GCF = 65.579 · *t* + 1511.9	0.92
HR	2.2	GDP = 104.9 · *t* + 9868.2	0.36	3.4*	GCF = 75.095 · *t* + 1862.5	0.75
EL	0.6*	GDP = 90 · *t* + 16250	0.60	1.9*	GCF = 38.589 · *t* + 1874.3	0.32
PT	1.6	GDP = 168.88 · *t* + 15811	0.49	4.3*	GCF = 123.45 · *t* + 2248.7	0.77
EE	5.5	GDP = 647.9 · *t* + 9263.6	0.87	7.7	GCF = 216.5 · *t* + 2439.8	0.71
PL	4.9	GDP = 376.57 · *t* + 7393.9	0.90	2.5	GCF = 39.588 · *t* + 1843.3	0.56

NOTES * Different period of statistical data compared to other countries.

erage annual GDP per capita growth rate of 5.4%–6.6% Estonia, Lithuania and Latvia could reach the EU-28 average of 2017 in years 2038–2058. To reach the average value (36 474 EURO) of immigrants attracting countries (MI ≥ 1) the time period until 2048–2073 is necessary for these three Baltic states. The slowest GDP per capita growth rate (0.6%–2.2%) is typical for Greece, Portugal, and Croatia (table 3). The GDP per capita value of Portugal was the highest between the MI < 1 countries (18 900 EURO in 2017) so its relatively slow growth does not elongate the time period to reach the EU-28 and MI ≥ 1 averages as in Croatia and Greece. Having the relatively slow GDP per capita growth rate Croatia could reach the EU-28 average in 2198, while the value at the average of immigrants attracting countries can be expected only in 2260. The expected years of Greece are 2167 and 2239 accordingly (figure 10).

As the investments are the main factor of GDP growth, the statistical extrapolation using the data of 2009–2017 was implemented for gross capital formation (GCF) per capita indicators (table 3 and figure 10). The linear regression models of Bulgaria, Croatia, and Portugal were developed using the statistical data of 2012–2017, while the analysis period of Greece includes the years 2013–2017. This shortening of data periods was implemented due to the necessity reveal the statistical investments growth trend. In 2008–2011 the investments of these countries declined: –28.3% in Bulgaria, –32.4% in Croatia, and –20.4% in Portugal. The worst situation was in Greece where the real business investments declined by

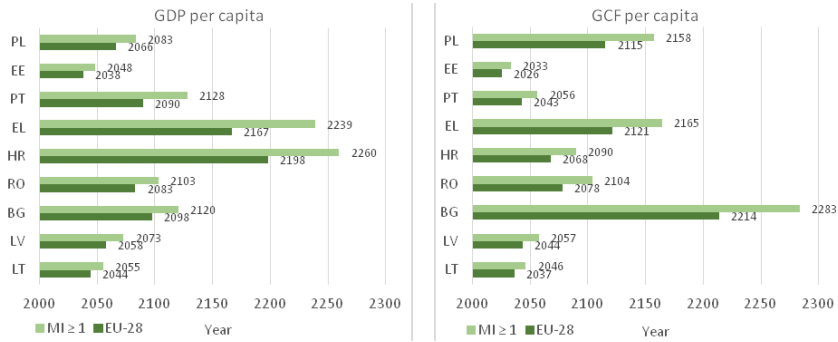

FIGURE 10 Years of MI < 1 Countries Statistically Expected to Reach the GDP and GCF per Capita Average Values of 2017 in MI ≥ 1 and EU-28 Groups

65.3% (from 5 472 to 1 899 EURO per capita) during the period of 2007–2014.

The Baltic states have the most rapid investments growth trend. The GCF per capita in Lithuania grew by 8.2%, in Estonia by 7.7%, and in Latvia by 4.9% yearly during the period of 2009–2017. So, these countries statistically can expect to reach the current EU-28 average in 2026–2044. The average of MI ≥ 1 countries can be reached in 2033–2057. The slowest GCF per capita growth was observed in Greece (1.9%), Bulgaria (2.1%), and Poland (2.5%). These countries having the same statistical trend can expect to reach the average of EU–28 in 2115–2214, while the average of immigrants attracting countries (MI ≥ 1) can be reached in 2158–2283.

Analysing the group of 9 countries having the negative net migration flows (MI < 1) the Spearman correlation coefficients (ρ) were calculated for the ranks of countries' annual population change rates to GDP and GCF per capita:

$$\rho = 1 - \frac{6 \cdot \sum d^2}{n^3 - n}, \tag{5}$$

where d is the difference of ranks between country's average annual population change rate and GDP/GCF per capita, n is the number of countries analysed. The ranks (relatively 1 is the best and 9 is the worst value of statistical indicators) necessary for the calculation of Spearman correlation coefficients are given in table 4.

The Spearman correlation coefficients $\rho_{GDP} = 0.37$ and $\rho_{GCF} = 0.22$ allow maintain that there is not strong direct statistical relation between population decline rates and analysed two macroeconomic indicators inside the group of MI < 1 countries. Lithuania and Latvia meet the huge

TABLE 4 Ranks and d^2 Values of Demographic and Economic Indicators inside MI < 1 Group

Country	PL	EE	PT	EL	HR	RO	BG	LV	LT
Population change rank	1	2	3	4	5	6	7	8	9
GDP rank and d^2	6/25	2/0	1/4	3/1	7/4	8/4	9/4	5/9	4/25
GCF rank and d^2	6/25	1/1	2/1	7/9	5/0	8/4	9/4	3/25	4/25

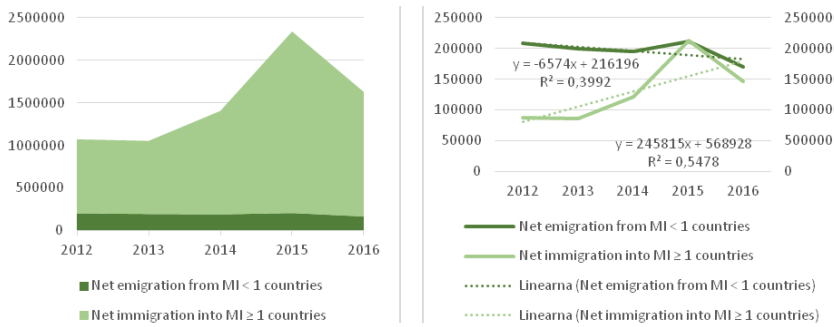

FIGURE 11 Statistical Trends of Net Migration Flows in MI < 1 and MI ≥ 1 Countries

depopulation problems having relatively high economic indicators. The estimated direct statistical relation is in Portugal and Estonia that have the highest GDP and GCF per capita values (ranks 1 and 2) so these countries face with quite low population decline rates. Conversely Poland has the 6th ranks of macroeconomic indicators but its depopulation problem is the least (population declines only –0.04% per year).

The analysis of international migration statistical trends has shown that in recent years the net emigration from MI < 1 countries is slightly declining in average by 5% yearly (figure 11). In 2012 in this group of countries net emigration was 208 052 persons while in 2016 this number decreased to 169 428. Conversely, the net immigration to MI ≥ 1 countries is growing in average by 13.9% every year. The significant decline was observed only in 2016 when this indicator from 2 129 656 persons in 2015 decreased to 1 461 584. The gap in figure 11 between net emigration from MI < 1 countries and immigration to MI ≥ 1 countries indicates the magnitude of immigration from non-EU countries into the EU. In period of 2012–2016 the average difference between mentioned rates is 1 109 898 what is the non-EU immigrants.

As Lithuania and Latvia are the EU countries that mostly suffer from emigration problem the mean-variance method was applied to estimate

TABLE 5 Mean-Variance Analysis of Lithuanian and Latvian Emigration

C	$P_{(LT)}$	$P_{(LV)}$	$CP_{(LT)}$	$CP_{(LV)}$	$(C - EMV)^2 P_{(LT)}$	$(C - EMV)^2 P_{(LV)}$
20	0.00	0.58	0.00	11.67	0.00000	19.84954
30	0.25	0.25	7.50	7.50	50.17361	4.340278
40	0.42	0.17	16.67	6.67	7.233796	33.44907
50	0.17	0.00	8.33	0.00	5.671296	0.00000
60	0.08	0.00	5.00	0.00	20.8912	0.00000
70	0.00	0.00	0.00	0.00	0.0000	0.00000
80	0.08	0.00	6.67	0.00	107.0023	0.00000
	–	–	44.17	25.83	190.9722	57.63889

the statistical probabilities of emigration reduction considering the current emigration trends of 2005–2016.

In table 5 C is the middle of emigrants' interval (thousand persons) after the grouping of statistical data, P is the distribution of years according to emigration values, and CP is the product of previously mentioned indicators. The weighted averages (EMV), standard deviations (ρ) and standardized values (z) of emigrants were calculated using the data of table 5:

$$EMV = \sum C_i P_i \tag{6}$$

$$\sigma = \sqrt{\sum (C_i - EMV)^2 P_i} \tag{7}$$

$$z = \frac{(C_i - EMV)}{\sigma} \tag{8}$$

Using the table of standard normal distribution, the $\Phi(-u)$ values were found for the standardized emigration indicators $u = |z|$. The probability graphs of Lithuanian and Latvian emigration reduction expectancies are given in figure 12.

The statistical data of 2005–2016 shows that from Lithuania in average emigrate 44 444 and from Latvia 24 398 inhabitants every year. The current statistical trends and mean-variance analysis allow affirm that the possibility significantly reduce the emigration in these countries is very doubtful. The statistical probability to reduce the emigration in Lithuania even by 10% is 63.67% in Latvia is 67.98%. If wanting the significant decline of emigration in these countries by 50% Lithuania has the statistical probability of 12.47%, Latvia 9.66%. So, the huge emigration paradox in Lithuania and Latvia is more related to the economic differences between these countries and highly developed EU countries rather than

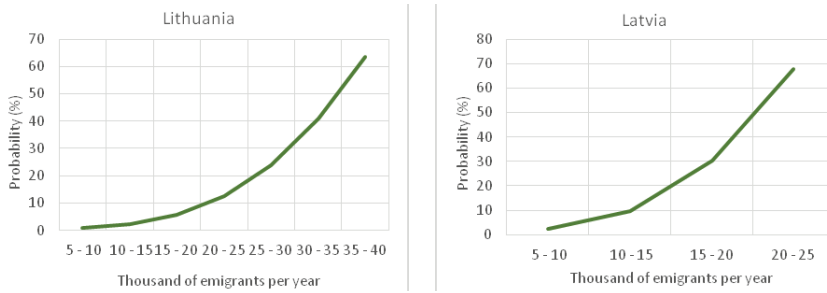

FIGURE 12 Probabilities of Emigration Reduction in Mostly Depopulating EU Countries

the relative economic differences inside the group of MI < 1 countries. The gap of economic indicators between highly developed EU countries and Lithuania as well as Latvia allows expect the continuity of labor force supply from these countries.

Conclusions

The research has shown that in current years 10 EU countries meet the problem of population decline while in 18 countries the population is growing. In all EU countries with growing population the migration index is equal or higher than 1, what means that almost in all cases the immigration is higher than the emigration flows. Otherwise, in the group of countries having the declining population the migration index is lower than 1 in all cases except Hungary. Only Germany and Italy have negative natural increment in the group of 18 countries with growing population. The population growth in these countries is based only on positive net international migration flows, while another 16 EU countries ensure their population growth by natural increment and positive net migration of inhabitants. Conversely, from ten EU countries with declining population for nine the negative natural increment is typical, except Poland.

Analysing the economic factors of international migration, it was concluded that 9 EU countries of having the negative net migration flows (Lithuania, Latvia, Bulgaria, Romania, Croatia, Greece, Portugal, Estonia, and Poland) are located between 12 countries having the least macroeconomic indicators. Three countries also have relatively low macroeconomic indicators (Hungary, Slovakia, and Czechia) but their international migration balance is positive. The negative net migration balance is typical only for EU countries having the least investments and GDP per capita values. The economic differences of the EU countries have the cru-

cial impact on the migration directions of EU inhabitants. In general, the country's EU assessment does not increase the value of population decline rate. The slowdown of depopulation decrease in most countries after EU assessment can be explained by growing economy and improved living conditions. However, this is not typical for Lithuania and Latvia, that have not the least macroeconomic indicators in the EU-28, their economic growth after the EU assessment was one of the highest, but these two countries face the problem of the most rapid depopulation.

The statistical modelling allows maintain that in the group of countries with declining population the aggregated number of inhabitants should decrease by 12.8% from 105.7 million in 2017 to 92.2 million in 2040. This group of EU countries is expected to lose 13.5 million inhabitants in next 22 years. Predictions of linear regression model show that the rest 17 EU countries and United Kingdom together will increase their population by 9.2% (37.3 million) from 406.8 million in 2017 to 444.1 million inhabitants in 2040. The analysis results allow maintain that there is not strong direct statistical relation between population decline rates and analysed macroeconomic indicators inside the group of countries with negative net migration flows. Lithuania and Latvia meet the huge depopulation problems having relatively high economic indicators what is more related to the economic differences between these countries and highly developed EU countries rather than the relative economic differences inside the group of countries with negative net migration directions. Lithuanian and Latvian emigration paradox allows expect the continuity of labor force supply from these countries to EU constantly shrinking the domestic labor markets.

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Razmerje med dohodkom, porabo in BDP azijskih držav: panelna analiza

Sima Rani Dey

Prispevek predstavlja pregled kointegracijskega odnosa med potrošnjo, dohodkom in BDP na prebivalca v serijah panelnih podatkov. Pri raziskavi smo uporabili test korena enote, kointegracijski test in FMOLS ocenjevalno tehniko. Podatki zajemajo 11 azijskih držav in tri dohodkovne kategorije – nižji srednji dohodek, zgornji srednji dohodek in visok dohodek. Upoštevana so bila opažanja od leta 1980 do 2014. Študija je pokazala, da je povezava med potrošnjo in dohodkom močnejša v državah z nižjim in zgornjim srednjim dohodkom. Nizek dohodek je večinoma namenjen izključno potrošnji. Povezava med porabo, dohodkom in BDP na prebivalca je močnejša v državah z nižjim srednjim dohodkom.

Ključne besede: dohodek, poraba, BDP, koreni panelne enote, panelna kointegracija
Klasifikacija JEL: C23, D31, E21
Managing Global Transitions 17 (2): 113–127

Aristotelova hrematistika in trenutno »post-gospodarstvo«

Tonči Kuzmanić

Hrematistika (gr. *hrematistikē*) ni le nova (pravzaprav je zelo stara, ampak na novo odkrita) beseda, ampak hkrati tudi popolnoma nova »perspektiva« v smislu drugačnega razmišljanja in razumevanja. Še več: hrematistika je nova paradigma razmišljanja in hkrati nova metodologija argumentacije. Skratka, gre za paradigmo proti-gospodarskega razmišljanja/argumentacije, temelječo na natančnem razlikovanju med gospodarstvom (gr. *oikonomikē*) in hrematistiko, kot ga je začrtal Aristotel v svoji prvi knjigi o Politiki. Cilj tega prispevka je dvojen. Prvič, problem – in cilj – je (ponovno) odpreti zgodovinsko prisotno in hkrati »izgubljeno« (skrito) razlikovanje med tema dvema ključnima kategorijama našega časa. Posledično je cilj razviti možno razumevanje tega razlikovanja. Drugič, v prispevku sem poskušal poudariti tudi nekatere uporabe že obstoječega razlikovanja na ravni teorij filozofije in ekonomije ter možne kritike slednjih. Končni, vendar nikakor manjši poudarek – in njegova glavna hipoteza – prispevka je namenjen problematiki našega

časa v smislu, da naših trenutnih težav in kriz sploh ni mogoče resno dojeti v gospodarskih, temveč predvsem v hrematističnih kategorijah in možnostih te nove paradigme razmišljanja.

Ključne besede: hrematistika, gospodarstvo, filozofija, Aristotel, krize
Klasifikacija JEL: A12, N00, P16
Managing Global Transitions 17 (2): 129–148

Kdo je vplivnež in kako izbrati pravega za izboljšanje ugleda blagovne znamke?
Josef Vodák, Martin Novysedlák, Lucia Čakanová in Miroslav Pekár

Cilj prispevka je omogočiti vpogled v nastajajočo skupnost vplivnežev, ki jo v največji meri poganja izjemno velik vpliv družbenih medijev. Posledice tega so najbolj opazne pri dojemanju blagovnih znamk in podjetij. Nove zmogljivosti zahtevajo komunikacijske strokovnjake, ki so ciljnimi strankami nenehno povezani preko različnih družbenih spletnih kanalov. V prispevku so vplivneži preučevani sistematično, opisani so tudi dejavniki in osnovne lastnosti, na podlagi katerih jih je mogoče razvrščati. Opisane so najpomembnejše kvalitete in lastnosti, pomembne pri izbiri in identifikaciji vplivnežev.

Ključne besede: vplivnež, razvrščanje vplivnežev, izbor vplivneža, ugled blagovne znamke
Klasifikacija JEL: M31, M37
Managing Global Transitions 17 (2): 149–162

Migracijski tokovi prebivalstva v Evropski uniji: gospodarski dejavniki in perspektivna statistična gibanja
Ričardas Mileris

Gospodarska odprtost držav Evropske unije povzroča nenehne mednarodne migracije prebivalcev tako znotraj EU, kot tudi zunaj njenih meja. Raziskava razkriva mednarodne migracijske tokove v EU in izpostavlja težave depopulacije nekaterih držav EU, ki jih povezujejo z gospodarskimi dejavniki mednarodne migracije. Če analiziramo trenutna statistična gibanja, so napovedi sprememb prebivalstva ekstrapolirane v državah, ki so ali cilj, ali izhodišče migracij. Statistične verjetnosti za zmanjšanje izseljevanja so bile izračunane za EU države z največjim upadom prebivalstva.

Ključne besede: Evropska unija, mednarodne migracije, prebivalstvo, statistične napovedi
Klasifikacija JEL: F47, F62, J11
Managing Global Transitions 17 (2): 163–188