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AIMS AND SCOPE

Transition is the widely accepted term for the thorough going political, institutional, organizational, social, and technological changes and innovations as well as economy-wide and sector changes in societies, countries and businesses to establish and enhance a sustainable economic environment.

Managing Global Transitions is a social sciences' interdisciplinary research journal. The aim of this journal is to publish research articles which analyse all aspects of transitions and changes in societies, economies, cultures, networks, organizations, teams, and individuals, and the processes that are most effective in managing large scale transitions from dominant structures to more evolutionary, developmental forms, in a global environment. The journal seeks to offer researchers and professionals the opportunity to discuss the most demanding issues regarding managing of those transitions to establish and enhance a sustainable economic environment.

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Asymmetric Convergence in Globalization? Findings from a Disaggregated Analysis

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Using the KOF index of globalization that allows for the multidimensionality of the process, the paper sets out to examine the presence of convergence among countries in the three dimensions of the globalization process: economic, social, political. The sample used in the empirical investigation consists of 111 countries and covers the period 1971–2011. To allow for differences in the speed of convergence, countries were clustered into four income groups: high, upper middle, lower middle and low income in line with the World Bank's classification. The results yielded and reported herein point to an asymmetric process of convergence with different speeds both between groups as well as in the different dimensions of globalization.

Key Words: globalization, convergence, unit roots
JEL Classification: C23, F01, F60

Introduction

Spurred by the seminal theoretical contributions of Solow (1956) and Swan (1956) as well as the studies by Barro (1991) and Barro and Sala-i-Martin (1992), there is a steadily and rapidly expanding large body of literature, examining a diverse array of issues associated with the theoretical treatment as well as the empirical investigation of the presence (or not) of convergence among countries on various spheres (Heichel, Pape, and Sommerer 2005; Islam 2003; Holzinger 2006; Abreu, de Groot and Florax 2005; Galor 1996). Originally, convergence analysis focused on the question of whether over time the growth process is an equalizing one, tending to promote inter-country or inter-regional convergence with

regards to various characteristics such as per capita income, labor productivity, labor force structure etc. (Özgüzer and Oğuş-Binatlı 2016; Novak 2011; Artelaris, Arvanitidis, and Petrakos 2011; Mazumdar 2003; Borsi and Metiu 2015). This, often heated debate, has rapidly spilled-over into other spheres where convergence could be taking place (Ezcurra and Rios 2013; Cao 2012; Arvanitidis, Kollias, and Anastasopoulos 2014; Schmitt and Starke 2011; Heckelman and Mazumder 2013; Anagnostou, Kallioras, and Kollias 2015; Jordá and Sarabia 2015).

In the broader spirit of such studies, this paper sets out to examine international convergence in terms of globalization, a process that creates complex, multilevel links and interdependencies between countries and through them leads to an increasing international integration (Dreher, gaston, and Martens 2008; De 2014; Caselli 2008; 2012). The sample used in the empirical investigation consists of 111 countries and covers the period 1971–2011. The structure of the paper is as follows. The next section offers an epigrammatic literature survey of the issues associated with the multifaceted process of globalization. The third section presents the data used and contains a descriptive analysis of it. The steps of the empirical methodology adopted are described in the fourth section, and the findings are presented and discussed in the fifth section. Finally, the sixth section concludes the paper.

Globalization: An Epigrammatic Literature Review

As Mukherjee and Krieckhaus (2012) note, the multidimensional character of globalization is probably one of the few rare instances where a universal consensus exists among scholars and researchers from a cohort of different perspectives and disciplines. The economic, political and social outcomes of this dynamic process have come under growing empirical scrutiny. However, given the wide divergence of opinions and reported findings in the relevant theoretical and empirical discourse, quite the opposite assertion is the case when it comes to its effects. On balance, it could tentatively be argued that most studies focus on the various economic effects of the growing global economic interdependence while a particular strand of the expanding globalization literature, addresses the possible effect this deepening process has on national democratic governance (Chang, Lee, and Hsief 2015; Gurgul and Lach 2014; Potrafke 2013; Salvatore and Campano 2012; Zhou et al. 2011; Dreher and Gaston 2007; Chang and Lee 2010).

Keohane and Nye (2000) and Sahlberg (2004) point out that the mul-

tifaceted process of globalization essentially involves three major dimensions: the economic, the social and the political. The first is probably the most dominant feature of globalization and has understandably attracted most of the attention in the relevant literature. Essentially, it refers to the steadily growing flows of goods, capital and services between countries. The second and the third dimension of this dynamic and multidimensional process are perhaps less overt, but nevertheless also having substantial effects. The social dimension of globalization includes the spread of ideas and information as well as cultural and consumer habits. The political, involving the diffusion, harmonization, emulation and even imposition of government policies across countries. Hence, the intensifying flows generated by the process of globalization are not, as Clark (2000) observes, limited to goods and capital but include among others information, human mobility, diffusion of ideas and norms. As a result, the bonds that it creates are not limited to the economic realm but it nurtures the cross-fertilization between countries and societies in many and varied spheres, including governance and institutions, economic policies and organization, societal structures and norms, cultural and consumer habits (Bezemer and Jong-A-Pin 2013; Eichengreen and Leblang 2008; Gartzke and Li 2003; Decker and Lim 2009; Kirby 2006; Avelino, Brown, and Hunter 2005; Drezner 2005).

The globalization convergence issue is empirically investigated for all the aforementioned three dimensions – i.e. economic, social and political (Sahlberg 2004; Keohane and Nye 2000). The reason being that it is possible for countries to present an asymmetric behavior in terms of convergence and integration. For example, a country may be more integrated in the economic aspect of this process but less so in the social or political side. In other words, integration and convergence in this process may be taking place in any one or all of these three dimensions albeit with different speeds. Countries can be converging faster in one of the three globalization dimensions and at a lower speed in another. For example, convergence in the economic dimension of globalization as depicted by things such as trade flows, FDI, portfolio investment etc. could be much more prominent and empirically traceable compared to the political or social dimension. Convergence in the latter two spheres may be proceeding at a slower pace given that it involves changes that usually take place more gradually and over comparatively longer time spans. Furthermore, the speed and degree of convergence may differ depending on a country's traits (Lenschow, Liefferink, and Veenman 2005; Obinger, Schmitt, and

Starke 2013). To this effect, it was decided to conduct the empirical analysis both with the entire sample of 111 countries as well as different subsamples. We opted to use the level of development as a criterion of grouping the countries together in more homogenous groups. Again, the postulated idea is that it is possible that the degree and speed of convergence could be influenced by a country's developmental level and standards of living. Once again, convergence may not be uniform and balanced across all three globalization dimensions and may very well depend on their development level.

The Data: A Descriptive Presentation

As already noted above, globalization is a multifaceted process. A number of globalization indexes such as the CSGR Globalization Index; the Maastricht Globalization Index (MGI); the KOF Index of Globalization; the New Globalization Index (NGI); the G-Index; the Global Index, have been constructed in order to capture and quantify this multidimensionality. A critical survey of these indexes can be found in Martens et al. (2015), Samimi, Lim, and Buang (2011; 2012), Caselli (2008; 2012) and hence we refrain from repeating a similar exercise which in any case is well beyond the scope of this paper. For our purposes here, we use the KOF[1] index of globalization from where all the data is drawn (Dreher 2006; Dreher, Gaston, and Martens 2008). This choice is driven by data availability considerations. Some of the aforementioned indexes are not updated to recent years or are not available on an annual. Just as other indexes, the KOF index, is a composite index that encapsulates the multifaceted characteristics of globalization, allowing for the three main dimensions of the process (Sahlberg 2004; Keohane and Nye 2000). To this effects, it is made up by three sub-indices that quantify the economic, social and political aspects of globalization. The three sub-indices have a weighted contribution towards the construction of the overall composite KOF globalization index: 36% for the economic, 38% for the social and 26% for the political dimension. The aggregate KOF globalization index as well as the three sub-indices are measured in a 0–100 scale with higher scores indicating a greater degree of integration by a country in the globalization process and in each of the three dimensions quantified by the sub-indices. A number of metrics are employed to this effect.[2] For instance, among others they include international trade and FDI flows, restrictions on trade and capital controls for the economic globalization sub-index. The social dimension is captured by things such as for example international tourism,

TABLE 1 Average Globalization Scores in Selected Countries, 1971–2011

Algeria	(a)	41.22	China	(a)	33.20	Paraguay	(a)	39.83
	(b)	23.31		(b)	25.18		(b)	30.13
	(c)	70.22		(c)	57.97		(c)	52.12
	(d)	41.98		(d)	36.60		(d)	39.35
Belgium	(a)	85.60	Luxemburg	(a)	94.10	Philippines	(a)	45.47
	(b)	71.91		(b)	70.72		(b)	30.99
	(c)	93.73		(c)	61.21		(c)	61.57
	(d)	82.53		(d)	76.71		(d)	44.18
Brazil	(a)	46.79	Myanmar	(a)	38.79	Singapore	(a)	92.99
	(b)	31.95		(b)	5.96		(b)	80.69
	(c)	78.00		(c)	24.77		(c)	51.67
	(d)	49.28		(d)	22.73		(d)	77.60
Bulgaria	(a)	52.28	Norway	(a)	72.81	Tanzania	(a)	28.63
	(b)	37.36		(b)	71.29		(b)	16.51
	(c)	68.69		(c)	88.47		(c)	43.19
	(d)	50.90		(d)	76.31		(d)	27.83
Burundi	(a)	19.35	Pakistan	(a)	28.59	Turkey	(a)	45.12
	(b)	14.75		(b)	21.54		(b)	38.97
	(c)	34.46		(c)	69.63		(c)	75.82
	(d)	21.53		(d)	36.59		(d)	50.77

NOTES Row headings are as follows: (a) economic, (b) social, (c) political, (d) KOF index. Based on data from http://globalization.kof.ethz.ch.

foreign population in the country, trade in books, information flows, internet users while for the political dimension sub-index the number of foreign embassies, membership of international organizations and participation in UN peace missions and treaties are used to construct it. The sample of countries used here present a quite varied picture in terms of the scores each country gets either in the overall KOF globalization index or the three constituent sub-indices that contribute towards its construction.

Table 1 presents the average scores for a group of countries over the period 1971–2011 as these are estimated from the KOF database. Although it cannot be claimed that the countries included in it are strictly speaking representative examples, they were nevertheless selected in such a way as to depict and highlight the quite diverse picture presented by the coun-

tries in our sample. For instance, the sample includes countries such as Belgium that score quite high in terms of their level of integration into the globalization process both in the overall KOF index as well as the economic, social and political dimensions. The same applies for Norway and Luxemburg. In other words, they are countries that exhibit a fairly balanced and symmetric integration into the three dimensions of globalization. On the other end of the spectrum, countries such as Burundi or Myanmar, chosen as examples, score fairly low in all the indices and present a symmetric but very shallow integration. Others, such as for instance the Philippines, Turkey or Bulgaria fare better in their average scores. Also interesting to observe is that fact that in a number of cases the average scores in each of the sub-indices countries achieve can differ substantially in terms of magnitude. Singapore for instance scores a fairly high average in terms of the economic and social aspect of globalization but appreciably lower in terms of the political dimension. In broad terms, Algeria presents an opposite picture if one compares the score in the political dimension with those for the economic and social. Others present a more homogenous picture. As a general observation however, it would appear that in terms of the political dimension countries on the whole tend to score comparatively higher that the economic and social ones. Needless to point out that the picture emerging from the random examples contained in table 1 is essentially a static one. It does not allow for a broader perspective in terms of how the integration of the countries into the globalization process evolved through time, nor can one draw inferences with respect to the presence or not of a convergence process either in terms of the overall globalization index or in terms of each one of the three sub-indices.

In order to chisel out differences in the degree of integration in the globalization process owed to the development level of the countries contained in the sample, they were clustered into separate development groups. To developmentally categorize the countries, we adopted the World Bank's groupings at the time of the estimations that are based on per capita GDP: high income with 35 countries in this subsample, upper middle income containing 22 countries, lower middle income with 28 countries and low income countries with the remaining 26 countries of the total sample of countries. For each of the three subsamples the convergence question is empirically examined using both the overall KOF globalization index as well as the three sub-indices reflecting the multidimensionality of the process.

TABLE 2 Average Globalization Score per Income Group

Globalization score	(1)	(2)	(3)	(4)
KOF	30.58	40.74	49.76	67.70
Economic	31.72	41.32	51.05	68.13
Social	18.12	29.59	40.08	64.24
Political	47.14	56.15	62.06	72.15

NOTES Column headings are as follows: (1) low income, (2) lower middle income, (3) upper middle income, (4) high income. Based on data from http://globalization.kof.ethz.ch.

As can be seen in table 2, the groups present a fairly diverse picture in terms of the average score per income group per index over the entire sample period. Perhaps not surprisingly the High income group exhibits the most homogenous picture as far as the integration of the countries in this group in terms of each the sub-indices (economic, social, political) and achieves the highest scores vis-à-vis the other three groups with an overall average for the KOF globalization index of 67.7 compared to 49.76 for the Upper Middle income group, 40.74 for the Lower Middle and 30.58 for the Lower income one. The Upper Middle, Lower Middle and Low income groups show a comparatively greater diversity in each of the sub-indices (table 2). The lowest score in all three cases is the one achieved in terms of the Social globalization sub-index and the highest in terms of their integration in the Political dimension of the globalization process. Again, this is a static picture and does not reveal a convergence process if present nor the speed at which is taking place. In the sections that follow we first briefly discuss the empirical methodology adopted and then we proceed with the presentation of the findings yielded by the empirical analysis.

Methodology and Empirical Strategy

A number of sequential steps are used in order to probe into the globalization convergence question addressed here. In line with previous studies on convergence (De 2014; Arvanitidis, Kollias, and Anastasopoulos 2014), we start by estimating the coefficient of variation (CV) across the entire sample as well as the four income sub-samples for all the globalization indices i.e. for the overall globalization index as well as the three sub-indices. In the presence of convergence, these coefficients should decline significantly over time. Following the estimation of the coefficients of variation we will proceed to test for stationarity using the ADF test

(Dickey and Fuller 1979; 1981) which involves the estimation of the following regression equation:

$$\Delta Glb_t = \alpha + \beta \cdot t + \gamma \cdot Glb_{t-1} + \sum_{j=1}^{p-1} \delta_j \Delta Glb_{t-j} + e_t, \quad (1)$$

where Glb_t is the corresponding globalization index (i.e. the KOF aggregate index or the economic, social, political sub-indices) at time t. The inference is based on the Dickey-Fuller t-statistic of coefficient γ.

In order to allow for further insights into the dynamics of the convergence process and enhanced robustness with respect to the ADF unit roots analysis, it was decided to take two further steps. The first, involves the re-estimation of the ADF test statistic using recursive and rolling regressions on the first differences of the selected indexes for the entire sample. Then, a number of further unit root tests will also be conducted. These include the ADF-GLS modification of the ADF test proposed by Elliott, Rothenberg, and Stock (1996), the Ng and Perron (1995; 2001) test as well as the Phillips and Perron (1988) one and the KPSS unit root test by Kwiatkowski et al. (1992). Finally, the next step in the empirical investigation that follows in the next section will be to estimate the trend coefficients and their significance using the following OLS regression:

$$LnY_{it} = a + bt + e_{it}, \quad (2)$$

where Y_{it} is the coefficient of variation for each group of countries and each individual globalization index.

Findings: Presentation and Discussion

Given the steps of the empirical methodology outlined in the previous section, we now turn to the presentation and discussion of the findings. We start with the ADF unit root test conducted for the estimated coefficients of variation for the aggregate KOF globalization index and the three sub-indices per income group. The results of the ADF test are presented in table 3, where, as can be seen, the level series have a unit root but not so in their first differences. This finding suggests the presence of convergence in all the cases examined i.e. for the whole sample as well as the sub-samples across in all the sub-indices that make up the aggregate KOF index of globalization. Noteworthy, however, are the differences among the estimated coefficients, pointing to different speeds of convergence. These differences are present both between the four income groups as

well as within each group in terms of the three different dimensions of globalization. For the entire sample of countries, the highest coefficient is estimated in the case of the economic globalization index (–0.874), followed by the political one while the coefficient for the social globalization index is appreciably lower (–0.185) suggesting a lower rate of convergence in this dimension of globalization. A finding that accords with the earlier descriptive presentation. Indeed, with the exception of the Lower Middle income group, the social globalization coefficient is the lowest among all the other income groups. Focusing on the aggregate KOF globalization index the highest coefficient is that of the Lower Middle income group of countries (–1.144) followed by the Low (–0.992) and Upper Middle (–0.980) income groups while the lower value is found in the case of the High income group (–0.532). In terms of economic globalization, the highest coefficient is that of the Low income group (–1.615) followed by the High income sample of countries (–0.850). The Lower Middle group has the highest coefficients both in terms of social (–0.852) as well as political globalization (–1.041) and one could tentatively suggest that in comparative terms it is the fastest converging group of countries (table 3). The faster speed of convergence in the economic dimension of globalization should not come as a surprise given that this is by far the most dominant feature of globalization (Caselli 2012; Dreher, Gaston, and Martens 2008). Indeed, a tentative inference would be that integration into the economic dimension of globalization precedes convergence in the other spheres of this process.

As pointed out in the previous section where the methodology adopted was presented, the next step is to re-estimate the ADF test statistic using recursive and rolling regressions. In figures 1–4 the plots of the recursive and rolling regressions are presented. They include both the aggregate KOF index of globalization as well as the economic, social and political sub-indexes for the entire sample of countries.[3] For the estimation of the rolling regression we start with a fixed sample of 10 years. The same number of observations is the starting point for the recursive regression estimation and we proceed by adding for each year the corresponding index value. As can be seen in the relevant figure, at the end of the sample the same value as the one reported in table 3 for each index for the entire ample of countries above is depicted.

Then, a buttery of further unit root tests is conducted as described in the previous section. The findings for the entire sample of the DF-GLS, PP, KPSS, and Ng and Perron unit root tests as well as for the sub-sample

TABLE 3 ADF Test for Stationarity of CV of the Globalization Indexes

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Levels	KOF	0.010	0.023	−0.214	−0.023	0.022
		(0.571)	(0.988)	(−2.099)	(−0.485)	(0.556)
	Economic	0.022	−0.017	−0.043	−0.007	0.034
		(1.401)	(−1.067)	(−1.100)	(−0.298)	(1.170)
	Social	−0.024	0.006	−0.111	0.008	0.043
		(−1.477)	(0.230)	(−2.183)	(0.341)	(1.707)
	Political	−0.015	−0.041	−0.104	−0.061	−0.037
		(−0.844)	(−2.062)	(−2.533)	(−0.890)	(−0.543)
First diff.	KOF	−0.438	−0.532	−0.980	−1.144	−0.992
		(−3.209)*	(−2.323)*	(−5.988)*	(−6.474)*	(−6.055)*
	Economic	−0.874	−0.850	−0.764	−0.814	−1.615
		(−5.330)*	(−5.075)*	(−4.784)*	(−4.506)*	(−6.138)*
	Social	−0.185	−0.322	−0.481	−0.852	−0.410
		(−1.958)**	(−1.836)**	(−3.427)*	(−5.368)*	(−1.857)**
	Political	−0.869	−0.692	−0.716	−1.041	−0.755
		(−4.897)*	(−4.360)*	(−4.580)*	(−6.077)*	(−4.739)*

NOTES Column headings are as follows: (1) form, (2) globalization indexes, (3) entire sample, (4) low income, (5) lower middle income, (6) upper middle income, (7) high income. * and ** indicate that the coefficient is significant at the 5% and 10% level respectively; *t*-statistics in parentheses.

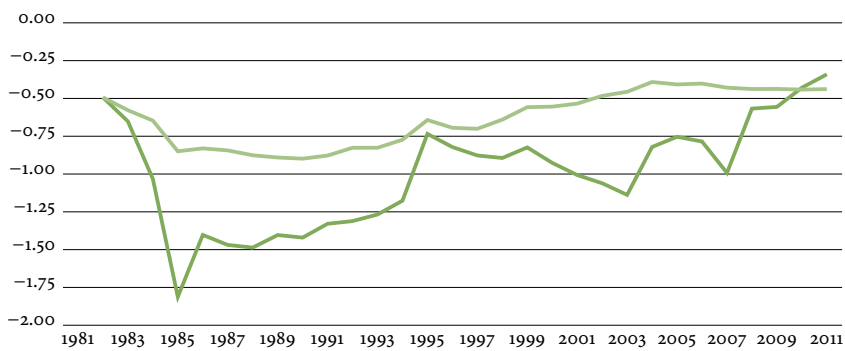

FIGURE 1 Plots of the Recursive (light) and Rolling Regressions (dark) for the KOF Aggregate Index (Entire Sample)

of the income groups – High, Upper Middle, Lower Middle and Low – are presented in table 4. On the whole, the results of these unit root tests seem to confirm and support the earlier ones presented in table 3. They also reveal an asymmetric convergence process both between income groups

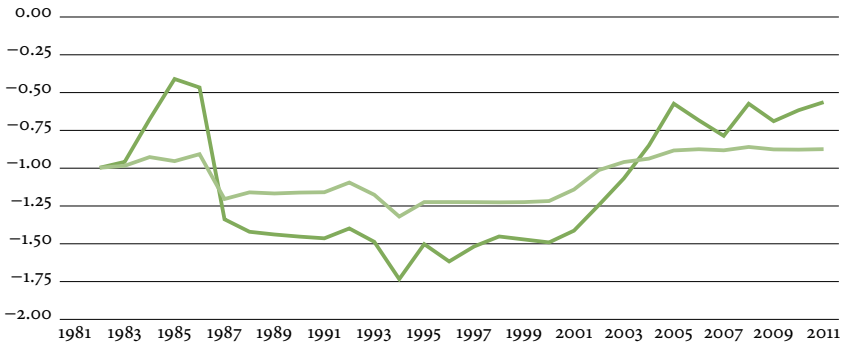

FIGURE 2 Plots of the Recursive (light) and Rolling Regressions (dark) for the Economic Sub-Index (Entire Sample)

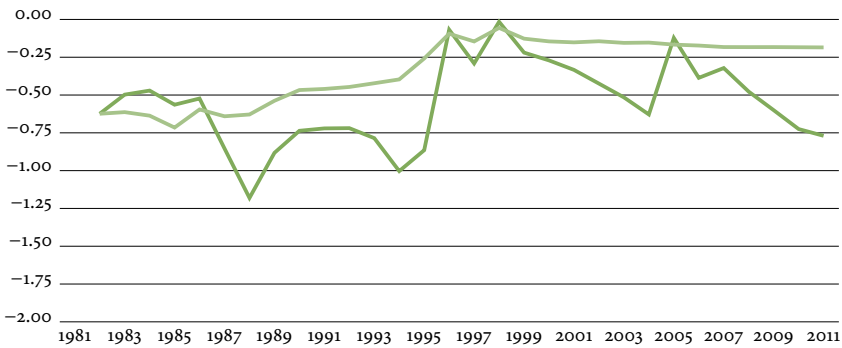

FIGURE 3 Plots of the Recursive (light) and Rolling Regressions (dark) for the Social Sub-Index (Entire Sample)

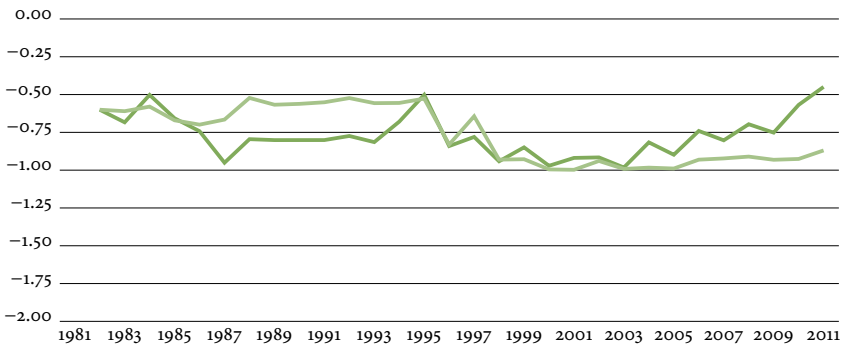

FIGURE 4 Plots of the Recursive (light) and Rolling Regressions (dark) for the Political Sub-Index (Entire Sample)

as well as within each income group with respect to the speed of convergence in each of the three dimensions of globalization. For instance, just as before, the coefficients of the Social dimension of globalization are

TABLE 4 Unit Root Tests for Stationarity of CV of the Globalization Indexes

(1)	(2)	(3)	DF-GLS		PP		KPSS		Ng and Perron	
			(4)	(5)	(4)	(5)	(4)	(5)	(4)	(5)
Entire sample	Levels	(a)	−1.408	−2.688	1.134	−1.016	0.627*	0.199*	−58.60*	−469.0*
		(b)	−0.043	−1.256	1.127	−1.978	0.741*	0.192*	−0.015	−1.780
		(c)	−1.437	−1.863	−0.825	−2.044	0.361**	0.194*	−5.254	−6.266
		(d)	0.879	−1.585	−1.723	−2.681	0.784*	0.107	1.319	−5.445
	First differ.	(a)	−3.220*	−3.777*	−3.081*	−3.735*	0.478*	0.127**	−13.44*	−16.11**
		(b)	−2.823*	−5.873*	−5.456*	−5.849*	0.380**	0.092	−8.923*	−19.92*
		(c)	−1.909*	−2.350	−1.880	−2.315	0.458**	0.144**	−5.999**	−8.838
		(d)	−4.642*	−4.183*	−3.668*	−3.812*	0.196	0.124**	−23.13*	−17.29**
High middle income	Levels	(a)	−2.133*	−2.133	−2.231	−2.185	0.096	0.093	−7.661**	−7.662
		(b)	−0.786	−0.773	−1.166	−0.610	0.608*	0.124**	−0.965	−2.065
		(c)	−2.028*	−3.238*	−1.407	−2.172	0.493*	0.086	−9.695*	−21.70*
		(d)	−0.576	−1.979	−2.062	−2.809	0.635*	0.096	−0.096	−9.040
	First differ.	(a)	−5.821*	−5.998*	−5.988*	−5.910*	0.067	0.066	−24.79*	−20.76*
		(b)	−4.794*	−4.957*	−4.727*	−4.761*	0.272	0.190*	−18.66*	−19.08*
		(c)	−3.457*	−3.468*	−3.157*	−3.101*	0.066	0.064	−14.55*	−14.60**
		(d)	−4.094*	−4.690*	−4.348*	−4.506*	0.215	0.092	−15.84*	−17.80*
Upper middle income	Levels	(a)	−0.718	−2.337	0.512	−1.963	0.683*	0.166*	−6.805	−22.82*
		(b)	0.199	−2.935*	−1.041	−1.356	0.775*	0.130**	0.669	−66.34*
		(c)	−1.678**	−2.608	−0.429	−2.629	0.617*	0.125**	−9.582*	−14.80**
		(d)	0.969	−2.090	−2.062	−3.301**	0.800*	0.115	1.574	−4.895
	First differ.	(a)	(a) −1.631**	−2.911**	−5.552*	−5.871*	0.339	0.116	−3.945	−33.71*
		(b)	−5.118*	−5.226*	−5.130*	−5.116*	0.150	0.085	−21.78*	−19.66*
		(c)	−1.658**	−1.577	−4.764*	−5.181*	0.273	0.166*	−1.790	−2.561
		(d)	−4.419*	−4.611*	−4.348*	−4.506*	0.274	0.117	−20.28*	−18.22*

Continued on the next page

the lowest vis-à-vis the rest of the dimensions. This offers further evidence supporting the assertion that converging in terms of social traits is a relatively slower process hindered by more entrenched factors in each individual society compared to the economic and political dimension. The former, by far the most salient feature of the globalization process, is where convergence is faster, closely followed by the political dimension a process probably also spurred by the collapse of bipolarity and the concomitant divisions during the bipolar era.

TABLE 4 *Continued from the previous page*

(1)	(2)	(3)	DF-GLS		PP		KPSS		Ng and Perron	
			(4)	(5)	(4)	(5)	(4)	(5)	(4)	(5)
Lower middle income	Levels	(a)	−0.381	−1.694	−0.308	−1.813	0.604*	0.195*	−0.635	−4.496
		(b)	0.459	−1.661	−0.420	−2.117	0.736*	0.160*	0.769	−4.405
		(c)	0.723	−1.864	0.241	−3.047	0.740*	0.182*	0.914	−3.644
		(d)	−0.651	−2.118	−0.818	−2.190	0.585*	0.173*	−1.479	−7.479
	First differ.	(a)	−6.131*	−6.305*	−6.469*	−6.667*	0.189	0.157*	−18.42*	−20.48*
		(b)	−4.036*	−4.416*	−4.636*	−4.494*	0.110	0.097	−16.31*	−18.70*
		(c)	−3.484*	−4.876*	−5.327*	−5.157*	0.277	0.149*	−11.13*	−16.87**
		(d)	−6.039*	−6.038*	−6.113*	−6.151*	0.133	0.093	−20.40*	−20.89*
Low income	Levels	(a)	0.822	−1.616	1.496	−1.456	0.706*	0.200*	1.660	−4.644
		(b)	0.746	−2.076	−0.420	−2.117	0.748*	0.175*	1.100	−5.285
		(c)	−0.770	−1.631	1.325	−1.101	0.615*	0.201*	−14.45*	−11.94
		(d)	−0.719	−1.777	−0.789	−2.719	0.524*	0.190*	−1.647	−3.894
	First differ.	(a)	−5.855*	−6.499*	−6.201*	−11.41*	0.424**	0.258*	−19.02*	−44.57*
		(b)	−6.212*	−8.124*	−8.464*	−8.266*	0.391*	0.074	−14.81*	−17.50*
		(c)	−1.682**	−2.313	−5.076*	−5.800*	0.526*	0.083	−3.670	−6.226
		(d)	−4.802*	−5.164*	−4.560*	−5.833*	0.360**	0.223*	−21.47*	−19.06*

NOTES Column headings are as follows: (1) income group, (2) form, (3) globalization index, (4) no trend, (5) trend. Row headings are as follows: (a) KOF, (b) economic, (c) social, (d) political. * and ** indicate statistically significant coefficients at the 5% and the 10% level respectively. The null hypothesis of KPSS test is that the variable is stationary. If the KPSS test statistic is higher than the critical value, the null hypothesis is rejected and the variable is not stationary. The 5% (10%) critical value for the null hypothesis in the KPSS test without trend is 0.436 (0.347) and with trend is 0.146 (0.119).

As the final step in the empirical analysis the trend coefficients were estimated (see equation (2) in the preceding section). The results are reported in table 5 and overall seem to be confirming the previous findings. All coefficients are statistically significant with the single exception being that of the Upper Middle income group of countries when it comes to the aggregate globalization index in which case the estimated coefficient is not statistically significant. Given this exception, the general conclusion is that all income groups appear to be converging across all three globalization dimensions over time as the negative trend coefficients indicate. Again, this convergence process is found to be taking place at different speeds across income groups and globalization dimensions and is more

TABLE 5 Least Square Regression on Time

Globalization score		(1)	(2)	(3)	(4)	(5)
KOF	*a*	3.746	3.125	2.654	2.995	3.431
		(161.7)*	(111.8)*	(107.4)*	(133.6)*	(108.2)*
	b	−0.009	−0.015	−0.000	−0.008	−0.015
		(−9.872)*	(−12.94)*	(−0.421)	(−8.693)*	(−11.59)*
	R^2	0.714	0.811	0.004	0.659	0.775
Economic	*a*	3.899	3.336	3.344	3.644	4.011
		(225.6)*	(326.4)*	(100.1)*	(136.9)*	(164.9)*
	b	−0.012	−0.018	−0.011	−0.017	−0.019
		(−17.91)*	(−42.85)*	(−8.651)*	(−16.09)*	(−19.02)*
	R^2	0.891	0.979	0.657	0.869	0.902
Social	*a*	4.059	3.434	3.310	3.753	3.910
		(146.9)*	(77.74)*	(125.6)*	(227.9)*	(110.4)*
	b	−0.004	−0.019	−0.007	−0.013	−0.013
		(−3.823)*	(−10.34)*	(−6.462)*	(−19.21)*	(−9.181)*
	R^2	0.272	0.732	0.517	0.904	0.683
Political	*a*	3.875	3.751	3.568	3.427	3.638
		(203.6)*	(249.3)*	(98.18)*	(158.4)*	(68.91)*
	b	−0.019	−0.019	−0.015	−0.007	−0.012
		(−24.39)*	(−30.35)*	(−10.11)*	(−7.726)*	(−5.887)*
	R^2	0.938	0.959	0.723	0.604	0.470

NOTES Column headings are as follows: (1) entire sample, (2) high income, (3) upper middle, (4) lower middle, (5) low income. * Indicates that the coefficient is significant at the 5% level; *t*-statistics in parentheses.

pronounced when it comes to the political and economic spheres with the social dimension lagging behind. This finding simply reaffirms the previous observation that the social dimension of globalization is the sphere where the pace of convergence is the slowest vis-à-vis the other two dimensions.

Concluding Remarks

Globalization is a multidimensional process that affects many spheres. Its multidimensional character is perhaps one of the rare instances where a universal consensus exists among scholars and researchers from many different and diverse disciplines since it is considered to be creating a web of multifaceted and interwoven ties between countries in many different spheres and levels (Mukherjee and Krieckhaus 2012; Dreher, Gaston, and

Martens 2008; Caselli 2012). Using the KOF composite index that allows for this multidimensionality, the paper examined the presence of convergence among countries in the three dimensions of the globalization process: economic, social, political. To allow for differences in the speed of convergence that depend on the development level, countries were clustered into four income groups. Furthermore, we also allowed for the fact that integration and convergence in the globalization process may not be uniformed across all the dimensions and could very well be asymmetric and taking place with different speeds in each of the three dimensions that the KOF index allows for. The results from the empirical analysis offered evidence in support of this hypothesis. The findings reported herein indicate: i) An asymmetric process of convergence that proceeds at different speeds; ii) The asymmetric process of convergence appears to be the case between the four different income groups; iii) Asymmetric speed of convergence also appears to be the case between the different dimensions of globalization and iv) In broad terms the economic and political dimensions of this process emerge as the ones where integration and convergence are most pronounced. Finally, it should be pointed out that splitting the countries and grouping them in terms of their income level is but one criterion of categorizing them. Other criteria, such as for instance geographic regions, can be introduced in order to probe further into the issue at hand.

Notes

1 Konjunkturforschungsstelle, see http://globalization.kof.ethz.ch/.

2 A detailed analysis of how both the aggregate composite KOF globalization index is estimated as well as the individual metrics that are used for the construction of three sub-indices can be found at http://globalization.kof.ethz.ch/.

3 For reasons of brevity the figures for the income sub-samples are not presented.

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Bilateral Trade and SEE–Eurozone Countries Growth Rate Alignment

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The aim of the paper is to explore the role of trade in aligning the synchronisation patterns between the South Eastern European (SEE) countries – Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR of Macedonia, Kosovo, Montenegro, Romania and Serbia – and members of the euro area. More precisely, we investigate whether bilateral trade flows affect output synchronisation between the euro area countries and SEE countries and compare trade-synchronisation patterns between the SEE countries and new member states that have not yet introduced the euro (NMS). The results show that the levels of output similarities between the SEE countries and NMS are different and that the SEE countries exhibit lower output correlation with the euro area members than the NMS. Exploring the role of trade in aligning growth patterns has in some cases found positive effects, much stronger for the SEE countries, which have lower trade intensity levels. We argue that the reason for these results is related to the fact that other factors could be dominant in the NMS countries (policy measures alignment within the EU), while for the SEE countries only trade relationships had the opportunity to exert noticeable effects in the analysed period.

Key Words: business cycle synchronisation, integration, South-East Europe
JEL Classification: F15, E32

Introduction

Despite their turbulent history, the South Eastern European (SEE) countries[1] have had a common goal – to join the European Union (EU). Even though membership in the EU is not a panacea, policy makers in the SEE countries realised that the market of more than 500 million inhabitants can provide an opportunity to boost GDP growth. However, within the package of joining the EU, the obligation to introduce the euro as soon as the country fulfils the Maastricht criteria comes into perspective.[2] Since

existing research shows that not all EU and even not all euro area members are suited to successfully handle common monetary policy (Bayoumi and Eichengreen 1993; Camacho, Perez-Quiros, and Saiz, 2006; Fidrmuc and Korhonen 2006), it is never early enough to investigate whether the common monetary policy of the ECB is suitable for prospective new EU/EMU members.

In order for a common monetary policy to work, there are several prerequisites. The argument most frequently used in the literature is the synchronisation of business cycles covered in the optimum currency area theory. The argument states that a common monetary policy will be effective if business cycles between (prospective) members are synchronised. In other words, if countries are in the same stage of a business cycle, then decisions from a central bank will have a similar impact in all countries.

However, evidence has shown that the business cycles of EU members are not in all cases synchronised. This opens the question whether policies that act towards synchronisation should be developed. Consequently, we can find a strand of literature claiming that business cycles can become aligned. Frankel and Rose (1998) argue that trade between countries plays a crucial role in this process. Countries that trade a lot will tend to have more synchronised business cycles.[3] Since trade is easier in a currency union due to reduction of transaction costs and trade barriers, this means that trade in the currency union should be higher (Rose 2000) and additionally help in bringing business cycles closer together.

Hence, we analyse whether there is evidence in similarity between growth patterns in the SEE countries and euro area countries. Furthermore, we investigate whether bilateral trade flows affect output synchronisation between the euro area countries and SEE countries and compare trade-synchronisation patterns between the SEE countries and new member states that have not yet introduced the euro (NMS).[4] The focus of the analysis in this paper is on the SEE countries, because they are next in line in the EU (and consequently EMU) integration process. Yet, existing evidence on these countries is scarce. The main goal of the present paper is to fill in this gap in the literature.

The structure of the paper is the following. The second section briefly reviews the related literature and explores differences in synchronisation patterns. The third section discusses empirical strategy and data. The fourth section presents and discusses results. The last section summarizes conclusions and gives directions for future research.

Related Literature and Descriptive Statistics

The literature covering topics such as optimum currency areas, business cycle synchronisation determinants, convergence of the NMS and determinants of these factors has been in focus ever since the EU started with the monetary union project. Certainly, the EU's eastern enlargement has additionally spurred empirical research studies, since the question of successful integration remains unresolved both in economic and political terms. Such situation has produced a vast amount of literature and policy discussions.

Related to the specific question analysed in this paper, empirical studies are frequently concentrated on the issue whether there is a business cycle synchronisation or not, even among the euro area countries (de Haan, Inklaar, and Jong-A-Pin 2008). Recent contributions also question whether similar patterns can and will be observed in the NMS (Fidrmuc and Korhonen 2006). The results of previous studies are not straightforward.

Kolasa (2013) argues that the business cycles of 5 CEE countries – the Czech Republic, Hungary, Poland, Slovakia and Slovenia – differ significantly from the euro area cycles despite the significant convergence related to the accession process. Jiménez-Rodríguez, Morales-Zumaquero, and Égert (2013) study the same CEE countries and find a relatively low degree of synchronisation. More precisely, idiosyncratic and country factors, rather than a global European factor, play a central role in real output variability. The authors argue that this is because the CEE countries implemented market-oriented reforms in different times and at different speeds. Broz (2010) and Frenkel and Nickel (2002), who analysed all new member states, argue that most of them do not have business cycles synchronised with the euro area.

On the other hand, there are studies claiming that (some) CEE countries have achieved convergence with the advanced EU economies. Darvas and Szapáry (2008) argue that Hungary, Poland and Slovenia have business cycle synchronisation with the euro area similar to the core euro area countries and even higher than the periphery countries. Traistaru (2004) isolates the same countries as the most prepared for the common monetary policy in terms of business cycle synchronisation. Gächter, Riedl, and Ritzberger-Grünwald (2013) analysed whether the CEE countries converged or diverged in terms of business cycle synchronisation with the euro area. They concluded that the business cycles of the CEE

countries had decoupled from the euro area's starting from the onset of the financial crisis, but that they re-coupled again at the end of the sample period. This re-coupling, together with the relatively high correlation of the new member states' cyclical components with the euro area, allowed Gächter, Riedl, and Ritzberger-Grünwald (2013) to conclude that the CEE countries had relatively favourable conditions to introduce the euro.

The SEE countries are less often covered in analyses of business cycle synchronisation, and results mostly show lower degrees of synchronisation. In that context, Gouveia (2014) investigated synchronisation of the SEE countries with the euro area and concluded that Slovenia and FYR of Macedonia had the strongest association with the euro area's business cycle and were the most prepared for the single European currency. The remaining SEE countries – Greece, Croatia, Serbia, Romania, Bulgaria and Turkey – have lower degrees of synchronisation of their business cycles with the euro area. Palaşcă et al. (2014) include FYR of Macedonia and Albania in their analysis and find a lack of correlation between trade and economic growth.

Even though there is mixed evidence about the level of business cycle synchronisation between the euro area members and new member states, there is a strand of literature that claims that we cannot assess the success of a monetary union based on historical data. The reason for that is that the creation of a (enlarged) monetary union changes the economic structure of the involved economies (Frankel and Rose 1998). Frankel and Rose (1998) focus on changing patterns of trade integration and business cycle synchronisation and argue that increased trade integration results in more synchronised business cycles. In other words, they argue that a country is more likely to satisfy the criteria for entry into a monetary union *ex post* than *ex ante*. Similar results are supported by Traistaru (2004), Babetskii (2005), Artis, Fidrmuc, and Scharler (2008), and Mendonça, Silvestre, and Passos (2011), among others.

Within that context, the findings from Benčík (2011), who argues that business cycles have become even more synchronised after the EU entry, provide a possible future direction for the economic dynamics in the analysed countries. However, the dynamics prior to the introduction of the euro remains much more ambiguous.

The literature has devised several methods to measure business cycle synchronisation. Most of them require longer time series and/or higher frequency data (at least quarterly) to provide evidence of synchronisation. Popular techniques include Christiano and Fitzgerald (2003) or Hodrick

and Prescott (1997) filters, which help in extracting the cyclical component from real GDP series. Business cycle synchronisation is then simply obtained by calculating the correlation coefficient between pairs of countries. Harding and Pagan (2002; 2006) developed a methodology for identifying peaks and troughs in business cycles based on quarterly data. Their methodology identifies turning points in the series by searching for the minima and maxima over a given time period. Business cycles are then considered to be synchronised if turning points in individual business cycles occur roughly at the same time. There are also multivariate approaches to identifying business cycles, such as NBER's methodology, which examines a set of quarterly and monthly indicators in order to detect business cycle phases in the USA.

On the other hand, Cerquieira and Martins (2009) use a measure for the level of correlation between business cycles which is suitable for annual data and which captures time variability, but without the use of overlapping windows, the latter being a method frequently used with filtering techniques. Overlapping windows result in a variable that is auto correlated, which causes problems for the econometric analysis, while Cerquieira and Martins (2009) deal with this problem by distinguishing negative correlations due to episodes in single years, asynchronous behaviour in turbulent times and synchronous behaviour over stable periods. Another nonparametric method available for detecting business cycle correlation with annual data is Wälti (2012), requiring relatively long time series, as it extracts the output gap using the HP filter. In addition, a simple growth rate differences method tries to mimic, even though not perfectly, the degree of business cycle synchronisation between countries. However, it is feasible for a shorter annual dataset like the one we have for the SEE countries.

In order to explore the differences in synchronisation patterns, we rely on the correlation of growth rates between the countries. Figure 1 shows that the SEE countries have a much lower correlation of growth rates with the euro area than the NMS, with the average correlation coefficient with the euro area of 0.41 and 0.71, respectively. If we exclude the EU members from the SEE group, then the correlation falls to only 0.35. Since the SEE countries are often referred to as late reformers, due to, among other reasons, delays in transition-related reforms, we could expect that the correlations would be higher when trade relations intensify.

The question is whether we can explain these differences in growth correlations. The importance of trade flows for business cycle synchronisa-

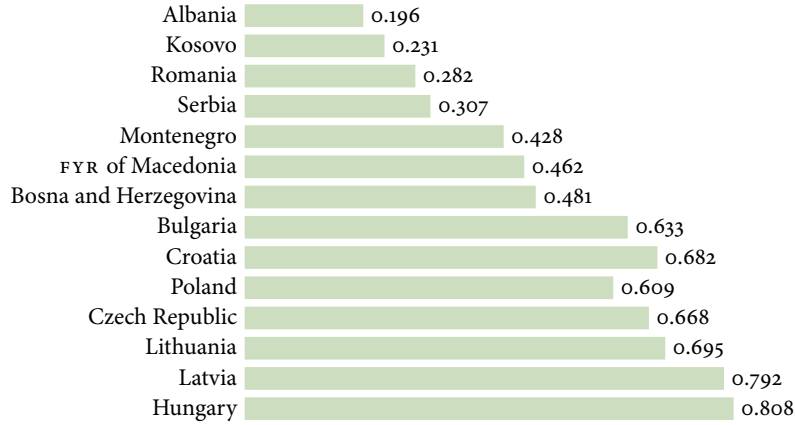

FIGURE 1 Correlations of Growth Rates between the Euro Area and the Individual SEE Countries and NMS (1997–2013)

tion has been frequently emphasized as a direct contributing factor (Clark and van Wincoop 2001; Siedschlag and Tondl 2011). Antonakakis and Tondl (2011) emphasize that the trade relationship is even more important for new EU member states in comparison to incumbent members. They also argue that this was additionally important during the latest economic crisis, when the decreased demand from incumbent members heavily influenced the crisis' dispersion throughout the EU. However, not only trade intensity but also trade patterns are important when considering the overall effect. Specifically, Kose, Prasad, and Terrones (2003) argue that if most of the trade between two countries is intra-industry in nature, then business cycle correlation is expected to increase. Previous analysis has shown that the trade between the South-East European countries and the EU is, on the contrary, mostly inter-industry in nature (Botrić 2012). Consequently, we might expect that trade by itself might not be enough to ensure synchronisation patterns to occur. Since previous analysis on the SEE countries is scarce, the aim of the rest of this paper is to investigate the trade impact in more details.

Empirical Strategy and Data

Analysis in the previous section has shown that there are differences in GDP correlation patterns between the late-reforming SEE countries and NMS. Following the tracks previously established in the literature, we investigate whether bilateral trade flows affect output synchronisation between these two groups of countries.

The important question of adequate measurement of variables im-

mediately comes into focus. As described in the previous chapter, commonly used indicators of output synchronisation rely on relatively frequent data in order to be able to detect dissemination of common movements. Since the analysis in this paper is focused on the late-reforming transition economies, including newly emerging states, such dataset was not available for all the countries based on the same methodology. Instead, we had to rely on annual data for the measures of output similarities and trade intensity. Hence, we use Cerquieira and Martins (2009) and growth rate differences in order to calculate our measures of output similarities.

Following Cerquieira and Martins (2009), we consider this synchronisation indicator:

$$synch_{i,j,t} = 1 - \frac{1}{2}\left(\frac{GDPgr_{j,t} - \overline{GDPgr_j}}{\sqrt{\frac{1}{n}\sum_{j=1}^{n}(GDPgr_{j,t} - \overline{GDPgr_j})^2}} - \frac{GDPgr_{i,t} - \overline{GDPgr_i}}{\sqrt{\frac{1}{n}\sum_{i=1}^{n}(GDPgr_{i,t} - \overline{GDPgr_i})^2}} \right)^2. \quad (1)$$

The second measure, borrowed from the output convergence literature, relies on differences in economic growth rates. Specifically, we have used the following expression to obtain the growth rate differences between the countries:

$$difference_{ijt} = GDPgr_{it} - GDPgr_{jt}. \quad (2)$$

When evaluating the expression, the growth rate (GDP*gr*) of a transition country was the first (*i*), while the growth rate of a euro area country was the second (*j*). Thus, the difference is the deviation of the growth rate in a country aiming to join the euro area in comparison to a specific country already a part of the euro area. Although both indicators can only detect synchronisation effects with limited success, by considering them simultaneously, we try to reduce this issue.

It is important to notice that our period of analysis entails the effects of the recent economic crisis.[5] Consequently, the growth rate for many of the analysed economies was at one period or another actually negative. The negative growth rates were relatively high in transition economies, contributing to the increase of the existing gap, rather than to the convergence process.

Trade effects have been measured with the trade intensity indicator,

based on the bilateral trade data obtained from the Eurostat COMEXT database. The trade intensity indicator has been assessed using the following expression:

$$trade_{ijt} = \frac{export_{ijt} + import_{ijt}}{\text{GDP}_{it} + \text{GDP}_{jt}}. \tag{3}$$

There is a large amount of literature that discusses the endogeneity of trade with respect to economic performance (e.g. Calderón, Chong, and Stein 2007; Inklaar, Jong-A-Pina, and de Haan 2008; Fidrmuc 2004). Specifically, we can assume that trade will foster similarities in the economic performances of a pair of countries, and at the same time, similarities in economic conditions will be positively associated with trade. Duval et al. (2014) discuss three possible ways to deal with this issue. The first is the inclusion of country-pair fixed effects that should capture other time-invariant factors such as geographical proximity or culture. The second is the use of the lagged trade intensity variable, while the last one resorts to the use of instrumental variables.

In order to address the potential endogeneity issue, we include changes in the trade intensity indicator, rather than the level in the estimating equation, and the dependent variable only indirectly captures the synchronisation between the countries. This is additionally important for the analysis of the countries in question. For certain analysed countries, the EU and, in particular, some of the euro area countries are major trading partners. At the same time, integration is expected to create additional trade flows. Thus, our specification explores whether these additional trade flows have effect on the output similarities in the analysed countries. Since trade intensity should have similar effects for the NMS and SEE, we try to identify whether there are differences between these countries. An overview of the evolution of trade intensity in the analysed period is presented in figure 2. The data clearly show that the evolution path of trade intensity during the analysed period for the NMS is quite different in comparison to the SEE countries – while in the NMS trade intensity with the euro area significantly increased during the analysed period, in the SEE countries we barely observe an upward trend. For that reason, conducting the analysis separately on the NMS and SEE samples will enable us to observe the differences that trade intensity has on the similarity indicators.

In order to be able to analyse whether there are specificities relevant for late reformers, we have performed analysis on three different samples.

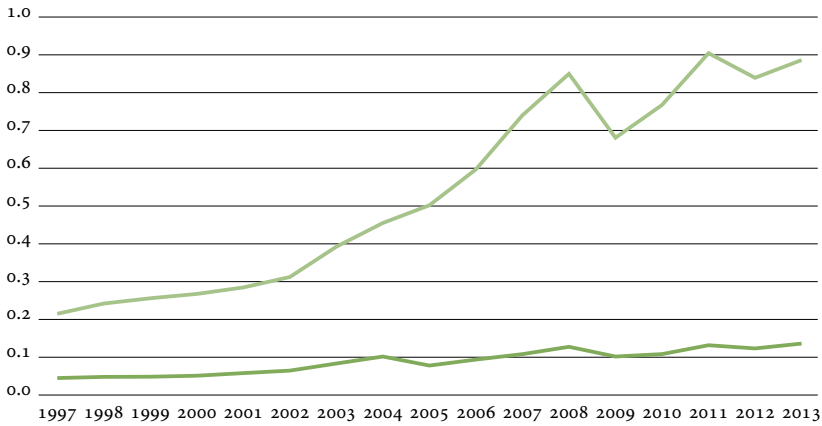

FIGURE 2 Average trade intensity with the Euro area in the SEE and CEE countries (dark – SEE, light – NMS)

The first sample considers all the analysed countries – those who became EU members already in 2004 as well as the other transition economies. The second sample considers only the EU member states that have not yet adopted the euro, but have been part of the EU since 2004. The last sample includes the transition SEE economies that are frequently considered to be lagging behind in many economic and social reforms.

We analyse these patterns within the standard gravity model framework. This implies that, in addition to the previously discussed indicators, we have also included the distance variable and whether or not two countries share a border (when that border is on either land or sea). Other potential gravity variables, such as language, common currency and historical colonial status, do not have variability between pairs of countries. We estimate the panel GLS model, allowing for heterogeneity in panels.[6]

The data sources used for the analysis in the paper are presented in table 1. Due to economic and political transformation, it was not possible to use data prior to 1997. Hence, the period of analysis covered in the paper is 1997–2013. The SEE countries include Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, FYR of Macedonia, Montenegro, Romania and Serbia, while the new member states that have not yet introduced the euro include the Czech Republic, Hungary, Poland, Lithuania and Latvia. Slovenia, Slovakia and Estonia are excluded because they already introduced the euro within the analysed period. The euro area countries include Austria, Belgium, Germany, Finland, France, Greece, Italy, Ireland, Luxemburg, the Netherlands, Portugal and Spain.

TABLE 1 Data Sources

Variable	Description	Source
GDP	Real GDP in Euros (constant 2005 prices)	WDI, Eurostat
GDP growth rate	Real GDP growth rate (constant 2005 prices)	WDI
Exports, imports	Bilateral shares in GDP	COMEXT, WDI
Border	1, if border is either on land or see	Various Internet sources
Trade dummy	1, if trade agreement with the euro area country exists	Various Internet sources
Distances	Weighted distance (distwces)	CEPII

NOTES [a] Estimated coefficients (standard errors). [b] Number of bilateral cases in parenthesis.

TABLE 2 Estimation Results, Dependent Variable Growth Rates Synchronisation Indicator

Item	Full sample	NMS	SEE
Variable[a]			
Constant	0.73*** (0.03)	0.80*** (0.03)	0.64*** (0.04)
Trade_change	0.03** (0.01)	0.02 (0.01)	0.03 (0.04)
Dist_dummy × 1000	−0.04** (0.01)	−0.07*** (0.02)	0.01 (0.02)
Border_dummy	−0.08** (0.04)	−0.14** (0.06)	−0.00 (0.05)
Diagnostics			
Number of observations[b]	2356 (168)	940 (60)	1416 (108)
Wald χ^2	11.69***	16.54***	0.85

NOTES [a] Estimated coefficients (standard errors). [b] Number of bilateral cases in parenthesis.

Results and Discussion

This section contains two different sets of estimates – based on the choice of dependent variable. Furthermore, for each we present the estimates of the full sample, the sample consisting only of NMS and the sample consisting of the late-reforming transition SEE economies. Furthermore, following Duval et al. (2014), we present three sets of estimates – change in trade intensity, fixed effects and instrumental variable method. The results are in subsequent tables.

The results in table 2 reveal that when standard gravity approach is used with the growth rates synchronisation indicator of the bilateral

TABLE 3 Estimation Results, Dependent Variable Growth Rates Differences

Item	Full sample	NMS	SEE
Variable[a]			
Constant	1.06*** (0.17)	0.91*** (0.24)	1.24*** (0.24)
Trade_change	0.40*** (0.08)	0.29*** (0.08)	1.78*** (0.24)
Dist_dummy × 1000	0.40*** (0.11)	0.41** (0.16)	0.31** (0.14)
Border_dummy	0.62*** (0.27)	−0.41 (0.33)	1.33*** (0.37)
Diagnostics			
Number of observations[b]	2356 (168)	940 (60)	1416 (108)
Wald χ^2	39.16***	22.60***	75.43***

NOTES [a] Estimated coefficients (standard errors). [b] Number of bilateral cases in parenthesis.

economies, the bilateral increase in trade does not seem to be significantly important in specifications for the NMS and late reformers.

Interestingly, we can see both in the full sample and in the NMS sample that the estimates were able to capture the concentration of the economic activity effects through the significance of distance and border dummies. Thus, although we do not explicitly include spatial effects in the estimation strategy, these effects are important for the economic patterns of core and periphery in the EU.

Table 3 presents similar results when we consider growth differences as a dependent variable. Here we find that increasing trade intensity between the euro area countries and the transition economies contributes to the convergence process. This would imply that intensifying trade relationship with the euro area countries is positively associated with increasing similarity between the countries measured by the growth rate differences. It is also interesting to observe that the estimated coefficient is higher for the group of late reformers than it is for the group of countries already in the EU over a longer time period. This might just reflect the scale effect – the late reformers have relatively lower levels of indicators and, consequently, when they are catching up, the effects are larger than for the economies that have already achieved a certain level.

The fact that our estimates reveal that changes in trade intensity are positively associated with similarity (full sample) and convergence indicators is important, since it confirms the positive effect of trade on the integration of the economies. It is also interesting to note that late reformers have higher coefficients than the NMS. Even though we have established

TABLE 4 Fixed Effects Estimation Results, Dependent Variable Growth Rates Synchronisation Indicator

Item	Full sample	NMS	SEE
Variable[a]			
Constant	0.46*** (0.03)	0.54*** (0.03)	0.36*** (0.04)
Trade	0.04*** (0.01)	0.02*** (0.01)	0.12*** (0.03)
Diagnostics			
Number of observations[b]	2524 (168)	1000 (60)	1524 (108)
F	12.68***	11.72***	14.46***
Corr(*u*, *Xb*)	−0.40	−0.53	−0.62
ρ	0.06	0.09	0.07

NOTES [a] Estimated coefficients (standard errors). [b] Number of bilateral cases in parenthesis.

that there is a lag in the level of trade intensity (i.e. the NMS have a more intense trade relationship with the EU incumbent members), the potential for trade to have an active role in further integration process seems to be important.

The second estimation strategy relies on the fixed effects model, with only trade intensity (level, rather than change as in previous specifications) as an independent variable. The rationale for this approach is that fixed effects should capture all time invariant aspects, such as distance, language, cultural effects, etc. However, we do not correct for endogeneity in any way, so our initial assumption would be that the effect of trade on dependent variable is overestimated. The estimations are presented in tables 4 and 5.

Since this is a simple version of fixed effects estimation, the constant term can be interpreted as the average value of fixed effects. In all specifications, it remains significant. It seems that a large proportion of variance in the presented estimates is due to the differences across the panels, which in addition implicates the heterogeneity issue, corrected for in the previous estimates (tables 2 and 3). The correlation between the independent variables and the error term is generally not very large.

The results for the trade intensity indicator with the fixed effects model are less ambiguous than in the previous estimations. When the growth rate synchronisation indicator is used as a dependent variable, the results imply a positive and significant association with trade intensity, although at a relatively small scale (table 4). On the other hand, when the growth

TABLE 5 Fixed Effects Estimation Results, Dependent Variable Growth Rates Differences

Item	Full sample	NMS	SEE
Variable[a]			
Constant	1.44*** (0.13)	1.36*** (0.22)	1.17*** (0.16)
Trade	0.18*** (0.05)	0.08 (0.05)	0.80*** (0.13)
Diagnostics			
Number of observations[b]	2524 (168)	1000 (60)	1524 (108)
Wald χ^2	13.44***	2.61	35.57***
Corr(u, Xb)	−0.43	−0.37	−0.56
ρ	0.16	0.13	0.21

NOTES [a] Estimated coefficients (standard errors). [b] Number of bilateral cases in parenthesis.

rate differences indicator is used as dependent variable, then the trade intensity coefficient is much larger and again seems to be positively correlated with the growth rate differences of the trading countries (except in the NMS subsample).

Although we assumed that using just the fixed effects approach would overestimate the influence of trade intensity on our very broad measures of synchronisation, the data did not support this assumption. Additionally, when we estimate the effect on the differences in growth rates (table 5), we can clearly see the distinction between the countries already in the EU and those that have only expressed their interest to join. It seems that for the countries within the EU the level of trade intensity has probably reached the threshold where it does not additionally influence the convergence of growth rates. This result is supported by Mendonça, Silvestre, and Passos (2011) who, even though they argue that trade and business cycles correlations are endogenous, suggest that trade has decreasing returns to scale. Other factors (such as coordination of economic policies) are probably more important than trade itself. For the SEE countries, whose trade intensity level is still low, other integration factors could be underdeveloped, resulting in stronger trade influences.

The final empirical approach used in the attempt to address the endogeneity relied on instrumental variables. Similar empirical strategy with only one independent variable – trade intensity levels – has been employed (generalized 2SLS random effects IV regression), where borders on land and sea, trade agreement dummy and distance were taken as

TABLE 6 IV Estimation Results, Dependent Variable Growth Rates Synchronisation Indicator

Item	Full sample	NMS	SEE
Variable[a]			
Constant	0.50*** (0.02)	0.61*** (0.02)	0.43*** (0.04)
Trade	0.02** (0.01)	0.00 (0.00)	0.05 (0.03)
Diagnostics			
Number of observations[b]	2524 (168)	1000 (60)	1524 (108)
Wald χ^2	5.23**	0.76	2.52
θ	0.00	0.00	0.00
First stage regression			
Constant	2.31*** (0.20)	4.37*** (0.84)	1.52*** (0.11)
Border	5.46*** (0.27)	13.29*** (0.48)	0.99*** (0.16)
Trade_dummy	2.34*** (0.14)	1.63** (0.79)	1.12*** (0.08)
Distances	−0.00*** (0.00)	−0.00*** (0.00)	−0.00*** (0.00)

NOTES [a] Estimated coefficients (standard errors). [b] Number of bilateral cases in parenthesis.

instruments for trade intensity between two countries. The estimation method was random effects, due to the time invariability of the instruments used. The estimates are presented in tables 6 and 7.

The results of using models with instrumental variables do not unambiguously confirm the positive relation between trade intensity and different dependent variables found in the previous specifications. When trade intensity is related to the growth rates synchronisation indicator, we can observe positive association for the full sample.

However, for the relation between trade intensity and growth rate differences, a negative coefficient on trade intensity is found for the NMS. Part of the blame for the varying results could be associated with the choice of instrumental variables, which evidently have different roles in different specifications. Although from the methodological point of view instrumental variables should be the preferred empirical strategy in dealing with endogeneity, it is also notoriously difficult to find reliable instruments.

The empirical results suggest that trade is an important channel for synchronising the economies of the analysed countries. However, additional channels should also be explored to provide more information as to why the SEE convergence patterns differ from those of the NMS.

TABLE 7 IV Estimation Results, Dependent Variable Growth Rates Differences

Item	Full sample	NMS	SEE
Variable[a]			
Constant	1.86*** (0.15)	1.86*** (0.17)	1.90*** (0.24)
Trade	−0.02 (0.05)	−0.06* (0.03)	0.05 (0.21)
Diagnostics			
Number of observations[b]	2524 (168)	1000 (60)	1524 (108)
Wald χ^2	0.18	3.79*	0.06
θ	0.30	0	0.36
First stage regression			
Constant	2.69*** (0.22)	4.37*** (0.84)	1.62*** (0.13)
Border	5.39*** (0.31)	13.29*** (0.48)	0.99*** (0.19)
Trade_dummy	1.69*** (0.13)	1.63** (0.79)	0.74*** (0.07)
Distances	−0.00*** (0.00)	−0.00*** (0.00)	−0.00*** (0.00)

NOTES [a] Estimated coefficients (standard errors). [b] Number of bilateral cases in parenthesis.

The limitation of the research presented in this paper rests on the fact that the dataset does not include other possible determinants, such as capital flows (Dees and Zorell 2011) and industry specialisation (Sideschlag 2010). In addition, within the EU, a certain degree of coordination of monetary and fiscal policies should have an effect on synchronisation patterns, as well as on adopting similar institutional solutions. The related literature shows that these factors have had important effects on the analysed countries, contributing to the different experiences the NMS have had in comparison to the late reformers. As Inklaar, Jong-A-Pina, and de Haan (2008) argue, countries that have intense trade relations are also more likely to have similarities in other policy measures, which might influence the synchronisation of their business cycles. This argument may certainly be used in the case of the countries in our sample during their accession period, because they are explicitly included in the policy harmonisation processes. On the other hand, if these processes were that simple and with immediate effects, we would not have trouble in detecting similarities in business cycles within the EU.

Conclusions

The main aim of the paper was to explore whether the SEE countries exhibit the same or different patterns in the euro integration process as the

countries within the EU. The main contribution of the paper should be sought in the analysis of the convergence process of South-East Europe towards the EU. A specific question is related to business cycle synchronisation and trade effects in the light of the possible future euro adoption by the selected countries. The results should provide an additional insight into the relative position of the SEE countries in the EU enlargement process during their post-transition period. We have established that the levels of output similarities are different and that the SEE countries exhibit a lower output correlation with the euro area members than the NMS.

We have additionally explored the role of trade as a medium for aligning the growth patterns of the SEE countries and NMS with the euro area. Although the results are not robust across different estimation strategies, we argue that those specifications that were able to capture the positive role of trade are most relevant. Thus, increased trade relations between the countries are positively associated with business cycle synchronisation. Within this finding, it is also important to notice that the role of trade is more important for the SEE countries, which is in line with expectations.

An important issue not empirically assessed in this paper is the development of trade patterns between the analysed countries and the EU, which can also reveal the existing degree of integration between the economies. Specifically, the integration of the economies is expected to increase the level of intra-industry trade. This has been frequently documented for the NMS, but due to limited data, similar studies are not available for the SEE countries. Since trade patterns also reveal different economic structures between countries, future research efforts should reveal whether these structural effects are the reason for the inadequate speed of convergence in the European periphery.

Notes

1 The SEE countries in this paper include Albania, Bosnia and Hercegovina, Bulgaria, Croatia, Kosovo, FYR of Macedonia, Montenegro, Romania and Serbia.

2 It has to be noticed, however, that if a country does not fulfil the Maastricht criteria, it can stay out of the euro area forever.

3 This is subject to the type of trade – whether it is intra- or inter-industry trade. Higher intra-industry trade should lead to higher business cycle synchronisation and hence to easier euro adoption, while higher inter-

industry trade leads to increased asymmetric shocks and hence lower business cycle synchronisation.

4 New member states that have not yet introduced euro include the CEE countries: the Czech Republic, Hungary, Poland, Lithuania and Latvia. Slovenia, Slovakia and Estonia are excluded because they already introduced the euro within the analysed period.

5 Although the overall period is 1997–2013, the specific estimates presented below are restricted to the 2005–2013 period (in case of the SEE countries, due to data availability for Kosovo).

6 The literature frequently includes gravity model estimates with fixed effects. Our initial strategy also followed that path. However, the random effects estimates produced theta near 1 and fixed effects correlated with distance and/or border variables.

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Financial Development and Shadow Economy in European Union Transition Economies

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The shadow economy has been a serious problem with varying dimensions in all the income group economies and has significant adverse effects on the development of economies. Therefore, all the countries have tried to combat with the shadow economy by taking various measures. This study researches the interaction among shadow economy, development of financial sector and institutional quality during 2003–2014 period in European Union transition economies employing panel data analysis. The empirical findings suggested a cointegrating relationship among shadow economy, financial sector development and institutional quality. Furthermore, financial development and institutional quality affected the shadow economy negatively in the long term.

Key Words: shadow economy, financial development, institutional quality, panel data analysis
JEL Classification: C23, G20, H11, H26, O17

Introduction

Shadow economy is also called as informal economy, unofficial economy, irregular economy, black economy. Similarly, there have been no consensus on the definition of shadow economy, but it generally includes all the unrecorded transactions which should be in the gross domestic income (Schneider and Enste 2000). The shadow economy is classified as undeclared work and underreporting. The undeclared work generally consists of wages which businesses and workers do not declare to the governments for tax evasion, while underreporting means that economic units do report their income incompletely for tax evasion (Schneider 2013). Also measurement of shadow economy is very hard due to its invisible structure. However, size of shadow economy generally is measured by direct methods using surveys and samples which consist of vol-

untary replies and tax audits etc. or by indirect methods including multiple indicator multiple cause (MIMIC), dynamic MIMIC (DYMIMIC), currency demand approach, transactions approach and electricity consumption (physical input) approach (Restrepo-Echavarria 2015). Finally, major causes underlying shadow economy have been weak public administration and legal regulations, growing tax burden and social insurance payments, weak tax morale, strict regulations concerning labour market, corruption, deterrence and inflation (Singh, Jain-Chandra, and Mohommad 2012a; Schneider and Williams 2013).

Shadow economy is a very serious problem for the economy, because it has significant direct or indirect adverse implications for many components of economic and social life in a country. In this regard, the statistics related to the countries with high level of shadow economy are unreliable and incomplete. Therefore, it makes difficult the public policy planning and policymaking. On the other hand restricted contribution to official economy show that resources of an official economy are not benefited by most of the economic units and this in turn poses a challenge for the economic growth (Singh, Jain-Chandra, and Mohommad 2012a).

European Union (EU) transition economies have experienced an economic transformation with transition from centrally planned economies to free market economies as of Berlin Wall fall. The integration process with the EU also accelerated the transition process, because these countries have made many structural reforms to meet the existing standards of the EU. Transition economies of EU generally underwent decreases in the volume of shadow economy and improvements in financial sector and institutional quality proxied by economic freedom index as seen in table 1. The countries participated to the EU earlier such as Czech Republic, Estonia and Hungary experienced more progress in reduction of shadow economy when compared to Romania, Bulgaria and Croatia. The main criteria of the EU membership are defined as follows (European Commission 2015):

- stable institutions promoting democracy, the rule of law, human rights and respect for and protection of minorities,
- a functioning market economy and the capacity to cope with competition and market forces in the EU,
- ability to implement the obligations of membership such as taking actions in harmony with the aims of the EU.

So the countries also decreased the size of underground economy in-

TABLE 1 Shadow Economy, Financial Sector and Economic Freedom in EU Transition Economies

Country	Year	(1)	(2)	(3)
Bulgaria	2003	35.9	25.95	57
	2014	31.0	60.66	65.7
Croatia	2003	32.3	45.08	53.3
	2014	28.0	69.36	60.4
Czech Republic	2003	19.5	24.53	67.5
	2014	15.3	50.38	72.2
Estonia	2003	30.7	50.77	77.7
	2014	27.1	69.07	75.9
Hungary	2003	25.0	36.70	63
	2014	21.6	43.90	67
Poland	2003	27.7	27.98	61.8
	2014	23.5	51.91	67
Romania	2003	33.6	13.74	50.6
	2014	28.1	37.87	65.5
Slovakia	2003	18.4	31.18	59
	2014	14.6	50.39	66.4
Slovenia	2003	26.7	40.52	57.7
	2014	23.5	55.02	62.7

NOTES Column headings are as follows: (1) shadow economy (% of GDP), (2) domestic credit to private sector (% of GDP), (3) Economic Freedom Index. The data of shadow economy, domestic credit to private sector and economic freedom index were respectively obtained from Schneider, Raczkowski, and Mróz (2015), World Bank (http://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS), and Heritage Foundation (http://www.heritage.org).

directly, while trying to meet the criteria of EU membership. However, there have been no general programs in the EU to combat with shadow economy yet, while European Commission launched some initiatives such as COM(2012)722 and COM(2012)173.

There have been no studies on the interaction among shadow economy, development of financial sector and institutional quality in EU transition economies in the literature. Therefore, this study will be an early empirical study which investigates the interaction among shadow economy, financial sector development and institutional quality on in EU transition member countries during the 2003–2014 period employing

panel data. In this context, we will sum up the literature related to the nexus among shadow economy, financial sector development and institutional quality in the next section. Then data and method will be given in the second section, the third section provides the major findings of empirical analysis. Finally, the fourth sections concludes the study.

Literature Review

A great number of studies have researched the effect of improvements in financial sector on various economic variables such as economic growth, income distribution, savings, competitiveness, technological progress (Levine 1997; Hassan, Sanchez, and Yu 2011; Ang 2011; Zhang, Wang, and Wang 2012; Sahoo and Dash 2013). However, most of them have concentrated on the nexus between economic performance and development of financial sector, but few studies have researched the interaction between shadow economy and improvements in financial sector and revealed that improvements in financial sector has decreased the shadow economy (Blackburn, Bose, and Capasso 2012; Bose, Capasso, and Wurm 2012; Capasso and Jappelli 2013; Bittencourt, Gupta, and Stander 2014).

In this context, Gobbi and Zizza (2007) investigated the nexus between shadow economy and financial sector development in Italian debt markets during the 1997–2003 period and revealed that shadow economy prevented development of financial sector, but financial sector development had no statistically impact on shadow economy. Bose, Capasso, and Wurm (2012) researched the interaction between shadow economy and improvements in banking sector in 137 countries during 1995–2007 period employing panel regression and revealed a negative relationship between shadow economy and banking sector development. Blackburn, Bose, and Capasso (2012) also developed a theoretical model including financial intermediation and tax evasion and the model suggested that the economies with lower development of financial sector experiences higher rates of shadow economy and tax evasion.

In another study, Capasso and Jappelli (2013) developed a theoretical model on the nexus between shadow economy and development of financial sector. Their model projected that financial development may reduce the tax evasion and shadow economy by contributing to the firms providing cheaper finance. They also tested their theoretical model by using Italian microeconomic data and empirical findings also verified their theoretical model. Bittencourt, Gupta, and Stander (2014) also developed a model on the relationship among shadow economy, development

of financial sector and inflation and their model suggested that higher financial development reduces the shadow economy. They also tested their model by a dataset including 150 countries during 1980–2009 period and empirical findings supported the predictions of their theoretical model.

The literature on the nexus between shadow economy and institutional quality is richer when compared to the literature about the interaction between shadow economy and financial sector development. The studies have predominantly revealed that the improvements in the institutions reduce the shadow economy (Torgler and Schneider 2007; Dreher, Kotsogiannis, and McCorriston 2009; Singh, Jain-Chandra, and Mohommad 2012a; Razmi, Falahi, and Montazeri 2013; Iacobuta, Socoliuc, and Clipa 2014; Shahab, Pajooyan, and Ghaffari 2015) as seen in table 2.

TABLE 2 Literature Summary on the Relation between Institutional Quality and Shadow Economy

Study	Sample and study period	Method	Major findings
Friedman, Kaufmann, and Zoido-Lobaton 2000	69 countries	Panel regression	Corruption had positive impact on shadow economy, while legal environment had negative impact on shadow economy.
Bovi (2003)	21 OECD countries, 1990–1993	Panel regression	Institutional quality affected shadow economy negatively.
Dreher, Kotsogiannis, and McCorriston (2005)	18 OECD countries, 1998–2002	Structural equation modelling	Institutional quality affected shadow economy negatively.
Torgler and Schneider (2007)	86–100 countries, 1990, 1995, and 2000	Panel regression	Institutional quality affected shadow economy negatively.
Schneider (2007)	145 countries, 1999–2005	Panel regression	Institutional quality affected shadow economy negatively/positively in high/low income countries
Dreher, Kotsogiannis, and McCorriston (2009)	145 countries, 1999–2003	Panel regression	Institutional quality affected shadow economy negatively.

Continued on the next page

TABLE 2 *Continued from the previous page*

Study	Sample and study period	Method	Major findings
Enste (2010)	25 OECD countries, 1995–2005	Panel regression	Deregulation affected shadow economy negatively.
Torgler, Schneider, and Macintyre (2010)	59 countries, 1990–1999	Panel regression	Institutional quality affected shadow economy negatively.
Singh, Jain-Chandra, and Mohommad (2012b)	100 countries	Panel regression	Institutional quality affected shadow economy negatively.
Ruge (2012)	35 countries (mostly from OECD)	Structural equation model	Institutional quality affected shadow economy negatively.
Quintano and Mazzocchi (2012)	33 European countries, 2005–2010	Structural equation model	Regulatory efficiency had negative impact on shadow economy.
Manolas et al. (2013)	19 OECD countries, 2003–2008	Panel regression	Institutional quality affected shadow economy negatively.
Razmi, Falahi, and Montazeri (2013)	51 Organisation of Islamic Cooperation member countries, 1999–2008	Dynamic panel regression	Institutional quality affected shadow economy negatively.
Kuehn (2014)	21 OECD countries	Modelling	Institutional quality affected shadow economy negatively.
Iacobuta, Socoliuc, and Clipa (2014)	EU countries	Panel data analysis	Institutional quality affected shadow economy negatively.
Remeikiene and Gaspareniene (2015)	Lithuania, 2000–2011	Regression analysis	Financial development and institutional quality affected shadow economy negatively.
Shahab, Pajooyan, and Ghaffari (2015)	25 developed and developing countries, 1999–2007	Static and dynamic panel regression	Institutional quality affected shadow economy negatively.

Data and Method

We researched the relationship among shadow economy, development of financial sector and improvement in institutional quality in the EU

transitional economies during 2003–2014 period employing cointegration analysis of Basher and Westerlund (2009) and causality test of Dumitrescu and Hurlin (2012).

DATA

In this study, we used the data of shadow economy based on the MIMIC method by Schneider, Raczkowski, and Mróz (2015) as a proxy for the shadow economy. Moreover, we used domestic credit to private sector as a percent of GDP as a proxy for financial development, because the capital markets in our sample still have been at the early stages of development. Finally, we took the economic freedom index of Heritage Foundation (http://www.heritage.org) as a proxy for institutional quality, because index of economic freedom is calculated based on rule of law, limited government, regulatory efficiency and open markets. The data description was given in table 3. We benefited from Stata 14.0, WinRATS Pro. 8.0 and Gauss 11.0 programs for econometric analysis.

TABLE 3 Data Description

Variable	Symbol	Source
Shadow economy (% of GDP)	SHAEC	Schneider, Raczkowski, and Mróz (2015)
Domestic credit to private sector (% of GDP)	DCRD	World Bank (http://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS)
Economic freedom index	EFR	Heritage Foundation (http://www.heritage.org)

ECONOMETRIC METHODOLOGY

In this study, we tested the heterogeneity of the variables with adjusted delta test of Pesaran, Ullah, and Yamagata (2008) and cross-sectional independency was tested with CD LM1 test of Breusch and Pagan (1980). Then, we tested stationarity of the series with CIPS test of Pesaran (2007) regarding considering cross-sectional dependency, Im, Lee, and Tieslau (2010), and Narayan and Popp (2010) unit root tests considering structural breaks. The cointegration test of Basher and Westerlund (2009) was employed to test cointegrating relationship among variables. Finally causal relationship among the series was tested with test by Dumitrescu and Hurlin (2012).

ECONOMETRIC MODEL

The development of financial sector and quality of governing institutions have potential to affect shadow economy negatively, because economic units are motivated to operate in formal economy in case financial sector provides cheap financing. On the other hand institutional quality is the main factor which designs and regulates the environment which firms operate. So we expected that countries with better institution have less shadow economy. Therefore, we establish our model as follows:

$$\text{SHAEC} = f(\text{DCRD}, \text{EFR}) \tag{1}$$

In this function, SHAEC denotes the shadow economy as a percent of GDP, while DCRD represents the development level of financial sector and EFR represents the quality of institutions. We expect a negative relationship among SHAEC, DCRD and EFR considering the theoretical and empirical literature.

CROSS-SECTIONAL AND HOMOGENEITY TESTS

Cross-sectional independency and homogeneity of the variables are determinative for us to select the econometric tests used in the future stages of the study. The cross-sectional independency among the variables will be analyzed by CD_{LM1} test of Breusch and Pagan (1980), because T (time dimension) = 12 is higher than N, cross-sectional dimension = 9. The CD_{LM} test statistic values are obtained from the equation (2). It is expected that there is a simultaneous correlation among the residuals of this equation (Pesaran 2004) and the statistical significance of this correlation is tested with LM test in equation (3) developed by Breusch and Pagan (1980).

$$\Delta Y_{it} = \alpha_i + \beta_i y_{i,t} + \sum_{j=1}^{p_i} c_{ij}\Delta_{i,t-j} + d_i t + h_i \bar{y}_{t-1} + \sum_{j=0}^{p_i} \eta \Delta \bar{y}_{i,t-j} + \varepsilon_{i,t}. \tag{2}$$

$$\text{LM} = T \sum_{i=j}^{N-1} \sum_{j=i+1}^{N} \hat{\rho}_{ij}^2 \sim \chi^2_{N(N-1)/2}. \tag{3}$$

In equation (3) ρ_{ij} is the correlation among the residuals obtained estimation of each equation by ordinary least squares. LM exhibits chi square distribution, while T goes to infinity and N is fixed.

We tested the homogeneity of the variables with adjusted delta tilde test of Pesaran, Ullah, and Yamagata (2008) and the test statistic is calculated as follows (H_0: $\beta_1 = \beta_2 = \cdots = \beta_n = \beta$, for all the β_is):

$$\tilde{\Delta}_{\text{adj}} = \sqrt{N}\frac{N^{-1}\tilde{S} - E(\tilde{Z}_{it})}{\sqrt{Var}(\tilde{Z}_{it})}. \tag{4}$$

PANEL UNIT ROOT TESTS

CIPS, Im, Lee, and Tieslau (2010), and Narayan and Popp (2010) unit root tests will be employed to analyze integration levels of the variables. CIPS test based on CADF test of Pesaran (2007) considers cross-sectional dependency but ignores the structural breaks. However, unit root tests of Narayan and Popp (2010) and Im, Lee, and Tieslau (2010) regard structural breaks in the series. Narayan and Popp (2010) unit root test determines the dates of structural breaks by maximizing the significance of the break dummy coefficient differently from Lumsdaine and Papell (1997) and Lee and Strazicich (2003) unit root tests. Finally, Im, Lee, and Tieslau (2010) panel LM unit root test considers possible heterogeneous breaks in constant and trend and also makes the adjustments in case of cross-correlations.

BASHER AND WESTERLUND (2009) COINTEGRATION TEST

Basher and Westerlund (2009) cointegration test regards cross-sectional dependency and multiple structural breaks and allows for maximum three structural breaks, while testing cointegrating relationship among the series. The test statistics of the model (H_0: There is cointegration among the variables for all the cross-sections) is as follows:

$$Z(M) = \frac{1}{N}\sum_{i=1}^{N}\sum_{j=1}^{M_1+1}\sum_{t=T_{ij-1}+1}^{T_{ij}}\left(\frac{S_{it}^2}{(T_{ij} - T_{ij-1})^2\hat{\sigma}_i^2}\right). \tag{5}$$

$S_{it} = \sum_{s=T_{ij-1}+1}^{t}\hat{W}_{st}$ and $\hat{W}_{it}$ is a residual vector obtained from an efficient estimator like fully modified least squares. σ_i^2 is variance estimator based on $\hat{W}_{it}$. The test statistic exhibits a standard normal distribution and the hypotheses of the test are as follows:

DUMITRESCU AND HURLIN (2012) CAUSALITY TEST

Dumitrescu and Hurlin (2012) causality test is a modified version of Granger (1969) causality test regarding heterogeneity. The following test statistics are calculated in the context of the test (Dumitrescu and Hurlin 2012):

$$W_{N,T}^{HNC} = \frac{1}{N}\sum_{i=1}^{N} W_{i,T}. \tag{6}$$

$$Z_{N,T}^{HNC} = \sqrt{\frac{N}{2K}}(W_{N,T}^{HNC} - K)\frac{d}{N,T\to\infty}N(0,1). \tag{7}$$

$$Z_{N,T}^{HNC} = \frac{\sqrt{N}[W_{N,T}^{HNC} - N^{-1}\sum_{i=1}^{N} E(W_{i,t})]}{\sqrt{N^{-1}\sum_{i=1}^{N} Var(W_{i,t})}}\frac{d}{N,T\to\infty}N(0,1). \tag{8}$$

Empirical Analysis

CROSS-SECTIONAL TEST AND HOMOGENEITY TEST

We tested the cross-sectional dependence with CD_{LM1} test of Breusch and Pagan (1980), because time dimension is higher than cross-sectional dimension ($T = 12, N = 9$). The results were given in table 4 and since probability values were lower than 5%, the null hypothesis (cross-sectional independency) was rejected. So the findings indicated a cross-sectional dependency among the series.

TABLE 4 Results of CD_{LM1} Test

Variable	Test statistic	Probability
SHAEC	9.523	0.001
DCRD	7.226	0.034
EFR	9.821	0.010

We employed adjusted delta tilde test of Pesaran, Ullah, and Yamagata (2008) and the findings were given in table 5. Since the null hypothesis (slope coefficients are homogenous) was rejected at 1% significance level, we concluded that there was heterogeneity.

TABLE 5 Results of Adjusted Delta Tilde Test

Test	Test statistics	Probability
$\tilde{\Delta}_{adj.}$	28.97	0.002

PANEL UNIT ROOT TESTS

Panel data analysis requires that the variables should be I(0) to avoid the possible spurious relationship among the series. First we analyzed integration levels of the variables with CIPS test of Pesaran (2007) regarding the cross-sectional dependence among the series and the results of

the test were given in table 6. The findings denoted that all the variables were I(1).

TABLE 6 Results of CIPS Test

Test	SHAEC	DCRD	EFR
CIPS	7.532*	8.002*	7.271*

NOTES * Significant at the 0.05 level.

Secondly, we employed unit root tests of Narayan and Popp (2010) and Im, Lee, and Tieslau (2010) regarding structural breaks. In this context, we applied the second model of Narayan and Popp (2010) test which allows two breaks in both level and trend and the findings were given in table 7.

TABLE 7 Results of Narayan and Popp (2010) Panel Unit Root Test

Country	Test statistic			TB_1, TB_2
	SHAEC	DCRD	EFR	
Bulgaria	4.764*	4.732*	6.834*	2008, 2009
Croatia	9.328*	6.543*	5.925*	2009, 2012
Czech Republic	6.035*	4.007*	5.112*	2009, 2012
Estonia	9.692*	5.328*	6.733*	2008, 2009
Hungary	7.551*	3.982*	8.492*	2009, 2012
Poland	8.634*	7.831*	5.629*	2008, 2009
Romania	5.992*	9.447*	4.227*	2008, 2009
Slovakia	8.426*	6.263*	4.752*	2009, 2010
Slovenia	9.113*	4.771*	6.994*	2009, 2012

NOTES * Significant at 5% level. Critical values are –5.882, –5.263, and –4.941 at the 1%, 5%, and 10% significance levels, respectively for model 2 with 50.000 replications for endogenous two breaks test.

The results indicated that the series were I(1) with structural breaks. The dates of structural breaks showed that recent financial crises, global financial crisis and Eurozone debt crisis, induced significant structural shifts in the series of DCRD and EFR.

We also used the different versions of the panel LM unit root tests considering and not considering structural and the findings tests were given in table 8. The findings denoted that the variables had unit root when the structural breaks were disregarded. On the other hand when we ap-

plied the version considering two structural breaks, two different test statistics were obtained depending on the cross-correlations. The first test statistic ignores the cross-correlations, while the second test statistic regards the cross-correlations by considering the Pesaran's CA procedure. The results indicated that the variables were stationary when the cross-sectional dependence was ignored. However, the variables were not stationary, when the cross-sectional was considered.

TABLE 8 Results of Panel LM Unit Root test

Panel LM test statistic without break	−0.234
Panel LM test statistic with two breaks	−7.335*
Panel LM test CA statistic with two breaks	−0.872

NOTES * 0.05 significance level.

BASHER AND WESTERLUND (2009) COINTEGRATION TEST

We employed Basher and Westerlund (2009) model which allows structural breaks in constant and trend and the findings were presented in table 9. The findings revealed that there was cointegrating relationship between the variables of our study with structural breaks and cross-sectional dependency.

TABLE 9 Results of Basher and Westerlund (2009) Cointegration Test

Test statistic	Probability value
56.987	0.258

NOTES Probability values obtained by using bootstrap with 1.000 simulations.

ESTIMATION OF LONG RUN COINTEGRATING COEFFICIENTS

The individual cointegrating coefficients were estimated with CCE (Common Correlated Effects) method of Pesaran (2006) and the cointegrating coefficients of the panel were estimated with CCMGE (Common Correlated Mean Group Effects) method of Pesaran (2006) and the findings were given in table 10 (p. 169). The findings revealed that development of financial sector and improvements in institutional quality decreased the shadow economy.

DUMITRESCU AND HURLIN (2012) CAUSALITY TEST

We investigated causal relationship among shadow economy, financial development and institutional quality with causality test of Dumitrescu

TABLE 10 Long run Cointegrating Coefficients

Country	DCRD		EFR	
	Coefficient	*t*-statistic	Coefficient	*t*-statistic
Bulgaria	−0.089*	−3.854	−0.053*	−4.263
Croatia	−0.112*	−4.012	−0.114*	−5.883
Czech Republic	−0.108*	−4.348	−0.156*	−3.915
Estonia	−0.142*	−5.924	−0.083*	−3.772
Hungary	−0.096*	6.993	−0.145*	−6.834
Poland	−0.063*	−5.326	−0.102*	−3.992
Romania	−0.135*	−3.261	−0.081*	−4.036
Slovakia	−0.152*	−4.772	−0.126*	−5.823
Slovenia	−0.133*	−3.725	−0.105*	−6.432
Panel	−0.146*	−4.045	−0.170*	−3.886

NOTES * Significant at 5% level.

TABLE 11 Results of Dumitrescu and Hurlin (2012) Causality Test

Null hypothesis	Test	Statistics	Prob.
SHAEC does not homogeneously cause DCRD	W^{HNC}	3.632	0.000
	Z^{HNC}	5.943	0.001
	$\tilde{Z} - bar$	6.523	0.013
DCRD does not homogeneously cause SHAEC	W^{HNC}	5.998	0.000
	Z^{HNC}	3.642	0.022
	$\tilde{Z} - bar$	4.022	0.000
SHAEC does not homogeneously cause EFR	W^{HNC}	6.531	0.000
	Z^{HNC}	5.773	0.011
	$\tilde{Z} - bar$	4.254	0.004
EFR does not homogeneously cause SHAEC	W^{HNC}	3.992	0.000
	Z^{HNC}	2.880	0.000
	$\tilde{Z} - bar$	3.638	0.032

and Hurlin (2012) and the findings were given in table 11. The findings revealed bidirectional causality both between SHAEC and DCRD and between SHAEC and EFR.

Conclusion

We researched the relationship among shadow economy, development of financial sector and institutional over the period 2003–2014 in EU tran-

sition economies benefiting from Basher and Westerlund (2009) cointegration test and Dumitrescu and Hurlin (2012) causality test. Our findings revealed that there was a cointegrating relationship among shadow economy, development of financial sector and institutional quality. Moreover, development of financial sector and improvements in institutional quality decreased the shadow economy in the long run. Finally, the results of causality test revealed a two-way causality between shadow economy and financial development and shadow economy and institutional quality. So our findings verified an interaction among shadow economy, development of financial sector and institutional quality and were consistent with the predictions of theoretical studies and the results of empirical studies in the literature.

This study also verified that financial development and institutional quality are important factors affecting shadow economy. In this regard, improvements in financial sector and institutional quality will be useful in combat with shadow economy considering our findings, theoretical and empirical literature.

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The Influence of Leadership Factors on the Implementation of ISO 14001 in Organizations

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Top managers have a key role in implementing the environmental component of sustainable development in the organization. This paper presents the results of the unique research that was conducted among top managers from a variety of large Slovenian organizations, in order to determine the dominant leadership factors that positively influence the implementation of the environmental component of sustainable development (the ISO 14001 standard) in the organization. The research involved 321 large Slovenian organizations. It was found that vision, credibility, collaboration, accountability and action orientation are the dominant leadership factors to be considered by top managers in achieving sustainable development.

Key Words: ISO 14001, large organizations, leadership, sustainable development
JEL Classification: M12, Q56

Introduction

Since the mid-1990s, the importance of the concept of sustainable development, where economic growth, social cohesion and environmental protection – the so-called 'triple bottom line' (Elkington 1997) – are treated equally and are mutually supportive, has increased significantly. In Slovenia, as well as in other countries of the European Union (EU), the principles of sustainable development are gradually becoming realized but with ongoing imbalances in all three components of sustainable development. Of these, the environmental component is the most notable, because rapid economic growth increases pressure on the natural

environment, which is not in line with the objectives of sustainable development (Sachs 2015).

Several countries are adopting rigorous environmental protection measures, but most of them are based solely on strict legislation. For the effective protection of the natural environment, normative regulation of relations between people and nature is indispensable, but not sufficient. As stated by Albino, Dangelico, and Pontrandolfo (2012), initiatives that promote sustainability and protection of the natural environment should become an integral part of business strategies.

A leading management tool for improving organizations' environmental performance is the standard ISO 14001 (International Organization for Standardization 2004; Testa et al. 2014). As stated by Poksinska, Dahlgaard, and Eklund (2003), without commitment from top management the environmental management system will not gain any substantial credibility in the eyes of the employees and, consequently, the success of its implementation is questionable. Zeng et al. (2005) pointed out that the environmental consciousness of top managers is the most decisive factor affecting implementation of ISO 14001 and is generally indispensable in environmental protection. Haslinda and Fuong (2010) found that top management's commitment is the foremost challenge in implementing ISO 14001. Top managers who commit their full support to enduring the organizational changes associated with the implementation can be a factor leading to a continual improvement in environmental performance.

For some top managers, the implementation of ISO 14001 represents a new challenge, but for many it remains only a draft and theory (Potočan and Mulej 2003). According to the data of International Organization for Standardization (International Organization for Standardization 2014) the percentage of annual growth of obtained ISO 14001 certifications in the world is growing, but extremely slowly. There is a similar pattern in development in Slovenia. According to the data of the Chamber of Commerce and Industry of Slovenia (see http://katalogi.gzs.si), among large organizations (with over 250 employees), since 2004 until the end of 2014, the percentage of obtained ISO 14001 certifications increased by only 40%.

These patterns of weak implementation of ISO 14001 in large Slovenian organizations and the literature (which has mainly emphasized the general role of top management in implementing ISO 14001) have motivated our research to investigate the influence of specific leadership fac-

tors, such as vision, credibility, collaboration, feedback and recognition, accountability, communication and action orientation, on the implementation of ISO 14001 as a measure of the environmental component of sustainable development in large Slovenian organizations. In this respect the following research question was set out: 'Which are the dominant leadership factors that positively influence the implementation of the environmental component of sustainable development (the ISO 14001 standard) in the organization?'

This research contributes to the development of theory and analysis on the association between top managers' perceptions and the environmental component of sustainable development in organizations. The research findings may raise the awareness among top managers of implementing the environmental component of sustainable development in the organization.

The rest of this paper is organised as follows. In the second section theoretical background is presented. The third section goes on to present the research methods. The fourth section presents the unique survey data for the sample of 96 Slovenian large organizations and discusses the empirical results. The fifth section presents managerial implications and implications for research. Finally, the sixth section concludes with the importance of the research findings.

Theoretical Background

The following section presents the environmental component of sustainable development – ISO 14001 and seven leadership factors.

Environmental Component of Sustainable Development: Standard ISO 14001

Protection of the natural environment is an essential part of the sustainable development process at different levels, from the global level to the local, and on to the micro-organizational level.

Organizations are faced with challenging market, in which consumers are increasingly aware of the importance of protecting the natural environment for its long-term survival (Fortuński 2008). This consumer awareness, in addition to laws and other regulations (Zhang et al. 2008), care for the organizations' image (Psomas, Fotopoulos, and Kafetzopoulos 2011), maintenance and acquisition of competitive position in the global market (Sambasivan and Fei 2008), directs organizations towards environmentally friendly production and service processes.

Good environmental performance of the organization or good environmental protection management should include a comprehensive management of the environmental aspects of production or service activities, compliance with the legislative requirements, the balancing of costs, the exploitation of resources, and a response to the requirements and expectations of customers, owners and other interested parties (Slovenian Institute of Quality and Metrology 2013).

Dealing with the above-mentioned environmental tasks requires a systematic approach with deliberate and carefully planned activities, which is focused on the long-term responsible environmental behaviour. Internationally recognized frameworks for a systematic approach to the protection of the natural environment are the requirements of ISO 14001. This standard has become the dominant international standard (González-Benito, Lannelongue, and Queiruga 2011) and the most widely used environmental standard in the business world (Sebhatu and Enquist 2007).

A body of literature has evaluated the impacts of ISO 14001 on improvements in environmental performance; the findings are mixed. While most studies tend to highlight the positive nature of these impacts and the fact that ISO 14001 certification improves environmental performance (Pun and Hui 2001; Melnyk, Sroufe, and Calantone 2003; Potoski and Prakash 2005; Goh Eng, Suhaiza, and Nabsiah 2006; Arimura, Hibiki, and Katayama 2008), other studies question these benefits (Welch, Rana, and Mori 2003; King, Lenox, and Terlaak 2005; Christmann and Taylor 2006; Barla 2007; Blackman 2012).

After reviewing the scientific literature in different databases (e.g., ScienceDirect, Science Research Network, Emerald, ProQuest, and EBSCO), we have determined that while there is a body of literature on the adoption of standards in organizations, thus far no research has been published on the topic of the influence of selected leadership factors on the implementation of ISO 14001 in organizations. Our research aims to fill this gap in the literature.

LEADERSHIP FACTORS

Leadership is one of the most observed and least understood phenomena (Burns 1978). It has been conceptualized in the multitudes of ways. Tabassi and Bakar (2010) defined leadership as a process whereby a leader – a person in a formal position of authority – with his intelligence and willpower has a bearing on a group of subordinates to be able them to de-

velop their potentials so as to attain the organizational objectives within granted time, funding, and quality.

Krause (2005) identified the following important leadership factors: vision, credibility, collaboration, feedback and recognition, accountability, communication and action orientation. They represent leaders' characteristics, behaviours, and functions. The focus in the research is on their role in the implementation of ISO 14001.

Vision is one of the characteristics that shape a leader. A good leader knows that communicating an inspiring, clear and understandable vision is essential to mobilise followers, i.e., employees (Stam, van Knippenberg, and Wisse 2010). Importantly, vision communication can reinforce the common goals of the team (Joshi, Lazarova, and Liao 2009) or may also improve employees' motivation and organizational performance (Stam, van Knippenberg, and Wisse 2010).

Good leaders recognise credibility as the 'currency' of leadership (Leavy 2003). Men (2012) argued that leaders' credibility includes leaders' expertise and trustworthiness. The author pointed out that a credible leader who is deemed trustworthy and who demonstrates expertise helps nurture positive employee evaluation of the organization. In turn, this may encourage employee engagement in organizational improvements or changes.

Collaboration is a goal of a modern, contemporary management. Leaders should be aware that employees (their dedication, creativity, experiences, skills and knowledge) are a crucial factor for the operation and existence of the organization. This is one reason they should involve employees in the decision-making process, allowing them to participate in defining and achieving goals. As explained by Elele and Fields (2010), participation in decision-making leads to better employee-management relations, stronger employee attachment to organizations, better quality decisions, and improved productivity.

Feedback is a way of aiding personal development of a leader as well as the development of followers, i.e., employees. A good leader always seeks feedback to improve his performance (Stoker, Grutterink, and Kolk 2012); feedback also provides support and encourages employees to develop greater confidence in their abilities to pursue goals (Rego et al. 2012). More specifically, timely and objective feedback is more influential. Feedback is also recognition for a job well done or (public) recognition for the contributions of individuals in the organization.

A leader is accountable for the quality of business operations. Dive

(2008) listed key responsibilities that enable a leader to add value on a spine of accountability. These are: deciding who comes into the organization and who will do what jobs; securing employee commitment to specific goals and providing resources for them to achieve those goals; appraising staff, identifying development needs and deciding on performance rewards; ensuring that staff meet goals or changing the goals if appropriate; providing solutions to problems; making change happen; achieving results from colleagues and from external agencies (customers, suppliers, and shareholders); setting measures of success (timelines, quality, quantity, and services levels).

Communication (verbal and written) is the most fundamental of the leadership skills (Mumford, Campion, and Morgeson 2007). Without communication, there is no exchange or distribution of information, which is crucial for the successful functioning of an organization. Listening is also a vital part of persuasive communication. Leaders should know how to listen and take employees views into account, because this allows mutual understanding. One piece of advices from Drucker (2004) is how to become and remain a successful leader: 'First listen and then talk.'

Action orientation is also a valuable leadership factor. A good leader needs to be proactive rather than reactive in addressing business issues. This leader is persistent and innovative, gives timely responses, demonstrates a sense of personal urgency and energy to achieve results, and demonstrates a performance-driven focus by delivering results with speed and excellence (Krause 2005).

Research Methods

A target population of 321 large Slovenian organizations was included in the in-depth survey research.

Data were collected using a written questionnaire. Its fourth part was developed on the basis of an accurate review of the professional and scientific literature in different databases such as Emerald, ProQuest, ScienceDirect, Science Research Network, and EBSCO. A pre-test of the questionnaire with 10 randomly selected top managers of large Slovenian organizations was also carried out. Five of them provided useful guidance for improving the clarity of the terminology used in the questionnaire.

The questionnaire contained closed-ended questions in the first, second and third parts, and statements using the Likert's 5-graded marking scale, in which '1' meant 'I do not agree at all' and '5' meant 'I agree

TABLE 1 Variables

Directly measurable variables	Indirectly measurable variables
Sector	Vision
Statistical region	Credibility
Age of organization	Collaboration
Gender	Feedback and recognition
Age of respondent	Accountability
Level of education	Communication
Years of working experiences	Action orientation
Role in the organization	
Environmental management system according to ISO 14001	

completely,' in the fourth part. In the first part of the questionnaire, we gathered the data about organizations, such as in which sector they were active, which statistical region they belong to and how many years the organization has existed. In the second part, we collected data on the participants, such as their gender, age, level of education, years of experience and their role in the organization. The third part was used to gather the data about organizations' experience in the field of the environmental management system according to ISO 14001. In the last, fourth part, research on leadership self-assessment was conducted, with seven leadership factors included.

The questionnaire was sent by email to all top managers of the organizations included in the research. A total of 55 fulfilled questionnaires and three negative responses came back after the first distribution. After the second distribution, there were 41 more completed questionnaires. Altogether, 96 completed questionnaires were returned out of 321 sent. A response like this was expected (29.91%). Thus, 96 fulfilled questionnaires were included in the empiric part of the research.

The research results were statistically processed and analysed with the use of SPSS software. Throughout the research, the following methods were used: descriptive analysis, reliability analysis using Cronbach's alpha test and analysis of variance.

Along with the descriptive analysis, also presented are some basic characteristics of sample items as well as of variables used (table 1).

Cronbach's alpha test was used to measure the reliability of each of the seven analysed leadership factors. An acceptable value of Cronbach's al-

pha for the reliability of these constructs is greater than 0.7, whilst lower value indicates unreliability (Field 2006).

The analysis of variance was used to examine the average equality of leadership factors according to the categories (do not implement, planned, in the middle of implementation and already in use) of variable environmental management systems according to ISO 14001. In this manner, we obtained the information about whether the differences among the average values of leadership factors are statistically significant. In other words, it was used to find out which are the dominant leadership factors that positively influence the implementation of the environmental component of sustainable development (the ISO 14001 standard) in the organization.

Results and Discussion

DESCRIPTIVE STATISTICS

The majority of the analysed organizations came from the manufacturing sector (41.7%). Quite a large number of organizations (37%) were from the Central Slovenian statistical region. Most of them (75%) had existed for more than 40 years.

According to gender, 27.1% of the participants were women and 72.9% were men. Most of them (40.6%) were more than 50 years old. Most of the participants had between 15–25 years (33.3%) or 25–35 years (37.5%) of working experiences. More than half of the participants (59.4%) had a university education. As to their position at the organization, 25% worked as general managers, followed by chairmen of the board and its members (16.7%).

In assessing the situation in the field of the environmental management system according to ISO 14001, we determined that the system was already in use in 54.2% of organizations; 8.3% of organizations were in the middle of system implementation; 11.5% of them had planned on implementing it; and 26% of the organizations had no intention of implementing the system.

To assess the reliability of leadership factors, we performed Cronbach's alpha test. As can be seen from table 2, Cronbach's alpha value for each of the leadership factors is close to or above the 0.7 criteria. Therefore, the reliability of leadership factors was confirmed.

The in-depth research of leadership self-assessment (table 3) showed that all participants had a relatively high self-assessment for each of the

TABLE 2 Cronbach's Alpha Test

Leadership factors	Cronbach's alpha value
Vision	0.779
Credibility	0.697
Collaboration	0.783
Feedback and recognition	0.762
Accountability	0.792
Communication	0.784
Action orientation	0.763

NOTES Number of observations is 96.

leadership factors. As can be seen, in the context of vision, the participants gave the highest mark to the statement that they are open to accepting new ideas, including environmentally friendly ones. This can be understood to be a reasonable basis for sustainable development with the main idea of protecting the natural environment. However, they put less emphasis on how to help the rest of the employees to start thinking about their personal standards in relation to ISO 14001. There are two possible explanations for this: first, a perceived lack of time and a lack of interest by top managers, and second, some other more important work within the organization taking priority.

Regarding credibility, the participants gave the highest mark to the statement that they advocate for equality and justice. This can contribute to higher levels of confidence towards top managers and a stronger sense of belonging among workers, which consequently leads to the organizations' successful performance. In contrast, they are not willing to accept solutions that are in accordance with the requirements of ISO 14001. Although the statement: 'I correctly perform prescribed standards, even environmental ones' received a rather high mark, it is more likely that top managers are becoming increasingly aware of the importance of environmental standards or regulations. It is particularly important that this awareness is transformed into real actions and does not remain a mere idea or theory.

Regarding collaboration, the participants emphasized synergy in the principle of creative collaboration, which could be defined as a good foundation for continuous improvements. The lowest mark was given to the statement about helping employees to be able to solve the challenges of ISO 14001 independently. The other sorts of collaboration might be

TABLE 3 Leadership Self-Assessment Results

Factor/Statement		(1)	(2)
Vision	I have a high personal standard in relation to ISO 14001.	4.00	1.086
	I help employees to start thinking about their personal standards in relation to ISO 14001.	3.67	1.073
	I personally inform employees about organisations' vision.	4.18	0.871
	I realize that vision is a basic guideline for employees' operation in the organization.	4.17	0.660
	I am open to accepting new ideas, including environmentally friendly ones.	4.57	0.576
	I can define a compelling framework for future actions.	4.24	0.661
	Average	4.14	
Credibility	I admit my mistakes.	4.19	0.685
	My words are consistent with my actions.	4.41	0.515
	I am looking for suggestions and ideas for personally improvement.	4.45	0.630
	I correctly perform prescribed standards, even environmental ones.	4.25	0.711
	I treat everyone with dignity and respect.	4.52	0.598
	I advocate for all employees.	4.45	0.647
	I advocate for equality and justice.	4.61	0.489
	I accept solutions that are in accordance with the requirements of ISO 14001.	3.80	1.062
	Average	4.41	
Collaboration	I promote synergy – the principle of creative collaboration.	4.40	0.624
	I encourage employees to be involved in improvement activities related to the requirements of ISO 14001.	3.74	1.107
	I promote the adoption and implementation of new solutions.	4.22	0.699
	I obtain the consensus of employees before implementing improvements.	4.05	0.773
	I have confidence in others.	3.86	0.720
	I help employees to be able to solve the challenges of ISO 14001 independently.	3.54	1.104
	I support the independent decisions of employees.	4.28	0.593
	Average	4.01	

Continued on the next page

understood as a way of transferring activities to the colleagues whom they trust and delegate tasks to.

Regarding feedback and recognition, the participants gave the highest

TABLE 3 *Continued from the previous page*

Factor/Statement		(1)	(2)
Feedback and recognition	I publicly recognize the contributions of other employees.	4.53	0.542
	I timely and properly give recognition to individuals and groups for their efforts at all levels of the organization.	4.03	0.656
	I motivate all employees in the organization.	3.89	0.613
	I encourage and do not criticize experiments.	4.03	0.606
	I give positive feedback on measures related to the requirements of ISO 14001.	3.53	1.105
	I collect and evaluate feedback from employees.	3.83	0.777
	I value (positive or negative) feedback about myself.	4.08	0.763
	Average	3.99	
Accountability	I unambiguously and transparently define roles within the organization.	4.02	0.680
	I define responsibility for tasks related to the requirements of ISO 14001.	3.52	1.205
	I demand responsibility of employees for accepted tasks.	4.43	0.628
	I define appropriate criteria for set goals.	4.09	0.712
	I periodically analyse results achieved on the basis of defined criteria.	4.08	0.691
	I recognize the need for changes and implement them.	4.24	0.628
	I encourage independence at work.	4.44	0.662
	Average	4.12	

Continued on the next page

mark to the statement that they publicly recognize the contribution of other employees, i.e. that they are totally aware of employees' needs to receive regular feedback upon their work. They know that in this way employees can be more effective. Giving positive feedback on measures related to the requirements of ISO 14001 is ranked in the last place.

Regarding accountability, the participants emphasized that they encourage independence at work and that they demand responsibility for accepted tasks. In this way, employees have more responsibility and an opportunity for creativity at work. In last place, the participants ranked the statement about defining responsibility for tasks related to the requirements of ISO 14001. The main reason for this can be because the requirements of ISO 14001 are not their priority.

Concerning communication, the participants gave the highest mark

TABLE 3 *Continued from the previous page*

Factor/Statement		(1)	(2)
Communication	I establish and promote a network of personal connections inside the entire organization.	4.12	0.684
	I ask employees for their opinions.	4.32	0.703
	I tell what I think in a constructive way.	4.30	0.600
	I share my own experiences and motivation with employees.	4.29	0.695
	I deal directly with different situations soon when they appear.	3.99	0.718
	I establish an atmosphere that allows employees to talk about the challenges in a relaxed way.	4.06	0.765
	I listen carefully.	4.16	0.686
	Average	4.18	
Action orientation	I define reasonable priorities.	4.21	0.664
	I take advantage of every opportunity that leads to improvement.	4.05	0.731
	I encourage innovation and creativity.	4.37	0.669
	I strive to integrate the requirements of ISO 14001 into the organizations' policy.	3.77	1.128
	I systematically encourage employees to accept the requirements of ISO 14001.	3.60	1.110
	Average	4.00	

NOTES Column headings are as follows: (1) average value (1–5), (2) standard deviation. Number of observations is 96.

to the statement that they usually ask employees for their opinions. This indicates that top managers include employees in solving and improving organizational matters. In this way, they actually exercise the aim of communication, i.e., the exchange of opinions and feelings. Top managers ranked the statement: 'I deal directly with different situations as soon as they appear' the lowest. This indicates the absence of the process-based organizational structure, in which top managers are directly involved in all segments of the organization. The most striking finding was that the hierarchical organizational structure is still present in large Slovenian organizations.

Concerning action orientation, the participants ranked the statement about encouraging innovation and creativity in the first place. Thus, top managers encourage employees' creative thinking and innovation, which in fact keeps the organization current. Of the least importance for them is the systematic encouragement of employees to accept the requirements

of ISO 14001, which obviously is not so significant and reveals some other priorities.

As can be seen from the average value of each leadership factor, credibility is at the top of the scale, followed by communication, vision, accountability, collaboration, action orientation, feedback and recognition.

The results are interpreted with caution, because they can be biased to self-assessment of top managers. The results cannot necessary reflect the real true situation in studied organizations. However, for the measurement of possible gap between the mangers statements and real true situation we do not have well founded tool and argument. Generally, responses by top managers on the written questionnaire in this kind of getting information can turn out to be overstated. They can evaluate and present situation in the organization better than actually it is. We have been aware of this possible subjective element in answers as limitation for results from the very beginning of the research. Therefore, our interested focus has been merely on the subjective perception of the interviewed managers in the large Slovenian organizations on the studied topics.

THE INFLUENCE OF LEADERSHIP FACTORS ON THE IMPLEMENTATION OF ISO 14001 IN ORGANIZATION

Throughout the analysis of variance (table 4), we determined that the differences among the average values of variables (vision, credibility, collaboration, accountability and action orientation) are statistically significant ($p \leq 0.05$) according to the categories of a variable environmental management system under ISO 14001. This means that organizations differ from each other in the way the actions related to vision, credibility, collaboration, accountability, and action orientation are carried out in comparison to what phase of ISO 14001 they are currently implementing.

The differences between the average values of the variables of feedback and recognition, and communication are statistically insignificant ($p > 0.05$) according to the categories of variable of the environmental management system under ISO 14001. This means that organizations do not show significant differences among each other in their actions related to the way feedback and recognition, and communication are carried out in comparison to what phase of ISO14001:2004 they are currently implementing.

On the base of these results, it was found that the dominant leadership factors that positively influence the implementation of the environmental component of sustainable development (the ISO 14001 standard) in

TABLE 4 Analysis of Variance

Leadership factors	(1)	(2)	(3)	(4)	(5)	(6)
Vision	3.75	3.91	4.13	4.38	9.006	0.000
Credibility	4.44	4.05	4.46	4.46	3.980	0.010
Collaboration	3.65	3.70	4.05	4.25	10.518	0.000
Feedback and recognition	3.91	3.79	4.13	4.05	1.370	0.257
Accountability	3.90	3.83	4.21	4.27	4.821	0.004
Communication	4.17	3.88	4.14	4.25	2.026	0.116
Action orientation	3.57	3.69	4.13	4.26	8.968	0.000

NOTES Environmental management system – ISO 14001: (1) do not implement, (2) planned, (3) in the middle of implementation, (4) already in use, (5) analysis of variance, (6) F/Welch statistic, (7) *p*-value.

the organization are vision, credibility, collaboration, accountability, and action orientation.

Managerial Implications and Implications for Research

This research has developed an empirical approach for the evaluation of top managers' perceptions in their organizations in order to implement the environmental component of sustainable development in the organizations. The derived managerial implications are raising awareness among the top managers in the organizations towards social responsibility for improvements in implementation of the environmental component of sustainable development in the organizations. More specifically, managerial implications are related to those leadership factors that were found to be significantly associated with the implementation of ISO 14001. In order to improve the situation, top managers should be presented with the meaning of ISO 14001 implementation in a way that employees will perceive it with enthusiasm; that will provide employees, especially environmental managers, appropriate training and education about the standard; that will strive for continuous improvements, and stimulate employee involvement in improvement activities, related to the requirements of ISO 14001; that will rely on employees and delegate a part of accountability to them; and that will provide incentives for proactive behaviour to consider ISO 14001 implementations in organizations' policies before the actual implementation.

On the basis of research limitations, there are some implications for future research. First limitation of the research is the focus on a single envi-

ronmental component of sustainable development. Future research with focus on the other two components of sustainable development (economic and social) can allow extending the results and obtaining the whole picture of how the presented leadership factors could influence the implementation of the concept of sustainable development in organizations. Second limitation of the research is the focus on seven leadership factors. The inclusion of other leadership factors, such as charisma, mindfulness, integrity, delegation, and enthusiasm, can be an interesting issue for future research. Third, an additional research limitation is the size of the organizations. Only large organizations were included in the research. Future research could also be conducted among small and medium-sized enterprises. They represent a driving force of the economy and, as such, should operate in a sustainable way, so as to also be environmentally-oriented. It would be interesting to identify the dominant leadership factors to be considered by top managers of small and medium-sized enterprises in achieving sustainable development.

Finally, the research was aimed at the top managers of organizations and, due to such a survey sample selection, the empirical results are based on the manager's perspective. The inclusion of other respondents, such as employees, might bring another perspective on the influence of leadership factors on the implementation of ISO 14001 in organizations. Therefore, it would be interesting to research how employees with regard to leadership factors see their top managers in the implementation of the environmental component of sustainable development.

Conclusions

Top managers have a key role in introducing sustainable development into their organization and, thus, also in introducing its environmental component. Top managers should provide incentives in this direction and encourage employees in this way. They should be the employees' mentors or 'gurus' showing the way forward to common goals. Thus, leadership is said to be the main force within new changes. Our research contributes insight into how leadership factors influence the implementation of the environmental component of sustainable development in terms of ISO 14001 in large Slovenian organizations.

The research has shown that the dominant leadership factors that positively influence the implementation of the environmental component of sustainable development (the ISO 14001 standard) in the organization are vision, credibility, collaboration, accountability, and action orienta-

tion. The fact is that top managers should convey the vision in a compelling way throughout the organization. Their vision will be taken seriously if they will be credible. Only when top managers have a decent record of consistency, are known for keeping their word, and stick with the truth even when it is not popular will the things they say have real meaning and be influential. If they have vision and if they are credible, they also need to have a strong action orientation. Therefore, when they see the facts clearly, it is essential to take decisive action. Since no organization can exist without its employees, top managers should actively collaborate with them, including them in the process of making new decisions and defining goals. Top managers are accountable for the quality of business. Delegating a part of this accountability to other employees is extremely important. Thus, this can make employees stronger and develop feelings of independence and their participatory role in the organization.

The emphasis on those significant leadership factors may help top managers in implementing the environmental component of sustainable development in the organization. Finally, the research contributes to the rising awareness of top managers in organizations on the importance of the environmental component of sustainable development.

Among issues for further research is how the managers and organizations can improve social responsibility regarding the environmental component of sustainable development with the reduction of direct and indirect social costs and what can be the role of economic, social and environmental policies in this process, which is of broader interests for the society.

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Trust and Product/Sellers Reviews as Factors Influencing Online Product Comparison Sites Usage by Young Consumers

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Paper describes young consumers' behaviour connected with online product comparison sites usage as an example of online decision shopping aids. Authors' main goal is to check whether or not such factors as: previous experience in such sites usage, personal innovativeness in domain of information technology – PIIT, and particularly cognitive trust (in several subdimensions), as well as affective trust toward online product comparison site, influence purchase intention via mentioned sites (acting as intermediaries in online sales channel), and anticipated satisfaction from choice made by consumer. Also indirect influence of users' opinions about product and sellers on mentioned constructs has been researched. Study on effective sample of 456 young consumers with data collected through CAWI questionnaire confirmed reliability and validity of measurement scales. Path model estimated via PLS-SEM confirmed most hypotheses settled, particularly confirming strong positive relationships between cognitive trust (mostly in competence) on affective trust, and later on purchase intention and choice satisfaction. Product and sellers reviews were partially mediating some of those relationships.

Key Words: information technology, market, online product comparison sites usage, trust, products/sellers reviews, purchase intention
JEL Classification: O33, D12, C39

Introduction

Common access to online shopping by consumers changed their buying habits during last 10–15 years. The share of online retail spending (on goods) increases over the time, breaking on most mature markets as United States, United Kingdom or Germany the barrier of 10% share in total retail recently, with UK being the leader with mentioned share

about 13.5%, and growth rate of online sale in Europe by 18.4% between 2013 and 2014 (see http://www.retailresearch.org/onlineretailing.php). This involves a large number of decisions to find products and sellers online. Although finding online retailer by choice the largest brands (like Amazon) or places where someone bought previously with satisfaction is common, finding the best deal – often with help of product comparison sites – is another popular option.

Contemporary online product comparison sites offer possibilities to compare products using many criterions regarding product features and opinions about them (sometimes also so called 'trusted opinions' of real and not anonymous for the site customers who bought particular product), as well as prices and sellers' credibility (typically also based on customers opinions). Product comparison sites evolved form more simple price comparison engines introduced nearly 20 years ago.

General mechanics of product comparison site is to aggregate information from product comparison agent or bot, that is configured to gather product information (such as actual price, product availability, product description etc.) from online vendors and/or product information databases, usually on agreement via programming interface, or parsing HTML data from online vendors. In this paper approach differentiating product comparison agent from product comparison site is proposed, as typical consumer interacts with product comparison site, typically known for him/her, and is not interested about underlying technology allowing the site to present demanded information on request – product comparison agent should be transparent to the comparison site user. Aggregated information awaits online shopper request and is revealed to him/her usually in form of ranking on request. Interacting with product comparison site consumers create some traces of their behaviour, that are valuable for online vendors for their marketing activities (figure 1).

As the exact rules of product information aggregation and presentation by product comparison site may not be known to the consumer, the consumer should believe that such site acts benevolently for him/her. Trusting beliefs that business model of such service is based on customer satisfaction, and not on presenting distorted data on behalf of sellers paying higher commission or advertising within service, are important part of trust as a whole, and trust to product comparison site is important factor of such service usage. Modern product comparison sites are also rich in product and sellers ratings or reviews, their presence and content can mediate relationship between trust and shopping process outcomes, as described later in the paper.

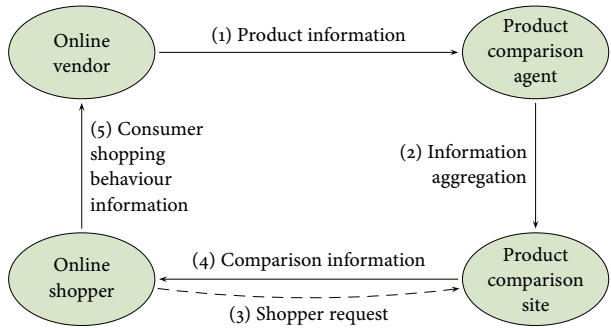

FIGURE 1 Place of Product Comparison Sites in e-Commerce Ecosystem (numbers represent steps of information flows between ecosystem members; adapted from Wan, Menon, and Ramaprasad 2007, 66)

Young consumers are more innovative toward information technology usage. They also are using online decision shopping aids including product comparison sites, and connected with them mobile tools, more often and in more extensive way (Mącik and Nalewajek 2013), so studying this group behaviour can be useful to make predictions by analogy for consumers later accepting new technologies. Previous research also suggests the power of online opinions and reviews for this group of consumers (Nalewajek and Mącik 2013).

Although the influence of online reviews on purchasing behaviour has received empirical support from a numerous studies in the information systems and consumer behaviour literature (e.g., Forman, Ghose, and Wiesenfeld 2008; Khammash and Griffiths 2011), in most studies the effect of positive and negative reviews for particular e-commerce site have been studied, and product reviews have been left from detailed consideration. Particularly negative reviews are believed to have a stronger effect on consumer behaviour than positive ones (Park and Lee 2009), as they are seen as more diagnostic and informative (Lee, Park, and Han 2008). Typically set of product reviews and seller opinions available for consumer via online product comparison sites are a mix of positive and negative reviews, this situation is considered in literature as inconsistent reviews setting (Tsang and Prendergast 2009). For instance, a consumer easily can find positive review stating that an online retailer is very helpful in answering consumers' questions or doubts, and another review being exactly opposite to the first one (negative review). To understand how consumers make decision in this circumstance, particularly when both types of reviews are coming from the same time (and differences cannot be attributed to improvement or decrease in service quality over time), it

is important to investigate the influence of inconsistent reviews, to check whether the negative information in inconsistent reviews is overemphasized (Zhang, Cheung, and Lee 2014), and whether or not decreases purchase intention at particular site, or leads to change previously chosen retailer.

In this study focus lies on the extent of usage of reviews that are mediating trust toward product comparison site and shopping outcomes, under assumption that typically consumer is exposed on mixed reviews – both positive and negative.

Trust-Based Acceptance Model

Numerous research show that online trust is a key driver for the success of e-commerce (Cheung and Lee 2006; Hong and Cho, 2011), and consumer trust is believed to have essential role in successful operation of online retailer (Kim and Park 2013). Many studies researching consumer trust toward e-commerce site are following Komiak and Bensabat (2006) trust-based acceptance model built upon well-known and widely used in e-commerce studies theory of reasoned action (TRA) (Hoehle, Scornavacca, and Huff 2012; Komiak and Benbasat 2006). According to TRA individuals' behaviour is predicted by their behavioural intention, while behavioural intention is formed as an effect of attitude, beliefs, and subjective norms (Fishbein and Ajzen 1975). Those connections are causal relationships, so can be modelled using SEM approach.

Another concept to include trust in e-commerce research is exploring antecedents of trust toward online seller in the context of trust–risk–benefit triangle explaining intention to buy online (Kim, Ferrin, and Rao 2008). In this approach trust is one dimensional construct opposite to risk, and both of them are explained by set of the same factors varying in sign of influence. Trust in this research is mostly an effect of perceived privacy protection and website information quality (Kim, Ferrin, and Rao 2008).

More sophisticated and relevant for presented research is approach proposed by Komiak and Benbasat (2006) including studying different types of trust. They proposed mentioned trust-based acceptance model to understand the adoption of online recommendation agents. Komiak and Benbasat (2006) examined two types of trust in the model: cognitive trust and emotional trust. Cognitive trust is conceptualized as trusting beliefs, while emotional (affective) trust is rather a form of trusting attitude. In online environments, consumers often affectively evaluate trust-

ing behaviour. A high level of emotional trust suggests that consumers have favourable feelings toward performing the behaviour. The trust-based acceptance model highlights that cognitive trust affects emotional trust, which further leads to individuals' adoption intention (Komiak and Benbasat 2006). This is convergent with TRA approach when adoption process is in sequence of belief 'attitude' intention, although subjective norm is not considered in trust-based acceptance model as adoption behaviour is considered as voluntary rather than mandatory (Komiak and Benbasat 2006).

Cognitive trust can be analysed in three, usually correlated, main categories: competence, benevolence, and integrity as suggest McKnight, Choudhury, and Kacmar (2002). Trust in competence refers to the extent to which consumers perceive an online retailer as having skills and abilities to fulfil what they need (Mayer, Davis, and Schoorman 1995). Trust in benevolence is consumers' perception that the retailer will act in their interest (Hong and Cho 2011). Trust in integrity refers to consumers' perception about honesty and promise-keeping by online retailer (McKnight, Choudhury, and Kacmar 2002). For proposed study all mentioned three dimensions of cognitive trust are researched in the context of product comparison sites and their usage by consumers.

Affective (emotional) trust captures consumers' affective evaluation of performing trusting behaviour (Sun 2010). Relatively high level of affective trust suggests having favourable feelings by consumer toward performing shopping behaviour. Including emotional dimension of trust toward online vendor or intermediary such as product comparison site may lead to oversimplified analysis of consumers' behavioural decision (Komiak and Benbasat 2006).

The trust-based acceptance model assumes that cognitive trust (including its sub-dimensions) affects emotional (affective) trust, and the latter leads to individual adoption intention. Subjective norm present in theory of reasoned action (TRA) is dropped in this case, as consumer adoption behaviour is in most cases voluntary in the context of internet shopping aids usage, as it is possible not to use them, or choose the tool from wide set of possibilities, during decision-making online. Miller and Hartwick (2002) suggest that subjective norm is more important in mandatory rather than voluntary settings. In effect the trust-based acceptance model follows process of belief → attitude → intention in the form cognitive trust → affective trust → behavioural intention for explaining consumer online shopping behaviour (Zhang, Cheung, and Lee 2014, 90).

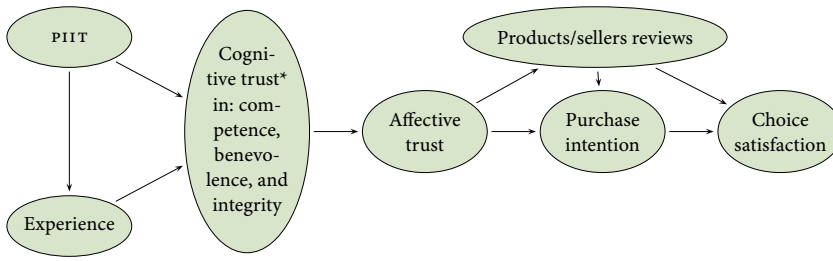

FIGURE 2 Conceptual Research Model (* for online product comparison site)

Research Model and Hypotheses

Previously mentioned concepts, particularly Komiak and Benbasat (2006) approach, putted in context of online product comparison sites usage, were leading to propose and validate conceptual model shown on figure 2.

In this model previous experience in online product comparison sites usage and personal innovativeness in domain of information technology – PIIT (Agarwal and Prasad 1998) are predictors for cognitive trust for online product comparison site. PIIT influences cognitive trust directly and indirectly, trough experience in online product comparison site usage. Cognitive trust is measured in three sub-dimensions: trust in competence, trust in benevolence and trust in integrity – as suggested by McKnight, Choudhury, and Kacmar (2002). Cognitive trust (each of three dimensions) influences affective trust, and later purchase intention – similarly as in Komiak and Benbasat (2006) research. Purchase intention leads to buying behaviour (analogically to the usage intention and actual use relationship in classical TAM), but as there were no actual purchase in this research, anticipated satisfaction from choice made is substituting the real purchase behaviour and satisfaction. The influence of affective trust on purchase intention and on choice satisfaction is mediated by products and sellers reviews available for consumer within product comparison site. This way the original trust-based adoption model proposed by Komiak and Benbasat (2006) is extended by adding selected antecedents of cognitive trust, and also by introducing choice satisfaction as final explained construct, with products/sellers reviews mediating consumer's decision-making process outcomes.

Following hypotheses have been formulated for this research:

H1 *Personal Innovativeness in domain of Information Technology (PIIT) will positively affect cognitive trust to product comparison site.*

H1a *PIIT will positively influence cognitive trust in competence to product comparison site.*

H1b *PIIT will positively influence cognitive trust in benevolence to product comparison site.*

H1c *PIIT will positively influence cognitive trust in integrity to product comparison site.*

H2 *Personal Innovativeness in domain of Information Technology will indirectly positively affect cognitive trust to product comparison site trough previous consumer experience with product comparison site.*

H3 *Previous consumer experience with product comparison site usage will positively affect cognitive trust to product comparison site.*

H3a *Previous consumer experience with product comparison site usage will positively influence cognitive trust in competence to product comparison site.*

H3b *Previous consumer experience with product comparison site usage will positively influence cognitive trust in benevolence to product comparison site.*

H3c *Previous consumer experience with product comparison site usage will positively influence cognitive trust in integrity to product comparison site.*

H4 *Cognitive trust sub-dimensions are interconnected.*

H4a *Cognitive trust in competence will influence cognitive trust in benevolence.*

H4b *Cognitive trust in benevolence will influence cognitive trust in integrity.*

H4c *Cognitive trust will positively affect affective trust to product comparison site.*

H5 *Cognitive trust will positively affect affective trust to product comparison site.*

H5a *Cognitive trust in competence will positively influence cognitive trust in competence to product comparison site.*

H5b *Cognitive trust in benevolence will positively influence cognitive trust in competence to product comparison site.*

H5c *Cognitive trust in integrity will positively influence cognitive trust in competence to product comparison site.*

H6 *Affective trust to product comparison site will positively affect purchase intention.*

H7 *Purchase intention will positively affect anticipated choice satisfaction.*

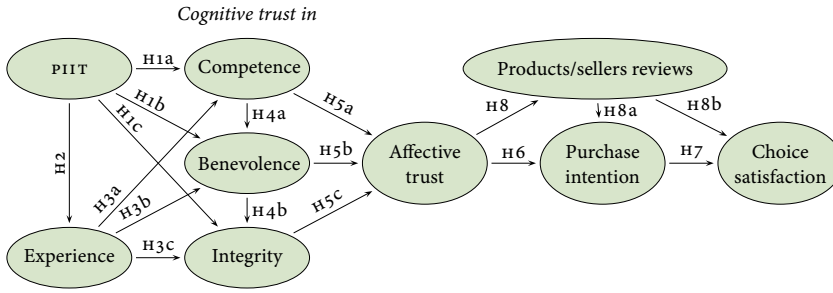

FIGURE 3 Hypothesised Relationships in Research Model

H8 *Product and sellers reviews available for consumer from product comparison site will mediate relations between affective trust and shopping process outcomes.*

H8a *Product and sellers reviews available for consumer from product comparison site will mediate the relationship between affective trust and purchase intention.*

H8a *Product and sellers reviews available for consumer from product comparison site will mediate the relationship between affective trust and anticipated choice satisfaction.*

Research model derived from conceptual one has been assessed via structural equation modelling approach utilizing PLS-SEM.

Sample and Measures

SAMPLE

Data have been collected through CAWI questionnaire with e-mail invitation sent to authors students and their peers that returned 461 responses from 575 sent invitations, giving response rate of 80.2%. Study participants were motivated to respond by giving course credit (bonus points for activity if a student responds and effectively invites one other person – points given have value of 3% of maximum grade for the course), and also the promise of presenting preliminary study results on final lecture in consumer behaviour has been given. For analysis 456 responses have been qualified as complete and usable.

In effect sample consists of 60.1% women and 39.9% men. Mean age of participants is 24.6 years with standard deviation of 5.3 years (range: 18–36 years old, median: 23 years). 1/3rd of participants are inhabitants of rural areas. All participants must be active internet users and make at least one online purchase during a year prior study. Sample structure

TABLE 1 Scales Used in Study

Construct	(1)	(2)	(3)	(4)
Personal Innovativeness in domain of Information Technology	PIIT	(Agarwal and Prasad 1998)	translation	4
Consumer experience in product comparison sites usage b	EXP	Own	N/A	9
Cognitive Trust in Competence	CT_Competence	(McKnight, Choudhury, and Kacmar 2002)	travestation	4 (3)[a]
Cognitive Trust in Benevolence	CT_Benevolence	(McKnight, Choudhury, and Kacmar 2002)	travestation	4 (3)[a]
Cognitive Trust in Integrity	CT_Integrity	(McKnight, Choudhury, and Kacmar 2002)	travestation	4 (3)[a]
Affective (Emotional) Trust	Emo_Trust	(Komiak and Benbasat 2006)	reconstruction	4
Purchase Intention	Purchase_Int	(Gefen, Karahanna, and Straub 2003)	reconstruction	4
Choice Satisfaction[b]	Choice_Satisf	Own	N/A	4
Product Reviews[b]	Prod_Reviews	Own	N/A	2
Sellers Reviews[b]	Sellers_Reviews	Own	N/A	2

NOTES Column headings are as follows: (1) short name, (2) source of items, (3) level of adaptation, (4) number of items. [a] One item dropped due to low factor loading. [b] Scale items presented in table 8.

regarding to gender and age is close to population of full-time and part-time students of public university located in South-East part of Poland, where data have been collected.

MEASURES

Items to measure constructs used in the research have been adapted mainly from previous studies published, and scales prepared by authors. As questionnaire language was Polish, this required to translate and culturally adapt (by authors) scales written originally in English, including reconstruction where needed. In effect used scales are derived from original measures. Basic data about used scales provides table 1.

Data analysis for this study has been performed using SmartPLS 3.2

TABLE 2 Reliability of Measures – Cronbach's Alpha

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CT_Benevolence	0.713	0.710	0.030	24.150	0.000	0.645	0.763
CT_Competence	0.732	0.730	0.027	26.797	0.000	0.672	0.780
CT_Integrity	0.777	0.775	0.023	33.312	0.000	0.726	0.817
Choice_Satisf	0.778	0.777	0.023	33.255	0.000	0.727	0.818
EXP	0.928	0.928	0.006	155.309	0.000	0.915	0.938
Emo_Trust	0.802	0.801	0.020	39.243	0.000	0.759	0.838
PIIT	0.821	0.820	0.015	56.054	0.000	0.790	0.847
Prod_Reviews	0.788	0.788	0.025	31.153	0.000	0.736	0.835
Purchase_Int	0.797	0.796	0.021	37.941	0.000	0.752	0.833
Sellers_Reviews	0.835	0.834	0.021	39.706	0.000	0.791	0.872

NOTES Column headings are as follows: (1) original sample; bootstrap estimates: (2) sample mean, (3) standard error, (4) *t*-statistics, (5) *p*-values; bootstrap bias corrected 90% confidence interval: (6) low, (7) high.

TABLE 3 Reliability of Measures – Composite Reliability (CR)

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CT_Benevolence	0.839	0.838	0.014	60.961	0.000	0.808	0.863
CT_Competence	0.849	0.848	0.013	65.332	0.000	0.821	0.872
CT_Integrity	0.871	0.870	0.012	74.224	0.000	0.845	0.891
Choice_Satisf	0.857	0.856	0.013	66.032	0.000	0.829	0.880
EXP	0.940	0.940	0.005	196.583	0.000	0.929	0.948
Emo_Trust	0.871	0.870	0.012	75.155	0.000	0.847	0.892
PIIT	0.882	0.882	0.009	102.417	0.000	0.862	0.897
Prod_Reviews	0.904	0.904	0.010	87.452	0.000	0.883	0.923
Purchase_Int	0.868	0.867	0.012	72.980	0.000	0.843	0.889
Sellers_Reviews	0.924	0.923	0.009	103.049	0.000	0.905	0.940

NOTES Column headings are as follows: (1) original sample; bootstrap estimates: (2) sample mean, (3) standard error, (4) *t*-statistics, (5) *p*-values; bootstrap bias corrected 90% confidence interval: (6) low, (7) high.

software (see www.smartpls.com), as most of measurement variables were not normally distributed. Bootstrap precedure with 10000 repetitions (resampling with replacement, sample size equal of original sample size – 456 observations) has been utilised to get inference statistics for measures and model.

TABLE 4 Convergent Validity of Measures – Average Variance Extracted (AVE)

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CT_Benevolence	0.635	0.634	0.023	27.112	0.000	0.585	0.678
CT_Competence	0.652	0.652	0.023	28.768	0.000	0.606	0.695
CT_Integrity	0.692	0.691	0.022	31.377	0.000	0.646	0.732
Choice_Satisf	0.600	0.599	0.025	23.880	0.000	0.549	0.647
EXP	0.636	0.636	0.019	32.962	0.000	0.594	0.670
Emo_Trust	0.628	0.627	0.024	26.375	0.000	0.582	0.673
PIIT	0.656	0.654	0.017	37.687	0.000	0.618	0.686
Prod_Reviews	0.825	0.825	0.017	48.025	0.000	0.791	0.858
Purchase_Int	0.622	0.621	0.024	25.964	0.000	0.574	0.667
Sellers_Reviews	0.858	0.858	0.015	55.580	0.000	0.827	0.887

NOTES Column headings are as follows: (1) original sample; bootstrap estimates: (2) sample mean, (3) standard error, (4) *t*-statistics, (5) *p*-values; bootstrap bias corrected 90% confidence interval: (6) low, (7) high.

RELIABILITY AND VALIDITY OF MEASURES

Reliability of measures in this study has been assessed by Cronbach's Alpha coefficient and Composite Reliability (CR) measure, as they represent lower and upper boundaries of true scale reliability respectively (Henseler, Ringle, and Sarstedt 2014). Using both criterions reliability of all constructs meets typical requirements – values of Alpha and CR are all over 0.7 (Hair, Ringle, and Sarstedt 2013, 7) – tables 2 and 3. In most following tables information structure includes original sample estimates, bootstrap estimates including sample mean and standard error from 10000 bootstrap samples with corresponding *t*-test statistic and its *p*-value, as well as 90% bootstrap bias-corrected confidence interval. These values are reported to confirm that results are valuable in terms of meeting typical criteria of reliability and validity.

Convergent validity of used measures is very good – all constructs are meeting criterion of Average Variance Extracted (AVE) over value of 0.5 as suggested by Fornell and Larcker (1981) – table 4.

Discriminant validity of used measures is also good. The Fornell-Larcker Criterion stating that AVE for each construct should be higher from all squared correlations between construct and other measures (Fornell and Larcker 1981) is met for all constructs beside one (pair: Emotional Trust and Choice Satisfaction) – table 5 (see also note, as in table this criterion is reported in alternative form).

TABLE 5 Discriminant Validity of Measures – Fornell-Larcker Criterion

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	0.797									
(2)	0.657	0.807								
(3)	0.691	0.700	0.832							
(4)	0.538	0.693	0.556	0.774						
(5)	0.106	0.210	0.179	0.225	0.798					
(6)	0.609	0.746	0.633	0.790	0.252	0.792				
(7)	0.042	0.117	0.117	0.073	0.307	0.035	0.810			
(8)	0.121	0.185	0.121	0.247	0.316	0.263	0.084	0.908		
(9)	0.500	0.596	0.503	0.738	0.285	0.739	0.062	0.224	0.789	
(10)	0.202	0.209	0.140	0.283	0.311	0.229	0.211	0.570	0.211	0.926

NOTES Column/row headings are as follows: (1) CT_Benevolence, (2) CT_Competence, (3) CT_Integrity, (4) Choice_Satisf, (5) EXP, (6) Emo_Trust, (7) PIIT, (8) Prod_Reviews, (9) Purchase_Int, (10) Sellers_Reviews. Numbers on matrix diagonal are square roots from AVE for each construct; numbers off-diagonal are correlations between constructs, this is alternative form to report Fornell-Larcker Criterion (Henseler et al. 2014, 117).

Results

On the base or conceptual model shown on figure 1 and initial data analysis path model presented on figure 4 has been estimated using Smart PLS 3.2 software.

Initial checks led to exclude from final model direct relationships between PIIT and any of cognitive trust constructs – there are no valid direct relationships between them, and PIIT influence on other constructs in this model is only indirect, via consumer experience with product comparison sites. Also path between consumer experience and cognitive trust in benevolence, as well as influence of product/sellers reviews on purchase intention have been dropped from the same reason. Other changes include adding direct relationship between cognitive trust in integrity and anticipated choice satisfaction. It has been also assumed that cognitive trust constructs are interconnected, so cognitive trust in competence influences trust in benevolence, and trust in benevolence is connected with trust in integrity. Table 6 presents path coefficients values in original sample and inference statistics for paths obtained via bootstrapping. Model exhibit reasonable fit – proportion of variance explained, measured with R-squared statistics is over 0.5 for main explained variables, particularly 0.591 for Emotional Trust and 0.605 for Choice Satis-

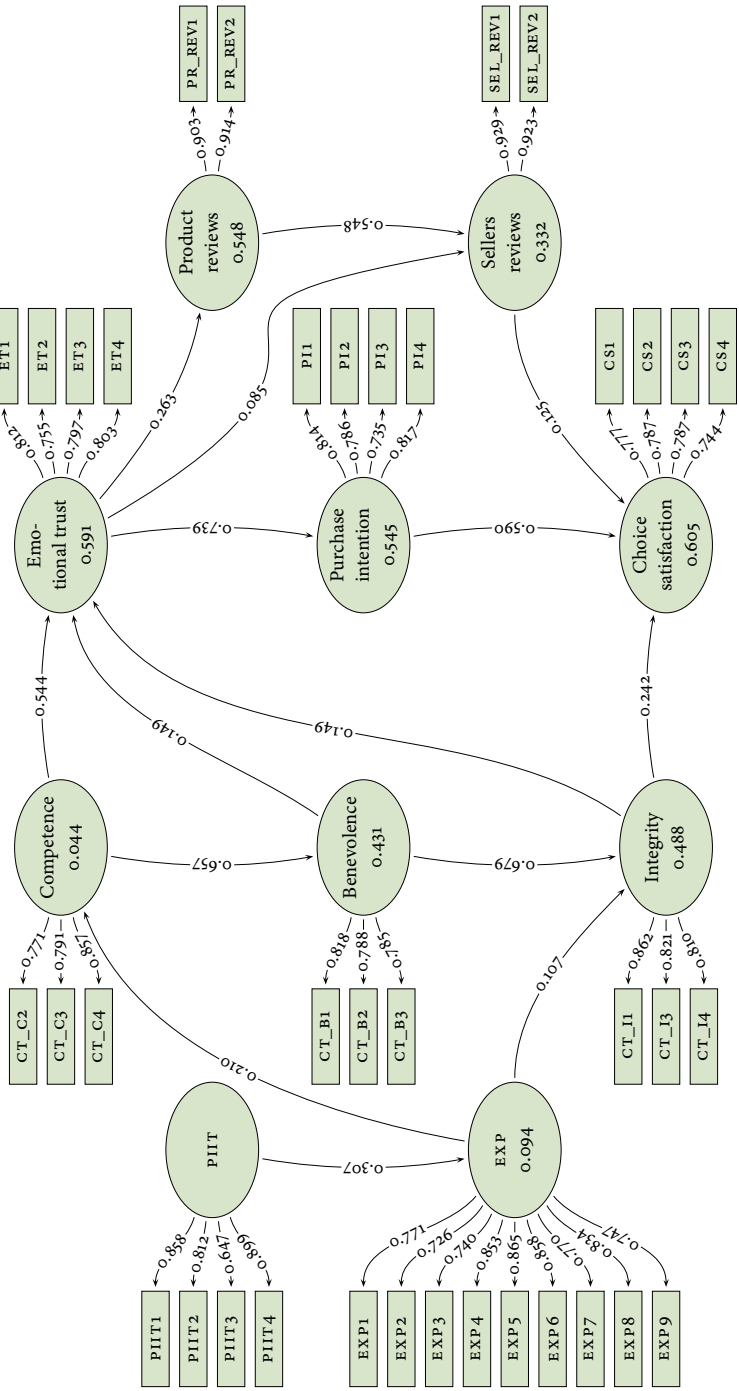

FIGURE 4 Path Model (final form; values in dark grey ovals representing latent variables are *R*-square values for this constructs)

TABLE 6 Path Coefficients in Estimated Model

Paths (direct effects)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CT_Benevolence → CT_Integrity	0.679	0.678	0.032	21.090	0.000	0.613	0.737
CT_Benevolence → Emo_Trust	0.149	0.149	0.053	2.828	0.005	0.047	0.255
CT_Competence → CT_Benevolence	0.657	0.657	0.037	17.967	0.000	0.585	0.727
CT_Competence → Emo_Trust	0.544	0.543	0.046	11.943	0.000	0.450	0.630
CT_Integrity → Choice_Satisf	0.242	0.240	0.042	5.776	0.000	0.156	0.320
CT_Integrity → Emo_Trust	0.149	0.149	0.049	3.034	0.002	0.055	0.246
EXP → CT_Competence	0.210	0.213	0.051	4.101	0.000	0.116	0.317
EXP → CT_Integrity	0.107	0.108	0.034	3.126	0.002	0.043	0.178
Emo_Trust → Prod_Reviews	0.263	0.264	0.048	5.481	0.000	0.172	0.359
Emo_Trust → Purchase_Int	0.739	0.739	0.029	25.595	0.000	0.685	0.796
Emo_Trust → Sellers_Reviews	0.085	0.084	0.040	2.094	0.036	0.005	0.163
PIIT → EXP	0.307	0.313	0.046	6.618	0.000	0.233	0.414
Prod_Reviews → Sellers_Reviews	0.548	0.549	0.038	14.354	0.000	0.474	0.623
Purchase_Int → Choice_Satisf	0.590	0.592	0.044	13.456	0.000	0.510	0.679
Sellers_Reviews → Choice_Satisf	0.125	0.125	0.032	3.886	0.000	0.063	0.189

NOTES Column headings are as follows: (1) original sample; bootstrap estimates: (2) sample mean, (3) standard error, (4) *t*-statistics, (5) *p*-values; bootstrap bias corrected 90% confidence interval: (6) low, (7) high.

faction. Also SRMR (Square Root of Mean Residuals) is low. SRMR value of 0.039 that is less than suggested 0.09 by (Iacobucci 2010, 97) confirming reasonable model fit to the data.

As model is quite complicated, some indirect effects are present, particularly for mediation of product and sellers reviews between affective trust and choice satisfaction. As total effect is the sum of direct effect and indirect effect(s), only direct and total effects are reported (tables 6 and 7). Indirect effect in this case is easy to calculate as the difference between total and direct effects (or as multiplication of particular path coefficients). In case of lack of direct relationship total effect equals indirect effect – such cases are italicized in table 7.

On the base of model estimation results hypotheses were assessed. There are no valid direct relationships between PIIT and any of cognitive trust constructs in final model, thus hypotheses H1a-H1c are not supported. PIIT influence on other constructs in this model is only indirect, via consumer experience with product comparison sites, that satisfies hypothesis H2. PIIT stronger indirectly influences cognitive trust in competence and integrity than in benevolence, and those influences are statistically significant (table 7).

Mentioned consumer experience influences cognitive trust in compe-

TABLE 7 Total Effects in Estimated Model

Paths (direct effects)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CT_Benevolence → CT_Integrity	0.679	0.678	0.032	21.090	0.000	0.613	0.737
CT_Benevolence → Choice_Satisf*	0.280	0.280	0.036	7.691	0.000	0.210	0.354
CT_Benevolence → Emo_Trust	0.250	0.251	0.046	5.448	0.000	0.164	0.344
CT_Benevolence → Prod_Reviews*	0.066	0.066	0.018	3.599	0.000	0.033	0.104
CT_Benevolence → Purchase_Int*	0.185	0.185	0.035	5.271	0.000	0.119	0.256
CT_Benevolence → Sellers_Reviews*	0.057	0.058	0.016	3.476	0.001	0.028	0.091
CT_Competence → CT_Benevolence	0.657	0.657	0.037	17.967	0.000	0.585	0.727
CT_Competence → CT_Integrity*	0.446	0.446	0.041	10.977	0.000	0.365	0.525
CT_Competence → Choice_Satis*f	0.437	0.439	0.034	12.678	0.000	0.376	0.510
CT_Competence → Emo_Trust	0.709	0.708	0.031	23.071	0.000	0.646	0.765
CT_Competence → Prod_Reviews*	0.186	0.187	0.034	5.478	0.000	0.120	0.254
CT_Competence → Purchase_Int*	0.523	0.524	0.036	14.349	0.000	0.454	0.595
CT_Competence → Sellers_Reviews*	0.162	0.162	0.033	4.937	0.000	0.099	0.227
CT_Integrity → Choice_Satisf	0.311	0.310	0.047	6.633	0.000	0.211	0.398
CT_Integrity → Emo_Trust	0.149	0.149	0.049	3.034	0.002	0.055	0.246
CT_Integrity → Prod_Reviews*	0.039	0.039	0.015	2.573	0.010	0.012	0.070
CT_Integrity → Purchase_Int*	0.110	0.110	0.036	3.031	0.002	0.041	0.183
CT_Integrity → Sellers_Reviews*	0.034	0.034	0.013	2.614	0.009	0.010	0.060
EXP → CT_Benevolence*	0.138	0.140	0.035	3.955	0.000	0.074	0.211
EXP → CT_Competence	0.210	0.213	0.051	4.101	0.000	0.116	0.317
EXP → CT_Integrity	0.201	0.203	0.048	4.151	0.000	0.112	0.301
EXP → Choice_Satisf*	0.125	0.127	0.031	4.012	0.000	0.070	0.192
EXP → Emo_Trust*	0.165	0.167	0.040	4.098	0.000	0.092	0.250
EXP → Prod_Reviews*	0.043	0.044	0.014	3.082	0.002	0.020	0.075
EXP → Purchase_Int*	0.122	0.124	0.031	3.904	0.000	0.066	0.188
EXP → Sellers_Reviews*	0.038	0.039	0.013	2.882	0.004	0.016	0.066
Emo_Trust → Choice_Satisf*	0.464	0.467	0.041	11.455	0.000	0.394	0.552
Emo_Trust → Prod_Reviews	0.263	0.264	0.048	5.481	0.000	0.172	0.359
Emo_Trust → Purchase_Int	0.739	0.739	0.029	25.595	0.000	0.685	0.796
Emo_Trust → Sellers_Reviews	0.229	0.229	0.046	5.007	0.000	0.143	0.318

Continued on the next page

tence (H3a – supported) and in integrity (H3c – supported), but is not connected directly with cognitive trust in benevolence (H3b – not supported). Cognitive trust in competence strongly influences cognitive trust in benevolence (this supports H4a), and cognitive trust in benevolence connects with cognitive trust in integrity (H4b – supported). This sequence of influence is consistent with McKnight, Choudhury, and Kacmar (2002) suggestions.

TABLE 7 *Continued from the previous page*

Paths (direct effects)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
PIIT → CT_Benevolence*	0.042	0.044	0.013	3.202	0.001	0.022	0.074
PIIT → CT_Competence*	0.064	0.067	0.020	3.285	0.001	0.033	0.110
PIIT → CT_Integrity*	0.062	0.064	0.019	3.271	0.001	0.032	0.107
PIIT → Choice_Satisf*	0.038	0.040	0.012	3.211	0.001	0.020	0.067
PIIT → EXP	0.307	0.313	0.046	6.618	0.000	0.233	0.414
PIIT → Emo_Trust*	0.051	0.052	0.015	3.268	0.001	0.026	0.087
PIIT → Prod_Reviews*	0.013	0.014	0.005	2.652	0.008	0.006	0.025
PIIT → Purchase_Int*	0.037	0.039	0.012	3.172	0.002	0.019	0.066
PIIT → Sellers_Reviews*	0.012	0.012	0.005	2.505	0.012	0.005	0.023
Prod_Reviews → Choice_Satisf*	0.068	0.069	0.018	3.735	0.000	0.033	0.105
Prod_Reviews → Sellers_Reviews	0.548	0.549	0.038	14.354	0.000	0.474	0.623
Purchase_Int → Choice_Satisf	0.590	0.592	0.044	13.456	0.000	0.510	0.679
Sellers_Reviews → Choice_Satisf	0.125	0.125	0.032	3.886	0.000	0.063	0.189

NOTES Column headings are as follows: (1) original sample; bootstrap estimates: (2) sample mean, (3) standard error, (4) *t*-statistics, (5) *p*-values; bootstrap bias corrected 90% confidence interval: (6) low, (7) high. * Only indirect effect.

Hypotheses H5a – H5c stating positive relationship between cognitive trust (particular sub-dimensions) on affective trust are supported, with cognitive trust on product comparison site competence having much stronger influence on affective trust than other cognitive trust constructs. Also hypotheses H6 and H7 are supported – affective trust strongly influences purchase intention, and purchase intention is positively connected with anticipated choice satisfaction. Added path for direct relationship between cognitive trust in integrity and anticipated choice satisfaction is also significant, this can be explained in following way: high cognitive trust in integrity means having trust beliefs about honesty and promise-keeping by online retailer (McKnight, Choudhury, and Kacmar 2002), in such circumstances it is easier to declare satisfaction from choice made.

In hypotheses H8a and H8b indirect influence of product and sellers reviews on relationship between affective trust and purchase intention or choice satisfaction have been hypothesized. Gathered data are suggesting – contrary to pilot study – that: products and sellers reviews mediation relationship is not confirmed for affective trust and purchase intention, not supporting hypothesis H8a. However there exists mediation of mentioned reviews on affective trust to choice satisfaction indirect relationship, supporting hypothesis H8b. In other words both review types are

TABLE 8 Scales Items

Construct	Short name	Item name	Item wording
Consumer experience in product comparison sites usage (5-point Likert-type scale)	EXP	EXP1	I can easily find the information I seek using product comparison sites and consumer e-opinions sites
		EXP2	I consider myself as an experienced user of product comparison sites, such as Ceneo.pl, Skapiec.pl[a]
		EXP3	I consider myself as an experienced user of consumer e-opinions sites, such as: Opineo.pl, Znam.to[b]
		EXP4	I use product comparison sites to compare prices
		EXP5	I use product comparison sites to compare product attributes
		EXP6	I use product comparison sites to look at the opinions about products / brands I consider as worth to buy
		EXP7	I use product comparison sites to learn about online retailers reputation
		EXP8	I use consumer e-opinions sites to look at the opinions about products / brands I consider as worth to buy
		EXP9	I use consumer e-opinions sites to learn about online retailers reputation

Continued on the next page

influencing much stronger choice satisfaction, than (if any) purchase intention (figure 4). Also product review usage explains 1/3rd of variance of sellers review usage, much more than emotional trust directly (table 6). Partial mediation of review constructs on affective trust to choice satisfaction occurs and is significant, while affective trust and purchase intention path is not significantly mediated as it was hypothesized.

Conclusion and Limitations

Performed research generally confirms conceptual model as well as measurement reliability and validity of used constructs. Main paths of influences adopted from Komiak and Benbasat (2006): cognitive trust → affective trust → purchase intention [and anticipated choice satisfaction – as added construct] is confirmed by relatively strong positive influence. Although the effect of selected for model antecedents of cognitive trust is lower than expected, and also mediation of product/sellers review affects stronger choice satisfaction than purchase intention, own extension of Komiak and Benbasat (2006) trust-based acceptance model is promising. Also main relationships found for product comparison site usage are similar to those found in case of online retailer (Zhang, Cheung, and Lee 2014), that confirms study external validity.

Obtained results confirm possibility to relatively good explain con-

TABLE 8 *Continued from the previous page*

Construct	Short name	Item name	Item wording
Choice Satisfaction (5-point Likert-type scale)	Choice_Satisf	CS1	I think I would have been satisfied making the purchase on the basis of the suggestions from comparison site I used
		CS2	I think that the comparison site I used, would allow me to make a good choice
		CS3	I believe that through the use of the comparison site I used, I would reduce the risk of buying the wrong product
		CS4	I believe that through the use of the comparison site I used, I would reduce the risk of unreliable vendor selection
Product Reviews (4-point scale[c])	Prod_Reviews	PR_REV1	To what extent in decision-making which product to choose you have paid attention on product ratings (described as numbers, points, stars, etc.)
		PR_REV2	To what extent in decision-making which product to choose you have paid attention on product written reviews
Sellers Reviews (4-point scale[c])	Sellers_Reviews	SEL_REV1	To what extent in decision-making which product to choose you have paid attention on vendor ratings (described as numbers, points, stars, etc.)
		SEL_REV2	To what extent in decision-making which product to choose you have paid attention on vendor written reviews

NOTES In questionnaire items were worded in Polish. [a] Ceneo.pl and Skapiec.pl are product comparison sites commonly used by consumers in Poland. [b] Opineo.pl and Znam.to are consumer e-opinion sites commonly used by consumers in Poland. [c] With answer choices: 1 – 'for any of the listings,' 2 – 'only for the listing selected eventually,' 3 – 'for listings under consideration,' 4 – 'for all viewed listings.'

sumer decision-making outcomes in terms of proposed model. Enhancing known model by new constructs gave possibility to better explain product comparison site usage, and contributed new findings to the existing knowledge – particularly by emphasising the role of cognitive trust in competence for product comparison sites usage and choice satisfaction (for the last one with cognitive trust in integrity); also finding that sellers reviews are more important than product ones confirms behaviour focused on minimising the risk of dissatisfaction because of unreliable online seller activity, rather on bad choice in terms of product features – these are most important practical implications from the study.

As own measures exhibit at least required reliability, as well as convergent and discriminant validity. Replication of proposed study will be welcomed by authors – all own measures in English translation are given in table 8 (measures adopted from previous studies are easily available from literature). Comparison of future replications with this study results al-

though should be careful, as English translation of own measures have not been tested in terms of validity – study participants answered questions in Polish.

Main limitation of this study is relatively homogenous sample in terms of participants' demographic background – university students and their working or studying peers only were surveyed. This suggests that some of influences in more diversified sample – particularly in terms of age – can be different than obtained, e.g. influence of PIIT on cognitive trust should be higher and more direct for older consumers. Another possibility is to improve model is to enhance antecedents list by set of consumer decision-making styles, giving opportunity to better explain trust measures in model.

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Asimetrično zbliževanje v globalizaciji? Ugotovitve iz disegregacijskih analiz
Paschalis Arvanitidis, Christos Kollias in Petros Messis

Z uporabo KOF indeksa globalizacije, ki omogoča multidimenzionalnost procesa, se članek ukvarja z raziskavo prisotnosti zbliževanja med državami v treh dimenzijah globalizacijskega procesa: ekonomski, družbeni in politični. Vzorec, ki ga uporabimo v empirični raziskavi, je sestavljen iz 111 držav in pokriva obdobja 1971–2011. Da bi v hitrosti zbliževanja dopustili razliko, so bile države glede na prihodke razdeljene v štiri skupine: višji, kažejo na asimetričen proces zbliževanja z različnimi hitrostmi, tako med skupinami kot v različnih razsežnostih globalizacije.

Ključne besede: globalizacija, združevanje, korenine enot
Klasifikacija JEL: C23, F01, F60
Managing Global Transitions 14 (2): 117–135

Bilateralno trgovanje in razporeditev stopnje rasti držav jugovzhodne Evrope
Valerija Botrić in Tanja Broz

Cilj članka je raziskati vlogo trgovanja pri poravnavi sinhronizacijskih vzorcev med jugovzhodnimi evropskimi državami – Albanijo, Bosno in Hercegovino, Bolgarijo, Hrvaško, Makedonijo, Kosovim, Črno goro, Romunijo in Srbijo – in člani evrskega območja. Natančneje. raziskujemo, ali bilateralni trgovinski tokovi vplivajo na sinhronizacijski donos med državami evrskega območja in jugovzhodnimi evropskimi državami, ter primerjamo izmenjevalno sinhronizacijske vzorce med ugovzhodnimi evropskimi državami in novimi državami članicami, ki še niso uvedle Evra (NMS). Rezultati kažejo, da so nivoji podobnosti v donosu držav jugovzhodne Evrope in držav članic, ki niso še uvedle evra, različni in da imajo države jugovzhodne Evrope nižjo donosno korelacijo s članicami evrskega območja kot z državami članicami, ki še niso uvedle evra. Raziskovanje vloge trgovine pri poravnavi vzorcev rasti je v nekaterih primerih ugotovilo pozitivne učinke, mnogo močnejše za države jugovzhodne Evrope, ki imajo nižji nivo intenzivnosti izmenjave. Argumentiramo, da je razlog za te rezutate povezan z dejstvom, da so lahko v državah članicah, ki še niso uvedle evra, dominantni drugi dejavniki (poravnava ukrepov politik znotraj EU), medtem ko so imeli pri

državah jugovzhodne Evrope možnost za uveljavitev učinkov v v analiziranem obdobju le menjalni odnosi.

Ključne besede: sinhronizacija poslovnega cikla, integracija, jugovzhodna Evropa
Klasifikacija JEL: F15, E32
Managing Global Transitions 14 (2): 137–155

Finančni razvoj in siva ekonomija v tranzicijskih ekonomijah Evropske unije

Yilmaz Bayar in Omer Faruk Ozturk

Siva ekonomija je resen problem z različnimi razsežnostmi v vseh dohodkovnih skupinah in ima na razvoj ekonomij pomembne škodljive učinke. Zatorej se vse države poskušajo boriti proti sivi ekonomiji z različnimi ukrepi. Ta študija raziskuje medsebojno vplivanje med sivo ekonomijo, razvojem finančnega sektorja in institucionalno kvaliteto med obdobjem 2003–2014 v tranzicijskih ekonomijah Evropske unije, pri čemer uporablja analizo panelnih podatkov. Empirične ugotovitve kažejo na integrirajoče odnose med sivo ekonomijo, razvojem finančnega sektorja in kvaliteto inštitucij. Še več, finančni razvoj in instiucionalno kvaliteta na dolgi rok negativno vplivata na sivo ekonomijo.

Ključne besede: siva ekonomija, finančni razvoj, institucionalna kvaliteta, analiza panelnih podatkov
Klasifikacija JEL: C23, G20, H11, H26, O17
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Vpliv dejavnikov vodenja na implementacijo ISO 14001 v organizacijah

Nastja Tomšič, Mirko Markič in Štefan Bojnec

Vodilni managerji imajo ključno vlogo pri implementaciji okoljskih komponent trajnostnega razvoja v organizacijah.ključno vlogo. Pričujoči članek predstavlja rezultate edinstvene raziskave, ki je bila narejena med vodilnimi managerji iz različnih velikih slovenskih organizacij, z namenom, da se ugotovi dominantne dejavnike vodenja, ki pozitivno vplivajo na implementacijo okoljskih komponent trajnostnega razvoja (standard ISO 14001) v organizaciji. Raziskava je zajela 321 velikih slovenskih organizacij. Ugotovili smo, da so vizija, kredibilnost, sodelovanje, odgovornost in orientiranost k akciji dominantni dejavniki vodenja, ki jih vodilni managerji vzamejo v obzir pri doseganju trajnostnega razvoja.

Ključne besede: ISO 14001, velike organizacije, vodenje, trajnostni razvoj
Klasifikacija JEL: M12, Q56
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Zaupanje in ocene izdelka/prodajalca kot dejavniki, ki vplivajo na uporabo spletnih strani s primerjavo izdelkov s strani mladih porabnikov

Radosław Mącik in Dorota Mącik

Članek opisuje obnašanje mladih porabnikov, povezanih z uporabo spletnih strani s primerjavo izdelkov na spletu, kot primer spletnih pripomočkov za odločanje pri nakupovanju. Avtorjev cilj je preveriti, ali dejavniki, kot so prejšnje izkušnje z uporabo takšnih strani, osebna inovativnost na področju informacijske tehnologije (PIIT) in še zlasti kognitivno zaupanje (v več poddimenzijah) kot tudi afektivno zaupanje spletnim stranem s primerjavo izdelov, preko omenjenih strani (pri čemer pri spletni prodaji delujejo kot posredniki) vplivajo na nakupovalni namen in pričakovano zadovoljstvo zaradi izbire, ki jo je porabnik opravil. Raziskovali smo tudi posredni vpliv mnenj uporabnikov o izdelkih in prodajalcih na omenjene konstruke. Študija učinkovitega vzorca 456 mladih porabnikov s podatki, zbranimi preko vprašalnika CAWI, je potrdila zanesljivost in veljavnost merskih lestvic. Model PLS-SEM je potrdil večino postavljenih hipotez, še posebej močan pozitiven odnos med kognitivnim zaupanjem in afektivnim zaupanjem in kasnejemed nakupovalnim namenom in zadovoljstvom z izbiro. Delna posrednika pri nekaterih od omenjenih odnosov sta bile ocene izdelkov in prodajalcev.

Ključne besede: informacijska tehnologija, tržišče, uporaba spletnih strani s primerjavo izdelkov, zaupanje, ocene izdelka/prodajalca, namen nakupa
Klasifikacija JEL: O33, D12, C39
Managing Global Transitions 14 (2): 195–215