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Thematic Issue

International Competitiveness

edited by

Pablo Collazzo Yelpo

Vienna University of Economics and Business, Austria

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Department of International Trade
ul. Rakowicka 27, 31-510 Kraków, Poland
phone +48 12 293 5376, -5381, 5327, fax +48 12 293 5037
e-mail: eber@uek.krakow.pl
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Editorial

Globalisation has reached a mature stage. This is also indicated by the emergence of global crises (for example the Global Financial Crisis, the sovereign debt crises, the migrant and refugee crises) and global responses (such as changes of political direction in the USA, UK, the EU and BRIC nations, the Sustainable Development agenda of the UN). It is within this global context that systems, countries, nations, businesses and individuals compete, framed by the no longer questionable resource constrained environment. The study of competition in this globalised context is defined by the term international competitiveness.

Competitiveness is a portfolio of attributes of entities distinguishing themselves from others by means of their performance (Porter, 1985; Stojcic, 2012; Wach, 2014). Competitiveness is present at three different levels of economic aggregation: micro, mezzo and macro levels (Perényi, 2016). Firm (micro) level competitiveness is presented in the literature as competitive performance and potential; competitive advantage; and competitive strategies (Buckley, Pass, & Prescott, 1988). Industry and cluster (meso) level competitiveness is linked with structural, institutional and resource factors (Porter, 2003) with a spatial dimension (Stojcic, 2012). DiRienzo, Das, & Burbridge (2007) define country (macro) level competitiveness as a collection of hard and soft factors influencing a country's productivity, and consequentially its ability to grow over time. These levels of competitiveness are conceptually linked (Chikán, 2008), and are in constant interaction with each other (Cho & Moon, 2013).

This themed issue of EBER aimed to capture the interaction between these complementary levels of competitiveness, in an international context. The editors invited articles which address international competitiveness as a field of research, drivers of competitiveness in an international context, interaction between national, cluster and firm-level competitiveness, global and regional characteristics of competitive processes, and methods and experiences of governing competitiveness for businesses.

The *Thematic Articles* section includes six articles. The articles presented in this thematic issue can be grouped into three categories. First, articles specifically investigating the interaction between levels of competitiveness provide a holistic understanding of the concept of international competitiveness. These articles are followed by industry-specific firm-level studies which empirically explore some key drivers of competitiveness in traditional and service industries. The third group of articles is conceptual in nature, and opens up the discussion about the transformation of national level competitive environments by means of technology and connectedness. The special issue is concluded by an article which introduces the supra-national level into the discussion of international competitiveness.

Michał Zdziarski (University of Warsaw, Poland), Michael Troilo and J. Markham Collins (both from University of Tulsa, USA) in their contribution entitled *Competitiveness, Technology Licensing, and Ease of Paying Taxes: A 30-Country Study* evaluated links between actors at various levels of competitiveness. They provided robust insight into the impact of institutional environmental characteristics and the impact of regulatory policy on the innovative performance of firms, and through this repeatedly impact upon the competitiveness of the national economy.

Eleanor Doyle (University College Cork, Ireland) and Mauricio Perez-Alaniz (University of Limerick, Ireland) in their article titled *Sustainable Competitiveness: Essential Concepts for Addressing Measurement Challenges* provide recommendations as to the incorporation of sustainability into the macro level competitiveness indicator of the World Economic Forum, highlighting the contribution of micro and mezzo level actors to sustainable competitiveness.

Anirban Sarkar (The Centre of Excellence, Australia) and Áron Perényi (Swinburne University of Technology, Australia) in their articles titled *Education agents as competitiveness enhancers of Australian universities by internationalisation facilitation* present evidence from university internationalisation in Australia, demonstrating that networks are primary vehicles for businesses in competing internationally.

Bartosz Deszczyński, Krzysztof Fonfara and Adam Dymitrowski (all from Poznan University of Economics and Business, Poland) in their article entitled *The Role of Relationships in Initiating the Internationalisation Process in B2B Markets* provide evidence that networks and relationships drive firm level ability of internationalisation, and therefore substantiate the foundation of international competitiveness across cases from a variety of industries.

Chen Liu (Trinity West University, Canada) in her conceptual article entitled *International Competitiveness and the Fourth Industrial Revolution* reviews how the next wave of innovative upgrading of industrial systems will affect the competitiveness framework, within which firms compete. She also argues that the depth of involvement in industrial upgrading will impact productivity and prosperity at a national level.

Sang Chul Park (Korea Polytechnic University, South Korea) examines the international dimension of competitiveness through discussing the regional economic implications of global economic and power shifts in his article entitled *RCEP versus TPP with the Trump Administration in the USA and Implications for East Asian Economic Cooperation*. In his article, he projects enhanced regional cooperation in the Asia Pacific region, pushing the intense competition to the supra-national level, between global regions.

The articles presented in this thematic issue of EBER reflected upon key influences shaping international competitiveness at all three levels of aggregation. Key themes emerging from the articles include the importance of technology, networks, and institutional environment. An additional contribution of this special issue to the domain of international competitiveness is the potential consideration of the supra-national level of aggregation.

This thematic issue on International Competitiveness has proven to be truly international in terms of the scope of the papers and authors as well. Authors from the Americas, Asia, Australia and Europe. In terms of the types of research, articles using a selection of quantitative and qualitative methodologies have been presented, using primary or secondary data. The issue also attracted conceptual papers, which provide suggestions for further research. It is the guest editors' intention to continue building upon the stream of articles presented at the International Competitiveness Track of the

European Academy of Management (EURAM) annual conference, and to continue supporting further thematic issues focusing on international competitiveness, to provide an opportunity for research ideas and outputs to be shared.

The second section of this journal issue deals with different general topics of modern business studies. The *Other Articles* section includes four articles.

Pablo Collazzo Yelpo
Áron Perényi
Thematic Issue Editors

REFERENCES

Ambastha, A., & Momaya, K. (2004). Competitiveness of Firms: Review of Theory, Frameworks, and Models. *Singapore Management Review*, 26(1), 45-61.

Buckley, P.J., Pass, C.L., & Prescott, K. (1988). Measures of International Competitiveness: A Critical Survey. *Journal of Marketing Management*, 4(2), 175-200.

Chikán, A. (2008). National and firm competitiveness: a general research model. *Competitiveness Review*, 18(1/2), 20-28.

Cho, D.S. & Moon, H.C. (2013). *From Adam Smith to Michael Porter Evolution of Competitiveness Theory*. Singapore: World Scientific Publishing Company.

DiRienzo, C., Das, J., & Burbridge, J. (2007). Does diversity impact competitiveness? A cross country analysis. *Competitiveness Review*, 17(3), 135-152.

Laureti, T. & Viviani, A. (2011). Competitiveness and productivity: a case study of Italian firms. *Applied Economics*, 43(20), 2615-2625.

Perényi, Á. (2016). Diagnosing cluster competitiveness using firm level data in the profit-growth nexus framework. *Acta Oeconomica*, 66(3), 469-463.

Porter, M.E. (1985). *Competitive advantage*. New York: The Free Press.

Stojcic, N. (2012). Theoretical Foundations and Measurement of Competitiveness. *Poslovna Izvrsnost*, VI(2), 143-166.

Wach, K. (2014). The Theoretical Modelling of the Firm-Level International Competitiveness in Business Studies. In D. Kiendl-Wendner & K. Wach (Eds.), *International Competitiveness in Visegrad Countries: Macro and Micro Perspectives* (pp. 101-121). Graz: Fachhochschule Joanneum.

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Competitiveness, Technology Licensing, and Ease of Paying Taxes: A 30-Country Study

Michael Troilo, Michał Zdziarski, J. Markham Collins

ABSTRACT

Objective: The objective of this article is to explore the impact of a regulatory constraint: the ease of paying taxes, on the likelihood of technology licensing and the subsequent impact on the sales of firms acquiring such licences across 30 countries.

Research Design & Methods: In a comparative, longitudinal study design we apply random effects panel logit, and random-effects GLS regression models. The World Bank Enterprise Surveys panel data for Central Europe for 2008 to 2013 is the source data for the analysis. Surveys of firms from 30 countries in Central and Eastern Europe and Central Asia constitute the panel.

Findings: Increasing regulatory burden in the form of tax compliance reduces the likelihood of technology licensing. Technology licensing has only modest effects on sales. Foreign ownership of firms increases both the likelihood of technology licensing and revenues.

Implications & Recommendations: All manner of political entities, from towns to entire nations, revise their tax policies to woo investment. Our current analysis of the marginal effects suggests that the impact of these improvements is underwhelming. Attracting foreign ownership is recommended to increase technology licensing, sales and competitiveness.

Contribution & Value Added: While tax holidays are a common device to woo investment, the interaction of tax regimes with technology licensing, specifically the regulatory burden of preparing and paying taxes, is scarcely studied. It is a gap we strive to fill in this manuscript.

Article type:	research paper
Keywords:	competitiveness; technology transfer; licensing; ease of paying taxes; stages of economic development; international business
JEL codes:	F23, E62, L26

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INTRODUCTION

Competitiveness at the national level is understood to be a phenomenon involving both firms that are world-class performers in their specific industry as well as a business environment that rewards innovation (Porter, 1990). Part of that environment is the regulatory regime which includes taxation. While tax holidays are a common device to woo investment, the interaction of tax regimes with technology licensing, specifically the burden of preparing and paying taxes, is scarcely studied. To our knowledge, there is no precise study of the effects of ease of paying taxes on technology transfer. It is a gap we strive to fill in this manuscript.

The motivation for our work is the increased focus of policymakers and firms on competitiveness, particularly in emerging and emergent markets, and how institutional constraints affect decisions to adopt competitive measures. As we elucidate in our discussion below, nations develop by obtaining more advanced technology from other nations, hence enhancing their competitiveness by lowering production costs/increasing output, improving quality, or both. While policymakers sketch the broad strokes of technology transfer, firms are the entities acquiring the technology from foreign companies, with a view to improving their own competitiveness and hence their financial and operational performance. The "rules of the game" (North, 1990) that policymakers design and enforce, such as tax codes, will naturally have bearing on the attractiveness of sourcing technology from abroad.

Acquiring technology can occur when a firm purchases it from another firm, when a firm buys the entire company owning the technology, or when the firm licenses the technology. While all of these ways are important, we concentrate upon the latter in this article. Using a panel of nearly 5 500 firms across 30 countries for the period 2009-2013, we examine the impact of tax compliance (an instance of regulatory burden) on technology licensing. The sample of firms from World Bank survey which we use for this study is composed in 70% of small, entrepreneurial firms. We use measures of the number of tax payments required, the hours of tax preparation required, and the tax rate itself on the likelihood of a firm licensing technology from a foreign company. We then analyse the effect such licensing has on annual sales, grouping the firms initially by national stage of development (Innovation, High Efficiency, Low Efficiency, and Factor), and then by country. In a comparative, longitudinal study design we apply quantitative research methods including random effects panel logit, and random-effects general least squares regression models.

Although there is scant prior research on the influence of ease of tax compliance on technology licensing per se, there is abundant work on institutional constraints/voids (see Khanna & Palepu, 2010) and regulatory burden. Costs and risks tend to increase when institutions are weak, which is typical in emerging economies (Meyer, Estrin, Bhaumik, & Peng, 2009). Understanding that rules of the competitive game do differ among developing and developed countries has raised appreciation that institutional burden influences strategies of both domestic and international firms (Peng, Wang, & Yiang, 2008). Based on this literature, we expected to find an inverse relationship between the three separate measures of compliance (tax payments, tax hours, and tax rate) and the likelihood of technology licensing. Overall, this is the case, though tax rates correlate positively with the likelihood of technology licensing for firms in Innovation economies. We theorise that this may indicate that taxes are spent more effectively in such economies on infrastructure

and social services. These benefits may outweigh the costs of higher rates, so the expected negative effect on obtaining technology licensing is not observed in this environment

We anticipate that technology licensing will be a boon for annual sales. This is the case for firms in Innovation economies, but the overall results are not impressive. On the other hand, foreign ownership of a firm bodes well for both technology licensing and for sales. There are robust, positive correlations across the overall sample and subsamples for foreign ownership and both the likelihood of licensing technology as well as annual revenues. At the national level, both technology licensing and foreign ownership tend to be significant for firm sales in countries at the Low Efficiency stage of development. Ten of the fourteen nations in the Low Efficiency category show significant results for technology licensing, foreign ownership, or both.

The remainder of the article is organised as follows. Our literature review encompasses separate sections on the germane topics of competitiveness, technology transfer, and regulatory burden. We then describe the data and methods in detail prior to sharing our results. A discussion of those results, limitations, and future research avenues conclude the article.

LITERATURE REVIEW

International Competitiveness and Firm-level Performance

International competitiveness is subject to policy discussions, public debate and governmental actions based on rankings and comparative statistic (Fagerberg, 1988), yet the theoretical grounding of this concept is not well established (Krugman, 1996). Czako (2003) proposes that competitiveness research should offer a paradigm stimulating the modification and reinterpretation of traditional boundaries between economics and management. Based upon a critical review of classic competitiveness studies, she mentions a common multi-level approach linking firm level and macroeconomic observations, as well as the use of comparative international data to formulate conclusions.

These studies suggest that national competitiveness begins at the level of the firm; for a country to be competitive, its enterprises need to be competitive and productive (Czakó, 2003). This multilevel nature of competitiveness closely relates to that of the World Economic Forum (Porter, 2005). The multilevel approach linking competitiveness of an economy with firm level decisions of individual entrepreneurs and managers is rather rare in management and economics literature. Wood, Bylund and Bradley (2016) suggest there is a gap in studying behavioural aspects of decision making by entrepreneurs related to public policy initiatives, such as taxes which influence the competitiveness of an economy. Mottner and Johnson (2000, p. 186) claim that the majority of earlier research into international licensing has focused on large firms, while smaller firms may be more inclined to license technology due to financial constraints in choosing an alternative of own technology development. We address this gap by examining technology licensing in the unique sample of firms from the World Bank survey. More than 70% of the sample are small, entrepreneurial firms.

The international competitiveness of a country can be defined as “country’s ability to create, distribute and/or service products in international trade, while earning raising returns on its resources” (Scott, 1985, p. 3). Corporate decisions and policies are largely influenced by the formal institutional environment in which firms operate (Fan, Gillan, & Yu, 2013). For a successful increase in national competitiveness, firms located in a country

should upgrade from competing on low-cost labour and/or natural resources to more sophisticated, technology-driven competitive advantages (Puślecki, 2010). Technology adaptation via licensing or other means is critical for upgrading the abilities of employees, productivity, and efficiency (Damijan, Jaklič, & Rojec, 2006).

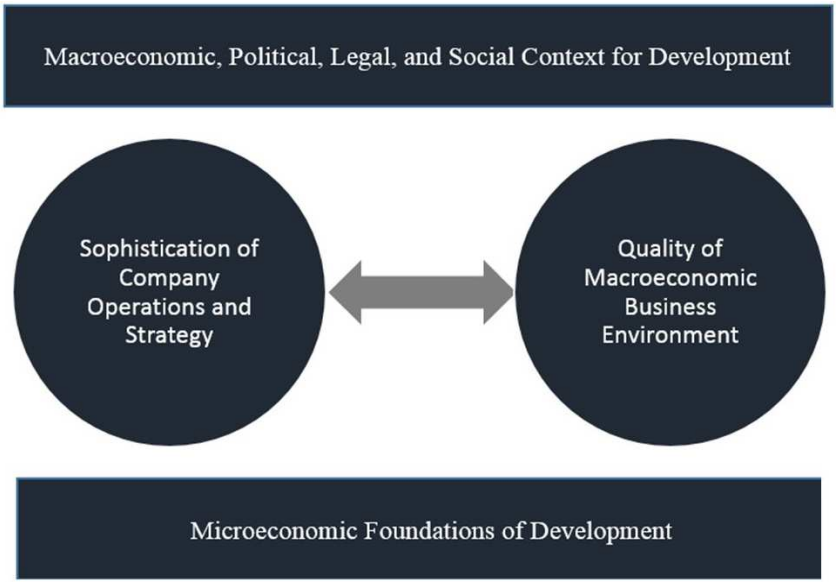

Figure 1. Determinants of productivity growth
Source: authors' depiction based on Porter (2005, p. 3).

A variety of global, regional, country, industry and cluster level benchmarking studies serve as th basis for competitiveness research (Lall, 2001). Out of these studies, two have had the greatest impact so far: The Global Competitiveness Report of the World Economic Forum from Geneva, and The World Competitiveness Report published by IMD Business School from Lausanne. We describe both studies briefly, before describing selected aspects of competitiveness which we are planning to examine in depth in this article.

The World Economic Forum (WEF) defines competitiveness as: "the set of institutions, policies, and factors that determine the level of productivity of a country" (Browne, Corrigan, Crotti, Di Battista, Drzeniek, Hanouz, Galvan, & Sala-i-Martín, 2016). The WEF's approach maintains that the level of total factor productivity determines the level of prosperity that can be reached by an economy, and their report has been published from 2005. There are 12 pillars of competitiveness, or broad categories that the WEF uses to compare across countries. They include: institutions, infrastructure, macroeconomic environment, market size, innovation, business sophistication, technological readiness, financial market development, labour market efficiency, goods market efficiency, higher education and training, health & primary education. These categories are aggregated into three sub-indices: basic requirements, efficiency enhancers, and innovation and sophistication factors, with simple average scores from the measurements yielding the country score on each of the 12 pillars.

The WEF uses a weighted approach adjusted for countries at different stages of development, from factor-driven to innovation-driven economies, approximated by their GDP per

capita in USD. For example, innovation and sophistication factors account for 5% weight in the total score for factor-driven economies (per-capita GDP < 2 000 USD), 10% for efficiency-driven countries (between 2 000 USD – 16 999 USD), and 30% for innovation-driven economies (17 000 USD and above) (Browne *et al.,* 2016). Implicit in this approach is a comparative advantage perspective, and an assumption that for emerging and recently developed economies the ability to increase productivity in a competitive world relies on different factors. The effect the factors have on the score vary among categories of countries, but is standard for countries in the same category. In consequence, the potential for an emerging country to ascend to the next level depends primarily on its ability to adapt technologies from other economies. Economic development literature (see Lall, 2001) supports this trajectory. In summary, the approach of the WEF takes into account that effective shifts in competitiveness at the country level depend on its current stage of development (Collins & Troilo, 2015).

The World Competitiveness Report (WCR), published by IMD Business School from Lausanne (IMD), also acknowledges the multilevel nature of international competitiveness, and ranks countries based on the ability to create and to maintain an environment in which companies can compete. As such, the report pays particular attention to the quality of national institutions and national economic factors, upon which the firms in that country can build global competitive advantage. The WCR divides the national environment into four categories: economic performance, government efficiency, business efficiency, and infrastructure. Each of these is further divided into five subcategories, operationalised further by 340 measures. IMD uses equal weights for each of the 20 sub-categories that have 5% individual weights in the overall competitiveness index (IMD World Competitiveness Center, 2016). The model assumes the impact of these sub-categories across countries at different levels of economic development is equal, unlike the WEF index. On the contrary, the approach taken by IMD implies that each sub-category measured in its report equally impacts competitiveness of any country in the global economy. While the WEF index is easily accessible, the assumption of sub-category assumption has been criticised as lacking rigour (Lall, 2001). The practical consequence is that policymakers have little guidance on which factor, or a group of factors, merit their attention, even though the index is easy to use.

Technology Transfer

The issue of technology transfer is of critical importance in the world, in which speed of technology development in developed countries increases, while inequalities and poverty are persistent phenomena of concern across many emerging economies (Mottner & Johnson, 2000; Seven & Coskun, 2016). Total factor productivity increases over time mainly due to technology change. For example, Solow (1957) shows that gross output per employee almost doubled in the US from 1909 to 1949, and he attributes over 87% of this increase to technical change (Eggertson, 2009). Technology which enables productivity enhancement is the key driver influencing most factors measured in the WEF and IMD rankings. A country's capacity to adapt and to improve technologies developed in other nations is a core issue debated in many policy documents on national innovation and competitiveness (Lall, 2001; Ajitabh & Momaya, 2004).

While continuous innovation, research, and development are the key for sustaining the competitiveness of developed economies, emerging countries rely mostly on technology licensing and transfer from developed economies, in efforts to improve productivity

of their industries. Developing proprietary technology is costly and time-consuming, therefore, efficient technology transfer from other countries is critical for industrialisation of emerging economies (Lall, 2001; Lopez, 2008). Technology transfer has been identified as almost synonymous with international licensing (Mottner & Johnson, 2000).

The monetary value of technology licensing has increased quite substantially over time. In the thirty years from 1975 to 2005, the global value of royalties and licence fees increased 25 times from 4 to 100 USD billion (Lopez, 2008). Further growth in technology licensing is expected due to globalisation, shortening technology life cycles, and the increasing cost of research and development (Aulakh, Jiang, & Pan, 2010). In addition, there have been major institutional improvements in the whole regions of transition and emerging economies, e.g. Central and Eastern Europe (Collins & Troilo, 2015). As a result, the internalisation of technological advantage and direct investment in these economies becomes less efficient relative to the more flexible alternative of technology licensing to local firms (Aulakh, Jiang, & Pan, 2010). The trade-off between setting up a subsidiary and internalising technological advantage versus licensing with an indigenous firm is well established in international business theory (Chen, 2005). Firms will have incentives to internalise if they can achieve relative advantage from hierarchy, where transaction costs are high and market mechanisms are not efficient (Dunning, 1981).

Ease of Paying Taxes and Regulatory Burden

Technology transfer requires two parties, the proprietor of the technology and the technology customer who applies the technology. National regulations and the application of the rule of law affect both parties in the same way. The literature is robust with respect to the effects that regulatory characteristics have on the cost of international transfers from the perspective of the technology proprietors; however, most of this work concerns the technology proprietors, not the recipients.

A related body of research concerns regulatory burden and entrepreneurship. Moreno (2015) reviews many recent empirical studies and concludes that "most empirical analysis finds a negative relationship between regulatory restrictions and entrepreneurship." This stream starts from at least the beginning of the millennium and includes the results of Djankov, LaPorta, Lopes-de-Silanes and Shleifer (2002), Demirguc-Kunt, Love and Maksimovic (2006), Klapper, Laeven and Rajan (2006), Troilo (2011). On the other hand, Bowen and DeClercq (2008) find no effect of regulatory burden on entrepreneurial firms, while Gentry and Hubbard (2005) claim that the effect of taxation on entrepreneurs in innovative industries is indeterminate. In contrast to the majority, Levie and Autio (2011) demonstrate a statistically positive relationship between higher strategic and non-strategic entrepreneurial entry and lighter regulatory burden. They find these effects are somewhat mitigated if the country enforces the rule of law. Some of these differences are a function of how the various researchers define and measure entrepreneurship.

The literature seems lacking in studies as to the determinants of the purchase of technology. Still, it is clear based on standard microeconomic theory that regulation is a pecuniary cost and as such higher regulation should result in a lower demand for technology transfer. Prior research finds that taxation and related externalities can produce distortions in incentives (Baumol, 1972; McGrattan, 1994). Regulation, in as much as it limits the autonomy of decision makers, may also be considered a non-pecuniary cost, an additional factor which would reduce the demand. (Wood *et al*., 2016). Taxes can be considered a direct cost,

and the tax preparation and payment burdens indirect costs similar to other regulatory burdens. Therefore, the amount of tax, the amount of time spent in tax preparation, and the number of times a year taxes must be paid all constitute regulatory expenses.

Although there is a lack of scholarship on the impact of ease of paying taxes on technology transfer per se, it seems likely that regulatory burden in the form of greater demands for paying taxes would have a deleterious effect on technology transfer. Additionally, the expectation of greater reward in the form of higher revenues is the impetus for acquiring technology (see Dess, Covin, & Lumpkin, 1997; Guo, 2008; Troilo, 2014), whereas higher tax rates would have a dampening effect. We propose the following hypotheses for testing:

H1: The number of tax payments will correlate negatively with obtaining a technology licence.

H2: The number of hours of tax preparation will correlate negatively with obtaining a technology licence.

H3: Higher tax rates will correlate negatively with obtaining a technology licence.

H4: Obtaining a technology licence will correlate positively with sales revenue.

The points of interest in these hypothesis are the magnitudes of the effects, as well as the variation across nations and stages of development (Figure 1). We summarise the hypotheses and citations of relevant literature (Table 1).

Table 1. Summary of hypotheses and relevant literature

Hypotheses	Relevant literature
H1, H2, H3 – higher regulatory burden in the form of tax compliance will reduce the likelihood of obtaining a technology licence.	- Existence of distortionary effects of taxation and related externalities (Baumol, 1972; McGrattan, 1994). - Deleterious effects of such distortions on entrepreneurship and innovation (Djankov *et al.,* 2002; Moreno, 2015; Wood *et al.,* 2016).
H4 – Acquiring technology has a positive effect on firm outcomes such as sales revenue	Empirical evidence corroborating the positive effect of technology acquisition on firm performance (Dess *et al*., 1997; Guo, 2008; Troilo, 2014)

Source: own study.

MATERIAL AND METHODS

The World Bank Enterprise Surveys panel data for Central Europe for 2008 to 2013 is the source data for the analysis. Surveys of firms from 30 countries in Central and Eastern Europe and Central Asia constitute the panel. The World Bank surveyed firms in several countries in 2008 and revisited them in 2012, but most firms were queried in 2009 and again in 2013. In terms of time, the sample is balanced; each firm appears twice. There is a total of 5 458 observations (2 729 firms x 2) in our analysis.

The World Bank did undertake the same sampling methodology and use the same basic questionnaire across time, so the data are consistent. The sampling incorporates a cross-section of firms by size and industry to mirror the national population. Employment figures define firm size, with firms having less than 20 employees labelled as small in the World Bank data. Firms with headcount between 20 and 99 are medium-sized, and firms with 100 or more employees are large. By these standards, approximately 71% of the sample are small firms, 18% are medium-sized enterprises, and 11% are large companies.

Using per-capita GDP for 2013, we sort the 30 countries into categories of development roughly based upon the WEF criteria. We differentiate between "High Efficiency" and "Low Efficiency" economies because the data seems to merit it (Table 2).

Table 2. Distribution of observations by country and stage of development

Country	Obs.	2013 Per Capita GDP in USD
Innovation (8)		
Slovenia	190	23.100
Czech Republic	36	19.800
Estonia	146	19.200
Slovakia	24	18.100
Total	396	20.050
High Efficiency (8)		
Lithuania	90	15.700
Russia	256	15.500
Latvia	184	15.000
Kazakhstan	166	14.300
Poland	34	13.800
Croatia	74	13.600
Hungary	126	13.600
Turkey	276	10.800
Total	1.206	14.038
Low Efficiency (14)		
Romania	194	9.590
Azerbaijan	138	7.810
Belarus	242	7.720
Bulgaria	140	7.660
Montenegro	108	7.190
Serbia	240	6.350
Macedonia	356	5.220
Bosnia & Herzegovina	230	4.750
Albania	240	4.410
Mongolia	262	4.400
Georgia	162	4.270
Ukraine	384	3.990
Kosovo	22	3.890
Armenia	336	3.720
Total	3.054	5.784
Factor (4)		
Moldova	366	2.240
Uzbekistan	278	1.880
Kyrgyzstan	88	1.280
Tajikistan	70	1.050
Total	802	1.613

Source: own calculations based on World Bank Enterprise Survey (2013).

Table 3. Tax metrics by country and stage of development

Country	Tax Rate (%)		Tax Hours		Tax Payments	
	2009	2013	2009	2013	2009	2013
Innovation						
Slovenia	34.9	32.9	246	245	21	10
Czech Republic	53.1	50.0	930	413	12	8
Estonia	48.1	68.6	81	81	7	9
Slovakia	48.5	49.7	325	207	32	21
Avg.	46.2	50.3	396	237	18	12
High Efficiency						
Lithuania	45.6	43.0	166	175	15	11
Russia	48.3	54.1	448	177	8	7
Latvia	36.6	35.8	239	224	7	7
Kazakhstan	42.0	29.0	271	188	7	6
Poland	45.1	40.3	420	288	41	19
Croatia	20.8	21.2	196	196	29	30
Hungary	56.6	49.8	330	277	14	12
Turkey	44.3	40.0	223	226	11	11
Avg.	42.4	39.2	287	219	17	13
Low Efficiency						
Romania	45.4	43.3	202	216	113	41
Azerbaijan	40.9	40.0	376	214	22	18
Belarus	117.4	58.5	986	338	112	10
Bulgaria	33.9	27.8	586	424	15	14
Montenegro	33.6	21.6	372	320	89	28
Serbia	31.2	33.3	279	279	67	67
Macedonia	15.4	7.4	150	119	40	29
Bosnia & Herzegovina	42.8%	23.6	428	407	55	44
Albania	49.6	38.5	368	357	44	44
Mongolia	33.6	24.6	204	192	41	41
Georgia	38.6	16.5	387	280	30	5
Ukraine	57.2	55.4	860	491	147	28
Kosovo	28.3	15.6	163	164	33	33
Armenia	38.6	38.8	578	372	50	13
Avg.	43.3	31.8	424	298	61	30
Factor						
Moldova	42.4	30.8	234	220	53	49
Uzbekistan	89.8	98.7	206	205	45	45
Kyrgyzstan	40.3	33.4	222	226	76	52
Tajikistan	83.4	84.5	296	296	69	69
Avg.	64.0	61.9	240	237	61	54

Source: own calculations based on World Bank Enterprise Survey (2013).

Table 3 displays the distribution of observations by country and stage of development. There are 4 countries in the Innovation category with an average per-capita GDP of 20 050 USD, 8 economies qualifying as High Efficiency with an average of 14 038 USD, 14 nations in Low Efficiency with an average of 5 784 USD, and 4 Factor countries averaging 1 613 USD. The

number of observations by stage of development are: 396 observations and 198 firms in Innovation, 1 206 observations and 603 firms in High Efficiency, 3 054 observations and 1 527 firms in Low Efficiency and 802 observations and 401 firms in Factor, respectively.

Table 3 offers details for the tax regimes of the countries in the sample, along with averages by stage of development, which is compiled from the World Bank *Doing Business* Indicators. As explained more completely below, Tax Rate is the overall rate of taxation for corporations, Tax Hours is the number of labour hours needed to comply with the tax code, and Tax Payments is the number of payments necessary to fulfil all tax obligations.

According to Table 3, the tax rate for Innovation economies actually climbed from 46.2% in 2009 to 50.3% in 2013 for an increase of 9.0%.[1] The number of tax hours for the Innovation category fell by a whopping 40%, though it is interesting to note that in absolute terms the average number of tax hours in 2013 is equal to that for Factor economies (237) and greater than for High Efficiency countries (219). The Czech Republic shaved 56% of its tax compliance hours, yet remains the highest at 413. The number of tax payments declined by one-third from 18 to 12.

The High Efficiency grouping made strides in all three measurements from 2009 to 2013. Tax rates fell by 7.7%, tax hours declined 23.6%, and tax payments were reduced by 22.0%. At the country level, Poland made notable improvement in tax payments, going from 41 to 19 for a decrease of nearly 54%. Russia's tax hours dropped 60.5% from 448 to 177.

Of the development categories, the Low Efficiency bucket showed the greatest improvement in both tax rates and tax payments. They dropped by 26.6% in the former and 51.6% in the latter. The number of tax hours also decreased by 29.7%, second only to the Innovation category. The most improved country across the board is Belarus, with declines in rates, hours, and payments of 50.2%, 65.7%, and 91.1%. Georgia, Armenia, Montenegro, and Ukraine also registered dramatic success, particularly in the realm of the number of payments.

The Factor grouping also improved over time, but its gains were modest at best. Tax rates fell 3.3%, hours dropped 1.1%, and payments decreased 11.5%. Kyrgyzstan had the most impressive overall gains, with rates falling 17% and number of payments declining 32%. Moldova's tax rate fell 27.4% during the period.

Variable definitions appear in Table 4, and descriptive statistics are in Table 5. There are two dependent variables, each of which is estimated separately as described below. Sales is a continuous variable capturing annual sales in millions of local currency units. TechLicense is a dichotomous variable; firms were asked if they have technology licensed from a foreign company. The "Yes" answer is coded as 1 and the "No" is a 0. The average annual sales amount is 1.4 billion LCUs, and 14% of firms licensed technology from a foreign enterprise during the period. In terms of industry, Retail represents the largest sector at 26.1%, followed by Food (9.7%), Wholesale (9.5%), and Construction (8.9%).

As indicated, there are three variables of interest regarding taxation, and these were collected from the World Bank Doing Business Indicators.[2] TaxRate is the total tax rate the firm bears as a share of its commercial profit after accounting for any

[1] Calculations relating to Table 2 generally use this equation: (Begin-End)/Begin, though for this calculation it is actually (End-Begin)/Begin so (50.3-46.2)/46.2 = 0.0899 = 9%. The numbers are percentage changes from the beginning base, including the changes in tax rates.

[2] The complete World Bank Paying Taxes methodology, which this paragraph summarises, may be found at: http://www.doingbusiness.org/Methodology/paying-taxes#total.

allowable deductions and exemptions (World Bank, 2016). It includes income, sales, labour, and infrastructure taxes. TaxHours is the amount of time in hours per year needed to prepare, file, and pay income taxes, sales and/or value-added taxes (VAT), and labour taxes including social contributions (World Bank, 2016). TaxPayments is the number of payments needed to satisfy all tax obligations. It reflects the total number of taxes paid, the method of payment, the frequency of payment, the frequency of filing, and the number of government agencies involved (World Bank, 2016). An additional variable of interest is the percentage of foreign ownership, which ForeignOwner represents. On average, 7.1% of the firm's equity is in the hands of a foreign enterprise.

Table 4. Variable definitions

Variable	Definition
Dependent variables	
Sales	Annual sales in millions of local currency units (LCUs)
TechLicense	"Does the firm have technology licensed from a foreign company?" (Yes=1, No=0)
Explanatory variables	
TaxPayments	The number of annual tax payments
TaxHours	The number of hours spent annually to comply with tax codes.
TaxRate	The total tax rate, expressed as a share of commercial profits.
ForeignOwner	The percentage of the firm owned by a foreign enterprise.
Control variables	
Employees	The number of full-time employees of the firm, in thousands
FirmAge	The age of the firm in years
Public	Legal status: Firm is publicly listed. (Yes=1)
Private	Legal status: Firm is a private limited liability corporation. (Yes=1)
Sole	Legal status: Firm is a sole proprietorship. (Yes=1)
Partner	Legal status: Firm is a partnership. (Yes=1)
PerCapGNI	Per-capita Gross National Income in nominal US dollars.

Source: own study.

Firm-level controls include the number of employees, firm age, and the legal status of the firm. The Employees variable is in thousands of full-time workers, and on average firms employed 59 labourers. The average age of firms in the sample is 19.5 years, with a standard deviation of 16.5 years. Nearly three quarters of firms register as privately held concerns, whereas 10% are sole proprietorships and 8% are publicly traded. In terms of industry, Retail represents the largest sector at 26.1%, followed by Food (9.7%), Wholesale (9.5%), and Construction (8.9%). These five segments, plus Hotel & Restaurant and Transport Services, have categorical variables as industry controls.

The further empirical analysis unfolds in two steps. In the first step, a random-effects panel logistics model is used to estimate the likelihood that the respondent firm has licensed technology from a foreign company. We specify random effects because fixed effects would negate the differences among countries, which is precisely what interests us.

Table 5. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
Dependent variables				
Sales	1.392	14.036	0	572.000
TechLicense	0.14	0.35	0	1
Explanatory variables				
TaxPayments	38.43	32.55	5	147
TaxHours	320.32	188.74	81	986
TaxRate	43.52	21.12	7.40	117.40
ForeignOwner	7.09	23.67	0	100
Control variables				
Employees	0.059	0.29	0.001	12
FirmAge	19.52	16.48	1	188
Public	0.08	0.27	0	1
Private	0.74	0.44	0	1
Sole	0.10	0.30	0	1
Partner	0.04	0.19	0	1
Other	0.04	0.18	0	1
PerCapGNI	7.057	5.317	570	24.400
Distribution of observations by industry				
Industry	**Obs**		**%**	
Food	531		9.7	
Textiles	148		2.7	
Garments	346		6.3	
Wood & Furniture	110		2.0	
Chemicals	157		2.9	
Media & Telecom	74		1.4	
Plastics	77		1.4	
Minerals	162		3.0	
Metals	233		4.3	
Machinery	201		3.7	
Electronics	76		1.4	
Auto manufacturing	14		0.3	
Construction	486		8.9	
Auto services	124		2.3	
Wholesale	520		9.5	
Retail	1 424		26.1	
Hotel & Restaurant	229		4.2	
Transport services	244		4.5	
Information Technology (IT)	41		0.8	
Other manufacturing	261		4.8	
Total	**5 458**		**100**	

Source: own calculations based on World Bank Enterprise Survey (2013).

These estimates are performed using one of the variables of interest, e.g. TaxRate along with the controls. The regression equation has the following form:

$$\Pr(TechLicense) = \alpha_1 ExplanatoryVariable + \alpha_2 ForeignOwner + \\ + \sum_{j=1}^{7} \gamma_j FirmControls_j + \sum_{k=1}^{7} \tau_k IndustryControls_k + Intercept + \varepsilon \quad (1)$$

where:

$ExplanatoryVariable$ - is TaxPayments, TaxHours, and TaxRate in turn.

These estimates are performed for the total sample and for each development category for each of the three tax variables. For purposes of comparison, "Other" is the omitted category for legal status. After estimation, marginal effects of the key explanatory variables are calculated for those variables that are statistically significant.

In the second step, a random-effects panel generalised least squares (GLS) regression estimates the impact of having a technology license on annual sales. The equation is similar to (1) above:

$$Sales = \alpha_1 TechLicense + \alpha_2 ForeignOwner + \\ + \sum_{j=1}^{7} \gamma_j FirmControls_j + \sum_{k=1}^{7} \tau_k IndustryControls_k + Intercept + \varepsilon \quad (2)$$

Because this is a linear regression, the value of the coefficients are the marginal effects. Note that there are no country-level fixed effects because the tax burden is a country-level phenomenon that the regression analyses are trying to capture.

Table 6. Correlation matrix

Category	Sales	TechLicense	TaxPayments	TaxHours	TaxRate	ForeignOwner
Sales	1.000	–	–	–	–	–
TechLicense	0.034	1.000	–	–	–	–
TaxPayments	0.003	-0.033*	1.000	–	–	–
TaxHours	-0.008	-0.027*	0.554**	1.000	–	–
TaxRate	0.031**	-0.057**	0.291**	0.398**	1.000	–
ForeignOwner	0.060**	0.108**	-0.004	-0.010	0.005	1.000

* - significant at 5%. ** - significant at 1%

Source: own calculations based on World Bank Enterprise Survey (2013).

Table 6 contains the correlation matrix of the main variables. As a check for collinearity, the matrix is reviewed for correlations with an absolute value greater than 0.700. No such value is found, so collinearity does not appear to be a concern. The highest correlation exists between TaxHours and TaxPayments at 0.55. The use of a Baltagi-Wu test (Levie & Autio, 2011; Baltagi & Wu, 1999) revealed no serial autocorrelation in the data.

RESULTS AND DISCUSSION

The findings for TaxPayments appear in Table 7. TaxPayments is negative and significant at 10% for TechLicense for the overall sample and at 5% for both Innovation economies and Low Efficiency economies. Support for H1 is relatively robust. Also noteworthy is the effect of foreign ownership; ForeignOwner is positive and significant at 1% for four of the five estimates and is positive and significant at 5% for the remaining one (Innovation). The Wald Chi-squared statistic is positive and significant at 1% for four of the five specifications, indicating that the model fits the data well.

The next step is to analyse marginal effects for TaxPayments for the overall sample as well as the Innovation and Low Efficiency categories. According to Woolridge (2013), the assumption of serial independence of observations in a correlated random-effects panel data model is a strong one, and can be problematic for calculating average partial (marginal) effects. An alternative is to pool the data and estimate the dependent variable using a probability unit (probit) model, then calculate the marginal effects of the variables from this equation. The marginal effects from a pooled probit estimate will be nearly identical to that of correlated random-effects panel model, are easier to calculate, and are as statistically robust (Woolridge, 2013; Arulampalam, 1996). This is the method employed for all marginal effects reported in this article, but we do not show the pooled results for brevity. These effects cannot be discerned from the coefficients displayed in the tables.

Table 7. Logistic estimates of Tech Licenses for number of tax payments

Number of tax payments	(1)	(2)	(3)	(4)	(5)
VARIABLES	Total	Innovation	High Eff	Low Eff	Factor
TaxPayments	-0.002*	-0.076**	0.020	-0.004**	0.007
	(0.001)	(0.036)	(0.017)	(0.002)	(0.015)
ForeignOwner	0.010***	0.011**	0.013***	0.009***	0.017***
	(0.002)	(0.005)	(0.004)	(0.002)	(0.005)
Employees	0.205*	-0.322	0.422	0.165	0.465
	(0.120)	(1.028)	(0.343)	(0.140)	(0.306)
FirmAge	0.003	-0.001	0.009*	0.002	-0.004
	(0.002)	(0.009)	(0.005)	(0.003)	(0.017)
Public	0.345	16.657	17.949	0.065	0.292
	(0.310)	(3,997)	(3,357)	(0.360)	(0.709)
Private	0.568**	16.152	17.864	0.253	1.031
	(0.278)	(3.997)	(3.357)	(0.312)	(0.637)
Sole	-0.243	16.005	16.933	-0.499	-0.689
	(0.322)	(3,997)	(3,357)	(0.359)	(0.950)
Partner	0.107	16.472	17.508	-0.128	0.403
	(0.368)	(3.997)	(3.357)	(0.457)	(0.822)
Constant	-1.972***	-17.045	-19.873	-1.442***	-3.080***
	(0.298)	(3.997.557)	(3.357.227)	(0.338)	(1.023)
Observations	5446	343	1.206	3.043	706
Wald Chi-squared	299.150***	15.99	69.64***	159.050***	46.970***

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Industry controls not shown for brevity.
Source: own calculations based on World Bank Enterprise Survey (2013).

These marginal effects are computed holding the other variables at their mean values, and the interpretation is the effect on the likelihood of the dependent variable occurring when the value of the continuous variable increases by one unit. For TaxPayments, it is therefore the effect of each additional payment on the probability that the firm will obtain a technology license from a foreign company. For the overall sample, this effect is miniscule at only -0.02%; if the number of payments increases by 10, the likelihood of the firm acquiring a technology license from abroad declines by a mere 0.2%. On the other hand, the marginal effect of a one-unit increase in TaxPayments in Innovation nations is to decrease the likelihood of license acquisition by 0.8%; a 10-unit increase would therefore decrease the

likelihood by 8%. For Low Efficiency countries, the effects are -0.4% and -4%, respectively. ForeignOwner has a positive marginal effect of 0.1%, so a 10% increase in the foreign ownership of a firm increases the likelihood of that firm licensing technology by just 1%.

Table 8. Logistic estimates of Tech Licenses for hours of tax preparation

VARIABLES	Total	Innovation	High Eff	Low Eff	Factor
TaxHours	-0.001***	-0.001	-0.002*	-0.001***	0.005
	(0.000)	(0.001)	(0.001)	(0.000)	(0.005)
ForeignOwner	0.010***	0.011**	0.012***	0.009***	0.017***
	(0.002)	(0.005)	(0.004)	(0.002)	(0.005)
Employees	0.213*	-0.200	0.413	0.185	0.471
	(0.119)	(1.014)	(0.343)	(0.138)	(0.306)
FirmAge	0.003	-0.001	0.009*	0.001	-0.005
	(0.002)	(0.009)	(0.005)	(0.003)	(0.017)
Public	0.348	17.829	17.450	0.046	0.310
	(0.310)	(6.870)	(2.675)	(0.361)	(0.701)
Private	0.559**	17.320	17.231	0.209	1.012
	(0.277)	(6.870)	(2.675)	(0.312)	(0.633)
Sole	-0.232	17.472	16.396	-0.512	-0.672
	(0.322)	(6.870)	(2.675)	(0.360)	(0.948)
Partner	0.036	16.855	16.945	-0.318	0.355
	(0.369)	(6,870)	(2,675)	(0.461)	(0.821)
Constant	-1.807***	-18.890	-18.432	-1.173***	-3.875***
	(0.302)	(6.870)	(2.675)	(0.348)	(1.308)
Observations	5.446	343	1.206	3.043	706
Wald Chi-squared	304.410***	14.280	71.550***	166.730***	47.230***

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Industry controls not shown for brevity.
Source: own calculations based on World Bank Enterprise Survey (2013).

Table 8 displays the results for TaxHours. Here TaxHours has the expected effect for both the overall sample as well as for High Efficiency and Low Efficiency nations. TaxHours is negative and significant at 1% for both the overall sample and for Low Efficiency economies, and is negative and significant at 10% for High Efficiency countries. These results support H2. As may be expected, the marginal effect of a single hour is infinitesimal. An additional 100 hours of tax preparation would only reduce the likelihood of obtaining a technology license by a scant 0.08% for the sample as a whole. For the subsamples, the effects are more pronounced. An additional 100 hours reduces the likelihood of technology licensing in High Efficiency economies by 3% and in Low Efficiency economies by 1%.

The findings for TaxRate are in Table 9. TaxRate is negative and significant at 1% for three of the five specifications but it is positive and significant at 10% for Innovation nations. The results are mixed concerning H3. Tax rates did increase for the Innovation category for the period 2009-2013 per Table 2. It may also be that taxes are spent more effectively in Innovation countries, yielding better infrastructure and social services which more than offset the expected negative effect on technology licensing and hence sales and profits. For the overall sample, each increase of 1% in the tax rate reduces the likelihood of licensing technology from a foreign company by 0.1%. An increase of 10% in the tax rate

therefore lowers the probability of licensing by 1.0%. Such an increase reduces the likelihood of licensing by 4% in High Efficiency countries and by 1% in Low Efficiency countries, but increases the likelihood in Innovation economies by 2%.

Table 9. Logistic estimates of Tech Licenses for tax rate

VARIABLES	Total	Innovation	High Eff	Low Eff	Factor
TaxRate	-0.012***	0.023*	-0.045***	-0.013***	-0.001
	(0.003)	(0.014)	(0.014)	(0.003)	(0.006)
ForeignOwner	0.010***	0.011**	0.013***	0.009***	0.017***
	(0.002)	(0.005)	(0.004)	(0.002)	(0.005)
Employees	0.267**	-0.350	0.456	0.212	0.471
	(0.121)	(0.989)	(0.352)	(0.138)	(0.309)
FirmAge	0.003	0.001	0.008	0.002	-0.004
	(0.002)	(0.009)	(0.005)	(0.003)	(0.017)
Public	0.215	16.379	17.043	-0.045	0.311
	(0.313)	(2.908)	(2.047)	(0.363)	(0.712)
Private	0.370	15.938	16.786	0.113	1.023
	(0.281)	(2.908)	(2.047)	(0.315)	(0.652)
Sole	-0.396	15.656	15.926	-0.562	-0.722
	(0.325)	(2.908)	(2.047)	(0.361)	(0.959)
Partner	0.027	15.454	16.580	-0.274	0.421
	(0.371)	(2.908)	(2.047)	(0.460)	(0.824)
Constant	-1.328***	-18.758	-16.687	-0.978***	-2.627***
	(0.321)	(2.908)	(2.047)	(0.358)	(0.855)
Observations	5,446	343	1,206	3,043	706
Wald Chi-squared	308.040***	16.550	70.260***	169.080***	46.700***

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Industry controls not shown for brevity.
Source: own calculations based on World Bank Enterprise Survey (2013).

Because of the strong assumptions underlying the random-effects panel model mentioned earlier, we perform some robustness checks. Woolridge (2013) describes Generalised Estimating Equations (GEE) as "essentially multivariate, nonlinear least squares" (p. 43). We check the reported results in Tables 7 through 9 with this method and find the same outcomes with regard to statistical significance, direction, and relative magnitude for the key explanatory variables. Moreover, marginal effects can be readily calculated from GEE without losing the time element inherent to the pooled probit approach. The marginal effects are materially identical to those calculated above with the pooled probit.

The last two tables present the findings from the second stage of the analysis. The effect of having technology licensed from a foreign company on annual sales appears in Table 10.

Surprisingly, TechLicense is only significant for Innovation countries at 5%, but not for the other estimates. Foreign ownership, on the other hand, is significant to varying degrees across all five specifications. The control variable Employees is positive and significant at 1% for every specification except Low Efficiency. It appears that both the level of foreign ownership and the number of employees plays a larger role for sales than holding licensed technology.

Table 10. Generalised least squares estimates of sales and technology license

Category	Total	Innovation	High Eff	Low Eff	Factor
TechLicense	-28.591	93.978**	-432.322	224.178	-737.502
	(567.684)	(42.051)	(1,352.435)	(785.654)	(1,174.372)
ForeignOwner	33.573***	1.247**	78.934***	29.044**	26.533*
	(8.071)	(0.512)	(22.253)	(11.552)	(15.298)
Employees	2.719.798***	460.781***	4.956.848***	1.778.780*	3.414.709***
	(666.156)	(91.320)	(1.847.113)	(914.426)	(994.995)
FirmAge	65.300***	0.897	11.835	126.452***	-42.496
	(11.731)	(0.694)	(28.118)	(16.758)	(38.086)
Public	-484.801	-347.674***	-328.446	-1.248.249	1.276.952
	(1.245.789)	(116.569)	(4.789.244)	(1.733.497)	(1.591.020)
Private	-224.671	-363.973***	95.824	-155.419	822.888
	(1.073.848)	(108.266)	(4.382.019)	(1.470.728)	(1.384.437)
Sole	280.017	-574.984***	-1.051.215	646.376	-343.672
	(1.203.518)	(126.721)	(4.897.688)	(1.613.588)	(1.599.092)
Partner	-122.238	-304.887**	-649.086	673.506	-549.264
	(1.430.453)	(128.126)	(5.188.812)	(2.097.502)	(1.706.077)
Constant	-856.471	354.927***	-583.854	-1.914.733	1.347.959
	(1.135.882)	(116.549)	(4.455.265)	(1.558.390)	(1.573.240)
Observations	5.457	396	1.206	3.054	801
Wald Chi-squared	89.620***	81.030***	25.200**	96.380***	28.230**
Average Sales	1.392.95	62.21	855.53	1.805.65	1.286.47

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Industry controls not shown for brevity.
Source: own calculations based on World Bank Enterprise Survey (2013).

Since these are linear estimates, the variable coefficients are the marginal effects. The marginal effects of categorical variables demonstrate the impact of whether that variable takes a 1 or a 0 as its value. For firms in Innovation countries, having licensed technology (TechLicense=1) correlates to an increase in sales of nearly 94 million LCUs v. a company that does not (TechLicense=0). As a basis of comparison, the average sales of enterprises in Innovation economies are 62 million LCUs.

The other variables are continuous, so for ForeignOwner each 1% increase in foreign ownership correlates to an increase of 33.6 million LCUs in sales for the overall sample. The figure is only 1.2 million LCUs for firms in Innovation economies and nearly 79 million LCUs for firms in High Efficiency countries. The table includes a line for Average Sales to give a sense of magnitude. For example, the 79 million LCUs for High Efficiency represents 9.2% of the average sales of 855 million LCUs. Note that Employees are in units of one thousand, so an increase in headcount of 1.000 corresponds with an increase of around 2.7 billion LCUs for the overall sample.

Table 11 extends the analysis to each country. First, the linear regression of TechLicense and ForeignOwner on Sales (Equation 2) is estimated for each country, with the caveat that the industry categorical variables are omitted due to the fact that they consume too many degrees of freedom at the country level. The resulting coefficient values appear

in the "TechLicense" and "ForeignOwner" columns, respectively. The "Average Sales" column displays the average annual sales by country as a basis of comparison.

Table 11. Effects by country for tech licenses on annual sales

Country (Obs.)	Tech License	ForeignOwner	Average Sales
Innovation			
Czech Republic (36)	317*	11***	390
High Efficiency			
Russia (256)	388**	9**	255
Latvia (184)	.	0.06**	4
Hungary (126)	.	402**	7.114
Turkey (276)	.	0.25*	11
Low Efficiency			
Romania (194)	7*	0.12***	8
Azerbaijan (138)	2*	0.04*	1
Belarus (242)	22.831*	.	14.443
Bulgaria (140)	9***	.	5
Serbia (240)	814*	59***	1.238
Macedonia (356)	.	7***	197
Bosnia & Herzegovina (230)	5**	0.12***	5
Albania (240)	1.141**	.	380
Mongolia (262)	.	190*	4.635
Kosovo (22)	2***	.	1
Factor			
Moldova (366)	.	1***	31
Uzbekistan (278)	.	103**	3.670

Source: own calculations based on World Bank Enterprise Survey (2013).

The Czech Republic is the only significant result in the Innovation category. TechLicense is positive and significant at 10% while ForeignOwner is positive and significant at 1%. Each additional percentage of foreign ownership yields 11 million LCUs more in sales, while having licensed technology correlates with 317 million LCUs in additional sales. This compares to an average of 390 million LCUs for Czech enterprises.

For High Efficiency, ForeignOwner is positive and significant at varying levels for firms in four nations while TechLicense is positive and significant at 5% for Russia. The marginal effect of technology licensing in Russia is 388 million LCUs compared to average sales of 255 million LCUs. Hungary registers the biggest marginal effect of foreign ownership, where each additional percentage of foreign ownership corresponds to an additional 402 million LCUs in sales. This is 5.6% of the average sales of 7.1 billion LCUs.

The Low Efficiency category contains ten countries registering positive, significant effects from technology licensing, foreign ownership, or both. In terms of magnitude, technology licensing correlates with nearly four times average sales in Albania and nearly twice average sales in Belarus. Each additional percentage of foreign ownership correlates with increases of 3% to 5% in sales revenue for Serbia, Macedonia, and Mongolia.

There are only two significant results for the Factor economies. Foreign ownership is positive and significant at 1% for Moldova and the marginal effect is approximately 3% of average sales. Foreign ownership is positive and significant at 5% for

Uzbekistan and again the marginal effect is nearly 3%. For our initial analysis, we only find support for H4 for the Innovation category, but at the country level we have 10 nations where TechLicense is positive and significant.

For convenience, we summarise the results for the hypotheses in the table below:

Table 12. Summary of findings

Hypothesis	Result
H1: The number of tax payments will correlate negatively with obtaining a technology licence.	H1 is supported.
H2: The number of hours of tax preparation will correlate negatively with obtaining a technology licence.	H2 is supported.
H3: Higher tax rates will correlate negatively with obtaining a technology licence.	H3 is partially supported. Innovation economies have a positive correlation.
H4: Obtaining a technology licence will correlate positively with sales revenue.	H4 is partially supported. Positive correlation is observed for innovation economies and various countries.

Source: own study.

CONCLUSIONS

In this article, we study the impact of the ease of paying taxes on technology transfer. We categorise paying taxes as a type of regulatory burden, anticipating that the greater the burden, the lower the likelihood of tech transfer occurring. Such transfer makes firms more competitive in the short term, and nations more competitive in the long term. The immediate benefit of tech transfer should register in increased revenues for the recipient firm.

With these concepts in mind, we structure our analysis in two stages. In the first, we measure the effects of the number of tax payments, the number of hours of tax preparation, and tax rates on the likelihood of obtaining a technology license from a foreign company. The results for all three of these tax metrics are as expected, but the economic impact as captured by the marginal effects is scant. It does not seem that reducing the number of tax payment, the hours of tax preparation or the tax rate itself will do much to increase the likelihood of tech licensing. An argument may be offered, based on signalling theory, that reducing any of these measures advertises the locale as business-friendly environment. While this is certainly plausible and indeed all manner of political entities, from towns to entire nations, take such steps to woo investment, our current analysis of the marginal effects suggests that the impact of these improvements is underwhelming.

Concerning sales, the big story is the influence of foreign ownership. While technology licensing does have the expected effect in Innovation economies, it does not register for the other subsamples or the overall sample. Foreign ownership, however, has both positive, statistically significant correlations, as well as impressive marginal effects based upon the average sales figures in Table 9. These results recommend that both firms and policymakers pursue more foreign shareholding as a general course, but with the caveat that foreign ownership can involve particular trade-offs and hindrances across the thirty different nations in this study.

Our analysis is not nuanced enough to specify the catalyst or the process linking foreign ownership to improvement. For example, foreign ownership may improve sales because of the passing of tacit knowledge which increases the efficiency of operations, but we cannot verify this is true. Even if it is, we cannot say even in general terms what kind of knowledge this may

be, e.g. technical, managerial, etc., or how it interacts with the firm's existing base of knowledge such that sales increase. Our data does not allow analysis at this level of refinement.

We anticipate that tech transfer will improve sales; naturally, firms seek better technology in order to make profits. While the effect does not register at the level of stage of development outside of Innovation, we do observe it at the national level, particularly for countries in the Low Efficiency category. Eight out of the fourteen countries in this category exhibit varying degrees of significance for the effect of technology licensing on sales. On the other hand, only the Czech Republic in Innovation and Russia in High Efficiency have the expected result; there are no nations in the Factor stage of development with significant outcomes for tech licensing on sales. Perhaps not as surprising, given the aforementioned observations about foreign ownership, thirteen countries across all stages of development show positive, significant correlations between foreign ownership and sales.

The question then becomes why does this disparity in number of countries across regions exist for technology licensing and sales? Here we turn to the discussion of competitiveness that began our literature review. It may be that in Innovation economies, it is necessary to have technology just to exist in the market. Conditions here approximate perfect competition more than in other regions, so there is no special effect on sales from tech transfer at the national level. All that firms gain from such transfer is perhaps an increased likelihood of survival.

On the other hand, firms in Factor economies may have potential for tech transfer to drive sales, but the current impact is minimal because markets are less developed. Not only markets, but also other institutions. It may be that firms in this region cannot leverage technology into increased sales (and profits) because they are coping with a number of institutional voids (see Khanna & Palepu, 2010).

The Low Efficiency economies seem to occupy the happy "middle ground" where institutions are robust enough to allow firms to glean benefits from technology licensing, yet markets are not so fierce that the financial advantages of such transfer are competed away. The differences among the stages of development as measured by per-capita GDP in Table 2 are substantial, as are the relative quality of their institutions. It is expected that higher institutional quality generally correlates with economic development (see North, 1990), but the optimal stage of such development for firms to add value from technology licensing is not known. Our analysis suggests Low Efficiency as a start.

Our work is not without limitations. We are measuring correlations; we have not established causality. Although we employ a number of control variables, we may have omitted one that could impact our results. This is particularly true with regard to foreign ownership, per the above discussion. As is the case with survey data, we are gauging perceptions, which may or may not correspond with reality. Establishing the stages of economic development as we have is plausible but there can be legitimate disagreements about the countries contained therein. Our work is also exploratory in nature. And thus our contributions to the literature are more empirical than theoretical in nature.

One item that could be a promising avenue for future research is to examine tech licensing on an industry basis, instead of just using industries as control variables. It would also be useful to continue data collection for a longer time series, to see when the benefits of licensing might attenuate. Another approach would be to measure the impact of licens-

ing on other outcomes, such as firm survival. A systematic review of literature on relationship among institutional and regulatory rules of the game in emerging economies, and strategic decision of game players will enable to develop theoretical model that will guide competitiveness literature. Future work will grapple with some of these issues.

REFERENCES

Ajitabh, A., & Momaya, K.S. (2004). Competitiveness of firms: review of theory, frameworks and models. *Singapore Management Review*, 26(1), 45-61.

Arulampalam, W. (1996). *A note on estimated coefficients in random-effects probit models. University of Warwick working paper*. Retrieved on May 5, 2016 from http://homepages.warwick.ac.uk/staff/Wiji.Arulampalam/papers/renote5.pdf

Aulakh, P.S., Jiang, M.S., & Pan, Y. (2010). International technology licensing: Monopoly rents, transaction costs and exclusive rights. *Journal of International Business Studies*, 41(4), 587-605, doi.org/10.1057/jibs.2009.19

Baltagi, B.H., & Wu, P.X. (2009). Unequally Spaced Panel Data Regressions with AR(1) Disturbances. *Econometric Theory*, 15(6), 814-823. Retrieved on May 5, 2016 from http://www.jstor.org/stable/3533276

Baumol, W.J. (1972). On taxation and the control of externalities. *The American Economic Review*, 62(3), 307-322.

Bowen, H., & De Clercq, D. (2008). Institutional context and the allocation of entrepreneurial effort. *Journal of International Business Studies*, 39(4), 747-767. Retrieved on May 5, 2016 from http://www.jstor.org/stable/25483297

Browne, C., Corrigan, G., Crotti, R., Di Battista, A., Drzeniek Hanouz, M., Galvan, C., & Sala-i-Martín, X. (2016). *World Economic Forum*. Retrieved on May 2, 2016 from http://reports.weforum.org/global-competitiveness-report-2015-2016/what-competitiveness-is-and-why-it-matters/

Buckley, P. (Ed.) (2004). *What is international business?.* Basingstoke: Palgrave.

Center, I.W. (2016, May 30). *Methodology*. Retrieved on July 2, 2016 from http://www.imd.org/wcc/research-methodology/

Chen, S.F. (2005). Extending internalization theory: A new perspective on international technology transfer and its generalization. *Journal of International Business Studies*, 36(2), 231-245. Retrieved on March 5, 2016 from http://www.jstor.org/stable/25483277

Collins, J.M., & Troilo, M.L. (2015). National factor effects on firm competitiveness and innovation. *Competitiveness Review*, 25(4), 392-409. doi.org/10.1108/CR-02-2015-0009

Czakó, E. (2003). Have competitiveness research projects brought a system paradigm shift?. *Society and Economy,* 25(3), 337-349.

Damijan, J., Jaklič, A., & Rojec, M. (2006) Do External Knowledge Spillovers Induce Firms Innovations? Evidence from Slovenia. In A.T. Tavares & A. Teixeira (Eds.), *Multinationals, Clusters and Innovation. Does Public Policy Matter?* (pp. 27-47). Basingstoke: Palgrave Macmillan.

Demirgüç-Kunt, A., Love, I., & Maksimovic, V., (2006). Business environment and the incorporation decision. *Journal of Banking and Finance*, 30(11), 2967-2993. doi.org/10.1016/j.jbankfin.2006.05.007

Dess, G., Lumpkin, G.T., & Covin, J. (1997). Entrepreneurial strategy making and firm performance: Tests of contingency and configuration models. *Strategic Management Journal*, 8(3), 259-277.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). The regulation of entry. *Quarterly Journal of Economics*, 117(1), 1-37. doi.org/10.1162/003355302753399436

Dunning, J. (1981). *International Production and The Multinational Enterprise*. London: George Allen & Unwin.

Eggertsson, T. (2009). Knowledge and the Theory of Institutional Change. *Journal of Institutional Economics*, 5(2), 137-150. doi.org/10.1017/S1744137409001271

Fagerberg, J. (1988). International competitiveness. *The Economic Journal*, 98(391), 355-374. Retrieved on March 5, 2016 from http://EconPapers.repec.org/RePEc:ecj:econjl:v:98:y:1988:i:391:p:355-74

Fan, J.P., Gillan, S.L., & Yu, X. (2013). Property rights, R&D spillovers, and corporate accounting transparency in China. *Emerging Markets Review*, 15, 34-56. doi.org/10.1016/j.ememar.2012.03.001

Guo, B. (2008). Technology acquisition channels and industry performance: An industry-level analysis of Chinese large and medium-size manufacturing enterprises. *Research Policy*, 37, 194-209.

Khanna, T., & Palepu, K.G. (2010). *Winning in Emerging Markets: A Road Map for Strategy and Execution*. Cambridge, Mass: Harvard Business Press.

Klapper, L., Laeven, L., & Rajan, R. (2006). Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics*, 82(4), 591-629. doi.org/10.1016/j.jfineco.2005.09.006

Krugman, P. (1996). *Pop Internationalism*. New York: The MIT Press.

Lall, S. (2001). Competitiveness indices and developing countries: an economic evaluation of the global competitiveness report. *World Development*, 29(9), 1501-1525. doi.org/10.1016/S0305-750X(01)00051-1

Levie, J., & Autio, E. (2011). Regulatory burden, rule of law, and entry of strategic entrepreneurs: an international panel study. *Journal of Management Studies*, 48(6), 1392-1419. doi.org/10.1111/j.1467-6486.2010.01006.x

Lopez, R.A. (2008). Foreign technology licensing, productivity, and spillovers. *World Development*, 36(4), 560-574. doi.org/10.1016/j.worlddev.2007.04.016

McGrattan, E.R. (1994). The macroeconomic effects of distortionary taxation. *Journal of Monetary Economics,* 33(3), 573-601.

Meyer, K.E., Estrin, S., Bhaumik, S.K., & Peng, M.W. (2009). Institutions, resources, and entry strategies in emerging economies. *Strategic Management Journal*, 30(1), 61-80.

Moreno, A.M. (2015). *Regulation, innovation, and entrepreneurship: A review of the literature*. George Washington University Regulatory Studies Center Working Paper. Retrieved on March 5, 2016 from https://regulatorystudies.columbian.gwu.edu/regulation-innovation-entrepreneurship-review-literature

Mottner, S., & Johnson, J.P. (2000). Motivations and risks in international licensing: A review and implications for licensing to transitional and emerging economies. *Journal of World Business*, 35(2), 171-188. doi.org/10.1016/S1090-9516(00)00031-6

North, D. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Harvard University Press.

Peng, M.W., Wang, D.Y., & Jiang, Y. (2008). An institution-based view of international business strategy: A focus on emerging economies. *Journal of International Business Studies*, 39(5), 920-936.

Porter, M. (1990). The competitive advantage of nations. *Harvard Business Review*, March-April, 73-93.

Porter, M. (2005). *Building the microeconomic foundations of prosperity: Findings from the business competitiveness index*. World Competitiveness Report. Geneva: World Economic Forum.

Puślecki, Ł. (2010). *Wpływ współpracy technologicznej krajów rozwiniętych gospodarczo na ich konkurencyjność międzynarodową*. Toruń: Grado.

Seven, U., & Coskun Y. (2016). Does financial development reduce income inequality and poverty? Evidence from emerging countries. *Emerging Markets Review*, 26(C), 34-63. Retrieved on March 5, 2016 from https://ssrn.com/abstract=2757024

Scott, B.R. (1985). *U. S. Competitiveness in the World Economy*. Boston: Harvard Business School Press.

Solow, R.M. (1957). Technical change and the aggregate production function. *The Review of Economics and Statistics*, 312-320. Retrieved on March 5, 2016 from http://www.jstor.org/stable/1926047

Troilo, M. (2011). Legal institutions and high-growth aspiration entrepreneurship. *Economic Systems*, 35(2), 158-175. https://doi.org/10.1016/j.ecosys.2010.08.001

Troilo, M. (2014). Collaboration, product innovation, and sales: An empirical study of Chinese firms. *Journal of Technology Management in China*, 9(1), 37-55.

Woolridge, J.M. (2013). *Nonlinear models: Correlated random-effects panel data models. IZA ture.* Retrieved on May 13, 2016 from http://www.iza.org/conference_files/SUMS_2013/slides_2_nonlin_iza.pdf

Wood, M.S., Bylund, P., & Bradley, S. (2016). The influence of tax and regulatory policies on entrepreneurs' opportunity evaluation decisions. *Management Decisions*, 54(5), 1160-1182. doi.org/10.1108/MD-10-2015-0446

World Bank (2013). *Country classifications*. Retrieved on March 5, 2016 from http://data.worldbank.org/news/new-country-classifications

World Bank (2013). *Doing Business indicators*. Retrieved on March 5, 2016 from http://www.doingbusiness.org/data

World Bank Enterprise Surveys (2013). Retrieved on March 5, 2016 from http://www.enterprisesurveys.org/

Authors

The contribution share of authors is equal and amounted to 33% each of them.

Mike Troilo

Wellspring Associate Professor of International Business, Collins College of Business School of Finance, Operations Management and International Business at University of Tulsa, USA.. He received a Ph.D. from University of Michigan, M.B.A. and M.A. from University of Virginia, and B.B.A. from College of William and Mary.

Correspondence to: Prof. Mike Troilo, University of Tulsa, Collins College of Business, The University of Tulsa, 800 South Tucker Drive, Tulsa, Oklahoma 74104, USA, e-mail: mike-troilo@utulsa.edu

Michał Zdziarski

Assistant Professor of Strategic Management and International Business at Faculty of Management, University of Warsaw. He received Ph.D. in Managerial Economics, MA in American Studies and MA in Management at University of Warsaw.

Correspondence to: Dr Michał Zdziarski, University of Warsaw, Faculty of Management, ul. Szturmowa 1/3, 02-678 Warsaw, Poland, e-mail: mzdziarski@wz.uw.edu.pl

J. Markham Collins

The Bartlett Foundation Professor of Business Finance, Coordinator of International Business Programs, and faculty director of Friends of Finance. Mark received a Ph.D. in Economics, with specialisation in finance, from the University of Oklahoma, and his M.A. and B.A. degrees in Economics from the University of Houston.

Correspondence to: Prof. J. Markham Collins, University of Tulsa, Collins College of Business, The University of Tulsa, 800 South Tucker Drive, Tulsa, Oklahoma 74104, USA, e-mail: mark-collins@utulsa.edu

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From the Concept to the Measurement of Sustainable Competitiveness: Social and Environmental Aspects

Eleanor Doyle, Mauricio Perez-Alaniz

ABSTRACT

Objective: This article offers an extensive review of Sustainable Competitiveness as an integrating concept bridging current understandings around sustainable development and encompassing the aspects of economic, social and environmental sustainability.

Research Design & Methods: Concepts related to sustainable development are reviewed and their relationships to Sustainable Competitiveness are considered. The concept of Sustainable Competitiveness is related to a set of effective metrics.

Findings: The Sustainability Adjusted Global Competitiveness Index (SGCI), which comprehensively measures cross-country sustainable competitiveness, is identified as a credible synthetic metric for measuring separate aspects of sustainable development across a range of countries.

Implications & Recommendations: The approach enables disaggregation between three separate elements which have an impact on sustainable competitiveness, namely Basic Conditions, Efficiency Enhancers and Innovation Conditions. It is concluded that extending the measurement from GCI to SGCI offers a potential for considering international competitiveness performance from the environmental and social sustainability perspectives. Extensions to SGCI are also proposed.

Contribution & Value Added: The conceptual discussion indicates that the main features relevant to sustainable development appear in the concept and the measure of sustainable competitiveness. The application of the measure to a time-series of data would permit an analysis of the relationships between economic, social and environmental aspects (separately) with measured sustainable competitiveness.

Article type:	conceptual paper
Keywords:	sustainable development; economic, social and environmental sustainability
JEL codes:	Q56, Q20, Q32

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INTRODUCTION

The Commission on the Measurement of Economic Performance and Social Progress (Stiglitz, Sen, & Fitoussi, 2009) identifies that traditional indicators (i.e. GDP, CO2 emissions) present a narrow view of what sustainable development should achieve, highlighting the need for more comprehensive, integrated and holistic approaches. A number of metrics on aspects of sustainable development compete for policy space and attention, and effective metrics assist in steering the transition to sustainability. Such metrics highlight current status, areas where goals are achieved – and areas that need improving. This article addresses the lack of clear and manageable metrics for sustainable development.

The contribution of this conceptual article is its consideration of the intersections between economic performance and environmental and social sustainability. It aims to identify, given current theoretical and conceptual understandings, the impact of economic performance, comprised as a set of distinct elements of economic performance, i.e. 'competitiveness pillars', on environmental and social sustainability. These issues are relevant across the context of international measurement potentials, across countries at different levels of development.

The research identifies how data available from the Global Competitiveness Project (GCP) of the World Economic Forum (WEF: www.weforum.org) could be complemented with environmental and social data from multiple sources. The GCP data covers 144 countries and included social- and environmental-sustainability adjusted measures of competitiveness only since 2015. The measures are derived from international data-gathering efforts contributing to e.g. the evolution of the Millennium Development Goals (2000) of the UN into the Sustainable Development Goals (2015) and build on frontier research. The approach selected here presents a comprehensive assessment of sustainable development which can be applied to aid in guiding the transition towards smart and green economy developments.

The focus on competitiveness outlined in the second section stems from understanding that economic performance is steered by a set of basic fundamentals, the relationships between them and the enterprise (or micro-economic) environment. In the third section, the review details extensively the conceptual and theoretical underpinnings of the Sustainability-adjusted GCI proposed by the WEF. Both the concept and the measurement are placed in the wider context of related research and measures of environmental and social sustainability, the latter theme only recently of research focus. From this review we identify strengths, weaknesses and potential areas for enhancement of the WEF approach and outline these in the fourth section.

Implications of the review point to alternative approaches which exist for measuring competitiveness, environmental and social sustainability, and compare these to the sustainability adjustments proposed by the WEF. The sixth section concludes with the main outcomes of the review of concepts and measurements for sustainable development.

LITERATURE REVIEW AND THEORY DEVELOPMENT

Sustainable Competitiveness – An Integrating Definition and Approach

Underlying & Interrelated Concepts

The World Economic Forum (WEF, 2015) extended its definition of competitiveness to encompass sustainability, defining sustainable competitiveness as the set of institutions, pol-

icies, and factors that make a nation productive over the longer term while ensuring social and environmental sustainability. Within the policy and research spaces key related concepts of 'circular economy' and 'inclusive growth' increasingly point to consumption and production systems that are in harmony with society and the environment (Corrigan, Crotti, Hanouz, & Serin, 2014; Piketty & Goldhammer, 2014). A trade-off between environmental quality and economic growth no longer dominates research or policy narratives – now simultaneous targets are identified for growth, sustainability and societal development (Ambec, Cohen, Elgie, Lanoie, Canada, Chabot, & Thornton, 2010; Porter & Van der Linde, 1995).

Competitiveness in this context refers to the level of local (national or regional) productivity (Delgado, Ketels, Porter, & Stern, 2012) rather than market-share or cost-competitiveness which focus on cost-efficiency or the ability of nations to compete in the international market. The level of productivity sets the level of prosperity that can be reached by an economy – where prosperity is related to the value of economic output and the quality of that output (Porter *et al.*, 2008), and where the productive capacity contributes to a general rise in living standards, freeing people to make choices, and enabling a more equal distribution of opportunities (Commission on Growth and Development, 2008). For Porter (1990), productivity is the only meaningful concept of competitiveness asit determines the rates of return obtained by investments, and these are the fundamental drivers of an economy's output and income growth rates.

Sustainable competitiveness includes several interrelated aspects of the concept of sustainable development. Environmental sustainability has received a lot of attention within sustainability debates and the general understanding is that economic development must be decoupled from intensive use of natural resources to avoid surpassing the carrying capacity of the natural environment (United Nations, 2002). Within the economic growth research, an increasing emphasis on human development, polarisation and inequality impacts prevails (Karabarbounis & Neiman, 2013; Piketty & Goldhammer, 2014). Much of this work focuses on developing nations, where economic growth is expected to significantly reduce poverty (Commission on Growth and Development, 2008). Coming out of deep recession has increased. the focus on social injustice and inequality in mainstream public policy in more advanced economies (Stiglitz *et al.*, 2009).

For policy, efforts are directed at decoupling economic development from environmental degradation, while leveraging innovation and skill upgrading to foster prosperity for all, especially the most vulnerable (see for example European Commission, 2010). Thus, while the sustainability narrative binds the three key elements of sustainable development – economic, environmental and social – the environmental and social elements of sustainable development are often studied entirely separately in conjunction with economic growth – despite the core message that sustainability of the social and the environmental are deeply embedded in each other. Thus, sustainable competitiveness as a concept and as an approach bridges this gap.

Significant challenges remain when considering how environmental- and eco-innovations contribute to enhancing the three elements of sustainable competitiveness. Vallance, Perkins and Dixon (2011) review how the social and the environmental domains of sustainable development interact in the context of environmentally friendly products and services. They identify three prominent research areas which shed light on dynamics around consumer demand for environmentally friendly products.

1. *Sustainability and Basic Needs.* Research has largely focused on developing nations and on how to meet basic needs in an environmentally sustainable way (Commission on Growth and Development, 2008). Featuring large in studies on barriers to the uptake of more sustainable technologies and products is poverty (Crabtree, 2005).
2. *Behavioural Change.* Non-transformative changes, such as recycling schemes, lead to stronger environmental ethics through the provision of information and services which do not have a major impact on everyday life (Vallance *et al*., 2011). Transformative approaches require changes to perception – the way the environment and society are socially constructed.
3. *Preservation of Socio-cultural Characteristics.* Maintenance of social sustainability is founded upon traditions, practices, preferences and places people would like to see sustained or improved, such as low-density suburban living, the use of the private car, and the natural landscapes. Initiatives with limited effect on behaviour run contrary to socially constructed values and habits (Assefa & Frostell, 2007).

Implications

- Sustainable *competitiveness* emphasises economic competitiveness as a driver of prosperity and long-term growth – taking account of environmental and social concerns. Future competitiveness cannot rely on intensive use of the environment.
- Firms must develop new competitive advantages embodied in the concept of the 'circular economy' to transition from a linear 'take-make-dispose' system.
- Shifting to the circular economy requires preconditions in society if they are to succeed.
- Understanding sustainable competitiveness requires a broad perspective drawing from both social and natural sciences and looking at the relationships between the economic, the social and the environment concurrently.

Measuring Sustainable Competitiveness

Applied work reflects competing views of competitiveness. The measures of competitiveness from market-share and cost-competitiveness views are proposed by organisations such as the OECD, the World Bank, and the European Union. These measures provide macro-economic diagnostics of competitiveness. Other measures of competitiveness that focus on productivity are also developed by the same institutions, and increasingly by countries, with the support from academics (see Ketels, 2016; Cunska, Ketels, Paalzow, & Vanags, 2013). The work of the World Economic Forum can be identified as the most comprehensive effort to date in its production of the Global Competitiveness Index (GCI). Both approaches consider different aspects of competitiveness and while useful in their own enterprise, they fail to explain all aspects of competitiveness. For the purposes of this research review, the productivity view and the GCI are used as the central framework for the study.

Market Share/Cost Approach

Market-share measures of competitiveness propose narrow definitions of competitiveness relating to real exchange rate or price and labour cost-competitiveness comparisons (O'Brien, 2010; Durand & Giorno, 1997; European Commission, 2016).

Some indexes focus on costs from the perspective of firms, often calculated by consultants and private agencies, to identify the most profitable locations for specific

firms or industries. Deloitte´s Global Manufacturing Competitiveness Index focuses on talent, cost competitiveness, workforce productivity and supplier networks (Deloitte, 2016). The Doing Business Report includes additional factors, such as the bottlenecks firms face when setting up new operations (i.e. red tape, institutional transparency, etc.). The index has been extended from 5 to11 sets of indicators across 185 economies in 2012 (World Bank, 2012). These approaches contain an inherent premise of understanding the underlying dynamics that drive productivity – which places them close to productivity-oriented approaches (Ketels, 2016).

A general criticism of market-based measures of competitiveness is the focus on outcomes while failing to identify the ultimate sources of competitiveness (O'Brien, 2010). It is increasingly recognized that changes in the underlying fundamentals driving national productivity cannot be assessed independently from each other but as interactions in the complex dynamics and synergies across reinforcing factors (Ketels, 2006). Improving competitiveness might require changes in the underlying fundamentals of productivity and may involve addressing several interlocking relationships and potential bottlenecks that may not be identified (and consequently addressed) using more aggregated indicators such as employed in the cost/market share approaches. The dominant view is that it is at this level of analysis that policy should be most effective to foster competitiveness. Cost based approaches fail to make a significant contribution in this regard (Delgado *et al.*, 2012; Porter, Delgado, Ketels, & Stern, 2008).

More recently, increasing recognition of region as the key unit of analysis is reflected in growing attention to sub-national regions and agglomeration economies (Huggins, Izushi, & Thompson, 2013; Kitson, Martin, & Tyler, 2004; Snieška & Bruneckienė, 2009). The aggregation level of macroeconomic data and important methodological implications to separate regional from national indicators has led to further strong criticism of the market-share approaches (Huggins & Davies, 2006; Huggins *et al.*, 2013; Ketels, 2006; Kitson *et al*., 2004; Porter *et al*., 2008).

Productivity Approach

The productivity approach to competitiveness focuses on the fundamental factors enabling locational generation of wealth and prosperity. Pioneered by Porter (1990), three key themes of research or pillars which map different levels of interlocking relationships driving productivity are identified. The first pillar is the macroeconomic environment that provides a broad context for growth. The second pillar includes business sophistication and the quality of the business environment labelled as the 'microeconomic environment' by Porter and outlined in Porter's Diamond Model (Porter, 1990), The third pillar considers systemic relationships between the first two pillars.

Specific factors which have been highlighted to drive productivity are presented in Table 1. They are categorised as traditional drivers, recently identified drivers, and more complex drivers that have not yet been fully understood (Delgado *et al*., 2012; Ketels, 2016; Porter *et al*., 2008). Measuring competitiveness from a productivity standpoint requires a broad scope encompassing different interacting dynamics relative to cost-based perspectives.

The GCI is the most recognized index covering 114 countries (2015 edition). The first GCI was published in 2005 with the collaboration of international experts and is largely derived from Porter's contributions until 2009 (e.g. Porter *et al.*, 2008). The GCI identifies twelve pillars driving productivity. The extent to which different elements contribute to driving

productivity depends on the stage of the development of an economy. The approach (in its latest presentation by Delgado *et al.*, 2012) also distinguishes between inherited and created endowments, focusing on the latter to explain changes in economic prosperity.

Table 1. Drivers of competitiveness: the productivity-based approach

Traditional Drivers	Recently Identified Drivers	Complex Drivers
Rules & Regulations	Company sophistication and firm heterogeneity	Individuals: Culture and trust
Financial Markets	Economic geography: Urbanisation and clusters	Institutions: Quality and capacity
Physical Infrastructure	Economic composition: 'Economic Complexity'	Social capital and linkages
Macroeconomic Policy	(Creative) skills and locational attractiveness	–
Institutions and Geography	Different levels of geography (within nation)	–
Economy size	–	–

Source: own study, after Ketels (2016).

The twelve pillars result from an aggregation of 111 indicators. These generate 3 sub-indexes, compiled into one competitiveness score. Both hard statistical data (66%) and microeconomic data gathered through business surveys (34%) are used to measure the 111 indicators. The approach, while not without criticism (Fougner, 2008; Lall, 2001), is widely used and recognized as the most theoretically grounded approach.

The GCI uses weighting systems to account for the relative importance of different drivers of productivity with weights assigned according to different stages of development in line with the theory which stresses that as nations develop, modes of competing and the nature of competitive advantage change (Porter *et al*., 2008). It is increasingly recognized that at different levels of development, locations face different competitiveness challenges, where the relative importance of different dimensions of microeconomic and macroeconomic competitiveness is changing (Porter, 1990). Therefore, the approach of the GCI is considered to propose a comprehensive representation of the key levers of productivity and how their relative importance changes over stages of development (Delgado *et al*., 2012).

The presentation of scores by pillar, by sub-index (Basic Requirements/Efficiency Enhancers/Innovation Factors) and in aggregate, allows for the identification of vulnerabilities and strengths in national competitiveness. Thus, the GCI-productivity approach is associated with sound policies like skill upgrading, infrastructure investment, research and innovation investment that are widely-accepted contributions to development. Development debates focus on what specific policies are best applied to support productivity growth and to diagnose strategies to close gaps as they develop (Ketels, 2006).

Measuring Sustainability: Environmental & Social Aspects

Sustainability arises from the principle that anthropogenic-related environmental pressure (i.e. originating in human activity) is reaching a threshold where the use of environmental resources and services is beyond the capacity of the environment to produce or to re-generate such resources and services. This can lead to irreversible environmental degradation (Middleton, 2013). Decoupling economic activity from environmentally-intensive practices is at the core of sustainability (Moldan, Janouvikov, & Hunk, 2012). Sustainability

also relates to social features which impact wellbeing and relate to judged fairness of resource distribution. It has been the least theorised and explored pillar of sustainable development (Littig & Grießler, 2005). It is also increasingly understood that both environmental and social sustainability are largely interdependent.

Environmental Sustainability Measurement

Ecologically speaking, environmental sustainability is defined by focusing on the natural environment's bio-geo-physical aspects, such as maintaining or improving the integrity of the earth's life-supporting systems (Moldan *et al.*, 2012). Assessing environmental sustainability should concern what is happening to the state of the environment; why is it happening; and what are we doing about it? (Hammond, Adriaanse, Rodenburg, Bryant, & Woodward, 1995). Questions such as if and how efforts for sustainable development are achieving decoupling, and what the reciprocal effects between human influence on the natural environment and economic growth are have also been high on the research agenda (Patil, 1994). Several approaches have been developed to measure and monitor environmental sustainability. These may be classified as (1) State of the Environment (SOE) indicators, (2) Action Indicators (AI) and (3) Composite Index Indicators (CII).

1. SOE indicators measure the state and quality of the environment to make a problem visible (Dahl, 2011). The work carried out on climate change and the Millennium Ecosystem Assessment exemplify relevant achievements (Moldan *et al.*, 2012; OECD, 2008; United Nations, 2015). SOE indicators, in combination with economic data, permit the assessment of the extent to which economies are decoupling growth from resources. Identifications of environmental features to be measured and the scope of SOE metrics largely evolved in line with policy needs (UNEP, 2008; Linster, 2003; Dahl, 2011). Table 2 summarises SOE indicators used by the UNEP, OECD and the European Environment Agency (EEA). There is recognition that there is no universal set of indicators available, but these serve several purposes and audiences (i.e. monitoring purposes in relation to environmental policies (Linster, 2003). Data gaps remain and the robustness of indicators is determined by available data which vary in its quality (UNEP, 2008).
2. Action indicators (AI) measure performance and distance relative to environmental targets (Dahl, 2011; Moldan *et al.*, 2012).[1] AIs aid benchmarking and monitor policy efforts (i.e. they aim to estimate if efforts have the desired impact and how) with current and future focus (Pintér, Hardi, Martinuzzi, & Hall, 2011). The most widely recognized set of AIs are those of the Sustainable Development Goals (SDGs). The SDGs are time-bound quantified targets for addressing extreme poverty in its many dimensions – income poverty, hunger, disease, lack of adequate shelter, and exclusion – while promoting gender equality, education, and environmental sustainability. They are also considered basic human rights, to health, education, shelter, and security (United Nations, 2002). Decoupling indicators of the OECD and EEA can also be classified as key AI globally, regionally and nationally. Table 3 provides a summary of the most widely used AI indicators. AI provide an international framework to benchmark efforts, identifying potential limitations and potential solutions (Mayer, 2007).

[1] We label them AI in order to reflect a wide array of indicators that respond to an environmental goal without using the specific language different organisations and literature strands use for matters of simplicity.

Table 2. Widely used state-of-the environment (SOE) indicators

Indicators (Sets)	Issues Included	Organisation
Climate Change	Co2 and Greenhouse Gas Emission Intensities	OECD
Ozone Layer	Ozone Depleting Substances	OECD
Air Quality	Sox and Nox Emission Intensities	OECD
Waste Generation	Municipal Waste Generation Intensities.	OECD
Freshwater Quality	Waste Water Treatment Connection Rates	OECD
Freshwater Resources	Intensity of Use of Water Resources	OECD
Forest Resources	Intensity of Use of Forest Resources	OECD
Fish Resources	Intensity of Use of Fish Resources	OECD
Energy Resources	Intensity of Energy Use	OECD
Biodiversity	Threatened Species	OECD
Core Environmental Indicators (Cei)	Several Core Issues Such as Climate Change, Ozone Layer Depletion, Natural Resource Use, Etc.	UNEP/OECD
Key Environmental Indicators (Kei)		UNEP/OECD
Sectoral Environmental Indicators (Sei)		UNEP/OECD
Indicators derived from Environmental Accounting		UNEP/OECD
Decoupling Environmental Indicators (Dei)		UNEP/OECD
APE (Air Pollutant Emissions)	11 Indicators Covering Several Aspects of Air Pollution	EEA
CLIM (Climate State and Impact Indicators)	46 Indicators Covering Several Aspects of Climate Change	EEA
ENER (Energy Indicators)	11 Indicators Covering Several Aspects of Use and Generation of Energy	EEA
LSI (Land and Soil Indicators)	2 Indicators	EEA
MAR (Marine Indicators)	3 Indicators in Fisheries	EEA
SEBI (Streamlining European Biodiversity Indicators)	27 Indicators for Bio-Diversity	EEA
SCP (Sustainable Consumption and Production)	1 Indicators On Consumption Levels	EEA
Term (Transport and Environment Reporting Mechanism)	20 Indicators	EEA
WAT (Water Indicators)		EEA
WREI (Water Resource Efficiency Indicators)	11 Indicators	EEA
WST (Waste Indicators)	2 Indicators	EEA

Source: own study from UNEP, OECD and EEA portals.

3. Composite indexes include both SOE and AI indicators, primarily at national level, appropriate for considering how policies, economics, social and cultural behaviours are shaped. If environmental conditions are monitored with those concerning human systems, a better opportunity exists for understanding feedback between them (Kaly, Pratt, & Mitchell, 2005).

A selection from this research includes (1) The Environmental Vulnerability Index (EVI) prepared by the South Pacific Applied Geoscience Commission (SOPAC), the United Nations

Environment Programme (UNEP) and their partners; (2) The Environmental Performance Index (EPI), from a project led by Yale Center for Environmental Law & Policy (YCELP) and Yale Data-Driven Environmental Solutions Group and partners[2]; and (3) The National Footprint Accounts (NFAs), developed by the Global Footprint Network (GFN).

Table 3. Most commonly used action indicators (AIs)

Indicators (Sets)	Issues Included	Organisation
Climate Change	CO_2 and Greenhouse Gas Emission Intensities	OECD
Ozone Layer	Ozone Depleting Substances	OECD
Air Quality	Sox and Nox Emission Intensities	OECD
Waste Generation	Municipal Waste Generation Intensities	OECD
Freshwater Quality	Waste Water Treatment Connection Rates	OECD
Freshwater Resources	Intensity of Use of Water Resources	OECD
Forest Resources	Intensity of Use of Forest Resources	OECD
Fish Resources	Intensity of Use of Fish Resources	OECD
Energy Resources	Intensity of Energy Use	OECD
Biodiversity	Threatened Species	OECD
APE (Air Pollutant Emissions)	11 Indicators Covering Several Aspects of Air Pollution	EEA
CLIM (Climate State and Impact Indicators)	46 Indicators Covering Several Aspects of Climate Change	EEA
ENER (Energy Indicators)	11 Indicators – Use and Generation of Energy	EEA
LSI (Land and Soil Indicators)	2 Indicators	EEA
MAR (Marine Indicators)	3 Indicators in Fisheries	EEA
SEBI (Streamlining European Biodiversity Indicators)	27 Indicators for Bio-Diversity	EEA
SCP (Sustainable Consumption and Production)	1 Indicators on Consumption Levels	EEA
Term (Transport and Environment Reporting Mechanism)	20 Indicators	EEA
WAT (Water Indicators)	11 Indicators	EEA
WREI (Water Resource Efficiency Indicators)		EEA
WST (Waste Indicators)	2 Indicators	EEA
Core Environmental Indicators (Cei)	Several Core Issues – Climate Change, Ozone Layer Depletion, Natural Resource Use, Etc.	UNEP/ OECD
Key Environmental Indicators (Kei)		UNEP/ OECD
Sectoral Environmental Indicators (Sei)		UNEP/ OECD
Indicators derived from Environmental Accounting		UNEP/ OECD
Decoupling Environmental Indicators		UNEP/ OECD

Source: own study from UNEP, OECD and EEA portals.

[2] Other partners include the Center for International Earth Science Information Network (CIESIN) at Columbia University, in collaboration with the Samuel Family Foundation, McCall MacBain Foundation, and the World Economic Forum.

Both EVI and EPI claim a high degree of scientific rigor, notwithstanding limitations. First, the EPI focuses on politically-identified targets, an area of the debate contested by ecologists and environmentalists. Second, the index may mask 'pollution-haven' practices, making developed counties appear cleaner than they actually are (Morse & Fraser, 2005). Third, the extent to which the EPI effectively deals with trans-boundary environmental issues and limitations to draw meaningful conclusions from the index have been raised (Bohringer & Jochem, 2007; Haberland, 2008; Morse & Fraser, 2005).

Nonetheless, the EPI has been incorporated into not only the GCI approach to adjusting competitiveness scores for environmental and social sustainability (Bilbao-Osorio, Blanke, Campanella, Crotti, Drzeniek-Hanouz, & Serin, 2013; Corrigan *et al.*, 2014) but also Deloitte's Global Manufacturing Competitiveness Index (Deloitte, 2013), and replicated in several regional environmental assessments (see Fischer, Foerster, & Hartmann, 2009; Ihobe, 2013). With a lack of alternatives that competently integrate rigor and reporting simplicity, the EPI has increasingly become the preferred approach for assessing environmental sustainability.

Criticism of the NFA centres on the explanatory power of the indicators beyond a strong warning of current unsustainable practices. Ideally, the indicators should include all human demand related to environmental resources and services – not possible due to lack of data (Borucke, Moore, Cranston, Gracey, Iha, Larson, & Galli, 2013). Secondly, the approach assumes a carrying capacity based on ecological modelling which fails to include non-renewable resources for which the regeneration approach may not apply, nor changes in decoupling-enabling technology (Stiglitz *et al.*, 2009). Thirdly, the worldwide ecological deficit emphasised by the NFAs may not convey the message it is said to. One can show that the worldwide imbalance is mostly driven by CO_2 emissions. By definition, the worldwide demand placed on cropland, built-up land and pasture cannot exceed the world's bio-capacity (Stiglitz *et al*., 2009).

Social Sustainability Measurement

The social is the least theorised and explored pillar of sustainable development and, to date, the most complex to operationalise (Littig & Grießler, 2005; Murphy, 2012). The alignment of the social domain with sustainability was unheard of prior to the 1990s (Omann & Spangenberg, 2002; Colantonio & Lane, 2007; Littig & Grießler, 2005; Magis, 2010).

Colantonio (2009) identifies at least *27* approaches to social sustainability from essentially three overarching categories (Chiu, 2003). The first views the natural environment as an enabler of social relations and dynamics. The second is environmentally oriented, i.e. focusing on necessary social preconditions to achieve environmental sustainability. The third is people-oriented, focusing on improving wellbeing, including distribution of resources, reducing social exclusion and destructive conflict. Table 4 provides a summary of the most commonly used approaches. Analytical frameworks are usually applied at regional or community levels (Magee, Scerri, James, Scerri, & James, 2012; Omann & Spangenberg, 2002; Woodcraft, 2012).

For Colantonio (2009) current social sustainability approaches at the national level largely leverage traditional criteria and themes from the literature on social development and new themes emerging from sustainability concerns. Traditional themes mainly focus on hard policy areas of social development.

The Human Development Index (HDI) published by the United Nations Development Program (UNDP, 2016) is the most widely recognized framework relying on traditional

Table 4. Themes & features of social sustainability

Feature/Theme	Author
- Livelihood - Equity - Capability to withstand external pressures - Safety nets - Inclusion	Chambers & Conway (1992)
- Equity - Poverty - Livelihood - Equity	DFID (1999)
- Democracy - Human rights - Social homogeneity - Equitable income distribution - Employment - Equitable access to resources and social services	Sachs (1999)
- Paid and voluntary work - Basic needs - Social security - Equal opportunities to participate in a democratic society - Enabling social innovation	Hans-Böckler-Stiftung (2001)
- Social justice - Solidarity - Participation - Security	Thin *et al.* (2002)
- Education - Skills - Experience - Consumption - Income - Employment - Participation	Omann & Spangenberg (2002)
- Basic needs - Personal disability - Needs of future generations - Social capital - Equity - Cultural and community diversity - Empowerment and participation	Baines & Morgan (2004); Sinner *et al*. (2004)
- Interactions in the community/social networks - Pride and sense of place - Community participation - Community stability - Security (crime)	Bramley *et al.* (2006)

Source: after Colantonio (2009, p. 6).

themes of social development (Omann & Spangenberg, 2002). The HDI was first published in 1990 as a measure of human achievements across several basic capabilities, in what people can do, and be. The HDI has been an instrumental tool in social development to monitor and compare levels of human achievement. It has been presented as an evolving method, improved since its first publication, adding other aspects of human development in adjacent indexes such as the inequality-adjusted HDI and the Gender Development Index. Limited understanding of the social domain proposed by the HDI has attracted criticism, in addition to methodological issues (Kovacevic, 2011).

The MDGs has expanded the view of social development to include explicit goals for several aspects of human development. Eight goals and initially 18 targets (measured by 48 indicators) were laid out to harmonise reporting on the Millennium Declaration (UN, 2000). Table 5 presents the MDGs directly focusing on social sustainability, incorporated in the Sustainable Development Goals (UN, 2015). To some extent, the MDG's attempted to place social development within the framework of sustainability. While serving to expand the agenda of human development as initially proposed by the HDI, the agenda largely centred on traditional themes and criteria based on basic needs and opportunities (Omann & Spangenberg, 2002).

Table 5. Social sustainable development indicators

Social Sustainability Indicators	Source
- Proportion of population living below national poverty line,	UN
- Ratio of share in national income of highest to lowest quintile,	UN
- Proportion of population using improved water source,	UN
- Percentage of population using solid fuels for cooking,	UN
- Proportion of urban population living in slums,	UN
- Number of intentional homicides per 100,000 population,	UN
- Life expectancy at birth,	UN
- Percent of population with access to primary health care facilities,	UN
- Contraceptive prevalence rate,	UN
- Prevalence of tobacco use,	UN
- Morbidity of major diseases such as HIV/AIDS, malaria, tuberculosis,	UN
- Net enrolment rate in primary education,	UN
- Lifelong learning Population growth rate Dependency ratio,	UN
- Percentage of population living in hazard prone areas,	UN
- Percentage of population having paid bribes,	UN
- Under- five mortality rate,	UN
- Healthy life expectancy at birth,	UN
- Immunisation against infectious childhood diseases,	UN
- Nutritional status of children,	UN
- Suicide rate,	UN
- Gross intake into last year of primary education,	UN
- Adult secondary (tertiary) schooling attainment level,	UN
- Adult literacy rate,	UN
- Total fertility rate,	UN
- Ratio of local residents to tourists in major tourist regions and destinations,	UN
- Human and economic loss due to natural disasters.	UN

Source: UN (2007). Indicators for 2015 are still under development.

Key strengths provided in the MDG framework are:

1. a clear focus on national policy efforts,
2. a set of clear, simple, quantitative and easily communicable targets,
3. a starting point for improved accountability through simple but robust indicators.

In addition it also served as a tool for advocacy to strengthen international development cooperation (UN, 2012). Main weaknesses include inadequate early incorporation of other important issues for social development, such as environmental sustainability, productive employment and decent work, inequality, etc.

More recent research on integrating the social with sustainability focussed on soft policy criteria (Colantonio, 2009) operationalised by process-oriented indicators for monitoring progress towards specific objectives in a more interactive way than traditional social indicators like the HDI and MDGs. However, the gap between the SDGs and research concerned with social sustainability remains. The 2015 revision of the SDGs (UN, 2015) attempts to bridge this gap.

Two concepts are at the core of recently developed social sustainability approaches. Quality of Life has been widely proposed for inclusion in sustainability assessments (Stiglitz *et al.*, 2009). Sustainability of Community is concerned with the viability and functioning of society as a collective entity including its physical environment (Douvlou, Papathoma, & Turrell, 2008; Magis, 2010).

The updated SDGs offer a more comprehensive framework which acknowledge all three pillars of sustainable development and its interactions that lead to better Quality of Life. In addition, the emphasis is placed on making cities and urban settlements inclusive, safe, resilient and sustainable. This includes the promotion of sustainable consumption and production patterns and focuses on society and its institutional aspects such as, justice, accountability inclusiveness. The new SDGs are organised under 17 headings with 169 associated targets which are integrated and indivisible (UN, 2015). Updated social sustainability SDGs are presented in Table 6.

Table 6. Social sustainability – updated SDGs

Social Sustainability in Renewed Sustainable Development Indicators
Goal 3: Ensure healthy lives and promote wellbeing for all at all ages
Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5: Achieve gender equality and empower all women and girls
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation
Goal 10: Reduce inequality within and among countries
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12: Ensure sustainable consumption and production patterns
Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Source: UN (2015).

Effective implementation of the SDGs requires further work. As new themes and criteria are included, improvements in measuring sustainable development are

needed. The Sustainable Development Solutions Network identified several areas requiring improved data reporting practices – and significant investment (SDSN, 2015). The extent to which the SDG realises its potential is likely to be determined by whether nations are able and willing to make such improvements.

The emphasis on Quality of Life and Wellbeing as outcomes of social sustainability is increasingly endorsed by academics and practitioners. Analytical approaches are being developed to grasp the multiple dimensions of a yet undefined concept.[3] Several recently-developed approaches for assessing Quality of Life and Wellbeing are available, such as the OECD's Quality of Life Index or Better Life Index (BLI) (OECD, 2015), The World Happiness Index (WHI, 2016), The European Social Survey (ESS) and Gallup's World Poll· Most of this work is largely regarded as explorative – with limited policy influence yet.

A further related development is the redefinition of social progress. The Social Progress Index (SPI) produced by a consortium of stakeholders including academics, multilateral organisations and the private sector is leading this vein of research where social progress as a concept bridges traditional hard policy issues with soft policy priorities. Social progress is defined as "the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential" (Porter, Stern, & Green, 2016, p. 4). This definition references three broad elements or dimensions of social progress: Basic Human Needs, Foundations of Wellbeing, and Opportunity. Each of these dimensions is further broken down into four underlying components, as presented in Table 7. The SPI was first published in 2013, and in its 2016 publication, it included 133 nations.

Table 7. Dimensions of the social Progress Index (SPI)

Basic Human Needs	Foundations of Wellbeing	Opportunity
Nutrition & Basic Medical Care	Access to Basic Knowledge	Personal Rights
Air, Water, and Sanitation	Access to Infor. & Comms	Access to Higher Education
Shelter	Health and Wellness	Personal Freedom & Choice
Personal Safety	Ecosystem Sustainability	Equity and Inclusion

Source: Fehder & Stern (2013).

The SPI emphasises outcome indicators rather than input measures. The SPI, therefore, allows individual countries to identify specific areas of strength or weakness in terms of its social progress, and also allows countries to benchmark themselves against peers, both at the level of individual indicators as well as in terms of an aggregate measure of social progress (Fehder & Stern, 2013). The approach has been well received in academic and policy circles with several organisations operationalising the finding of the SPI for aiding policy making. In Europe the approach has been adapted and extended to sub-national level in Spain.

[3] As Stiglitz *et al.* (2009, p. 143) put it, "what constitutes a 'good life' has occupied leading philosophers since Aristotle, and dozens of definitions of the 'good life' are discussed in the literature: none of these definitions commands universal agreement, and each corresponds to a different philosophical perspective. In general terms, quality of life as a concept is used to refer to those aspects of life that shape human well-being beyond the command of economic resources (Stiglitz *et al.*, 2009).

Measuring Sustainable Competitiveness – The WEF Approach

The *World Economic Forum* defined sustainable competitiveness as the set of institutions, policies, and factors which make a nation productive over the long term while ensuring social and environmental sustainability (WEF, 2015). The extension of their analytical application includes a novel set of metrics which intends to bridge a wide range of dynamics, often covered by several disparate disciplines into a single index.[4] They report on measures of sustainable competitiveness in both 2014 and 2015.

The WEF identifies the relationship between sustainability and competitiveness as multifaceted. Several channels are identified, including the efficient use of natural resources, improved health, the relationship between biodiversity and innovation, the impact of competitiveness on social sustainability and how more socially sustainable nations might generate more competitive businesses. The WEF framework to support policies that balance economic prosperity with social inclusion and environmental stewarding is presented in Figure 1.

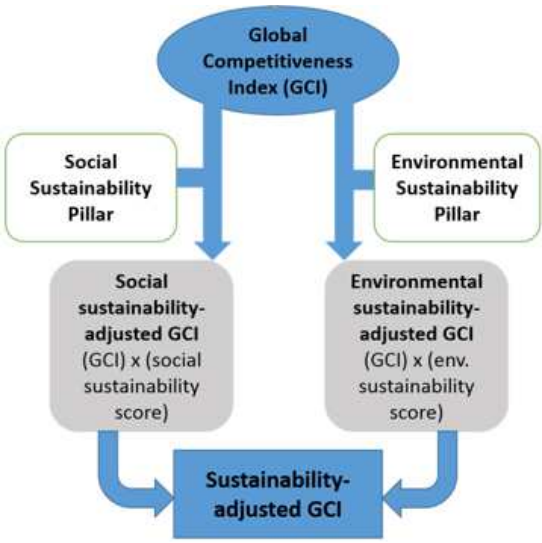

Figure 1. SGCI Framework
Source: Bilbao-Osorio *et al.* (2013).

The pillars representing the environmental and social sustainability domains serve to illustrate the interaction between sustainability and competitiveness and, therefore, are used to adjust the competitiveness score obtained through the estimation of the Global Competitiveness Index (GCI). In this way, a sustainability-adjusted GCI, or SGCI, is obtained. The framework emphasises that competitiveness on its own does not necessarily lead to sustainable levels of prosperity (Bilbao-Osorio *et al.*, 2013).

The WEF adjustment for environmental sustainability recognizes that the state of the natural environment affects competitiveness both at the national and at the firm level.

[4] The IMD *World Competitiveness Yearbook* reports it is also in the process of developing relevant adjustments to take count of environmental and employment creation dimensions of competitiveness.

Allied to this institutions, policies and other factors concerning the environment are also important (Corrigan *et al.*, 2014). Environmental sustainability is defined as a "set of institutions, policies, and factors that ensure an efficient management of resources to enable prosperity for present and future generations" (Bilbao-Osorio *et al.*, 2013, p. 58). The environmental sustainability adjustment of the GCI framework is composed of three pillars encompassing (1) environmental policy, (2) use of renewable resources and (3) degradation of the environment. Table 8 lists the indicators underlying each pillar.

Table 8. Pillars of environmental sustainability adjustment

Environmental Policy	Use of Renewable Resources	Degradation of Environment
Environmental regulations (stringency & enforcement)	Agricultural water intensity	Particulate matter concentration
No. of ratified international environmental treaties	Forest cover change	CO2 intensity
Terrestrial biome protection	Fish stocks' overexploitation	Quality of natural environment

Source: Bilbao-Osorio *et al.* (2013).

An environmental sustainability score is obtained using a similar method as used in the GCI. Data are normalised into a 1 to 7 scale, followed by a second normalisation based on the distribution of the sustainability component on a scale of 0.8 to 1.2. This process transforms the normalised means into a sustainability score that is lowest for the lowest performer and highest for the top performer. Thus, the adjustment is carried out by multiplying the GCI score by an environmental sustainability coefficient. Data include a mix of SOE indicators, distance to target indicators and qualitative indicators obtained from the *Executive Opinion Survey* used for the GCI.

Social sustainability is defined as "institutions, policies and factors that enable all members of society to experience best possible health, participation, and security, and to maximise their potential to contribute and benefit from the economic prosperity of the country in which they live" (Bilbao-Osorio *et al*., 2013, p. 59). The three pillars which comprise the social sustainability adjustment are (1) access to basic necessities, (2) vulnerability to shocks, and (3) social cohesion. The variables for each pillar are provided in Table 9.

Table 9. Pillars of social sustainability adjustment

Access to Basic Necessities	Vulnerability to Shocks	Social Cohesion
Access to sanitation	Vulnerable employment	Income Gini index
Access to improved drinking water	Extent of informal economy	Social mobility
Access to healthcare	Social safety net protection	Youth unemployment

Source: Bilbao-Osorio *et al.* (2013).

Calculating the social sustainability adjustment is similar to environmental sustainability. The lowest performer scores the least (scaled by 0.8) while the top performer would score the highest (scaled by 1.2). The adjustment is carried out by multiplying this social sustainability coefficient by the GCI score. A final SGCI is obtained by the average of the environmental sustainability and social sustainability adjustment scores (Corrigan *et al.,* 2014).

DISCUSSION AND IMPLICATIONS

Environmental Sustainability Adjustment Limitations

As the sustainability adjustment approach is influenced by the EPI, its limitations are relevant here. In summary:

1. Targets used to assess environmental performance may not correspond to natural environmental thresholds and, therefore, the adjusted SGCI for environmental sustainability fails to include the carrying capacity of the environment (Barnett, Lambert, & Fry, 2008; Kaly *et al*., 2005).
2. Conceptual underpinnings relating environmental sustainability to resource use within national boundaries largely fail to take account of the effects of consumption and international trade. More developed countries can shift pollution and more polluting industries to other nations with less environmentally stringent regulation, ultimately making developed countries appear 'cleaner' than they actually are (Morse & Fraser, 2005).

The *2014-2015 Global Competitiveness Report* stresses that the approach remains a work-in-progress and the set of variables might not cover all relationships between economic activity and the environment. It would be interesting to cover areas such as consumption-related environmental demand while including additional distance-to-target indicators in an expanded range of environmental services and resources. While environmental vulnerability and how this can affect socio-economic systems is explicitly discussed in the report, it remains largely absent from the index. Our research proposes that an expanded set of indicators covering vulnerability would further enhance the approach. Problems of data availability and data quality are often common themes in most methods in producing assessments of the environment, especially for cross-country analyses. To some extent, this is also true for the GCI.

A noted strength of the WEF method is its bridge between the macro and micro levels of analysis, rooted in the literature of competitiveness and economic development. This, however, is largely absent when considering environmental and social sustainability. As Section 3 outlines, there are important lessons to be learned from studying firms' responses to pressures emerging externally and internally to firms and how the characteristics of the business environment and internal resources of the firm enable better environmental performance of products, processes and organisations. Indicators considering these dynamics could further enhance the pillars concerning environmental policy and the use of renewable resources (i.e. pillars 1 and 2 of the environmental sustainability module).

Social Sustainability Adjustment Limitations

The theoretical underpinnings of the three pillars and indicators of the social adjustment are largely derived from the basic needs and social inclusion approach to social sustainability. The authors state that further indicators could be added, such as social participation and respect for core human rights and treatment of minorities (Corrigan *et al*., 2014).

Quality of Life indicators could further enhance the sustainability pillars. Section 2.2.2 reviews some potential aspects which can be incorporated into the GCI. The OECD Better Life Index (BLI) could generate improvements. Data, however, only cover OECD members in addition to two non-OECD countries and computing the BLI for all countries included in the GCI would be challenging. The World Happiness Index (WHI) (Layard & Sachs, 2012)

would potentially offer complementarities to the GCI. In this case, data can be gathered for all the nations included in the GCI (114 in its 2015 edition). In addition, approaches emerging from the literature on social sustainability in relation to community resilience could contribute to the social inclusion and vulnerability sub-pillars (Magis, 2010).

SGCI – Composite Sustainability Adjustments

A significant contribution of the GCI is its identification that as nations develop, they leverage different aspects of competitiveness (Porter *et al*., 2009). Research on the environmental intensity of economic growth and social development also suggests that a similar process occurs in relation to environmental and social domains; a process that is formalised in the environmental literature as the Environmental Kuznets Curve (EKC) (Grossman & Krueger, 1991; Stern, 2004). While the foundations of this relationship have been contested, the existence of different environmental and social relationships in the process of economic development have not (Stern, 2004). Researchers increasingly call for rethinking this relationship, largely omitted in the sustainability adjustment approach (Dietz, Rosa, & York, 2009).

The current construction of the SGCI might, therefore, present biased measures for developed economies. Dos Santos and Brandi (2014) find a strong correlation between key environmental indicators and GCI scores suggesting that in some cases, environmental and social indicators may be used as proxies of competitiveness. This implies that environmental and social performance is related to the development level of an economy. Comparing all economies against the same criteria may introduce biases against less developed nations in the way the index is currently constructed. For Stojanovska (2015), the competitiveness of emerging economies is vulnerable (i.e. prone to show low performance) when sustainability components are considered, which should motivate these nations to take action. An alternative conclusion might be that emerging economies might be vulnerable to these adjustments because these adjustments take account of the very factors that define them as developing or *emerging economies*. Thus, the extent to which adjustments add any significant insight for less developed economies is brought into question. The SGCI may provide better insights for developing economies if an approach that also takes account of the level of development is adopted and countries can compare themselves with other nations at similar stages of development.

CONCLUSIONS

To operationalise the concept of sustainable competitiveness the article focuses on how the concept bridges the interconnected, but often separately considered, pillars of sustainability across its economic, social and environmental elements. A range of different approaches to measuring the individual pillars of sustainability are provided to indicate the scope of such analyses. Our primary focus remains on economic development as a central pillar and how the economic element interacts with the social and environmental domains of sustainability.

We identify that competitiveness defined as productivity is most appropriate for understanding the foundations of economic development. This productivity-based definition, and measurement, enables identification of potential bottlenecks and potential policy interventions, in comparison to less comprehensive partial approaches that consider competitiveness from the market-share or cost-comparison perspectives. The GCI produced by the WEF is identified as the approach which implements the productivity perspective most

effectively and comprehensively. This is because it benefits from roots in the literature on economic growth and competitiveness and, therefore, includes the most commonly agreed competitiveness pillars and sources. A key feature is that it allows for comparisons of nations across different development stages, indicating that as economies develop, different elements of competitiveness play different roles as nations transition from basic requirements, through to efficiency requirements and finally to innovation drivers of development. The extent to which this is evident from empirical examinations will be considered in the estimations to be conducted in the next phase of this research. Furthermore, the presentation of a final index built up from a set of twelve separate pillars allows comparisons to identify bottlenecks and potential roadblocks to competitiveness. The review also identifies limitations specific to the GCI, and to the overall productivity approach.

The review reports on how the environmental and social elements of sustainability are researched and measured, and reflects on how the extended metrics of the GCI includes most prominent themes and topics in an aggregated Sustainability Adjusted Competitiveness Index (SGCI). Productivity remains central to the sustainability adjusted measures of competitiveness considered, both environmental and social. Understanding that the SGCI is a work-in-progress, some suggestions on how to improve on the method are identified. The understanding is that some novel metrics have the potential to aid policymaking in different countries, and are, therefore, selected as the preferred approach in applied research.

The insights obtained from this review point to how policy-relevant research questions may complement conceptual interest in the drivers of and barriers to sustainable competitiveness performance. Our conceptual and measurement interests extend to now turning to answer questions similar to those raised in Hammond *et al*. (1995) which focused on environmental sustainability. These questions concern what is happening to the state of the productive economy, the social environment and the ecological environment. To understand why-type questions the potential interactions between these spheres must be considered. This informs the next phase of drawing implications from the research in terms of what we are doing about it and what can be done.

We propose to develop a panel of data to examine SGCI patterns across a broad range of economies, leveraging the WEF approach and encompassing data from available sources identified above. Examining countries at different stages of development permits consideration of whether and to what extent stage of development features for environmental and social sustainability. Drilling into the components of SGCI will allow the identification of those levers most relevant to impacting the economic-environment-social nexus, useful for the identification of potential policy interventions.

REFERENCES

Ambec, S., Cohen, M.A., Elgie, S., Lanoie, P., Canada, B., Chabot, R., & Thornton, G. (2013). The Porter Hypothesis at 20: Can Environmental Regulation Enhance Innovation and Competitiveness?. *Review of Environmental Economics Policy,* 7(1), 2-22. Retrieved on July 11, 2017 from http://www.isc.hbs.edu/Documents/pdf/PorterHypothesis_at20_Montreal.pdf

Assefa, G., & Frostell, B. (2007). Social sustainability and social acceptance in technology assessment: A case study of energy technologies. *Technology in Society*, 29(1), 63-78. http://doi.org/http://dx.doi.org/10.1016/j.techsoc.2006.10

Baines, J., & Morgan, B. (2004). Sustainability Appraisal: A Social Perspective. In B. Dalal-Clayton & B. Sadler (Eds.), *Sustainability Appraisal. A Review of International Experience and Practice*, *First Draft of Work in Progress*. London: International Institute for Environment and Development.

Barnett, J., Lambert, S., & Fry, I. (2008). The Hazards of Indicators: Insights from the Environmental Vulnerability Index. *Annals of the Association of American Geographers*, 98(1), 102-119. http://doi.org/10.1080/00045600701734315

Bilbao-Osorio, B., Blanke, J., Campanella, E., Crotti, R., Drzeniek-Hanouz, M., & Serin, C. (2013). Assessingt the Sustainable Competitiveness of Nations. In World Economic Forum *The Global Competitiveness Report* (pp. 53-82). Retrieved on July 11, 2017 from http://www3.weforum.org/docs/GCR2013-14/GCR_Chapter1.2_2013-14.pdf

Bohringer, C., & Jochem, P. (2007). Measuring the Immeasurable: A survey of sustainable indices. *Ecological Economics*, 63(1), 1-8.

Borucke, M., Moore, D., Cranston, G., Gracey, K., Iha, K., Larson, J., & Galli, A. (2013). Accounting for demand and supply of the biosphere's regenerative capacity: The National Footprint Accounts' underlying methodology and framework. *Ecological Indicators*, 24, 518-533. http://doi.org/10.1016/j.ecolind.2012.08.005

Chiu, R. (2003). Sustainable development, social sustainability and housing development: the experience of Hong Kong. In R. Forrest & J. Lee (Eds.), *Housing and Social Change EastWest Perspectives* (pp. 221-239). London, UK: Routledge.

Colantonio, A. (2009). Social Sustainability: A Review And Critique of Traditional Versus Emerging Themes and Assessment Methods. In M. Horner, A. Price, J. Bebbington & R. Emmanuel (Eds.), *Sue-Mot Conference 2009: Second International Conference on Whole Life Urban Sustainability and its Assessment: Conference Proce* (pp. 865-885). Loughborough: Loughborough University. Retrieved on July 11, 2017 from http://eprints.lse.ac.uk/35867/

Colantonio, A., & Colantonio, A. (2007). Measuring Social Sustainability: Best Practice from Urban Renewal in the EU. *EIBURS Working Paper Series,* 02(July). Retrieved on July 11, 2017 from http://oisd.brookes.ac.uk/sustainable_communities/resources/SocialSustainability_Metrics_and_Tools.pdf

Commission on Growth and Development (2008). *The Growth Report: Strategies for sustained growth and inclusive development*. In World Bank and Commission on Growth and Development (Ed.), *Commission on Growth and Development Final Report*. Washington DC: World Bank on behalf of the Commission on Growth and Development. http://doi.org/10.1596/978-0-8213-7491-7

Corrigan, G., Crotti, R., Hanouz, M.D., & Serin, C. (2014). Assessing Progress toward Sustainable Competitiveness. *The Global Competitiveness Report 2014-2015*. Retrieved on July 11, 2017 from http://www3.weforum.org/docs/GCR2014-15/GCR_Chapter1.2_2014-15.pdf

Cunska, Z., Ketels, C., Paalzow, A., & Vanags, A. (2013). *Latvia Competitiveness Report.* Stockholm School of Economics in Riga and Baltic International Centre for Economic Policy Studies. Retrieved on July 11, 2017 from http://www.biceps.org/assets/docs/LCR2013

Dahl, A.L. (2011). Achievements and gaps in indicators for sustainability. *Ecological Indicators*, 17, 14-19. http://doi.org/10.1016/j.ecolind.2011.04.032

Delgado, M., Ketels, C., Porter, M., & Stern, S. (2012). The Determinants of National Competitiveness. *NBER Working Paper 18249* (July). Retrieved on July 11, 2017 from http://www.nber.org/papers/w1824

Department for International Development, (2009). *Sustainable livelihoods guidance sheets.* London: DFID. Retrieved on December 8, 2017 from http://s3.ennonline.net/attachments/871/dfid-sustainable-livelihoods-guidance-sheet-section1.pdf

Dietz, T., Rosa, E.A., & York, R. (2009). Environmentally efficient well-being: Rethinking sustainability as the relationship between human well-being and environmental impacts. *Human Ecology Review*, 16(1), 114-123.

Dos Santos, S.F., & Brandi, H.S. (2014). A canonical correlation analysis of the relationship between sustainability and competitiveness. *Clean Technologies and Environmental Policy*, 16(8), 1735-1746. http://doi.org/10.1007/s10098-014-0755-2

Douvlou, E., Papathoma, D., & Turrell, I. (2008). (The hidden city) between the border and the vacuum: The impact of physical environment on aspects of social sustainability. *WIT Transactions on Ecology and the Environment*, 117, 365-375. http://doi.org/10.2495/SC080351

Durand, M., & Giorno, C. (1997). Indicators of International Competitiveness: Conceptual Aspects and Evaluation. *EOCD Journals: Economic Outlook*, 147-182. Retrieved on July 11, 2017 from http://www.oecd.org/eco/outlook/33841783.pdf

European Commission (2010). Communication from the Commission EUROPE 2020 A strategy for smart, sustainable and inclusive growth. *Com(2010) 2020, Brussels* (March), Commission of the European Communities. http://doi.org/10.1016/j.resconrec.2010.03.010

Fehder, D., & Stern, S. (2013). Social Progress Index Methodology, Appendix to the Social Progress Index*. Social Progress Initiative*, 39-54. Retrieved on July 11, 2017 from http://socialprogressinitiative.org/

Fischer, A., Foerster, S., & Hartmann, S. (2009, April). *Environmental Performance Index for Abu Dhabi Emirate Final Report*, AGEDI – Abu Dhabi Global Environmental Data Initiative.

Fougner, T. (2008). Neoliberal Governance of States: The Role of Competitiveness Indexing and Country Benchmarking. *Millennium – Journal of International Studies*, 37(2), 303-326. http://doi.org/10.1177/0305829808097642

Grossman, G.M., & Krueger, A.B. (1991). *Environmental Impacts of a North American Free Trade Agreement* (NBER Working Paper Series no. 3914). http://doi.org/10.3386/w3914

Haberland, T. (Ed). (2008). *Analysis of the Yale Environmental Performance Index (EPI)*. Umwelt Bundesamt fuer Mensch und Umwelt, on behalf of the Federal Environment Agency. Retrieved on July 11, 2017 from https://www.umweltbundesamt.de/sites/default/files/medien/publikation/long/3429.pdf

Hammond, A., Adriaanse, A., Rodenburg, E., Bryant, D., & Woodward, R. (1995). *Environmental indicators: a systematic approach to measuring and reporting on environmental policy performance in the context of sustainable development.* Washington DC: World Resources Institute.

Hans-Boeckler-Foundation (2001). *Pathways Towards a Sustainable Future*. Düsseldorf: Setzkasten.

Helliwell, J., Layard, R., & Sachs, J. (2017). *World Happiness Report 2017*. New York: Sustainable Development Solutions Network. Retrieved on July 11, 2017 from http://worldhappiness.report/

Huggins, R., & Davies, W. (2006). *European Competitiveness Index 2006-07*. Pontypridd: Robert Huggins Associates.

Huggins, R., Izushi, H., & Thompson, P. (2013). Regional Competitiveness: Theories and Methodologies for Empirical Analysis. *Journal of CENTRUM Cathedra (JCC): The Business and Economics Research Journal*, 6(2), 155-172. http://doi.org/10.7835/jcc-berj-2013-0086

Environmental Performance Index (EPI) (2013). Bilbao, Basque Country: Ihobe - Public Environmental Management Company and Department for the Environment and Territorial Policy.

Kaly, U.L., Pratt, C., & Mitchell, J. (2005). *Building Resilience in SIDS. The Environmental Vulnerability Index.* Final Report. SOPAC, UNEP.

Karabarbounis, L., & Neiman, B. (2013). The Global Decline of the Labor Share. *The Quarterly Journal of Economics*, 129(1), 61-103. http://doi.org/10.1093/qje/qjt032

Ketels, C. (2016). *Competitiveness Frameworks Review An Analysis Conducted for the National Competitiveness Council.* Ireland: National Competitiveness Council.

Ketels, C. (2006). Michael Porter's Competitiveness Framework – Recent Learnings and New Research Priorities. *Journal of Industry, Competition and Trade*, 6(2), 115-136. http://doi.org/10.1007/s10842-006-9474-7

Kitson, M., Martin, R., & Tyler, P. (2004). Regional Competitiveness: An Elusive yet Key Concept?. *Regional Studies*, 38(9), 991-999. http://doi.org/10.1080/0034340042000320816

Kovacevic, M. (2011). *Review of HDI Critiques and Potential Improvements*. United Nations. Retrieved on July 11, 2017 from http://hdr.undp.org/en/content/review-hdi-critiques-and-potential-improvements

Lall, S. (2001). Competitiveness Indices and Developing Countries: An Economic Evaluation of the Global Competitiveness Report. *World Development*, 29(9), 1501-1525. http://doi.org/10.1016/S0305-750X(01)00051-1

Layard, R., & Sachs, J. (2012). *World happiness report*. Columbia University: Earth Institute. Retrieved on July 11, 2017 from http://worldhappiness.report/download/

Linster, M. (2003). *OECD Environmental Indicators: Development, Measurement and Use* (Reference Paper). Paris: OECD.

Littig, B., & Grießler, E. (2005). Social sustainability: a catchword between political pragmatism and social theory. *International Journal of Sustainable Development*, 8(12), 65-79.

Magee, L., Scerri, A., James, P., Magee, L., Scerri, A., & James, P. (2012). Measuring Social Sustainability: A Community-Centred Approach. *Applied Research Quality Life*, 7, 239-261. http://doi.org/10.1007/s11482-012-9166-x

Magis, K. (2010). Community Resilience: An Indicator of Social Sustainability. *Society and Natural Resources: An International Journal*, 23(5), 401-416. http://doi.org/10.1080/08941920903305674

Mayer, A.L. (2007). Strengths and weaknesses of common sustainability indices for multidimensional systems. *Environment International,* 34(2), 277-291. http://doi.org/10.1016/j.envint.2007.09.004

Middleton, N. (2013). *The Global Casino, Fifth Edition: An Introduction to Environmental Issues*. London: Taylor and Francis.

Moldan, B., Janouvikov, S., & Hunk, T. (2012). How To Understand And Measure Environmental Sustainability: Indicators And Targets. *Ecological Indicators*, 17, 4-13. http://doi.org/10.1016/j.ecolind.2011.04.033

Morse, S., & Fraser, E.D.G. (2005). Making "dirty" nations look clean? The nation state and the problem of selecting and weighting indices as tools for measuring progress towards sustainability. *Geoforum*, 36(5), 625-640. http://doi.org/10.1016/j.geoforum.2004.10.005

O'Brien, D. (2010). Measuring Ireland's Price and Labour Cost Competitiveness. *Central Bank Quarterly Bulletin,* January, 99-114. Retrieved on July 11, 2017 from http://www.tcd.ie/Economics/msceps/courses/macroeconomic concepts/O'Brien Measuring Irelands Price and Labour Cost Competitiveness CBQB 1 2010.pdf

OECD (2008). *Key environmental indicators*, 38. http://doi.org/10.2110/pec.72.02.0001

OECD (2009). *Sustainable Manufacturing and Eco-Innovation: Framework, Practices and Measurement.* Synthesis Report. Retrieved on July 11, 2017 from http://www.oecd.org/science/inno/43423689.pdf

OECD (2015). *How's Life? 2015*. *Measuring well-being*. Retrieved on July 11, 2017 from http://www.oecd.org/social/how-s-life-23089679.htm

Omann, I., & Spangenberg, J.H. (2002). Assessing Social Sustainability: The Social Dimension of Sustainability in a Socio-Economic Scenario. *Presented at the 7th Biennial Conference of the International Society for Ecological Economics in Sousse (Tunisia), 6-9 March 2002 Ab*, 1-20. http://doi.org/10.1504/IJISD.2006.013734

Patil, G.P. (1994). *Environmental Statistics*. *Handbook of Statistics*, 12, 9-69. http://doi.org/10.1016/S0169-7161(05)80004-5

Piketty, T., & Goldhammer, A. (2014). *Capital in the twenty-first century*. Cambridge Massachusetts: The Belknap Press of Harvard University Press. Retrieved on July 11, 2017 from http://dowbor.org/blog/wp-content/uploads/2014/06/14Thomas-Piketty.pdf

Pintér, L., Hardi, P., Martinuzzi, A., & Hall, J. (2011). Bellagio STAMP: Principles for sustainability assessment and measurement. *Ecological Indicators*, *17*, 20-28. http://doi.org/10.1016/j.ecolind.2011.07.001

Porter, M.E. (1990). The Competitive Advantage of Nations. *Harvard Business Review*, *68*, 73-93. http://doi.org/Article

Porter, M., Delgado, M., Ketels, C., & Stern, S. (2008). Moving To A New Global Competitiveness Index. In K. Schwab & M.E. Porte (Eds.), *World Economic Forum, The Global Competitiveness Report 2008-2009* (pp. 43-63). http://doi.org/10.1088/1755-1307/6/7/57205

Porter, M., Stern, S., & Green, M. (2016). *Social Progress Report.* Social Progress Initiative. Retrieved on July 11, 2017 from http://www.socialprogressimperative.org/data/spi

Porter, M.E., & Van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *The Journal of Economic Perspectives*, 9(4), 97-118. Retrieved on July 11, 2017 from http://www.jstor.org/stable/2138392

Schuller, B.J., & Lidbom, M. (2009). Competitiveness of nations in the global economy. Is Europe internationally competitive?. *Economics and Management*, 14, 934-939.

United Nations Sustainable Development Solutions Network (SDSN) (2015). *Data for Development*. Retrieved on July 11, 2017 from http://climateobserver.org/wp-content/uploads/2015/05/Data-for-Development-Full-Report-SDSN-et-Al.pdf

Sachs, I., (1999). Social sustainability and whole development. In E. Becker & T. Jahn (Eds.), *Sustainability and the Social Sciences* (pp. 25-36). New York: Zed Books and UNESCO.

Sinner, J., Baines, J., Crengle, H., Salmon, G., Fenemor, A., & Tipa, G. (2004). *Sustainable Development: A summary of key concepts*. New Zealand: Ecologic Research Report.

Snieška, V., & Bruneckienė, J. (2009). Measurement of Lithuanian Regions by Regional Competitiveness Index. *Engineering Economics*, 1(61), 45-57. Retrieved on July 11, 2017 fromhttp://inzeko.ktu.lt/index.php/EE/article/view/11584/6269

SOPAC (2004). *The Environmental Vulnerability Index (EVI)*, (December), 1-388.

Stern, D.I. (2004). The Rise and Fall of the Environmental Kuznets Curve. *World Development*, 32(8), 1419-1439. http://doi.org/10.1016/j.worlddev.2004.03.004

Stiglitz, J.E., Sen, A., & Fitoussi, J.P. (2009). Report by the Commission on the Measurement of Economic Performance and Social Progress. *Sustainable Development*, 12(292). http://doi.org/10.2139/ssrn.1714428

Stojanovska, S. (2015). Direction for national sustainable prosperity direction for national sustainable prosperity. *Journal of Sustainable Development*, 5(12), 86-112.

Thin N., Lockhart C., & G. Yaron (2002). *Conceptualising Socially Sustainable Development.* Paper prepared for Deparment for International Development and the World Bank. London: DFID, mimeo.

United Nations (2000). *United Nations Millennium Declaration. a/Res/55/2*, (September), 9. http://doi.org/0055951

United Nations (2007). *Indicators of Sustainable Development: Guidelines and Methodologies*. New York. http://doi.org/10.1016/j.cirpj.2010.03.002

United Nations (2012). *Review of the contributions of the MDG Agenda to foster development: Lessons for the post-2015 UN development agenda Discussion Note*, March. Retrieved on July 11, 2017 from http://www.un.org/millenniumgoals/pdf/mdg_assessment_Aug.pdf

United Nations (2015). *Transforming our world: The 2030 agenda for sustainable development.* Retrieved on July 11, 2017 from https://sustainabledevelopment.un.org/content/documents/7891Transforming%20Our %20World.pdf, (1), 1-5. http://doi.org/10.1007/s13398-014-0173-7.2

UNEP (2008). *Overview of environmental assessment landscape at national level: State of state-of-the-environment reporting.* Retrieved on July 11, 2017 from http://eprints.lancs.ac.uk/29226/

United Nations (2002). *Report of the World Summit on Sustainable Development. 26 Augustus – 4 September 2002*. Retrieved on July 11, 2017 from http://www.unmillenniumproject.org/documents/131302_wssd_report_reissued.pdf

United Nations (2015). *The Millennium Development Goals Report*. http://doi.org/978-92-1-101320-7, Retrieved on July 11, 2017 from http://www.un.org/millenniumgoals/

Vallance, S., Perkins, H.C., & Dixon, J.E. (2011). What is social sustainability? A clarification of concepts. *Geoforum*, 42(3), 342-348. http://doi.org/10.1016/j.geoforum.2011.01.002

World Bank (2012). *Doing Business 2013: Smarter Regulations for Medium- Size Enterprises.* Retrieved on July 11, 2017 from www.worldbank.org

Yale Center for Environmental Law and Policy (2016). *Global Metrics for the Environment*. Retrieved on July 11, 2017 from http://archive.epi.yale.edu/epi

Authors

The contribution share of authors is equal and amounted to 50% each of them.

Eleanor Doyle

Professor of Economics, Competitiveness Institute, Department of Economics, Cork University Business School, University College Cork, Ireland. Her research interests include economic development and innovation through clustering; resource-based view of the firm; and sustainability.
Correspondence to: Prof. Eleanor Doyle, Competitiveness Institute, Department of Economics, Cork University Business School, University College Cork, Cork, T12 T656, Ireland. e-mail: e.doyle@ucc.ie

Mauricio Perez-Alaniz

Completed this research as Research Assistant at Competitiveness Institute, University College Cork, Ireland. Current PhD candidate in Innovation at Kemmy Business School, University of Limerick, Ireland. Completed MRes. International Development (University of East Anglia, Norwich, UK) and BSc. International Development and Natural Resource Management (University of East Anglia, Norwich, UK). His research interests include drivers and constraints to Innovation, National Competitiveness, International Development and Sustainable Development.
Correspondence to: Muricio Perez-Alaniz, Competitiveness Institute, Department of Economics, Cork University Business School, University College Cork, Cork, T12 T656, Ireland. e-mail: me.perezalaniz@gmail.com

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Education Agents as Competitiveness Enhancers of Australian Universities by Internationalisation Facilitation

Anirban Sarkar, Áron Perényi

ABSTRACT

Objective: The objective of this article is to explore the role of education agents as drivers of competitiveness of Australian Universities by facilitating internationalisation.

Research Design & Methods: The article presents an analysis of semi-structured interviews from two University international officers, an education officer with Victorian Government and an education agent. This set of primary data and a comprehensive literature review served as a stimulus for this investigation.

Findings: It is evident that the agents play an extremely vital role in the internationalisation process and the four key themes, which are identified from the interviews are Market Knowledge, Network Facilitators, Financial Interest and Reliance and Trust factor.

Implications & Recommendations: The article proposes several key concepts/themes, which could be used to frame future investigations into the role of education agents in the internationalisation of higher education. The higher education providers should not neglect the importance of the knowledge that the education agent may offer for recruiting international students or even to establish an offshore operation.

Contribution & Value Added: The originality of this work lies in finding the various themes which are essential to be looked at by the higher education providers in order to further utilise the potential of education agents in the internationalisation process.

Article type: research paper

Keywords: intermediary; education agents; higher education; internationalization; education export; international competitiveness; recruiting international students

JEL codes: H39, I23,M16, P36

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INTRODUCTION

The internationalisation of higher education providers can be considered as an effective mean to measure their success and competitiveness. The implication of revenue generation from this internationalisation process has a massive impact in terms of operations of the providers. Often, the role of intermediaries is forgotten or neglected in this process. The literature review, especially Czinkota, Grossman, Javalgi and Nugent (2009), and Dunning's Eclectic Paradigm are examined for the theoretical basis of this article. The international competitiveness of the Australian higher education context provides an avenue for investigation. The current knowledge of the area focuses on the international entry mode choices of higher education providers. It also addresses factors such as market potential, location familiarity, networking, international experience, etc. Most of the research examining the internationalisation of the higher education sector has largely focused to-date on providing descriptive overviews of internationalisation activities (Altbach & Knight, 2007; Chin & Ching, 2009; Horie, 2002), various rationales behind internationalising (Fang, 2012), and the internationalisation of the curriculum development (Svensson & Wihlborg, 2010).

However, there is scarcity in literature about the themes which influence the role of intermediaries in the internationalisation process of higher education. There is limited discussion about understanding these themes and use them as part of practical implications to the related parties. This article explores factors, which influence the internationalisation process and the role of intermediaries in it. This is done mainly to identify the role of intermediaries and the key themes, which affect the reliance of the intermediaries in the process of internationalisation. Findings are drawn from semi-structured interviews conducted by representatives of key stakeholders, using thematic analysis (Braun & Clarke, 2006).

The following section of literature review explains Dunning's Eclectic Paradigm. The article then moves on to explain the role of intermediaries and the factors that influence their ability to influence the recruitment of international students. Following that, the research questions are formulated to address the particular gaps uncovered by literature, and the methodology used is introduced. A detailed analysis and discussion reflects the responses gained from the primary data collection and how it relates with the theoretical knowledge and the practical implications. In the conclusion, the areas of concern and improvement in terms of higher education internationalisation, and the role of agents are discussed. Finally, the article is concluded by discussing limitations and areas for future research.

International Competitiveness of the Australian Higher Education Sector

The purpose of this section is to look at the available literature focusing on the internationalisation of higher education providers (i.e. universities).

This section provides an overview of the global and Australian context of higher education competitiveness taking the perspective of international student movements. Figure 1 clearly shows an increase in international student enrolment in Australia, especially in the higher education sector. The article examines studies on the internationalisation of higher education with reference to Czinkota *et al.'s* (2009) study. It discusses the overview of Dunning's eclectic paradigm specifying the issues within the paradigm and further discussing the role of intermediaries in the context of the key themes like market knowledge, network facilitators, reliance and trust factor, financial interest of agents, etc. Finally, the

chapter looks at the research question and how the conceptual backgrounds lead to the research questions.

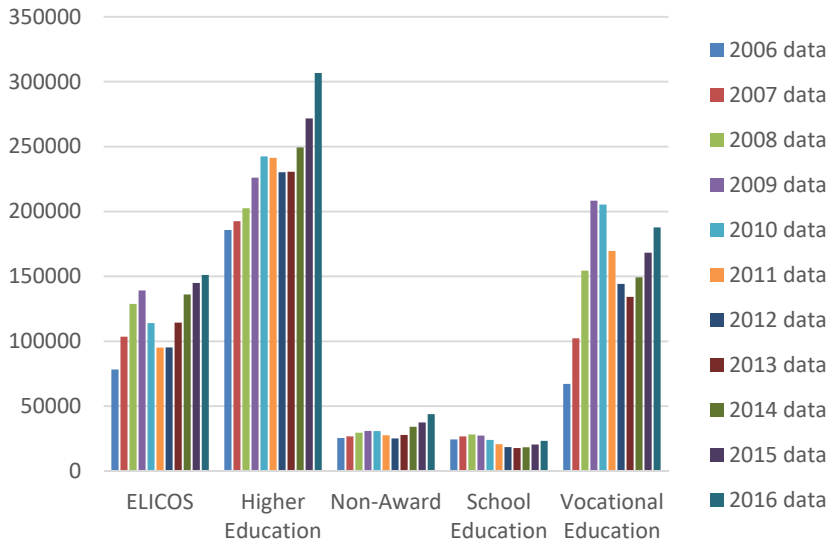

Figure 1. The trend of international student enrolment in Australia
Source: Provider Registration and International Student Management System; International student data 2016, Department of Education and Training, Australian Government.

Competitiveness can be defined as a portfolio attributes indicating an enhanced performance of a particular entity in comparison to others (Perényi, 2016; Porter, 1985; Wach, 2014). As a key, comparable, international performance measure, internationalisation (international student numbers and revenues) emerges as an indicator of the international competitiveness of the education sector.

Considering the size, reputation and diversity, the U.S remains the leader as a choice of the destination of higher education for international students. However, Australian higher education institutions have shown strong growth in proactive recruiting and retaining international students. According to the OECD data (refer to Figure 2), Australia increased international student enrolment at the tertiary level institutions from 12.5% in 2000 to 18.3% in 2014. In comparison, the share for U.S institutions remained at 4%.

Australia has a clear focus on international education and has formulated The National Strategy for International Education 2025 (Choudaha & Hu, 2016). This strategy will enable Australia's international education sector to be more adaptive, innovative and globally engaged. It will strengthen our internationally recognised education system, increase global partnerships and drive collaboration with local communities and international partners. The National Strategy has been developed in consultation with the sector and across all levels of government. It further states that "New modes of education delivery and new national and international partnerships will allow more students to have access to an Australian education. Although onshore learning in Australia

will remain a core component of Australian international education, learning will increasingly occur in-market and online" (Choudaha & Hu, 2016).

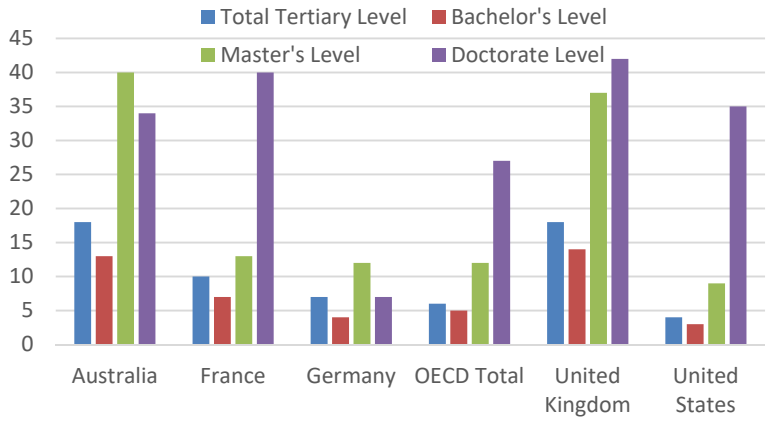

Figure 2. The share of international students by the level of tertiary education (%)
Source: prepared based on OECD (2016).

LITERATURE REVIEW

An Overview of University Internationalisation

There is a scarcity of studies on the internationalisation process of higher education providers, which has been undertaken utilising international business theory with a common assumption that the higher education sector is "following the classic pattern of internationalisation familiar in business" (Healey, 2008, p. 334). This is despite a constant increase in international activities by universities. Most research examining the internationalisation of the higher education sector has largely focused to-date on providing descriptive overviews of internationalisation activities (Altbach & Knight, 2007; Chin & Ching, 2009; Horie, 2002), various rationales behind internationalising (Fang, 2012), and the internationalisation of the curriculum development (Svensson & Wihlborg, 2010). These studies do not focus on the reasons why universities choose particular methods of internationalisation (and their associated entry mode choices) and what role an intermediary plays, if any, in this process. It becomes quite relevant to find out what type of role an intermediary plays in the internationalisation process and which key factors of the intermediary need to be examined more to understand their effect in the role of the internationalisation process of higher education. Some of the factors that could be looked upon are market knowledge, location advantage, gaining trust of the students and parents, strong networking connections, etc.

From an investigation of the extant literature on the internationalisation of higher education, one particular study, Czinkota *et al.* (2009), extends beyond the perspectives mentioned above and utilised international business theory to explain the internationalisation of universities. Czinkota *et al.* (2009) examined and tested a range of key variables associated with Dunning's eclectic framework influencing market entry strategies of 62 US business schools (teaching MBA programmes). The study found that for the successful expansion into overseas markets, ownership (multi-nationality and product differentiation),

location (market potential) and internalisation (contractual risk) variables were significant in determining the type of the entry mode selected.

Australia has a vigorously entrepreneurial approach to growing its international enrolment. It has been described as "the leader in international student recruitment" (Adams, Leventhal, & Connelly, 2012). Australia was an early adopter of the agent-recruitment model. Agents have been recruiting for all levels of the Australian education system since the late 1960s, when Australian universities collectively established one of the first recruitment agencies (Coffey & Perry, 2013).

The importance of the key factors in the role of intermediaries (education agents) for the internationalisation of higher education are not examined in the literature to a great extant. There is neither a recommendation nor a proposal to leverage on these factors of the intermediaries (education agent) which will further benefit both the higher education provider and the education agent in strengthening the partnership in the internationalisation process. This proposed study seeks to leverage from existing studies on the internationalisation of higher education, and specifically Czinkota *et al.'s* (2009) study, examining the role of intermediaries in this internationalisation process. The importance of intermediaries and networks in the internationalisation process is widely recognised in the extant literature (see for example Coviello & McAuley, 1999; Moen & Servais, 2002; Chetty & Wilson, 2003; Chetty & Campbell-Hunt, 2004; Loane *et al.,* 2004; Jones & Coviello, 2005; Loane & Bell, 2006). Export promotion organisations (EPOs), in particular, are considered as key intermediaries to support the process of internationalisation by intermediating between a firm and foreign markets (Wheeler, 1990) and by bridging the divide between the capabilities of entrepreneurs and small firms and foreign market opportunities (Wilkinson & Brouthers, 2006).

The role of intermediaries will form the theoretical underpinning to this study when examining the internationalisation of the higher education sector. From the research of (Magyar & Robinson-Pant, 2013), we learned that agencies and agents played a significant role in filtering information from UK universities, filling in application forms and translating or even writing personal statements. It became apparent that the agent was involved in a two-way process of conveying information provided by universities about their courses, and also mediating the students' initial interactions with the university.

In the next section, a brief outline will be presented of the relevant literature (Dunning's eclectic paradigm) in which this study is grounded, building from extant literature, through identifying key themes within both the internationalisation and intermediary literature.

An Overview of Dunning's Eclectic Paradigm

The next section focuses on the three key factors of Dunning's Eclectic Paradigm and the issues associated with them. It also extrapolates the role of networks, market knowledge and strategic decision. The explanation of these factors is contextualised within the broader context of the role of intermediaries/education agents in the internationalisation process of higher education.

Firm-Specific Factors

Firm-specific ownership factors are particularly applicable in the internationalisation process with the pressurised environment and competition facing higher education providers. It emphasizes the access to financial resources to continue the operational aspect of the providers.

International Experience

International knowledge and experience can be considered as an invaluable source of competitive advantage when internationalising, and is linked with an increased preference for sole ownership. According to Blomstermo and Sharma (2006), there is a direct relationship between experience and higher control entry modes. A firm's foreign market entry is often explained as a process of increasing accumulation of experimental knowledge about business partners, technical factors, human and administrative resources (Blomstermo, Sharma, & Sallis, 2006). According to Czinkota *et. al.* (2009), the greater the international experience – the more a firm would be likely to choose an equity based entry choice mode to a foreign market.

Entrepreneurial Orientation

An entrepreneurial orientation allows organisations to see and exploit international business opportunities when combined with other resources and capabilities (Andersson & Wictor, 2003; Knight & Cavusgil, 2004; Oviatt & McDougall, 1995). An entrepreneurial oriented organisation accepts to tolerate the risk associated with entry mode linked to the use of more resource intensive ownership firms (Jones & Coviello, 2005). When a firm operates in a new foreign market, it is likely to encounter important liabilities, such as the liability of expansion, the liability of newness and the liability of foreignness (Cuervo-Czurra, Maloney, & Manrakhan, 2007). All these liabilities are directly related to the entrepreneurial nature of the firm that assist the firm to progress irrespective of the nature of liability which may come on the way.

Reputation

In the process of exchange relationships, reputable organisations can gain access to resources that are otherwise difficult and this being a crucial part of the internationalisation process (Fombrun & Van Riel, 2004). This idea contradicts the fact that some reputable organisations will be reluctant to be associated with another partner in the host country not having similar reputation standard. In that case, the organisation would like to protect its reputation by adopting a higher control entry mode – such as sole ownership – when entering the host country (Ekeledo & Shivakumar, 2004). Of course the entry mode choice will depend on the rules and regulations of the host country.

Location-Specific Factors

Considering that the target market for a higher education provider is quite specific, the location familiarity plays a pertinent role in the choice of a destination for exporting higher education or establishing an offshore operation. Hence, the need to understand the concept of market potential and location familiarity.

Market Potential

The attractiveness of the foreign market encourages commitment of more resources. Market potential allows an organisation to more quickly offset its high investment costs for going offshore (Czinkota *et al*., 2009). The host country that offers benefits as low-cost labour, the access to unique skills and/or the access to untapped markets makes it more

attractive for a firm to expand its operation in that host country (Czinkota *et al*., 2009). The probability of entering a foreign market using an equity-based strategic mode increases based on the attractiveness of the market (Czinkota, 2006).

Location Familiarity

This factor explains the relevance of a location or positioning in a foreign market and the positive interest of a firm to establish its operation in that location. Ekledo and Shivakumar (2004) in their study indicate that greater familiarity with the location leads to greater ownership, with less knowledgeable service firms likely to utilise a joint venture. This in the process minimises the risk of investment and operation and reputation of the firm. The location factor is mainly due to the economic differences among different countries.

Internalisation-Specific Factors

As knowledge-intensive organisations, the service delivered by higher education providers depend highly on their human resources and it is not possible to duplicate this knowledge to an offshore operation. Hence the tactical know-how plays a crucial role.

Tactic Know-how

The knowledge based industries often face difficulties due to the transfer of knowledge, requiring specialised personnel, structures and processes to be transferred as part of their internationalisation (Hill, Hwang, & Kim, 1990; Sanchez-Peinado, Pla-Barber, & Hebert, 2007). This suggests that firms rely on the internal transfer of human resources rather than relying completely on the local partners – with which difficulties arise on patenting, with the increased risk of appropriation and dissemination.

The Role of Intermediaries

Based on the analysis of the literature, intermediaries provide a number of important roles which may impact upon the internationalisation process of higher education providers. The following variables explain the importance of their understanding and the role in the internationalisation process of higher education providers.

Market Knowledge

The internationalisation process of firms is driven by a firm's experimental knowledge (Blomstermo & Sharma, 2006). A firm's foreign market entry is explained as a process of the increasing accumulation of experimental knowledge about business partners, and of committing human, technical and administrative resources. Trade missions can enhance the process of building relationships between potential business partners in different countries over a period of time (Wilkinson & Brouthers, 2006). The presence of knowledgeable intermediaries is often extremely beneficial for firms to gain appropriate market knowledge which finally decides on the entry mode to a foreign market. The market knowledge in terms of local rules and regulations is extremely important and an intermediary/education agent may assist to a great extent. Agents are now relied upon not only to help prospective overseas students with the process of being admitted to and attending universities, but also to help identify new markets and predict future trends (see for example ICEF, 2013; Austrade Bangkok, 2013). With the rapid expansion of higher education, recruitment agents

have now become 'embedded in the strategies of international offices' with universities preferring to work with their own 'in-house' agents (Hulme *et al*., 2013).

Strategic Positioning

One of the most crucial strategic decisions of an international firm is to select an appropriate institutional arrangement for entering and expanding in a foreign market (Root, 1994). The nature of the firm and its product or service is an important factor to consider in relation to the strategic positioning of the firm. The strategic decision of the firm in terms of operation in the host country depends on the ownership (O) factor (Dunning & Kundu, 1995; Ekeledo & Sivakumar, 1998; Javalgi, Griffith, & White, 2003; Czinkota *et al*., 2009). The choice of intermediaries can be a deciding factor for operational feasibility in the host market (Andersson, 2002).

Network Facilitators

Intermediaries like Export Promotion Organisation (EPO), wholesalers, contractors, distributors, etc. play a major role in facilitating the collaboration between the firm in the home country and the preferable entity in the host country depending on the Entry Mode Choice (EMC). Johnsen and Johnsen (1999) consider business networks as the relationships a firm has with its customers, distributers, suppliers, competitors and government – the actors in a business network. By internationalising the firm creates and maintains relationships with counterparts in other countries. Networks expose Small to Mediumsized Enterprises (SMEs) to international markets through the accumulation of institutional, business and internationalisation knowledge providing necessary intelligence in support of the process (Eriksson *et al*., 2000; Mejri & Katsuhiro, 2010). The network is established via an intermediary and there is so less empirical evidence about the nature of intermediaries and their role and involvement and in what form to make the internationalisation process successful (Ghauri *et al*., 2003; Zeng & Williamson, 2003).

Competition

Higher education providers face stiff competition from other higher education providers not only from the same country but also from other countries, which can also be the destination choice for international students. As Knight (2014, p. 44) notes in relation to cross-border education, there has been a gradual shift from 'a development cooperation framework to a partnership model and now to a commercial and competitiveness model'.

Financial Interest of Agents

There is little empirical data as to how the relationship between an institution and an agent has developed over time, in terms of the current concerns regarding ethical practice and transparency. The contract between a higher education provider and an agent, and the commission paid are central to the formal relationship (Magyar & Robinson-Pant, 2013). Australia's ESOS Act is a regulatory framework set up in 2000 to protect the interests of international students (and, one assumes the reputation of Australia's higher education industry). Its National Code of Practice for Registration Authorities and Providers of Education and Training to Overseas Students National Code, consisting of four parts, is a legislative tool setting out the obligations of education providers, which includes aspects such as adhering to migration

law and supporting what is called 'visa integrity'. Education providers also have to be registered with CRICOS, managed by the education department of the Australian government. Most of the agents will recruit international students in return for a commission percentage which varies from 10% – 25% of the tuition fee. In certain instances, the amount may be more than 25% under special circumstances and particular performance. This financial arrangement plays a significant role in determining which higher education institutions will be marketed by the agent. This forms the basis of the cut throat competition in the market.

Reliance and Trust Factor

The increasing reliance on agents includes: the knowledge of local networks (contacts with families and sponsors), offering information and services in local languages and dialects, cultural understanding, an ability to go to remote areas, same time zone (Observatory Report, 2014, Hulme *et al.*, 2013; Raimo *et al.*, 2014). Agents often play an important 'hand holding' role for such students who have never been to the West and can help mediate different languages and cultural practices (Raimo *et al.*, 2014). In a report commissioned by the British Council in 2002 entitled "Developing the UK's International Agent Network", the author states that "agents have only a limited role in raising interest in study abroad but they play a very important role as intermediaries helping to convert interest from students […] into actual placements in institutions abroad" (Krasocki, 2002, p. 3). The physical presence of the agent, face to face interaction and getting an answer to all the questions builds the trust factor amongst students and their parents. The suggestion and counselling is accepted by a large number of students and parents due to this trust factor on the agent. The Observatory report (2014, p. 18) lists a huge number of services provided to students by agents: health insurance, travel insurance, visa processing, airport pick-up, language training, accommodation, application guidance, mobile phones, currency exchange, school visits, the Internet, career counselling, referral to institutions, local job placement, programme of study selection, education exhibitions, interviews, promotional materials. Most of these services were provided free of charge, particularly application/admission guidance, programme selection and career counselling.

MATERIAL AND METHODS

The Research Problem Definition

The eclectic paradigm focuses on the firm-specific factors, location-specific factors and the internalisation-specific factors. The role of an intermediary focuses on factors like market knowledge, local presence and strong networking, reliance and trust of the students and parents and hence the reputation of their operation. It can be said that the market knowledge of an intermediary or an education agent is extremely important in terms of flowing the relevant information to the higher education provider so that they could plan their internationalisation process accordingly. This flow of market knowledge to the higher education provider is through the intermediary and aligns with the eclectic paradigm. The strong networking which an intermediary may have assist the higher education provider to gain access to that part of the world and also to gain the reliance of international students and their parents in terms of taking informed decision to enrol at the higher education provider. This networking aspect of the intermediary also relates to the eclectic paradigm. The

reliance, trust and the reputation factor of an intermediary is extremely important for maintaining a standard operation. Education agents understand that their reputation and face value brings them more business especially through referral process. Hence, this quality of an intermediary is also aligned to the eclectic paradigm. However, the conceptual background discussed in the previous sections lack the first-hand knowledge about the role of intermediaries in the internationalisation of higher education. It is not very clear which elements or themes of intermediaries need to be recognised more by a higher education provider and how that can be nurtured to develop a better working relationship. The below questions form the basis of this study and are explored through the literature review and also through semi-structured interviews of international office staff of higher education providers, government office staff responsible for the internationalisation process and an education agent. The aim is to explore the key themes of intermediaries and how they could be further used in the internationalisation of higher education.

- What is the role of intermediaries (e.g. education agents) in the internationalisation of higher education?
- What factors of intermediaries can be considered important while considering the internationalisation process?
- How much can a higher education provider depend on intermediaries like an education agent?

Methodology

The concept of research onion is used to demonstrate the research process. The proposed study is based on the exploratory study of literature for the internationalisation process of higher education providers.

This study uses qualitative research methods with a deductive research approach. The deductive logic provides an opportunity to explore and reflect upon the current knowledge of the domain (Zikmund *et al*., 2013). Whilst the role of intermediaries in accessing foreign markets is well described by international business literature (e.g. Andersson, 2002), this is done in a context dissimilar to that of the higher education sector (e.g. Coryell, Durodoye, Wright, Pate, & Nguyen, 2012). Therefore, a qualitative approach was selected to collect more information on the subject of observation (the role of intermediaries in higher education internationalisation), using semi-structured interviews to extract rich, detailed and in-depth information from a carefully selected group of key stakeholders to ensure the availability of valid information (Babbie, 2007).

The study is grounded by the previous empirical studies and the theories about the entry mode choice and role of network intermediaries are examined. The researchers conducted face-to-face interviews with International Office Staff from two Australian Universities, one Office Staff from the Victorian Government and one education agent with decades of experience. These informants were selected based on their areas of expertise, the domain of influence and the depth of experience. Between these professionals, three key stakeholder groups of higher education internationalisation (university decision makers, government regulators and freelance agents) are represented. The respondents together have possessed over 40 years of professional experience. Furthermore, the informants from two universities represent a young (under 50 years) and an old (over 50 years old) institution, to capture a variety of practices.

For the purpose of this study, semi-structured interviews were conducted to collect primary data. The aim of conducting the interviews was primarily to gain some first-hand insights into the relationships between agents, universities and students in order to help interrogate the literature findings from differing perspectives. The interviews were conducted by the researchers in person, under the conditions of the Human Research Ethics requirements legislated in Australia. The interviews – which took 30 to 60 minutes each – were audio recorded and transcribed. The prompting questions of the semi-structured interviews were derived from literature and mapped against the research questions directly.

Table A (see Appendix) shows the relationship between the interview questions (I) and the research questions (R). During the interviews, the questions asked provided an in-depth knowledge about the experience each interviewee had in dealing with factors influencing intermediaries to play their role in the internationalisation of higher education. These responses further strengthen the research questions and validate the role of intermediaries in the internationalisation process. Research question 1 corresponds to the interview questions 4-8. Research question 2 corresponds to the interview questions 6-8 and research question 3 corresponds to the interview questions 3-8.

The answers of the respondents for interview questions 1 and 2 are mainly used to find out the suitability of the interviewee in terms of this article. From the responses of the interview questions 4-8 from all the respondents the specific role of an intermediary (education agent) in the recruitment of international students is evident. Respondents of the university international office made it very clear that without an education agent it is extremely difficult to recruit international students from most parts of the world. Although there are exceptions where international students would enrol for higher education without assistance from an education agent. However, as mentioned in the responses, the complexity of choosing the right course and then applying for the student visa compels students to process their application through an education agent. Responses for the interview questions 6-8 assist to confirm the specific themes of the intermediary, which can guide a higher education provider to gain success in recruiting international students. It also describes the strength an intermediary or education agent may have in certain countries to facilitate the meeting between government officials which otherwise would take a lot of time and may cost considerable time and money. Responses to the interview questions 3-8 state the dependability of a higher education provider on an intermediary or education agent in terms of international student recruitment or establishing an operation in a foreign land. It is clear that the knowledge of the education agent cannot be undermined as it may lead to a disastrous result. It is extremely difficult to know the local rules and regulations and to gain the trust of students in a foreign land. However, an education agent can be relied on and trusted because of his local presence and the reputation of his work profile.

Thematic analysis was used to evaluate the responses. The responses to the interview questions led to the identification of the key themes, which were then used to reflect on the research questions. The conceptual framework was mapped against the themes identified by the interviewees, to allow the researchers to conclude the contribution of the responses to the current understanding and practices of the roles of education agents in higher education internationalisation.

Analysis of the Key Themes

While progressively going through the semi-structured interviews the key themes are identified from the response of the interviewees. These key themes are further analysed and discussed to project the importance of them in the internationalisation process of higher education. Each of the key themes are discussed in terms of the references provided by the interviewees from their personal knowledge and professional experiences.

RESULTS AND DISCUSSION

The Overview

The purpose of this section is to present the key findings that reflect the role of intermediaries in the internationalisation of higher education as experienced by the interviewees. It is evident that agents play an extremely vital role in the internationalisation process and the four key themes that are identified from the interviews are Market Knowledge, Network Facilitators, Financial Interest and Reliance and Trust factor.

Market Knowledge

Market Knowledge defines the in-depth knowledge of the intermediary or education agent about the local market in which they operate. Within this theme, two sub-themes were identified based on the responses: (1) 'necessary evil' and (2) 'local knowledge'.

The responses of the international officers of universities who were interviewed for this project state that agents are a 'necessary evil' in relation to the internationalisation of higher education. In their interview an international office staff revealed:

> '*We need agents because we can't be in every country around the world. We have very limited financial and human resources, so, they are able to be in country, they are able to speak the language, they understand the cultural sensitivities of that particular country that they are working in. So they can do things that we can't possibly do*.'

In this sense, 'necessary evil' is defined as the portfolio of supportive activities (such as sales, recruitment, in market engagement, etc.) which is delivered by the agents to support the internationalisation activity, but falls beyond the capabilities (and possibly outside of the guidelines) of the higher education providers' international practices. Investing in developing these capabilities in a university that is far from the market may also be costly and time consuming. The choice to outsource this market access and knowledge capacity as opposed to integrating it into the staff development activities of the higher education providers also causes tensions within the institution, and the use of external agents requires internal justification.

This justification is facilitated by the unique capabilities the agents provide to the higher education providers to generate profit. In their interview, an education agent said:

> *'We often get approached by the university marketing, especially ah market intelligence. As an agent we do have a lot of branches that we have in overseas to give them ideas what sort of demand that the institution ah, for each university that we have numbers of student and for that university always ask ah, you know, how many numbers? How many student that you can get for one year?'*

As stated above, reducing cost to market and improving reach in target countries based upon the localised capabilities of the agents is expected as a service provided. The market knowledge of agent is a major factor which benefits a provider when taking decision to start an offshore operation as part of their internationalisation process. The provider may seek assistance from agent consultants in terms of knowledge of the local law and policies. In the interview with an education agent, they stated:

> *'From my experience, a lot of universities hire the ah, local consultant to lobbying the government on a getting the policies and rules that they want to make sure that they ah, follow what the government wants them to do. What the idea is as an agent ah they know that their is a market but they also want to make sure that this is a long term decision ah, because ah, the demanding of the, um, for the education offshore and not only that the situation happening in each country, how highly they are regarded, you know, international graduates. Ah, having the international university, ah good quality education ah, available not far from their home. There is a market definitely ah, for international student ah running um, a campus in offshore.'*

From these statements, it can be concluded that the in-depth local knowledge in terms of laws, market conditions, political connections, language and culture, which intermediaries or education agent possess, is needed by higher education international offices. The local knowledge of the agents and the internal rationalisation of the international officers (as 'necessary evil') provides the parameters in which agents are used and become instrumental in the internationalisation of higher education institutions.

Network Facilitators

Network facilitator defines the networking potential of an intermediary in the local market including higher education providers, related governmental departments and other associations. Intermediaries like an agent can often play the role of network facilitator in the internationalisation process. In fact, in some cases, their connections provide necessary aid to the higher education provider to put a project to success. Within this theme, two sub-themes were identified based on the responses: (1) Multiplicity of connectedness and (2) Sales marketing channel capabilities.

As described by the interviewee who is an international office staff:

> *'A lot of these people tend to not be solely agents they tend to have other work as well. For example they may be lawyers they may be, you know, part timers maybe doing some other stuff, it's not their bread and butter, but they do it as part of it.'*

He further stated to stress on the sales and marketing channel aspect that:

> *'You know this person, this person knows another 100 people and 100 people who know ten thousand people and it's not to say they're not good. You know they may not be the main focus but without them we don't get access to this whole area and in marketing and this is solely the marketing field. A bad channel member or, or a less skilled channel member with good contacts is better than a skilled channel member with no contacts.'*

So, ultimately it comes down to the marketing capability of an agent and have the convincing element embedded in them when providing relevant information to a potential student who wants to study in Australia. It is quite difficult to get to know every higher education provider from offshore and hence the agent plays this intermediary role which affects the market share of a higher education provider.

He further continued to explain the reach of an agent in terms of networking and how they could be of assistance if need be. It clearly reflects on the multiplicity of connectedness in terms of the variety of types and areas of connections an agent can bring to the university. The networking capabilities of an agent put them in a better position when dealing with the higher education providers. The dependency and reliability of the university officer increase when an agent demonstrates his capacity to resolve particular issues or achieve expected outcomes of the higher education provider. This is mostly in the context to the local knowledge, law and order, government regulations and rules of the financial institutions:

> *'Ok this depends on like I guess again the expertise of the agent, number one where they sit in the hierarchy of agents because we know that there is a hierarchy of agents and some agents and networks and number there, you know how much the university is willing to give to the agent levy to run the operations.'*

> *'So if you go to a place like India, it is very easy to get access to, you know, the ministers, the departments, the top universities, the vice chancellors and so on and so forth. So when you say facilitate the network, the agent not only facilitates the sub agent network, so it filters up you know but the agent also facilitates why the wider exchange in terms of staff, in terms of projects in terms of whole other things.'*

According to one interviewee who is an experienced reputed agent, the networking role played by an agent is often necessary to push a project of establishing partnership for a higher education. As reflected in the interview, the role an agent plays to increase the sales and market share in the process of internationalisation is quite significant. It is the strength of an agent to work as an intermediary between the higher education provider and the interested student and their parents. The student relies on the advice that an agent provides not only about the provider but also about life in Australia, career outcome of a course etc. This information is extremely important to understand and the university official must rely in order to get the market share:

> *'It's an advantage for us as an agent try to ah, become the ah, middle man, you know, introducing the institution in off shore like Korea ah enter into Australia. The hard work for us is just getting that curriculum syllabus translated in English and there's a lot of ah, back forward ah, between faculty, course co-ordinator, you know ah, changing the email and chasing them to recognise each one another for each subject that they have it's a hard. But it works for us ah, at one time.'*

It can be concluded that the market knowledge of education agents assists them to be better in marketing and proving their sales capability. It also shows the multi-level connectedness that an education agent can have which could be useful as a bargaining power when negotiating financial arrangements with higher education providers.

Financial Interest of the Agents

Financial interest of agent defines the relation of the monetary involvement of an education agent in recruiting international students for a higher education provider. Agents refer students to a provider and in return expect the referral commission percentage as agreed through a formal agent agreement process. Sometimes, this agreement can be verbal during a probationary phase but in most cases there is a signed formal arrangement. In Australia, according to ESOS act, Institutions need to have an agreed formal agent agreement detailing the role of the agent, his responsibility of working in an ethical manner and an agreed commission structure (Australian Government, Department of Education, 2014). Sometimes, based on performance, an additional performance bonus or alike may be provided to the deserving agent. Agents often refer students to providers who pay a good commission percentage and on time. Within this theme, two sub-themes were identified based on the responses: (1) Return/ Profit and (2) Motivation.

Working as an intermediary to recruit international students for a higher education provider is considered to be a bread earning business for many agents. Hence, as part of any business, they measure the profit margin when promoting a higher education provider. Most of the providers will have similar faculties and streams in which a potential student would like to apply for. In this scenario, the commission structure which determines the profit margin does play a major role.

For example, in the interview an international office staff said:

> *'From our perspective we have to pay quite a high commissions to these agents for the students to be able to study at the institution. It would depend on the agreement that they have, but agents do like to take a piece of the pie where ever they possibly can and they might be able to assist with things, if you take India for example or even China where students are going to need to utilise an agent for visa processing.'*

According to the interviewee who is an international office staff, although an agent would try to understand the need of a student and provide counselling as per the need, still the financial interest plays an extremely important role in referring the student to a provider. In his words:

> *'From the agent perspective, I guess working as an agent first of all, the main thing is where can I place the student, so what the student interested in, if we have clients and we have students, then we try not to give them to other agents. That's very important. So you grab them, then you say you counsel them, you do all sorts of things, you, you decide ok what's a good fit for the student and the agents who simply send you the, person who pays the highest of commission and there are also what they call a better agent.'*

Apart from the profit margin, the intention of a student to study abroad and the dream of their parents work as a motivational factor for the agent. Providing accurate information and offering assistance to one satisfied client will bring next ten clients – this concept is extremely clear to an agent and they consider it as a motivational factor for them.

It can be concluded that the profit or return on investment of an education agent cannot be undermined. This plays an essential role in deciding on the partner with whom the education agent will continue to work and refer international students. The market knowledge and the connectedness boost the confidence of the education agent to decide on the reliability of profit and choosing the higher education provider to refer students.

Reliance and Trust Factor

Reliance and trust factor defines the image of an education agent in terms of his work profile. The education agent is expected to provide counselling to a student to study at a foreign university and guide the student through the enrolment process. Within this theme, three sub-themes were identified based on the responses (1) Relationship, (2) Time and (3) Rules/ Knowledge relating to paperwork, university and qualification system.

The relationship between a student and an agent carries a strong bond. This forms the basis of a reliance factor and in most of the cases the student relies on the suggestions and guidance from an agent. In fact, a student expects this guidance as part of his trust in the agent. This is further stated by international office staff in the interview:

> *'They may often came to Australia to do high school, secondary high school education, now the agent sort of acts as a family for that particular student. They might organise karaoke sessions, or you know family games days', things like that, information bingo nights you name it, but they are trying to make sure they control that student. So even though a student is physically studying at (University X) in a bachelor degree, we can't make them apply directly to a post grad. They most likely, they will go back and use that same agent because they feel comfortable, the parents feel comfortable, those sort of things.'*

The reliance on agents for information in terms of taking admission sitting in a foreign land is too high for certain countries, especially like Asian countries, some parts of sub-continent, etc. Amongst various reasons, one of the major ones is the complexity of the system of choosing the right subject or stream, assessing whether the course is suitable for the goal of the student or not and then going through and completing the admission process. Last but not least, the requirement and the complex procedure of applying for the student visa which can be daunting to many students offshore. This validates further sub-theme of Rules and Knowledge, when it comes to the complex visa regulatory procedure and university enrolment process. This is demonstrated in the interview of international office staff:

> *'Most universities if you can apply yourself they would still channel you to an agent simply because of handling of documents and visas and so on and forth, which the agents can do much better, yeah because of certain reasons that they cannot speak on their websites the preparation of documents, but the agents brand and the agent's reputation really come fourth if it's for special niche courses, example if you want to get into a medical degree some agents do have coaching, yeah, for example if you are very borderline in your application your history your documentation and so on and so forth, that one the agents knowledge can help you get across the line, in your assessment.'*

He further explained:

> *'Ok, students will have a general idea, of what they are interested in, but to most students especially under graduates, the university system in any country not just for, even more for foreign countries, is a great mystery. It's a very closed system even though there is a lot of information on the internet, it's very, very, confusing for a lot of people even the lecturers. And there's different standard and there is no standardised way of doing and also the idea of that an education leads to certain careers, certain jobs, that's not very clear. So what the agent does is they actually play a counselling role, for a lot of students, they may have some idea of somebody wanting to study in business for example, but what in business. There could be so many fields, so many majors and are depending on the agent and their preference, they would suggest certain fields and not suggest others.'*

Another international office staff clarifies the same findings about the reliance on agents in her interview saying:

> *'Yep, yep, yep because they are a very important network. They really are one of the major influences of a student's decision to want to study in Australia and where they study…. Because they sit down and they've got mum and dad or just the student, or mum dad and the student…. And mum and dad are looking at them for advice….. So they're going to need some words of wisdom, as to why my son, you know, the University of Sydney and why can't they go to the University of Sydney or why, so this particular agent is extremely important in the decision making process.'*

The brand name of an agent plays a vital role in terms of reliance factor by students and their parents. Their experience in counselling is a major factor to guide a student for a suitable course. The time an agent provides to a potential student sometimes becomes a deciding factor of using his service. If the agent does not provide the expected caring and time to discuss and suggest the higher education provider and the course which best suit the student, the agent may lose the student and that affects his market name.

As per the interview of international office staff:

> *'That has good branding, good market share and why, because they are very established, in fact they are more established than most universities. Yeah, and they are very knowledgeable about a lot of products. They don't just represent one University they represent…. Maybe all of the universities and they have teams which specialise in different areas of different universities of different state.'*

It can be concluded that the complexity of paperwork in terms of the student visa lodgement preparation is an area which is quite complex to many international students. That is a major reason why they wish to avail the service of an education agent. In addition, they can meet the education agent in person whenever they have any doubt in their mind during this process of applying for a student visa to study in Australia. It is not possible to meet or speak to the University representatives at all times. The university rules and system can often be quite complex to understand and follow from another part of the world. Hence, the dependency factor on the agent increases. This relates back to the overall knowledge of the

education agent, rapport with the higher education provider and any other related stakeholder and also the admin charges which an education agent may charge. Hence, all the above mentioned factors of market knowledge, network facilitators, financial interest and the reliance factor are all inter-related and form the basis of the effectiveness of the role of an education agent in the internationalisation of higher education.

The Evaluation of Themes

Table B (see Appendix) shows the relationship between the interview questions (I) and the themes (T). The importance of the response from the interviewee clearly indicates the themes that are important factors of an intermediary in its role in the internationalisation process. These themes form the basis of the education agent (intermediary) and his relation with higher education providers, students and their guardian. Interview questions 5-7 direct towards theme 1. Interview questions 3-5 and 8 direct towards theme 2. Interview questions 4 and 5 direct towards theme 3. Interview questions 6 and 7 direct towards theme 4.

Responses of the interviewees for interview questions 5-7 clearly indicate the importance of the market knowledge where an intermediary or education agent operate. This theme (market knowledge) serves as one of the key factors for which a higher education provider depends on the education agent for recruiting international students. A higher education provider does not have resources to gain equal amount of market knowledge as an intermediary or education agent for internationalisation. This is evident from the responses of the international office staff of the universities. Responses to the interview questions 3-5 and 8 state the role of an intermediary or education agent as a network facilitator. It is quite useful for a higher education provider to use the strong network support that an education agent may have in a foreign land. This networking factor of an education agent can be used in favour of the internationalisation process of the higher education provider, not to mention the objective of setting up an operation in a foreign land. Responses to the interview questions 4 and 5 reveal the importance of the financial reward that an education agent receives by recruiting an international student for a higher education provider. In the materialistic world, this factor seems to drive the work flow of an agent to promote a certain higher education provider over another. This also led to strong competition amongst the higher education provider trying to recruit students from the same foreign country. Responses to interview questions 6 and 7 reveal the face value of an education agent as the face value depends on the reliance and trust of the agent in the mind of a student or his parents. It is evident from the responses of the interviewees that an education agent often handheld a student from choosing the right course at a higher education provider to complete the enrolment procedure and assisted in obtaining the student visa. The trust factor of an agent assists a parent to follow instruction of the agent in terms of financial payments in enrolling their child at a foreign institution. It is clear from the interviewee responses that the trust and reliance factor of an agent can make or break them. If an agent continues to provide reliable service to the students, referral business will assist him to perform better. However, if the agent does not perform the task as expected or misguides a student, he will lose the credibility and face value. In that case, it is quite difficult to gain back the trust of the students and also the higher education providers.

Hence, responses to the interview questions further emphasise the four themes.

Table C (see Appendix) shows the relationship between the research questions (R) and the themes (T).

Research question 1

This question asks about the role of intermediaries in the internationalisation of higher education. The respondents answered this question highlighting themes 1 (market knowledge), 2 (network facilitation) and 4 (reliance and trust factor). They pointed out that the knowledge about the local market of an education agent serves as one of the key factors by which they can recruit international students. They are well aware of the courses that will have a better market than others. They are well aware of the intention of students and their aim of studying higher education with a foreign university. By means of their asymmetrical information to the potential customers, and serving as an external input to the university, agents are viewed as the 'necessary evil' by international offices, who allow to develop a competitive edge over others in the market.

Respondents also pointed out to the networking capacity of the agents, which facilitates them to overcome certain situations due to their networking influence on relevant bodies, associations and even government departments.

Finally, the respondents stressed the face value and reliance factor of the agent. The student and parents believe an agent because of his knowledge, local presence and also due to the support service that he provides to a student. Getting admission for higher education at a foreign university by choosing the correct stream and subjects, applying for the student visa and arranging all the other facilities like accommodation, telecom service, banking service, etc. can be quite complicated. This is where the education agent extends his valued service and in many cases does not charge or may charge a minimum processing fee.

Research question 2

This question asks about the important factors of an intermediary that can be considered in the internationalisation process. According to the responses from the interviewees, all the themes can be considered as valuable factors that an intermediary or agent should have. In addition to the responses mentioned above to research question 1, theme 3 (financial interest) seems to be a deciding factor for an intermediary to recruit international students for a higher education provider. As evident from the response of the interviewee who is an education agent having decades of experience, commission payable plays a crucial role in determining which higher education provider will get promoted in a foreign market. This further brings strong competition and each higher education provider tries to retain the confidence of good education agents by providing them with agreed commission and additional performance bonuses within the ethical standards.

Research question 3

This question asks about the dependence of higher education providers on education agents. Responses from the interviewees relate to themes 1 (Market Knowledge), 2 (Network Facilitation) and 3 (Financial Interest). The more market knowledge an intermediary has, it becomes easy for him to recruit international students. Responses from interviewees suggest that it is quite impossible for a higher education provider to have local market knowledge from different parts of the world. They cannot afford to have such resources and it is not cost effective at all. Hence, the dependence on an intermediary like an education agent. If a higher

education provider plans to enter a foreign market, the networking opportunity that an intermediary may provide can be quite useful. Sometimes the process becomes faster due to the assistance from the networking facilitated by the intermediary. The dependencies of the higher education provider on an intermediary to recruit international students happens in exchange for an agreed commission structure. The effectiveness of managing this commission payment plays a crucial role in getting the market share in a highly competitive environment.

The above relationship can be drawn back to the literature review, especially Czinkota *et al.* (2009) and the eclectic paradigm. The themes derived from the responses of the respondents are important and provide primary data information to understand the role of intermediaries in the internationalisation of higher education. The reliance on these themes by the higher education providers is an important context on the success of their international operation. This is missing in the literature and more work is required to understand the relationship of the derived themes as factors determining the role of intermediaries and how it connects the student, parents and the higher education providers.

CONCLUSIONS

This article looks at the role of an education agent as an intermediary in the internationalisation of higher education. Critical investigation into the role of education agents in shaping student expectations is important for generating insights into the ways that Higher Education is being transformed due to commercialisation and the implications for enhancing student experience, admissions processes and internationalisation strategies (Magyar & Robinson-Pant, 2013). The research questions get answered by the collection of primary data from the interviews. The respondents stressed the themes like market knowledge, network facilitators, financial interest of agents and reliance & trust factor. These themes serve as deciding factors for an intermediary to play a vital role in the internationalisation of higher education.

In particular, market knowledge was proven to be important as something universities do not actually have and view as undesirable ('necessary evil'), and is very particular to the local circumstances of the market targeted. Agents are viewed as network facilitators. Their networks are reliant on multiple connections, and therefore facilitate a very robust sales channel. They have all those connections and contacts in the market, the university does not, and are able to 'lend' them to the university, so the university can treat it as one monolithic sales channel. In return, agents get a share of the financial gain of the university, and are in a position to distribute this gain across their channels and stakeholders. The value created by the activity of agents facilitating the transaction (student gaining an international qualification) is both material and intangible. Intangible gains are utilised by an agent as developing credibility and growing his networks further. Agents capitalise on this trust to be able to facilitate the transactions they are tasked with, on behalf of universities. Combined with their unique position from the perspective of the students (and their parents), agents give advice and put their professional skills and knowledge of education systems and degree topics to work, to ensure the student acquires the best possible outcome, while they the highest combined reward (both in tangible and intangible terms). These themes provide a pathway to all parties involved in this process to know more about the need of each other and to improve the working relationship.

Theoretical Implications

This article has introduced several key concepts/themes that could be used to frame future investigations into the role of education agents in the internationalisation of higher education. The eclectic paradigm focused on the firm-specific factors, location-specific factors and internalisation factors. Firm-specific ownership factors are particularly applicable in the internationalisation process with the pressurised environment and competition facing the higher education providers. It emphasizes the access to financial resources to continue the operational aspect of providers. Considering that the target market for a higher education provider is quite specific, the location familiarity plays a pertinent role in the choice of a destination for exporting the higher education or establishing an offshore operation. Hence, the need to understand the concept of market potential and location familiarity. As knowledge-intensive organisations, the service delivered by higher education providers depend highly on their human resources and it is not possible to duplicate this knowledge to an offshore operation. Hence, the tactical know-how plays a crucial role. The themes focus on the market knowledge, network facilitators, strategic positioning, competition, the financial interest of agents and reliance and trust factor. This market knowledge of an intermediary or education agent is extremely important in terms of flowing the relevant information to higher education providers so that they could plan their internationalisation process accordingly. This flow of market knowledge to the higher education provider is through the intermediary and aligns with the eclectic paradigm. The strong networking which an intermediary may have assist the higher education provider to gain access to that part of the world and also to gain the reliance of international students and their parents in terms of taking informed decision to enrol at the higher education provider. This networking aspect of the intermediary also relates to the eclectic paradigm. The reliance, trust and the reputation factor of an intermediary is extremely important for maintaining a standard operation. An education agent understands that his reputation and face value brings him more business especially through referral process. Hence, this quality of the intermediary is also aligned to the eclectic paradigm.

Practical Implications for Higher Education Providers

The higher education providers should not neglect the importance of the knowledge that an education agent may offer for recruiting international students or even to establish an offshore operation. Rather, they should be using an education agent for their benefit to excel in the process of internationalisation. Higher education providers must concentrate on the benefits of proper and intensive training session to education agents about their products and encourage to maintain the ethical standards when counselling potential students. Higher education providers must try to use the networking advantage that an education agent may have in order to compete in the international market. As revealed from the responses of the interviewees *"an education agent is a necessary evil".* Hence, it is better to understand their potential and try to work with them and make them feel a valued partner. That way it will be easy to gain the trust of an agent, which will finally result in a higher degree to valued partnership.

Practical Implications for Intermediaries/Education Agents

Education agents must understand that once they represent a higher education provider they are in essence the face of that provider. They need to be aware of the courses, facilities, student services and the potential for the courses. They should try to counsel to the best of their knowledge and ethically. Due to the enormous amount of trust that a student or his/her parents may have on an agent, providing ethical guidance should be a moral responsibility of an agent. If an agent gives misleading information, the chain of trust will break and it will be extremely difficult to repair. In the process, the higher education provider will suffer from the recruitment of international students and the agent will suffer from the financial loss. The education agent can always guide the international office staff in marketing and business development based on their knowledge about the market and which strategy should be most effective. That will be a true method to perform the role of an intermediary in the internationalisation of higher education.

Limitations and Further Research

For this article only four interviews could be conducted comprising of two university international office staff, one government office manager and one education agents having decades of experience. It is clear that more interviews need to be conducted in terms of expectations from international office staff and also from various experienced education agents until a saturation level with the research questions is reached. This would bring out more themes which could impact the role of an education agent as an intermediary in the internationalisation of higher education.

REFERENCES

Adams, T., Leventhal, M., & Connelly, S. (2012). International student recruitment in Australia and the United States: approaches and attitudes. In D.K. Deardorff, H.D. Wit & J.D. Heyl (Eds.), *The SAGE handbook of international higher education* (pp. 399-417). Thousand Oaks, CA: SAGE Publications Ltd.

Agarwal, S., & Ramaswami, S. (1992). Choice of Foreign Market Entry Mode: Impact of Ownership, Location and Internationalization Factors. *Journal of International Business Studies*, 23(1), 1-27.

Altbach, P.G., & Knight, J. (2007). The Internationalization of Higher Education: Motivations and Realities. *Journal of Studies in International Education*, 11(3/4), 290-305.

Andersson, P. (2002). Connected internationalization processes: the case of internationalizing channel intermediaries. *International Business Review,* 11(3), 365-383.

Andersson, S., & Wictor, I. (2003). Innovative Internationalization in New Firms: Born Globals – The Swedish Case. *Journal of International Entrepreneurship*, 1(3), 249-275.

Austrade Bangkok (2013). *Thailand's Education Agents Survey Report 2013. Australian Trade Commission*. Retrieved on November 20, 2016 from http://www.google.co.uk/#q=Thailand's+Education+Agents+Survey+Report+Australian Education

Babbie, E. (2007). *The practice of social research* (11th ed.). Belmont, CA: Thomson Wadsworth.

Blomstermo, A., Sharma, D., & Sallis, J. (2006). Choice of Foreign Market Entry Mode in Service Firms. *International Marketing Review*, 23(2), 211-229.

Brabner, R., & Galbraith, G. (2013). *Using international recruitment agents: risks and regulation? Stimulus Paper*. London: Leadership Foundation for Higher Education.

Brooks, R., & Waters, J. (2011). *Student mobilities, migration and the internationalisation of higher education*. Basingstoke: Palgrave Macmillan.

Brouthers, K.D. (2002). Institutional, Cultural, and Transaction Cost Influences on Entry Mode Choice and Performance. *Journal of International Business Studies*, 33(2), 203-221.

Brouthers, K.D., & Hennart, J-F. (2007). Boundaries of the Firm: Insights from International Entry Mode Research. *Journal of Management*, 33(3), 395-425.

Carroll, D.A., & Stater, K.J. (2008). Revenue Diversification in Nonprofit Organizations: Does it Lead to Financial Stability. *Journal of Public Administration Research and Theory*, 19(4), 947-966.

Chen, L. (2008). Internationalization or international marketing? Two frameworks for understanding international students' choice of Canadian universities. *Journal of Marketing for Higher Education*, 18(1), 1-33.

Chetty, S., & Campbell-Hunt, C. (2004). A Strategic Approach to Internationalization: A Traditional Versus a "Born-Global" Approach. *Journal of International Marketing*, 12(1), 57-81.

Chetty, S.K., & Wilson, H. (2003). Collaborating with Competitors to Acquire Resources. *International Business Review*, 12(1), 61-81.

Childress, L.K. (2009). Internationalization Plans for Higher Education Institutions. *Journal of Studies in International Education*, 13(3), 289-309.

Chin J. M.-C., & Ching G.S. (2009). Trends and indicators of Taiwan's higher education internationalization. *The Asia-Pacific Education Researcher*, 18(2), 185-203.

Choudaha, R., & Hu, D. (2016). Australian Higher Education Leads In Attracting and Retaining International Students. Retrieved on January 3, 2017 from https://www.forbes.com/sites/rahuldi/2016/10/27/attracting-international-students-global-competition/#d94bb7949967

Chung, H.F.L., & Enderwick, P. (2001). An Investigation of Market Entry Strategy Selection: Exporting vs. Foreign Direct Investment Modes – A Home-Host Country Scenario. *Asia Pacific Journal of Management*, 18(4), 443-460.

Coffey, R., & Perry, L.M. (2013). The Role of Education Agents in Canada's Education Systems. Retrieved on November 15, 2016 from https://www.cmec.ca/Publications/Lists/Publications/Attachments/326/The-Role-of-Education-Agents-EN.pdf

Collins, F. (2012). Organizing student mobility: education agents and student migration to New Zealand. *Pacific Affairs*, 85(1), 135-158.

Coryell, J.E, Durodoye, B.E., Wright, R.R., Pate, P.E., & Nguyen, S. (2012). Case Studies of Internationalization in Adult and Higher Education: Inside the Processes of Four Universities in the United States and the United Kingdom. *Journal of Studies in International Education*, 16(1), 75-98.

Coviello, N., & McAuley, A. (1999). Internationalization and the smaller firm: a review of contemporary empirical research. *Management International Review*, 39(3), 233-256.

Cubillo, J., Sanchez, J., & Cervino, J. (2006). International students' decision making process. *International Journal of Educational Management*, 20(2), 101-115.

Cuervo-Czurra, A., Maloney, M., & Manrakhan, S. (2007). Causes of the difficulties in internationalization. *Journal of International Business Studies*, 38(5), 709-725.

Czinkota, M. (2006). Academic Freedom For All in Higher Education: The Role of The General Agreement on Trade in Services. *Journal of World Business,* 41(2), 149-160.

Czinkota, M. Grossman, D.A., Javalgi, R.G., & Nugent, N. (2009). Foreign market entry mode of service firms: The case of U.S. MBA programs. *Journal of World Business*, 44(3), 274-286.

Dunning, J.H., & Kundu, S.K. (1995). The Internationalization of the Hotel Industry – Some New Findings From a Firm Study. *Management International Review*, 35(2), 101-133.

Dunning, J.H. (1988). The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions. *Journal of International Business Studies*, 19(1), 1-31.

Ekeledo, I., & Sivakumar, K. (2004). International Market Entry Mode Strategies of Manufacturing Firms and Service Firms: A Resource-Based Perspective. *International Marketing Review*, 21(1), 68-101.

Eriksson, K., Majkgård, A., & Sharma, D.D. (2000). Path dependence in the internationalization process. *Management International Review*, 40(4), 307-328.

Erramilli, M.K. (1991). The Experience Factor in Foreign Market Entry Behavior of Service Firms. *Journal of International Business Studies*, 22(3), 479-501.

Fombrun, C.J., & van Riel, C.B.M. (2004). *Fame and Fortune: How Successful Companies Build Winning Reputation*. New Jersey, US: Pearson Education.

Forbes (2016). *Australian Higher Education Leads in Attracting and Retaining International Students*. Retrieved on July 21, 2017 from https://www.forbes.com/sites/rahuldi/2016/10/27/attracting-international-students-global-competition/#6b6b085f4996

Gaur, A., & Lu, J.W. (2007). Ownership Strategies and Survival of Foreign Subsidiaries: Impacts of Institutional Distance and Experience. *Journal of Management*, 33(1), 84-110.

Ghauri, P., Lutz, C., & Tesfom, G. (2003). Using networks to solve export-marketing problems of small-and medium-sized firms from developing countries. *European Journal of Marketing*, 37(5/6), 728-52.

Gillespie, K., & Riddle, L. (2004). Export promotion organisation emergence and development: a call to research. *International Marketing Review,* 21(4/5), 462-473.

Harman, G. (2005). Australian Social Scientists and Transition to a More Commercial University Environment. *Higher Education Research and Development*, 24(1), 79-94.

Healey, N.M. (2008). Is higher education in really 'internationationalising'?. *Higher Education*, 55, 333-355.

Hill, C.W.L., Hwang, P., & Kim, W.C. (1990). An eclectic theory of the choice of international entry mode. *Strategic Management Journal*, 11(2), 117-128.

Horie, M. (2002). The Internationalization of Higher Education in Japan in the 1990s: A Reconsideration. *Higher Education*, 43(1), 65-84.

Hulme, M., Thomson, A., Hulme, R., & Doughty, G. (2013). Trading places: The role of agents in international student recruitment from Africa. *Journal of Further and Higher Education*, 38(5), 674-689.

International Education Services for Overseas Students (2016). Retrieved on November 14, 2016 from https://www.aei.gov.au/Regulatory-Information/Education-Services-forOverseas-Students-ESOS-Legislative Framework/NationalCode/nationalcodepartd/Pages/ExplanatoryguideD4.aspx

Johanson, J., & Vahlne, J. (1977). The Internationalization Process of the Firm – A model of Knowledge Development and Increasing Foreign Market Commitments. *Journal of International Business Studies*, 8(1), 23-32.

Johnsen, R.E., & Johnsen, T.E. (1999). International market development through networks: The case of the Ayrshire knitwear sector. *International Journal of Entrepreneurial Behavior & Research*, 5(6), 297-312.

Jones, M.V., & Coviello, N. (2005). Internationalisation: Conceptualising an Entrepreneurial Process of Behaviour in Time. *Journal of International Business Studies*, 36(3), 284-303.

Javalgi, R.G., Griffith, D.A., & White, S. (2003). An empirical examination of factors influencing the internationalization of service firms. *Journal of Services Marketing*, 17(2), 185-201.

Knight, G.A.G., & Cavusgil, S.T. (2004). Innovation, Organizational Capabilities and the Born-Global firm. *Journal of International Business Studies*, 35(2). 124-141.

Knight, J., & de Wit, H. (Eds.) (1997). *Internationalisation of Higher Education in Asia Pacific Countries*. Amsterdam: European Association for international Education in cooperation with IDP Education Australia and the Programme on Institutional Management in Higher Education of OECD.

Knight, J. (1999). *Internationalisation of Higher Education in Organisation for Economic Cooperation and Development, Quality and Internationalisation in Higher Education*. Paris: OECD.

Knight, J. (2014). Three generations of crossborder Higher Education: new developments, issues and challenges. In B. Streitwieser (Ed.), *Internationalisation of Higher Education and Global Mobility* (pp. 45-58). Oxford: Symposium Books.

Kogut, B., & Singh, H. (1988). The Effect of National Culture on the Choice of Entry Mode. *Journal of International Business Studies*, 19(3), 411-432.

Krasocki, J. (2002). *Education UK: Developing the UK's International Agent Network. Promotions and Partnerships (ECS)*. London: The British Council.

Loane, S., & Bell, J. (2006). Rapid internationalisation among entrepreneurial firms in Australia, Canada, Ireland and New Zealand. *International Marketing Review*, 23(5), 467-485.

Loane, S., McNaughton, R.B., & Bell, J. (2004). The internationalization of Internet- enabled entrepreneurial firms: Evidence from Europe and North America. *Canadian Journal of Administrative Sciences*, 21(1), 79-96.

Madhok, A. (1997). Cost, Value and Foreign Market Entry Mode: The Transaction and the Firm. *Strategic Management Journal*, 18(1), 39-61.

Magyar, A., & A. Robinson-Pant (2011). Internationalising doctoral research: developing theoretical perspectives on practice. *Teachers and Teaching: theory and practice*, 17(6), 663-676.

Magyar, A., & Robinson-Pant, A. (2013). *Language and academic study in a second language: how can we improve the experience and engagement of international Masters Student in the Faculty of Social Science? UEA Teaching Fellowship report*. Retrieved on November 10, 2016 from https://portal.uea.ac.uk/documents/6207125/8480269/uea-teaching-fellowship-final-report-2012-anna-magyar-and-anna-robinson-pant.pdf/ae816938-631a-41e6-8c8d-4b0543ebec70

McBurnie, G., & Pollock, A. (2000). Opportunity and Risk in Transnational Education – Issues in Planning for International Campus Development: An Australian Perspective. *Higher Education in Europe*, 25(3), 333-343.

McBurnie, G., & Ziguras, C. (2001). The Regulation of Transnational Higher Education in Southeast Asia: Case studies of Hong Kong, Malaysia and Australia. *Higher Education*, 42(1), 85-105.

McBurnie, G. (2000a). Pursuing Internationalisation as a Means to Advance the Academic Mission of the University: An Australian Case Study. *Higher Education in Europe*, 25(1), 63-73.

McBurnie, G. (2000b). Quality Matters in Transnational Education: Undergoing the GATE Review Process – An Australian-Asian Case Study. *Journal of Studies in International Education,* 4(1), 23-38.

Mejri, K., & Umemoto, K. (2010). Small- and medium-sized enterprise internationalization: Towards the knowledge-based model. *Journal of International Entrepreneurship*, 8(2), 156-167.

Moen, Ø., & Servais, P. (2002). Born Global or Gradual Global? Examining the Export Behavior of Small and Medium-Sized Enterprises. *Journal of International Marketing*, 10(3), 49-72.

Naidoo, V. (2009). Transnational Higher Education: A Stock Take of Current Activity. *Journal of Studies in International Education,* 13(3), 310-330.

Observatory Report (2014). *On Borderless Higher Education, The Agent Question: Insights from students, universities and agents, September 2014*. Retrieved on October 20, 2016 from http://www.obhe.ac.uk/documents/view_details?id=953

OECD (2016). *Education at a Glance 2016*. Retrieved on July 25, 2017 from http://www.huffingtonpost.in/entry/american-higher-education-has-untapped-potential-for_us_57dac05de4b04fa361d994c1

Osland, G.E., Taylor, C.R., & Zou, S. (2001). Selecting international modes of entry and expansion. *Marketing Intelligence & Planning*, 19(3), 153-161.

Oviatt, B.M., & McDougall, P.P. (1995). Global Start-Ups: Entrepreneurs on a Worldwide Stage. *Academy of Management Executive*, 9(2), 30-43.

Perényi, Á. (2016). Diagnosing cluster competitiveness using firm level data in the profit-growth nexus framework. *Acta Oeconomica*, 66(3), 469-463.

Pimpa, N. (2003). The Influence of Peers and Student Recruitment Agencies on Thai Students' Choices of International Education. *Journal of Studies in International Education,* 7(2), 178-192.

Pimpa, N. (2004). The Relationship Between Thai Students' Choices of International Education and their Families. *International Education Journal,* 5(3), 352-359.

Pimpa, N. (2005). Marketing Australian Universities to Thai Students. *Journal of Studies in International Education*, 9(2), 137-146.

Porter, M.E. (1985). *The Competitive Advantage: Creating and Sustaining Superior Performance.* New York: Free Press.

Provider Registration and International Student Management System (PRISMS). Retrieved on July 25, 2017 from https://internationaleducation.gov.au/research/International-Student Data/Pages/default.aspx

Raimo, V., Humfrey, C., & Huang, I. (2014). *Managing international student recruitment agents: Approaches, benefits and challenges, British Council, 16th October 2014*. Retrieved on 13 October, 2016 from https://www.srhe.ac.uk/downloads/Robinson-Pant_DiscussionPaper.pdf

Robson, S. (2011). Internationalization: a transformative agenda for higher education?. *Teachers and Teaching: Theory and Practice*, 17(6), 619-630.

Root, F.R. (1994). *Entry Strategies for International Markets*. San Francisco: Jossey-Bass.

Ryan, J. (2011). Teaching and learning for international students: towards a transcultural approach. *Teachers and Teaching: Theory and Practice*, 17(6), 631-648.

Sanchez-Peinado, E., Pla-Barber, J., & Herbert, L. (2007). Strategic Variables that Influence Entry Mode Choice in Service Firms. *Journal of International Marketing*, 15(1), 67-91.

Svensson, L., & Wihlborg, M. (2010). Internationalising the content of higher education: the need for a curriculum perspective. *Higher Education*, 60(6), 595-613.

The National Strategy for International education 2025 (2015). Retrieved on July 21, 2017 from https://nsie.education.gov.au/

Wach, K. (2014). The Theoretical Modelling of the Firm-Level International Competi-tiveness in Business Studies. In D. Kiendl-Wendner & K. Wach (Eds), *International Competitiveness in Visegrad Countries: Macro and Micro Perspectives* (pp. 101-121). Graz: Fachhochschule Joanneum.

Wheeler, C.N. (1990). Stimulating Scottish and United Kingdom economies through export promotion programs. In S.T. Cavusgil & M.R. Czinkota (Eds.), *International Perspectives on Trade Promotion and Assistance*. New York: Quorum.

Wilkinson, T., & Brouthers, L.E. (2006). Trade promotion and SME export performance. *International Business Review,* 15(3), 233-252.

Zeng, M., & Williamson, P.J. (2003). The Hidden Dragons. *Harvard Business Review*, 81(10), 92-99.

Zikmund, W.G., Babin, B.J., Carr, J.C., & Griffin, M. (2013). *Business research methods*. Mason, OH: South-Western.

Appendix A:

Table A: Relationship between the Research Questions and the Interview Questions

(I1) Tell me about your higher education international experience.
(I2) Please describe your involvement in a situation/ project where a higher education institution was making a foreign market entry choice.
(I3) In your opinion what were the most important factors influencing this choice?
(I4) What intermediaries were involved in this process?
(I5) How did education agent influence the entry mode choice decision?
(I6) Explain your experience about the knowledge of the education agent in terms of international experience, face value and reputation.
(I7) Please describe your experience with the education agent in terms of their expertise about market potential or location at the host country.
(I8) Please explain how do you think that the education agent contributed as a network facilitator in the internationalization of higher education.

	I1	I2	I3	I4	I5	I6	I7	I8
(R1) What is the role of intermediaries (e.g. education agents) in the internationalisation of higher education?				√	√	√	√	√
(R2) What factors of intermediaries can be considered important while considering the internationalisation process?						√	√	√
(R3) How much can a higher education provider depend on intermediaries like an education agent?			√	√	√	√	√	√

I1- I8 – Interview questions **R1 – R3** – Research questions Source: own study.

Appendix B:

Table B: Relationship between the Interview Questions and the Themes

(I1) Tell me about your higher education international experience.
(I2) Please describe your involvement in a situation/ project where a higher education institution was making a foreign market entry choice.
(I3) In your opinion what were the most important factors influencing this choice?
(I4) What intermediaries were involved in this process?
(I5) How did the education agent influence the entry mode choice decision?
(I6) Explain your experience about the knowledge of the education agent in terms of international experience, face value and reputation.
(I7) Please describe your experience with the education agent in terms of their expertise about market potential or location at the host country.
(I8) Please explain how do you think that the education agent contributed as a network facilitator in the internationalization of higher education.

	I1	I2	I3	I4	I5	I6	I7	I8
(T1) Market knowledge					√	√	√	
(T2) Network facilitators			√	√	√			√
(T3) Financial interest of the agents				√	√			
(T4) Reliance and trust factor						√	√	

I1 – I8 – Interview questions **T1 – T4** – Themes Source: own study.

Appendix C:

Table C: Relationship between the Research questions and the Themes

	(T1) Market knowledge	**(T2)** Network facilitators	**(T3)** Financial interest of the agents	**(T4)** Reliance and trust factor
(R1) What is the role of intermediaries (e.g. education agents) in the internationalisation of higher education?	√	√		√
(R2) What factors of intermediaries can be considered important while considering the internationalisation process?	√	√	√	√
(R3) How much can a higher education provider depend on intermediaries like an education agent?	√	√	√	

T1 – T4 – Themes **R1 – R3** – Research questions Source: own study.

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Authors

The contribution share of authors is equal and amounted to 50% each of them.

Anirban Sarkar

Anirban is a highly skilled and experienced leader, with proven success developing and implementing strategic marketing initiatives to support revenue growth and expand market share. Strong leadership abilities are underpinned by the ability to build rapport with a diverse range of individuals, a dedication to team development and a commitment to continual improvement. Drives high performance, developing effective communications plans and supporting team efforts to consistently surpass organisational targets. He has a Masters in Commerce (International Business) from Swinburne University of Technology, Advanced Diploma of Business Management from Federation University (previously named as Ballarat University), and Advanced Diploma of Multimedia from Cambridge International College, Certificate IV in Training and Assessment (TAE40110) and Bachelor of Science from Kolkata University, India. He has more than a decade of experience to work with international students and education agents from different parts of the world in promoting Study Australia. Anirban is a student at Swinburne University pursuing PhD and is a member of academic and professional associations like EURAM, ACPET and Chamber of Commerce in Geelong. Anirban is a strong advocate of international education and is passion about the increase in demand for international education within the various framework.

Correspondence to: Chief Executive Officer The Centre of Excellence 126 Yarra Street, Geelong VIC 3220 Australia, e-mail: anirban@coe.vic.edu.au

Áron Perényi

Lecturer in International Business, and the coordinator of early career researcher training at Swinburne University of Technology, Melbourne, Australia. He is also a member of the Group of Energy Efficiency Researchers Australia, an expert advisor of UNIDO, the co-organiser of the Central European Business Forum, and a Rotarian. He holds a PhD and a Graduate Certificate in Learning and Teaching from Swinburne, a Masters in Economics from Corvinus University Budapest and a Masters in Engineering and Management from the Budapest University of Technology. As an academic, Dr Perényi endeavours to engage with a wide range of stakeholders in business and society for a positive impact, and is strongly committed to high quality outputs. His research focusses on factors of competitiveness, at the entrepreneur, firm, industry, regional, cluster and county levels. His projects involve the Australian and Hungarian business communities, the Victorian Aboriginal community, senior entrepreneurs in Australia; and businesses, governments and civil society across Central and Eastern Europe, and Latin America. He is a member of several academic and professional associations (AIB, AIB-CEE, ANZAM, EURAM, the Hungarian Economic Association). He is also active in PhD supervision, scholarly peer reviewing and business mentoring.

Correspondence to: Faculty of Business and Law | Swinburne University of Technology, PO Box 218, Mail H23, John Street, Hawthorn VIC 3122 Australia | CRICOS Provider 00111D, e-mail: aperenyi@swin.edu.au

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The Role of Relationships in Initiating the Internationalisation Process in B2B Markets

Bartosz Deszczyński, Krzysztof Fonfara, Adam Dymitrowski

ABSTRACT

Objective: The objective of this paper is to evaluate how companies use the relationship capital when initiating the internationalisation process and how the development of a business network affects this process.

Research Design & Methods: The paper presents a comparative analysis of case studies of seven companies based in Poland and operating in foreign markets. This set of primary data and a comprehensive literature review served as a stimulus for the development of a typology of relationship capital mediating agents.

Findings: The cornerstone of the article is the assumption that in order to accelerate internationalisation, entities trying to enter foreign markets have to "borrow" relationship capital from one or more of several mediating agents. The article identifies these agents and outlines the role of different types of relationships during the market entry phase.

Implications & Recommendations: The article proposes a typology of relationship capital mediating agents such as: foreign and domestic intermediaries, individual insiders, own international and corporate network, own network expansion, and corporate or personal referrals. It also outlines the limited role of social relationships in concluding a successful market entry, placing them as one of the possible, but not necessary, options.

Contribution & Value Added: The originality of this work lies in the application of the concept of the relationship assets/capital to the network approach in internationalisation as proposed by the Industrial Marketing and Purchasing Group (IMP) and the development of a typology of relationship capital mediating agents.

Article type:	conceptual paper
Keywords:	business relationships; social relationships; institutional relationships; internationalisation; relationship capital mediating agents, relationship management
JEL codes:	L250, D230

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INTRODUCTION

The internationalisation process has been studied since the 1970s. The extensive body of research includes company internationalisation models, which seek to clarify motives for, as well as strategies, stages and outcomes of this process (Daszkiewicz & Wach, 2012; Onetti, Zucchella, Jones, & McDougall-Covin, 2012; Johanson & Vahlne, 2003; Andersen, 1993). These models can be categorised into two main research streams, namely a classic and a network approach (Małys, 2013). The classic sequential, eclectic and strategic models are still useful in explaining the endogenous part of the internationalisation decision making process (Ried, 1983; Dunning, 1980; Johanson & Vahlne, 1977), but they offer hardly any direct references to company relations with the external world (Fonfara, 2012).

Under the network approach, the focal point of analysis is not the company itself but its relations with other partners. Hence, in this approach, internationalisation is defined as "a process by which firms expand their network by building new relationships with other actors in a foreign market" (Johanson & Kao, 2012, p. 10). Consequently, a network can be characterised as a set of connected exchange business relationships between actors controlling business activities (Forsgren & Johanson, 1992). This leads to the idea that companies can be divided according to the extent of their own internationalisation and the internationalisation of their network of connections (Johanson & Mattsson, 1988), as well as according to their ability to use diverse relationships within the network. The entities with significant presence in international markets and with a high density of international networks will gain a superior position over their more passive, locally oriented competitors (Johanson & Mattsson, 1993). In the revised Uppsala model of 2009, the importance of network embeddedness is raised so high that it even overshadows the traditional obstacle to internationalisation, namely the psychological distance (Johanson & Vahlne, 2009). Hence, when considering international expansion, the liability of outsidership and of the absence of valuable relationships is far more problematic than the liability of foreignness. To sum up, the process of internationalisation refers to three main aspects: the resources of a company, its relationships with entities in foreign markets and forms of activity in foreign markets (Dymitrowski, 2014, pp. 68-69).

In this article, we concentrate on the role of relationships in the initial phase of the internationalisation process, when the company begins to develop its business network. Although the literature showcases many typologies of expansion into foreign markets – such as equity and non-equity based forms of expansion (Dymitrowski, Małys, & Ratajczak-Mrozek, 2012; Yosino & Rangan, 1995), incremental vs rapid internationalisation (Wach, 2015), cultural barriers to expansion (Gorostidi-Martinez & Zhao, 2017), the geographical and business segment factor in expansion (Shirashi & Iijima, 2009), industry-specific expansion (Baum, Shiplov, & Rowley, 2017; Gulati & Gargiulo, 2003), expansion of family companies (López-Cózar-Navarro, Benito-Hernández, & Platero-Jaime, 2017), SMEs (Laghzaoui, 2011) and born global firms (Hennart, 2014), multi-stakeholder expansion (Fonfara & Szczepański, 2010; Havila, Johanson, & Thilenius, 2004) and the role of formal and informal relationships in international business (Dunning, 2006) – these approaches reflect relatively weak links to relationship management.

Yet, when entering a new market, not only the strategy, structure and resources have to be adapted (Trąpczyński, Jankowska, Dzikowska, & Gorynia, 2016). The activities of a company tend to differ significantly also in the relational context. In this article we try to establish a bridge between internationalisation and relationship management. We, therefore, propose a typology of mediating agents – the entities which can facilitate the foreign expansion process of a company, based on their own relationship capital in the target market.

The structure of this paper is as follows. Section 2 is dedicated to the methods we used both in our theoretical and empirical research. In Section 3 we present the types of relationships that may be developed during the internationalisation process and we conceptualise relationship assets and relationship capital as an important effect of interactions with the stakeholders of a company. In section 4 seven case studies of the companies based in Poland and operating in foreign markets are presented. In these case studies we introduce different types of relationship capital mediating agents and we discuss their influence on the internationalisation process. Finally, section 5 offers a general summary of the article and presents research limitations and the main direction for further studies.

MATERIAL AND METHODS

The main objective of this research is to evaluate the foreign market entry process in the relationship perspective. We assume that in order to accelerate foreign expansion of a company, there emerges a need to find a way to compensate for a newcomer's disadvantages exaggerated due to the otherness of foreign culture, law and financial systems. As a company is unlikely to maintain its extensive relationships (or to own its relationship capital) which are useful in the target market, this capital has to be "borrowed" from other parties that can be called relationship mediating agents. Hence, our research propositions are as follows:

Proposition 1: In initiating the internationalisation process what companies lack most is relationship capital in the foreign markets.

Proposition 2: A successful internationalisation process should seek to compensate the shortages in own relationship assets of a company by looking for valuable partners already possessing relationship capital in the target markets. Building on these partners' capital will ease and accelerate the foreign expansion.

Proposition 3: There exist different types of relationship capital mediating agents who offer different types of relationship assets which vary in their nature and usability.

In order to meet the research goals and verify the propositions, in this paper we apply a multi-stage research procedure. First, the article offers a discourse based on extensive literature review. The key concepts referred to and conceptualised in the theoretical section are various types of relationships, relationship assets and relationship capital.

Further on, we present case studies of companies based in Poland and operating in foreign markets. In order to maintain the diversity of the questioned entities, the secondary selection criteria included industry and market sector (production, services, trade sector), ownership structure (Polish capital-owned and foreign capital-owned companies; public companies, public limited companies, other types of private sector companies) and company size (in terms of the number of employees).

Since the existing theoretical material seemed to be incomplete, a qualitative analysis of the case studies was deliberately chosen as a leading research method to recognise the practical reality of tacit knowledge in business decisions, actions and results (Gummesson, 2017; Danik & Kowalik, 2013, p. 11; Piekkari & Welch, 2006). This method seems to be most popular but on the other hand most appropriate and satisfactorily justified for research on industrial marketing (Easton, 2010, p. 118). 30 case studies were collected in the first half-year of 2016 by a team of researchers working on a project focused on the maturity of company internationalisation. Direct interviews based on semi-structured questionnaires with predominately open-ended questions were conducted with one, two or three managers competent in the internationalisation process (depending on the company: export, marketing, key account or general managers). The questionnaires were provided in advance, so even where only one interlocutor was involved, the answers to the questions were rich in details and informative. Moreover, the interviews were recorded and their transcripts further internally consulted and authorised by our interlocutors. These transcripts were used to prepare baseline compilations, which in turn are a starting point for this article.

The literature review and a digest of seven case studies served as a stimulus for a comparative analysis which resulted in the development of a typology of relationship capital mediating agents. The case studies were selected according to criteria proposed by Miles and Huberman (1994), such as the presence of the analysed problem, the possibility of conducting analytical generalisation and providing reliable explanations. In particular, the chosen case studies relate to processes of internationalisation, which are different in a relationship context. Although in some situations more than one source of relationship capital was activated, each case study clearly depicts the nature of relationship capital borrowing process from one leading agent.

LITERATURE REVIEW AND THEORY DEVELOPMENT

Types of Relationships

By acknowledging the importance of business relationships, advocates of the network approach have transposed the social exchange perspective to business networks (Chetty & Blankenburg-Holm, 2000). This has broadened the scope of analysis to such phenomena as trust and commitment (Friman, Gärling, Millett, Mattsson, & Johnston, 2002) and social relationships between individuals in firms (Halinen & Salmi, 2001). Meanwhile, in the highly complex and multifaceted business world of today, relationship management, both as a theoretical approach and as business practice, appears to be more relevant than ever before (Payne & Frow, 2017). The benefits of a long-lasting relationship characterised by mutual trust and commitment are directly linked to valuable resources which can only be accessed thanks to collaborating partners (Deszczyński, 2016a). According to Barney, what companies should appreciate most are VRIN resources (valuable, rare, costly to imitate, non-substitutable) (Barney, 1991), which in the context of international business can take the form of, for instance, market knowledge and expertise, and the ability to access distribution channels or innovations.

The network approach explains the nature of this process in an interrelated matrix of international business connections. The actors present in the entrepreneur's network appear to include both individuals and organisations which come from various backgrounds

and are not necessarily restricted to customers or suppliers. Furthermore, the relationships established between actors may be of a business, social or institutional nature, or may constitute a mix of these (Johanson & Kao, 2012, pp. 2-3).

A fundamental aspect raised in business network definitions is the interconnectiveness between two or more companies, predominately buyers and their suppliers. Such business relationships have been traditionally analysed from the perspective of a focal firm dominating its partners or a focal relationship connected to peripheral ones (Anderson, Håkansson, & Johanson, 1994). In order to actively manage such vertical and horizontal relationships, entities have to apply portfolio management and develop relationship management capabilities (Möller & Halinen, 1999). Nevertheless, even if managers are a medium for these relationships, at this level of analysis they are not considered to be a separate subject of the relationship (Johanson & Kao, 2012). Formal relationships – independent of the human factor – are more likely to occur as the collaboration between particular entities is more strategic, e.g. in strategic alliances (Cooper & Gardner, 1993).

Social relationships can be perceived as part of a B2B relationship, although they obviously exceed a purely corporate context. The inclusion of social relationships is often found in studies of the internationalisation of SMEs and the establishment of born globals (Laghzaoui, 2011; Danik, Duliniec, & Kowalik, 2016). The role of entrepreneurs in these entities is much more significant, and the social relationships they foster provide much needed assistance for resource-constrained firms (Chetty & Blankenburg-Holm, 2000). This is why, the term social relationships is often used interchangeably with personal or informal contacts.

At the beginning of cooperation, personal contacts can act as "bridge relationships" by creating openness to a dialogue on a new proposal (Blankenburg-Holm & Eriksson, 2000). Managers can use existing social ties and business contacts from previous positions to help their company to expand. According to research by Loane and Bell (2006, p. 467), 25% of firms actively used existing networks to develop their knowledge of international markets and 34% had to build new networks because of the advanced nature of their offering. By hiring an experienced employee, a company can also get access to market knowledge, helpful in identifying market opportunities and market entries (Chetty & Pahlberg, 2015). This can cause improvisation in the internationalisation process, yet still helps in taking advantage of temporarily arising business opportunities.

Social relationships are also perceived as an essential element of long-term success. Evidence can be found in the literature indicating a positive correlation between the existence of social relationships and sales performance (Ahearne, Gruen, & Jarvis, 1999), the creation of innovations (Walter, 1999) or customer satisfaction and commitment (Halinen, 1997). However, it cannot be taken for granted that the existence of social relationships leads to collaborative success or, alternatively, simply accompanies successful relationships based on reciprocity of value creating processes (Czakon, 2011; Movery, Oxley, & Silverman, 1998).

The institutional relationships will definitely not make up for the strong ties of mature relationships (Granovetter, 1973), but they can be particularly helpful at the initial stage of internationalisation. For instance, the role of governmental trade promotion agencies and other public institutions is to provide legitimacy and decrease the risk of business transactions being concluded between business strangers, especially in the markets of generally low contractual trust (Ibrahim & Ribbers, 2009; Welch, Welch, Young, & Wilkinson, 1998). These agencies can also support companies with market knowledge and assist them in identifying

opportunities beyond the domestic market (Evers & O'Gorman, 2009). Institutional relationships can also be developed for a longer period of time with other types of entities. For example, in emerging economies, institutional intermediaries directly controlled by local authorities, state-owned enterprises or business groups can ease or even condition market entry and successful penetration (Zhu, Hitt, & Tihanyi, 2007).

Relationship Assets and Capital

The positive effects linked to the development of business, social and institutional relationships will vary according to the business context, but cataloguing all of them in this article is not intended. Alternatively, our focus is on describing a more general, yet significant, effect, namely the creation of relationship assets. These can be defined as intangible resources, a result of continuous formal and informal interactions inducing useful knowledge and leading to the development of positive associations with the organisation, its brands and representatives, which in turn brings benefits to particular individuals and reinforces the competitive position of the company itself (Deszczyński, 2014).

This definition outlines three major issues: first, that the nature of relationship assets implies that they are created in the process of communication; second, that there are both internal and external parties involved in this process; and third, that their existence can be identified by the creation of knowledge with an economic utility value. Moreover, relationship assets emerge as an accumulated sum of experiences, trust, commitment and mutual learning processes developed during a longer period of time (Chen, Yeh, & Yeh, 2011). The sum of relationship assets at the disposal of a company can be called social, relational or relationship capital. According to the definition of relationship assets, this capital is dead unless it is used to produce an interaction and dialogue with stakeholders, thus generating knowledge for continuous improvement (Gummesson, 2004).

Although not without an extra effort, the rent on relationship capital (Return-On-Relationship – ROR) can be calculated at various levels. In dyadic relationships, it is a matter of written or unwritten preferences reflected in partner interactions (e.g. openness to communication), processes (e.g. mutual adjustments) and behaviours (e.g. preference of a consensual resolution of conflicts). In triadic systems, it is a benefit gained in a relationship with one entity based on the relationship with the other (e.g. personal referrals or corporate references). At the network level, it is favourable access to a specific resource (e.g. clusters and high-skilled workforce) or a premium thanks to achieving a superior position over a single competitor or weaker networks (e.g. a business alliance helping to achieve the status of a strategic supplier to a major customer) (Bowey & Easton, 2007).

Haber (2014, pp. 142-143) distinguishes five stages in the process of building relationship capital. The first stage refers to initial contact. A motivation for an initiation is a need to possess a particular value. That is why a transactional exchange is taking place. The second stage involves an exchange of information. This is done, however, because of a requirement rather than willingness, to do so. The next stage is becoming more personal, because people start to share their emotions. These are believed to be not just mere conversations, but a dialogue conducted in order to better understand each other. In the fourth stage, there is a place for common objectives. Moreover, whenever a conflict occurs, both sides try to reach a compromise. The last and highest stage possible to reach in the concept of building relationship capital refers to loyalty and trust. The relationship has been developed into deep empathy, where partners express their true thoughts, ideas and

concerns. Hence, the formula in such mature relationships can be a self-propelling perfect circle of discreet information access, which improves the tangible value of a business and the comfort of collaboration by establishing mutual trust, loyalty and commitment, which in turn helps to create even more value on the relationship, leading to an even more advantageous resource of information (Osterwalder, Lagha, & Pigneur, 2002).

In the course of such close cooperation, a formal, pure business relationship can turn into a personal, social relationship. In this context, Ring and Van de Ven put forward an important idea (1994). According to them, the character of social relationships is changing with the flow of time. At the beginning, relationships are more formal because of the necessity to play an organisational role, but with time formalisation is replaced with personal roles.

However, there are also opposing views. The highest level of Haber's relationship capital model refers to a specific affect-based (goodwill) trust (Hauke-Lopes, 2011; Doney & Cannon, 1997; Ganesan, 1994)). Close relationships of that kind can only be built in a process of continuous mutual assessment of behaviour upon predictability, integrity, authenticity, accessibility and moral values (Mathers, 2009, p. 35). Even a long-term business partnership may not give enough space for such intimacy. Therefore, some authors indicate that deep emotional bonds between partners have to be developed before actual business relations occur (Halinen & Salmi, 2001).

In summary, under the footing of network approach, formal business relationships are usually supplemented by social informal relationships. Companies can also take benefit of institutional relationships. In the process of internationalisation these relationships have to be developed in order to improve company's relationship capital. The higher relationship capital, the better chances to gain a favourable position over competitors. In order to accelerate this process in a foreign market, a company may seek to establish relationships with the partners who have already developed their own relationship capital and are ready to provide it, for mutual benefits.

RESULTS AND DISCUSSION

Case Studies

The following case studies are based on a sample of 30 companies interviewed during a 2016 research project (see methodology). Each case study concerns a different relationship capital borrowing situation, although some of them can be viewed in a multifaceted context. The overview of the companies featured in the case studies in presented in Table 1.

AR is a Polish ICT, hi-fi and home appliances retailer listed on the Warsaw Stock Exchange. It runs (directly and on a franchise basis) approx. 200 points of sale in Poland, and in addition it operates its own e-shop. Its current growth strategy includes several options, e.g. a vertically integrated value chain (computer accessories sold under its own label), but internationalisation is by far the most important of them. However, having gained some experience in the Czech and Slovak markets, the company decided to expand into Germany.

Although the products *AR* provides have their own internationally recognised brands, the main challenge to succeed in the German market was to cope with the liability of the distributor's foreignness in the perception of local individual customers. One way to solve this problem was to establish a subsidiary with an address in Berlin's prestigious Friedrichstrasse, but an even more important thing was the company's presence

on the Internet. *AR* used a German subsidiary of *Amazon,* the leading global online sales platform, to reach German customers without having to compensate for the perceived higher risk of conducting transactions with an unknown Polish company. As the initially marginal scope of business grew in a relatively short time, cooperation between the two parties got closer as well. *AR* was assigned a key account manager from *Amazon*, who assists the Polish company in executing specific sales mechanisms. Although *AR* maintains also its own e-commerce channel in Germany, the relationship with *Amazon* is still perceived as an important asset continuously reinforcing its market presence.

One can argue that, in the B2B market, the establishment of relations with a foreign intermediary entails the same investment of time and financial resources which are needed in the case of direct contact with a foreign customer. However, a lower risk perception and natural "mercantile" openness of such an entity makes it easier to access. Moreover, its relationship capital should be higher than that obtained in the course of cooperation with one client only because a good distributor may simultaneously maintain relations with multiple customers.

Solaris, Europe's leading bus and coach manufacturer listed on the Warsaw Stock Exchange, has successfully used domestic intermediaries on several occasions. One of its first export contracts was concluded with *BVG,* a Berlin city bus company. A decisive role in establishing the company's relationship with *BVG* was played by a mission to Berlin organised by *Wielkopolska Izba Przemysłowo-Handlowa* (*Wielkopolska Chamber of Commerce*). The Polish guests travelled there in Solaris buses, which were parked overnight at *BVG*'s depot. Only after this visit did *BVG* assign one of its partners to purchase two buses, which was followed by a contract for 260 vehicles in the succeeding year.

Similarly, *Solaris'* expansion into Israel started after talks with *UBSI* (*United Bus Services Import*), which were held on the occasion of a trade mission accompanying the Polish president during his visit to the Holy Land. This example shows that the company may need and use several sources of relationship capital in the same expansion process. *UBSI* turned out to be not only a customer for *Solaris* buses, but also a distributor and an offset partner. The negotiations with the Israeli company were also facilitated thanks to references which *Solaris* obtained from the German market. This indicates that a company can synergise different contacts in accumulating critical mass of relationship capital needed to enter a new market.

ZB is a small company which designs, manufactures and implements robotic lines and cells for automotive production. In this industry, the value creation chain is extremely complex. For instance, Original Equipment Manufacturer (OEM) companies such as *Volkswagen* or *Ford* have established a network of Tier 1 suppliers which provide a bundle offer of significant modules and services. Smaller entities, such as *ZB*, do not cooperate with OEMs directly. Still, even Tier 1 suppliers are big entities which are hard to approach, especially by companies with a neutral or negative perception of the country of origin (Bilkey & Nes, 1982).

In order to establish direct export relations in the German market, *ZB* used its contacts with the Polish subsidiaries of Tier 1 suppliers. Formal references and informal referrals enabled the company to reach key decision makers, who usually represent procurement, technical or planning departments. However, the enjoyment of borrowed relationship capital in such a hierarchical environment by an out-of-network company only allows it to overcome communication indifference but does not guarantee immediate

sales. *ZB* had to spend a longer time on a bench of potential suppliers and invest a lot of work in planning and quotation before it got its first contract.

Table 1. List of the companies featured in the case studies

*No.**	Company name**	Company focus & Industry	Main internat. markets	Internat. expansion since	Market featured in the case study	Expansion in the featured market since
1	Company AR	retailer hifi & home appliances	Czech Republic, Germany, Slovakia	2010	Germany	2012
2	Solaris	manufacturer buses, coaches, & trams	European Union	1996	Israel	2012
3	Company ZB	manufacturer robotic lines and cells for automotive industry	Europe	2012	Germany	2015
4	Company Y	manufacturer paperboard products	European Union	2007	Germany	2007
5	Apator Powogaz	manufacturer electromechanical meters	European Union and Non-EU European states	1994	Czech Republic	2013
6	Company N	manufacturer brackets for sanitary & heating systems	Czech Rep., Germany, Latvia, Lithuania, Romania, Slovakia, Ukraine	2006	Czech Republic	2010
7	Company P	Service provider IT systems development	Global	2007	USA	2007

** In order of appearance in the text; ** Some companies wished to stay anonymous*
Source: own study.

Y is a medium-sized company, a leading manufacturer of paperboard products in Poland. As a subsidiary of an almost hundred-year-old German company, *Y* was able to use its owner's network in the demanding markets of Germany but also France, Great Britain and the Netherlands. The Polish subsidiary benefited from its parent company's relationship capital in two ways. First, it used the parent's market intelligence and relations with existing customers to win orders for more labour-intensive products, which the Polish company specialises in. The second way is its own prospecting activities in the German market benefiting from the image of credibility given by the headquarters. To strengthen the proximity to German customers, the prospecting activities are still performed by the native sales force employed by one of *Y*'s subsidiaries.

One of possible ways to get access to relationship capital in a foreign market is to acquire it with a whole company. *Apator Powogaz* is a metering company, a subsidiary of *Apator Group,* which is a reputable supplier of electromechanical products listed on the Warsaw Stock Exchange. Thanks to a relative freedom granted by its parent company, *Apator Powogaz* started to search for small but innovative competitors. The plan was to buy them and quickly get access to promising technologies instead of investing a great deal of time and devoting a considerable financial effort to develop them autonomously. One of the investments made was the Czech heat meter manufacturer *Metra*. This purchase enabled *Apator Powogaz* not only to extend its product portfolio, but also to get a leading position in an

important market. In order to fully exploit the innovative potential of its acquisition and preserve its relationship capital, the new company, *Apator Metra*, was given a lot of autonomy, including the possibility of undertaking its own foreign expansion. Thanks to an almost seamless takeover process, most of the management and line employees stayed with the company, causing no disruption to its relations with customers.

Another Polish company operating in the heating industry has gained its own experience in the Czech market. *N*, a small manufacturer of brackets for radiators, did not have sufficient resources for direct foreign investment although it had an alternative asset: direct access to a potential customer. *N* capitalised on a close relationship between its owner and the sales director of a major radiator manufacturer. This individual insider helped to answer some basic relational questions, such as: "Who are the customers?", "What do they want?", and "When is the best moment to approach them?" (Deszczyński, 2016, pp. 82-83). In this particular case, the main brackets supplier was a huge international company which perceived the Czech Republic as a peripheral market. Therefore, *N*'s offer addressed the need for customisation, flexibility, a good product/price ratio and communication, hitting precisely the soft spot of the competitor.

The relationship between the owner of the Polish exporter and the sales director of the Czech company was based simultaneously on all the important levels of trust: institutional, cognitive and affectionate (Sako, 1992). As it had existed before the actual business occurred, *N* did not wait long for its first contract. Moreover, the relationship capital provided by the individual insider helped not just to sell to his company. Soon, other customers (such as installation wholesalers) followed, even without waiting for direct supplies but buying back brackets from the first customer instead. Today, almost every radiator in the Czech Republic is mounted on brackets from Poland.

The case of *N* seems to be unique in terms of possible repeatability. The chance to establish such a close relationship with the right person at the right time is scarce. However, in the course of our research we discovered an alternative way of accessing relationship capital based on personal referrals.

P is a typical small born global company operating in the ICT services industry. After the incubation time, when the company had only local customers, it expanded into international markets (USA, Australia, New Zealand). This process was definitely spontaneous and reactive because it was solely based on customer enquiries.

Usually, a company's recognisability on the Internet poses a major problem. However, the IT world, especially in the field of R&D, is characterised by a dense network of connections, so the quality verification of a product is prompt and easy (Hanaki, Nakajima, & Ogura, 2010). Various communicators, specific online forums, chat groups and other means of communication provide a platform for informal dialogue. The commonness of crowd-sourcing and open-innovation provides an opportunity not only to exchange technical knowledge but also to make a good name for oneself and become a point of reference in a specific product range or technology (Fried, 2010). Therefore, the relative hermeticism of the IT language makes it easy to be found and to find peers all over the globe.

P enjoys the benefits of personal referrals which often turn into formal references. The company believes that even a single reference in a particular market sector can be an effective bridgehead to customers who need the same technology. Nonetheless, most of the projects started informally and are based on capital originating from individual online relationships.

The Typology of Relationship Capital Mediating Agents

Although the case studies presented above feature entities varying in terms of size, industry and experience, they all have one thing in common: in order to accelerate their international expansion, they harness the help of mediating agents, who already possess the relationship capital needed to activate relationships with target customers. In this perspective, the process of borrowing relationship capital can be perceived as seeking to improve own imperfect assets or to create new capabilities faster and at a lower cost than by acting alone, thereby achieving competitive advantage (Czakon, 2011). Table 2 summarises the case studies and matches the companies with the types of the relationship mediating agents they used. Table 3 presents a typology of these agents based on the types of relationship they offer.

Table 2. List of the companies, the relationship capital mediating agents and their main role in the internationalisation process

No.*	Company name**	Type of relationship mediating agent	The main role of the agent
1	Company AR	Foreign intermediary	Overcoming the liability of foreignness towards the end-customers
2	Solaris	Domestic intermediary; Foreign intermediary	Providing general risk reduction on the institutional level Overcoming the formal barriers of expansion and sales agency in a hermetic market
3	Company ZB	Corporate reference / Personal referral	Overcoming the barriers for communication with the decision makers on an operational level
4	Company Y	Existing international corporate network	Overcoming the liability of outsidership and the barriers for communication with the decision makers on an operational level
5	Apator Powogaz	Own network expansion	Directly seizing the sales network
6	Company N	Individual insider	Overcoming the barriers for communication with the key decision makers (directly accessing customers)
7	Company P	Personal referral	Overcoming the barriers for communication with the decision makers on various levels (directly accessing customers or enjoying proactive introductions)

** In order of appearance in the text ** Some companies wished to stay anonymous*
Source: own study.

An individual insider and own-network expansion seem to be the most powerful relationship capital mediating agents. The former can be a particular decision maker representing the customer in relations with the supplier (internal subtype). This situation was clearly depicted in the *N* case. Alternatively, a similar role could be played by a former employee of a target customer or a direct competitor of the expanding company (external subtype). As relationship capital can be attributed to a single person, personal relations with a non-commercial record, open communication channels and on-the-job experience can catapult the relationship straight away to an elevated level (Decker, 2016, pp. 56-58).

The same effect can occur as a result of a takeover of a reputable foreign competitor. However, the success of this manoeuvre, as showcased but not limited to the example of *Apator Metra* (Gammelgaard, 2015, pp. 109-113), depends on intentional efforts not only to seize a new technology, but also to preserve the relationship capital of the smaller partner rooted in its people, processes and structures. As such tacit knowledge is not transferable separately from its context, mass employee departures would significantly burden this process (Łobacz, Głodek, Stawasz, & Niedzielski, 2016).

Table 3. A typology of relationship capital mediating agents

Relationship capital mediating agent	Relationship types						
	social	institutional	business	informal	formal	internal	external
individual insider	•			•		•	•
personal referral	•			•			•
domestic intermediary		•			•		•
corporate reference			•		•		•
foreign intermediary			•		•		•
existing international corporate network			•		•	•	
own network expansion			•		•	•	

Source: own study.

The existence of a strong corporate network is also of great help in international expansion, as demonstrated by the example of *Y*. Years of experience and good understanding of target or similar markets (know-how and know-who) disguised with a better country-of-origin perception can offer the comfortable position of a non-stranger even to a young company.

A non-stranger identity can also be borrowed from foreign intermediaries, such as distributing companies. The business concept of these companies is based on a mercantile principle. They specialise in connecting producers with retail chains or end consumers. In the context of relationship capital, the added value they bring to such a network includes facilitating the establishment of relations, providing useful market information and lowering transaction risk for both sides by supplementing new partners' credibility (Madsen, 2014, pp. 132-144). For smaller exporting entities both in services and manufacturing industries, intermediaries acting as informants, integrators and coordinators may be the only way to reach customers whose operations are too big to be open to establishing direct business relations (Costa, Soares, & de Sousa, 2015, p. 398). Moreover, as in the case of *AR*, local distributors can provide a domestic identity for an exporting partner's offer, which mitigates the liability of foreignness not just within the business network, but also in end-consumer relations in the B2C market.

Examples of institutional equivalents of foreign intermediaries include governmental trade promoting agencies. Such domestic intermediaries may not have direct access to all companies across all industries, although they can establish a formal platform of dialogue, which mitigates the initial wariness of potential partners, as was in the case of *Solaris*'s expansion into the German and Israeli markets. The relationship capital that can be obtained thanks to domestic intermediaries is not particularly high and varies greatly across

firms' home countries (Marano, Arregle, Hitt, Spadafora, & van Essen, 2016, p. 1075). It seems to reinforce mainly the establishment of the initial level of contractual trust (Fonfara, Deszczyński, & Dymitrowski, 2016; Nielsen, 2004). Still, relatively insignificant investment of time and financial resources makes this strategy a safe option.

Even if they differ in the degree of formality, corporate references and personal referrals apply similar mechanisms in helping to break the barriers of indifference or high risk perception between the supplier and the target customer. This credit may be insufficient in formal circumstances of a dispersed and atomised large network (as in the case of *ZB*). Smaller group structures tend to better facilitate strategic and economic outcomes for their members (Chen & Jaw, 2014, p. 1019). In the case of *P* and other high-tech industry born global companies, rapid internationalisation necessitates the exploitation of temporary network nodes and specialised fora (Smith, Ryan, & Evers, 2015, p. 297). At least in this industry, less formal environment can directly lead to sales leapfrogging of most of the steps occurring in traditional procurement processes. Nonetheless, both references and referrals can significantly shorten the period of knocking on the customer's door, which makes them a reasonable alternative at any possible time.

CONCLUSIONS

The discussion of business relationships and their impact on internationalisation conducted in this paper is by no means exhaustive. We believe, however, that establishing a bridge between internationalisation and relationship management is an important task in the field of management science. The phenomenon of relationship capital mediating agents conceptualised in the paper supports the network approach to internationalisation. Their existence confirms the need of the companies for relationship assets (Proposition 1), which can be used in the process of overcoming the liability of outsidership when entering a new market – as stated in Proposition 2. This, in turn, explains why entities with a dense network of connections tend to be more successful than single players who cannot "borrow" vital assets from their partners, including relationship assets. This vividly shows that unlike in the B2C sector, in the B2B sector the activities to conclude even the first transaction are based on the principles of the relationship approach. Hence, it may be a strong recommendation for managers to treat their employees as partners because their ability to demonstrate the same attitude in the dialogue outside the company is a crucial success factor (Deszczyński, 2016b, p. 7). The typology of relationship capital mediating agents can also supplement the traditional product or legal analysis as a part of managerial decision making process on international expansion.

Referring back to the third Proposition, we indicate that in the specific context of a given industry and a type of a company, some of the relationship capital mediating agents can be more helpful than others. E.g. personal referrals in the process of rapid internationalisation of born global companies can directly open sales opportunities, while the intermediation of a state agency is usually supportive in establishing the first level of institutional trust only. Further on in the course of our research we found that social types of relationships are particularly effective in reaching the goal of expansion, although their occurrence was an option rather than a necessity. The continuing formality of relationships, even in the case of longer-term business cooperation, indicates that the issue of

human preferences is far more complicated than just being a matter of on-the-job contacts. On the other hand, a practical approach to communication accessibility, e.g. the use of informal contact channels, coincides with the duration of cooperation, although it cannot be confused with social relationships. Alternatively, it should be distinguished as a necessary but insufficient component indicating a close personal relationship. Hence, making friends with the right corporate insider may be a matter of luck, but ensuring the easiness and accessibility of contact is a first-line managerial responsibility.

The conclusions drawn upon this study are of a preliminary character, mainly due to a relatively small number of the case studies presented. In consequence, the basic limitations of our research are linked with the geographic and industrial concentration of the investigated companies (mainly manufacturers operating in Central Europe). Therefore, we intend to extend the number of case studies in the future research, to cover more industries from a broader geographical area. By doing so, we hope to get a more representative overview in search of possible alternative forms of relationship capital mediating agents and a further confirmation of those defined already. Future research could also examine extensively the impact of particular relationship capital mediating agents from a more distant time perspective, after the company has entered the foreign market. In particular, an interesting direction of future research could be an attempt to assign a specific type of agent to different stages of the internationalisation process. It would enable the identification of activities a company has to undertake in a relationship context in order to build competitive advantage in an international environment.

REFERENCES

Ahearne, M., Gruen, T.W., & Jarvis, Ch.B. (1999). If looks could sell: Moderation and mediation of the attractiveness effect on salesperson performance. *International Journal of Research in Marketing*, 16(4), 269-284. http://dx.doi.org/10.1016/S0167-8116(99)00014-2

Andersen, O. (1993). On the internationalization process of firms: A critical analysis. *Journal of International Business Studies*, 24(2), 209-231.

Anderson, J., Håkansson, H., & Johanson, J. (1994). Dyadic Business Relationships within a Business Network Context. *Journal of Marketing,* 58(4), 1-15. DOI: 10.2307/1251912

Baum, J.A.C., Shipilov, A.V., & Rowley, T.J. (2003). Where do small worlds come from?. *Ind. Corp. Chang.*, 12(4), 697-725.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.

Bilkey, W., & Nes, E. (1982). Country-of-Origin Effects on Product Evaluations. *Journal of International Business Studies*, 13(1), 89-100. DOI: 10.1057/palgrave.jibs.8490539

Blankenburg-Holm, D., & Eriksson, K. (2000). The character of bridgehead relationships. *International Business Review*, 9(2), 191-210.

Bowey, J.L., & Easton, G. (2007). Net social capital processes. *Journal of Business & Industrial Marketing*, 22(3), 171-177. DOI: 10.1108/08858620710741878

Chen, Y.Y., & Jaw, Y.L. (2014). How do business groups' small world networks effect diversification, innovation, and internationalization?. *Asia Pacific Journal of Management*, 31(4), 1019-1044. https://doi.org/10.1007/s10490-014-9385-9

Chen, T.-Y., Yeh, T.-L., & Yeh, H-Ch. (2011). Trust-Building Mechanisms and Relationship Capital. *Journal of Relationship Marketing*, 10(3), 113-144. DOI: 10.1080/15332667.2011.596471

Chetty, S., & Blankenburg-Holm, D. (2000). The role of business networks in the internationalisation of manufacturing firms: a longitudinal case study. *Advances in International Marketing*, 205-222.

Chetty, S., & Pahlberg, C. (2015). Networks and social capital. An internationalizing entrepreneurial firm's network is its network. In S.A. Fernhaber & S. Prashantham (Eds.), *The Routledge Companion to International Entrepreneurship*. London: Routledge.

Cooper, M.C., & Gardner, J.T. (1993). Building Good Business Relationships: More than Just Partnering or Strategic Alliances?. *International Journal of Physical Distribution & Logistics Management*, 23(6), 14-26. DOI: 10.1108/09600039310044876

Costa, E., Soares, A.L., & de Sousa, J.P. (2015). A new insight in the SMEs internationalization process. In L.M. Camarinha-Matos, F. Bénaben & W. Picard (Eds.), *Proceedings 16th IFIP WG 5.5 Working Conference on Virtual Enterprises*. Heidelberg: Springer.

Czakon, W. (2011). Paradygmat sieciowy w naukach o zarządzaniu. *Przegląd Organizacji*, 11, 3-8.

Danik, L., Duliniec, E., & Kowalik, I. (2016). The Polish born global firms: founding processes and motives of early internationalisation. *Transformation in Business & Economics*, 15(2), 111-131.

Danik, L., & Kowalik, I. (2013). The studies on Born Global Companies – A review of Research Methods. *Journal of Economics & Management,* 13, 9-26.

Daszkiewicz, N., & Wach, K. (2012). *Internationalization of SMEs: Context, Models and Implementation*. Gdańsk: Gdańsk University of Technology Publishers.

Decker, A. (2016). Levels of Social Capital in Internationalization: A View on Smaller Firms and Entrepreneurs. In J. Kuada (Ed.), *Perspectives on International Business.* London: Adonis & Abbey Publishers.

Deszczyński, B. (2016). The Maturity of Corporate Relationship Management. *Gospodarka Narodowa*, 3, 283.

Deszczyński, B. (2016). The Impact of Opportunity Management on the Relationship Business Model (A Study in the Polish Housing Industry). *Journal of Eastern European and Central Asian Research* (JEECAR), 3(2).

Deszczyński, B. (2014). Zasoby relacyjne-konceptualizacja pojęcia w świetle zasobowej teorii przedsiębiorstwa. *Studia Oeconomica Posnaniensia*, 2(11), 25-44.

Dunning, J.H. (2006). Towards a new paradigm of development: implications for the determinants of international business. *Transnational Corporations*, 15(1), 173-227.

Dunning, J.H. (1980). Toward an Eclectic Theory of International Production: Some Empirical Tests. *Journal of International Business Studies*, 1(1), 9-31. Retrieved on August 28, 2017 from www.jstor.org/stable/154142.

Dymitrowski, A. (2014). *The Role of Innovations Created in the Internationalization Process for Company Performance*. Warszawa: PWN.

Dymitrowski, A., Małys, Ł., & Ratajczak-Mrozek, M. (2012). Forms of internationalisation and company performance (research results). *Modern World Economy. Micro-and Macroeconomic Issues.* Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Easton, G. (2010). Critical realism in case study research. *Industrial Marketing Management*, 39(1), 118-128.

Evers, N., & O'Gorman, C. (2011). Improvised internationalization in new ventures: The role of prior knowledge and networks. *Entrepreneurship & Regional Development,* 23(7-8), 549-574. http://dx.doi.org/10.1080/08985621003690299

Fonfara, K. (2014). Współczesne procesy internacjonalizacji firmy. In K. Fonfara (Ed.), *Marketing międzynarodowy: współczesne trendy i praktyka* (pp. 39-67). Warszawa: PWN.

Fonfara, K. (2012). The role of business networks in the company internationalization process. In K. Fonfara (Ed.), *The Development Of Business Networks In The Company Internationalization Process.* Poznań: Poznań University of Economics Press.

Fonfara, K., Deszczyński, B., & Dymitrowski, A. (2016). Informal Relationships in the Company Internationalization Process – Concept and Empirical Evidence. *32nd Annual IMP Conference: Change and Transformation of Markets, Networks and Relationships*. Poznań, Poland.

Fonfara, K., & Szczepański, R. (2010). Różnorodność relacji w procesie internacjonalizacji firmy. *Marketing i Rynek*, 1, 2-7.

Forsgren, M., & Johanson, J. (1992). Managing Internationalization in Business Networks. In M. Forsgren & J. Johanson (Eds.), *Managing Networks in International Business* (pp. 1-16). Philadelphia: Gordon and Breach.

Fried, D. (2010). Crowdsourcing in the software development industry. *Nexus of Entrepreneurship and Technology Initiative Fall*.

Friman, M., Gärling, T., Millett, B., Mattsson, J., & Johnston, R. (2002). An analysis of international business-to-business relationships based on the Commitment-Trust theory. *Industrial Marketing Management*, 31(5), 403-409.

Gammelgaard, J. (2015). Case study I Internationalization of brewery companies. In P.J. Buckley & P.N. Ghauri (Eds.), *International Business Strategy: Theory and Practice* (pp. 109-113). London: Routledge.

Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationship. *Journal of Marketing*, 58, 1-19.

Gorostidi-Martinez, H., & Zhao, X. (2017). Strategies to avoid liability of foreignness when entering a new market. *Journal of Advances in Management Research*, 14(1), 46-68. DOI: 10.1108/jamr-09-2016-0067

Gulati, R., & Gargiulo, M. (1999). Where do interorganizational networks come from?. *The American Journal of Sociology*, 104(5), 1439-1493.

Gummesson, E. (2017). From relationship marketing to total relationship marketing and beyond. *Journal of Services Marketing*, 31(1), http://dx.doi.org/10.1108/JSM-11-2016-0398

Gummesson, E. (2004). Return on relationships (ROR): the value of relationship marketing and CRM in business-to-business contexts. *Journal of Business & Industrial Marketing*, 19(2), 136-148. DOI: 10.1108/08858620410524016

Granovetter, M. (1973). The Strength of Weak Ties. *The American Journal of Sociology*, 78(6), 1360-1380.

Halinen, A., & Salmi, A. (2001*). Managing the informal side of business interaction: Personal contacts in the critical phases of business relationships*. Paper presented at the 17th IMP conference, Oslo, Norway.

Halinen, A. (1997). *Relationship Marketing in Professional Services. A study of agency-client dynamics in the advertising sector.* London: Routledge.

Hanaki, N., Nakajima R., & Ogura, Y. (2010). The dynamics of R&D network in the IT industry. *Research Policy*, 39(3), 386-399. http://dx.doi.org/10.1016/j.respol.2010.01.001

Hauke-Lopes, A. (2011). Współpraca przedsiębiorstw w strategicznej sieci biznesowej działającej na rynku zagranicznym. Determinanty sukcesu. In B. Stępień (Ed.), *Współpraca i strategie marketingowe przedsiębiorstw na arenie międzynarodowej* (pp. 29-38). Zeszyty Naukowe, 198, Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Havila, V., Johanson, J., & Thilenius, P. (2004). International business relationship triads. *International Marketing Review*, 21(2), 172-186. DOI: 10.1108/02651330410531385

Hennart, J.-F. (2014), The Accidental Internationalists: A Theory of Born Globals. *Entrepreneurship Theory and Practice*, 38, 117-135. DOI: 10.1111/etap.12076

Ibrahim, M., & Ribbers, P.M. (2009). The impacts of competence-trust and openness-trust on interorganizational systems. *European Journal of Information Systems,* 18(3), 223-234.

Johanson, J., & Mattsson L.-G. (1988). Internationalization in industrial systems - a network approach. In N. Hood & J-E. Vahlne (Eds.), *Strategies in Global Competition* (pp. 303-321). New York: Croom Helm.

Johanson, J., & Mattsson, L.-G. (1993). Internationalization in Industrial Systems – A Network Approach. In P. Ghauri (Ed.), *The Internationalization of the Firm: A Reader* (pp. 303-321). London: Academic Press.

Johanson, J., & Vahlne, J.E. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies*, 40(9), 1411-1431.

Johanson, J., & Vahlne, J.E. (2003). Business relationship learning and commitment in the internationalization process. *Journal of International Entrepreneurship*, 1(1), 83-101.

Johanson, J., & Vahlne, J.E. (1977). The internationalization process of the firm – a model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, 8(1), 23-32.

Johanson, M., & Kao, P. (2012). Network and internationalization. A review of more than 20 years of research. *Proceedings of the 28th IMP-conference*, Rome, Italy. Retrieved on August 28, 2017 from https://www.impgroup.org/uploads/papers/7927.pdf

Laghzaoui, S. (2011). SMEs' internationalization: an analysis with the concept of resources and competencies. *Journal of Innovation Economics & Management*, 7(1), 181-196. DOI: 10.3917/jie.007.0181

Loane, S., & Bell, J. (2006). Rapid internationalisation among entrepreneurial firms in Australia, Canada, Ireland and New Zealand: An extension to the network approach. *International Marketing Review*, 23(5), 467-485.

López-Cózar-Navarro, C., Benito-Hernández, S., & Platero-Jaime, M. (2017). The influence of cooperative relations on geographical expansion and diversification strategies in family firms. *International Business Review*, 26(4), 764-773. ISSN 0969-5931, http://dx.doi.org/10.1016/j.ibusrev.2017.01.005

Łobacz, K., Głodek, P., Stawasz, E., & Niedzielski, P. (2016). Utilisation of Business Advice in Small Innovative Firms: the Role of Trust and Tacit Knowledge. *Entrepreneurial Business and Economics Review*, 4(2), 117-138. DOI: http://dx.doi.org/10.15678/EBER.2016.040210

Madsen, T.K. (2014). 5 Internationalization processes of professional service firms. In C.C. Julian (Ed.), *Research Handbook on Export Marketing* (pp. 132-144). Cheltenham: Edward Elgar Publishing.

Małys, Ł. (2013). *Siła powiązań sieciowych w procesie internacjonalizacji a wyniki przedsiębiorstwa*. Warszawa: Difin.

Marano, V., Arregle, J.L., Hitt, M.A., Spadafora, E., & van Essen, M. (2016). Home country institutions and the internationalization-performance relationship: A meta-analytic review. *Journal of Management*, 42(5), 1075-1110.

Möller, K.K., & Halinen, A. (1999). Business Relationships and Networks: Managerial Challenge of Network Era. *Industrial Marketing Management,* 28(5), 413-427. http://dx.doi.org/10.1016/S0019-8501(99)00086-3

Nielsen, B.B. (2004). The Role of Trust in Collaborative Relationships: A Multi-Dimensional Approach. *M@n@gement*, 7(3), 239-256.

Onetti, A., Zucchella, A., Jones, M.V., & McDougall-Covin, P.P. (2012). Internationalization, innovation and entrepreneurship: business models for new technology-based firms. *Journal of Management & Governance*, 16(3), 337-368.

Osterwalder, A., Lagha, S.B., & Pigneur, Y. (2002). An ontology for developing e-business models. *IFIP DsiAge*.

Payne, A., & Frow, P. (2017). Relationship marketing: looking backwards towards the future. *Journal of Services Marketing,* 31(1), 1-8. http://dx.doi.org/10.1108/JSM-11-2016-0380

Piekkari, R., & Welch, C. (2006). Reflections on using qualitative research methods. *Liiketaloudellinen Aikakauskirja*, 4(06), 565-574.

Reid, S. (1983). Firm internationalization, transaction costs and strategic choice. *International Marketing Review*, 1(2), 44-56. http://dx.doi.org/10.1108/eb008251

Ring, P.S., & Van de Ven, A.H. (1994). Developmental Processes of Cooperative Interorganizational Relationships. *Academy of Management Review*, 19(1), 90-118.

Sako, M. (1992). *Prices, Quality and Trust, Inter-firm Relations in Britain & Japan*. Cambridge: Cambridge University Press.

Shirashi, N., & Iijima, J. (2009). Inter-Firm Relationships in the Telecommunications Industry: Characteristics and Typology. *Contemporary Management Research*, 5(4), 369-386.

Smith, A., Ryan, P.A., & Evers, N. (2015). Inside born globals' international network: a microscopic study of the Irish digital animation sector. In J. Larimo, N. Nummela & T. Mainela (Eds.), *Handbook on International Alliance and Network Research*. Cheltenham: Edward Elgar Publishing.

Trąpczyński, P., Jankowska, B., Dzikowska, M., & Gorynia, M. (2016). Identification of Linkages between the Competitive Potential and Competitive Position of SMEs Related to their Internationalization Patterns Shortly after the Economic Crisis. *Entrepreneurial Business and Economics Review*, 4(4), 29-50. DOI: http://dx.doi.org/10.15678/EBER.2016.040403

Wach, K. (2015). Incremental versus Rapid Internationalisation of Firms: Results of Exploratory Investigation from Poland. *Entrepreneurial Business and Economics Review*, 3(4), 37-48. DOI: 10.15678/EBER.2015.030403

Walter, A. (1999). Relationship Promoters: Driving Forces for Successful Customer Relationships. *Industrial Marketing Management*, 28(5), 537-551.

Welch, D.E., Welch, L.S., Young, L.C., & Wilkinson, I.F. (1998). The importance of networks in export promotion: policy issues. *Journal of International Marketing*, 6(4), 66-82. Retrieved on August 28, 2017 from http://www.jstor.org/stable/25048753

Yoshino, M.Y., & Rangan, U.S. (1995). *Strategic alliances: An entrepreneurial approach to globalization*. Harvard: Harvard Business School Press.

Zhu, H., Hitt, M.A., & Tihanyi, L. (2007). The internationalization of SMEs in emerging economies: institutional embeddedness and absorptive capacities. *Journal of Small Business Strategy,* 17(2), 1-26.

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Authors

Contribution share of authors is following: Bartosz Deszczyński 60%, Krzysztof Fonfara 25%, Adam Dymitrowski 15%.

Bartosz Deszczyński

Assistant Professor of Poznan University of Economics and Business (PUE) in the Department of International Marketing. Author of 30 publications in the field of relationship management, Lecturer and Marketing module Leader in PUE MBA programme, Plenipotentiary of the Rector for cooperation on didactics with business practice (open lectures), Plenipotentiary of the Dean of International Business and Economics Faculty for student trainee programmes. Leader of a Polish National Centre of Science funded research project: "The maturity of corporate relationship management and competitiveness". Research areas: relationship management, Resource Based View (RBV).

Correspondence to: Dr Bartosz Deszczyński, Uniwersytet Ekonomiczny w Poznaniu, Katedra Marketingu Międzynarodowego, al. Niepodległości 10, 61-875 Poznań, Polska, e-mail: bartosz.deszczynski@ue.poznan.pl

Krzysztof Fonfara

Full professor, head of Department of International Marketing at the Poznań University of Economics and Business, Poland. Member of the Editorial Committee and Reviewer of Industrial Marketing Management, Member of the Industrial Marketing and Purchasing Group (IMP). Research interests span issues of internationalisation process (network approach), B2B marketing and relationship marketing. Author of over 170 papers and 6 books. His work was published among others in International Marketing Review, European Journal of Marketing, International Journal of Research in Marketing, Marketing Management, Industrial Marketing Management.

Correspondence to: Prof. Krzysztof Fonfara, Uniwersytet Ekonomiczny w Poznaniu, Katedra Marketingu Międzynarodowego, al. Niepodległości 10, 61-875 Poznań, Polska, e-mail: krzysztof.fonfara@ue.poznan.pl

Adam Dymitrowski

Assistant Professor of Poznan University of Economics and Business in the Department of International Marketing at Poznan University of Economics. He is an author of many publications in the field of international marketing, innovation and the internationalization process. He has been the leader and participant of a number of research projects and was expert for business and government administrative units, concerning innovation, inter-company cooperation and the creation of relationships and business networks. Research areas: business model innovation, innovation, internationalization, international marketing, B2B marketing.

Correspondence to: Dr Adam Dymitrowski, Poznań University of Economics Department of International Marketing, al. Niepodległości 10, 61-875 Poznań, Poland, e-mail: adam.dymitrowski@ue.poznan.pl

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International Competitiveness and the Fourth Industrial Revolution

Chen Liu

ABSTRACT

Objective: The objective of this article is to review the definitions, theories, and drivers of international competitiveness, examine how the Fourth Industrial Revolution (4IR) impacts the competitiveness framework, and build an ecosystematic model of competitiveness in the 4IR.

Research Design & Methods: The analytical work makes reference to the existing literature on international competitiveness, following a SALSA (Search, AppraisaL, Synthesis, and Analysis) approach. The development of competitiveness theories and determinants are examined.

Findings: International competitiveness theories at country, industry, and firm levels, and its macroeconomic and microeconomic determinants are closely related, calling for a systematic approach in a competitiveness study. As a result, this article models competitiveness in the new era of the 4IR using an ecosystematic approach. Policy and managerial implications of the model are discussed following an integrated method.

Implications & Recommendations: Innovation, technological advancement, and relevant policies should be examined and understood in an ecosystematic approach. Future studies should theoretically model different components of the 4IR into the competitiveness framework and empirically examine the impact of 4IR to competitiveness from various aspects.

Contribution & Value Added: This article emphasizes the role of growing reliance on technology. It helps policymakers to re-evaluate national competitiveness by examining a nation's involvement and response to 4IR and how 4IR may potentially impact productivity and prosperity of a nation. It also deepens our understanding on firm level competitiveness in the age of 4IR and suggests future research direction.

Article type:	conceptual paper
Keywords:	competitiveness; fourth industrial revolution; innovation; diamond model; ecosystematic approach; firm strategy
JEL codes:	B27, F40, O30

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INTRODUCTION

International competitiveness is a key topic of interest to policymakers, managers, and academics. Policymakers consider competitiveness to be essential to the success of a nation and therefore a central objective of national policies for the economic growth and prosperity of its citizens. Managers use the competitiveness framework to examine the business environment in order to develop and sustain their own firm level competitiveness. Academics in the disciplines of economics and management have extensively studied competitiveness but have yet come to an agreement on the definitions, theories, and drivers of competitiveness (Delgado, Ketels, Porter, & Stern, 2012). With the increased degree of globalisation which changes the role of nations in the competitiveness framework and business competition that has become fiercer both nationally and internationally (Chikan, 2008), we need to develop better understanding on international competitiveness at national, cluster, and firm levels.

Another reason that calls for the revision of the theories and determinants of competitiveness is the recent technological revolution (e.g. artificial intelligence, robotics) and the emergence of new business models (e.g. the Internet of things, the sharing economy) that significantly change ways of doing business and therefore our understanding of competitiveness. Schwab (2015) refers to these developments as the Fourth Industrial Revolution (4IR) and describes it as "a range of new technologies that are fusing the physical, digital and biological worlds, and impacting all disciplines, economies and industries" (Schwab, 2015). Based on Schwab (2015, 2016), the key drivers of the 4IR are the "emerging technology breakthroughs" in a number of fields, including artificial intelligence (AI), the Internet of Things, big data, robotics, autonomous vehicles, 3D printing, nanotechnology, biotechnology, and materials science. The U.S. Council on Competitiveness also calls for incorporating elements of the 4IR in the competitiveness framework by stating that "today's competition is a race to see who will innovate and develop key technologies in artificial intelligence, The Internet of Things and 3D printing, to name a few".

The goal of this article is to review the definitions, theories, and drivers of international competitiveness and to build a new competitiveness framework under the 4IR, with a focus on the role of innovation, adaptable factors of productions, shifting demand conditions, new business relationship, and proactive public policies and business strategies. To achieve the objective, the analytical work in this article makes reference to the existing literature on competitiveness and draws on recent studies on the 4IR. Then a new framework of competitiveness under the 4IR is recommended, using an ecosystematic approach.

This article contributes to our understanding of competitiveness at various levels (i.e., national, cluster, and firm levels), as it emphasizes the role of the growing reliance on technology. It will helps policymakers to re-evaluate national competitiveness by examining a nation's involvement and response to the 4IR and how the 4IR could potentially impact productivity and prosperity of a nation. It will also deepen managers' understanding on how to sustain and proactively build firm level competitiveness by keeping up with and taking advantage of the new developments of the 4IR.

The rest of the article proceeds as following: the first section presents step-by-step methodology in selecting previous studies to be included in the review. The second section conducts an intensive review of literature on competitiveness and develops an ecosystematic model of competitiveness under the 4IR. The third section further discusses the model

by summarising how the 4IR impacts our understanding of the definitions and theories of international competitiveness and suggesting how governments, business, and societies should proactively respond to the 4IR in an ecosystematic approach. The fourth section discusses areas of future research, after which the article concludes.

MATERIAL AND METHODS

The goal of this article is to understand and conceptualise competitiveness in the new era of the 4IR. In order to achieve this goal and to operationalise this project, a thorough literature study is conducted. Therefore, the main research method used is systematic literature review.

According to Babbie (2012), in order to obtain the most valuable cognitive effects of the research process, we need to identify a procedure following pre-determined steps. This article follows the SALSA approach (Search, AppraisaL, Synthesis, and Analysis) discussed in Booth, Sutton and Papaioannou (2016). Table 1 discusses the SALSA approach and steps in detail.

Table 1. Methodological process of this literature review following the SALSA approach

SALSA approach & steps	Steps & details in this article
1. Search - finalise research topic, - identify key words, - preliminary literature searches, - full literature searches and reference management, - selection of articles, - obtain articles.	- topic: Competitiveness and the 4IR, - key words "competitiveness", "comparative advantage", "competitive advantage", "productivity", "diamond model", and "cluster", - preliminary and full literature searches conducted through EBSCO, ProQuest, Web of Science, Google Scholar, SSRN, - additional studies on the 4IR selected, - download and obtain all articles.
2. AppraisaL - quality assessment.	- conduct citation analysis on all obtained articles, - review literature and further screen articles, - review full text, - compile a finalised pool of studies for this project.
3. Synthesis - integrating previous studies.	- categorize articles into definitions, theories, and determinants of competitiveness, - based on the above, categorise articles further into different strands of competitiveness literature, - identify connections, contradictions, and gaps in the competitiveness literature.
4. Analysis - analysis & conclusion.	- discuss the 4IR based on the reviewed literature, - formulate an ecosystematic model, discuss its applications and implications, and suggest future work.

Source: own study based on Booth *et al*. (2016).

With the goal of providing a comprehensive overview of competitiveness research, the article tries to identify all relevant studies on the subject in the first step of the SALSA. The literature review started from peer-reviewed journal articles, books, and book chapters from EBSCO, ProQuest, Web of Science, and Google Scholar. The author also searched on SSRN for highly cited working articles. Primary key words included "competitiveness", "comparative advantage", "competitive advantage", "productivity",

"diamond model", and "cluster". This study also reviewed reports on national competitiveness rankings, such as the World Economic Forum's *Global Competitiveness Report* and International Institute of Management Development's *World Competitiveness Yearbook*. For the 4IR literature, this study reviewed Schwab's (2016) book *The Fourth Industrial Revolution*, and white papers and journal articles on the 4IR and its applications such as the Internet of Things, artificial intelligence, and Financial Technology (FinTech, such as blockchains, cryptocurrencies, robo-advising, and crowdfunding).

This article then conducted a citation analysis of all articles obtained from step 1. Then it screened the abstract of the selected articles and compiled a pool of articles that were reviewed, validated, and, if applicable, used for this work. This is step 2 AppraisaL from Booth *et al.* (2016).

Step 3 Synthesis is conducted through the next section of "literature review and theory development". Specifically, the next section reviews the international competitiveness literature from three perspectives – its definitions, theories, and determinants, at country, industry, and firm levels – with a particular focus on tracking the development of competitiveness theories in various strands of literature and identifying competitiveness drivers. Step 4 Analysis is conducted in the theory development, discussion, and conclusion sections of this article, where a framework of competitiveness and the 4IR is developed and discussed, which also suggests future research.

LITERATURE REVIEW AND THEORY DEVELOPMENT

The Fourth Industrial Revolution

In order to better understand international competitiveness under the background of the Fourth Industrial Revolution (4IR), the literature review starts by briefly introducing and discussing the 4IR.

Looking back at the history, the First Industrial Revolution (1IR) utilised water and steam to mechanise production. The Second Industrial Revolution (2IR) used electric power to create mass production, assembly line, and the division of labour. The Third Industrial Revolution (3IR) witnessed the development of semiconductor, information technology, personal computer, the Internet, and automated production. The 4IR is based on the technologies and infrastructures developed in the 3IR but uses them in entirely new ways in which technology becomes embedded within businesses and societies. Klaus Schwab, the founder and executive chairman of the World Economic Forum (WEF) and the author of the book *"The Fourth Industrial Revolution"*, describes 4IR as a "technological revolution that will fundamentally alter the way we live, work, and relate to one another" (Schwab, 2015). The concept of the 4IR was recently made popular by the discussions in WEF's 2016 annual meeting.

Schwab (2016) identifies three sets of deeply interrelated megatrends that drive the 4IR – physical, biological, and digital. Physical megatrends include advanced robotics, autonomous vehicles, 3D printing, and new materials. Biological megatrends include biotechnology, neuroethologies, and genome projects. Digital megatrends, probably the most important ones, refer to developments such as artificial intelligence (AI), the Internet of Things, Blockchain, cloud technology, big data, virtual and augmented reality. The digital revolution is creating radically new approaches to the way in which individuals, businesses, and governments engage and collaborate. For example, the Internet of Things facilitates

the connection between people and things (products, services, places, etc.). Blockchain, a secured ledger that records transactions in an efficient, verifiable and permanent way (Iansiti & Lakhani, 2017), creates a decentralised system in transactions. Table 2 lists ten most influential emerging 4IR technologies in the physical, biological, and digital megatrends, based on a study of PwC (2017) with brief explanation for each technology.

Table 2. Ten most influential emerging 4IR technologies

Technology	Description
Most influential 4IR technologies in the physical megatrends	
Advanced robotics	Electro-mechanical machines or virtual agents that automate, augment, or assist human activities, autonomously or through set instructions.
Autonomous vehicles and drones	Vehicles and drones that can operate and navigate with little or no human controls.
3D printing	Additive manufacturing techniques that create three dimensional objects based on "printing" successive layers of materials.
Advanced materials	Materials with significantly improved functionality, including lighter weight, stronger, more conductive materials, e.g. nano-materials.
Most influential 4IR technologies in the biological megatrends	
Synthetic biology	Inter-disciplinary branch of biology applying engineering principles to biological system.
Most influential 4IR technologies in the digital megatrends	
Artificial Intelligence (AI)	Software algorithms capable of performing tasks that normally require human intelligence, e.g. visual perception, speech recognition, and decision-making.
Internet of Things	Networks of objects embedded with sensors, software, network connectivity and computer capability, which can collect and exchange data over the Internet and enable smart solutions.
Blockchain	Distributed electronic ledge that uses software algorithms to record and confirm transactions with reliability and anonymity.
Cloud technology and big data	Enables the delivery of computer applications and services over the internet, reducing storage and computer power needs. Big data enabled by cloud form allow predictive relationships for optimisation.
Virtual & augmented reality (VR & AR)	Computer-generated simulation of a three-dimensional image overlaid to the physical world (AR) or a complete environment (VR).

Source: adapted from PwC, 2017, p. 9.

In a white paper, UBS (2016) argues that while all previous industrial revolutions are driven by advancement in automation and connectivity, the technology-driven 4IR is based on the forces of "extreme automation" and "extreme connectivity". Extreme automation considers the growing importance of robotics and AI in business, government, and personal life. Extreme connectivity mitigates distance and time as obstacles to deeper and faster communication between and among humans and machines, and therefore gives rise to the increased reliance on Internet-enabled devices and social media. As a result of these developments, a growing number of new business models have emerged, such as the sharing economy (i.e. UBER & AirBnB) and crowdfunding (i.e. Kickstarter, Indiegogo, LendingClub).

As the concept of the 4IR was only recently brought into attention of policymakers and academics, studies that examined the impact of the 4IR on competitiveness are quite limited, although the effect of certain technologies on certain areas of business has been studied but still in the early stage. For instance, Yermack (2017) conceptually examines the potential use and impact of blockchain in corporate governance. Of the available studies, Schwab (2015, 2016) argues that the 4IR has the potential to dramatically improve efficiency and productivity, raise income, and improve the quality of life. However, it comes at a cost of employment, with automation and de-centralised system replacing human jobs, especially the low-skilled ones (Schwab, 2015, 2016; UBS, 2016). Through the literature review on various perspective of competitiveness in the next few subsections, this article discusses how we should understand international competitiveness under the 4IR.

Definitions of Competitiveness at Country, Industry, and Firm Levels

National competitiveness is usually associated with high living standards and locational attributes which drive growth and prosperity over the long term (Delgado *et al.*, 2012). There are two competing views of competitiveness: the cost & market share-based view versus the productivity-based view. The discussion of competitiveness first started in the 1980s when the U.S. competitiveness was challenged by the rise in international competition from countries like Japan. Back then, competitiveness was associated with lower labour costs and home country policies that protected and helped companies gain market shares in both domestic and global markets (e.g. export subsidies in Brander & Spencer, 1985; strategic trade policies of Krugman, 1986), that is, the costs & market share-based view. Based on this view, low labour costs and favourable home country policies are considered as signs of competitiveness that lead to lower unemployment, higher exports, higher FDI, and sustainable balance of payments (Ketels, 2016).

The productivity-based view of competitiveness identifies productivity as the central driver of competitiveness and prosperity (e.g. Delgado *et al.*, 2012; Krugman, 1990, 1994; Porter, 1990). Both Krugman (1990, 1994) and Porter (1990), two authors that shape the fundamentals of contemporary competitiveness frameworks in economics and management literatures, respectively, directly link competitiveness to productivity. In addition, the Global Competitiveness Report (GCR) of WEF defines competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn determines the level of prosperity a country can achieve" (GCR, 2017, p. 54). Compared to the costs & market share-based competitiveness that can be short-lived, productivity-based competitiveness focuses on a nation's long-term growth with a future development perspective.

Definitions of competitiveness at the industry level and firm level are similar and therefore are examined together in this article. At both the industry and firm levels, competitiveness is defined as an industry or firm's ability (1) to produce and sell products and services of superior quality, lower costs, and better innovation than its domestic and international competitors, and (2) to better satisfy the needs of various other stakeholders, such as providing superior returns to shareholders and providing a safe workplace for workers (e.g. Buckley, Pass, & Prescott, 1988; Chikan, 2008; Momaya, 1998).

Theories of Competitiveness

Studies on international competitiveness date back to Adam Smith's "absolute advantage theory" and David Ricardo's "comparative advantage theory" (Bhawsar & Chattopadhyay, 2015; Cho & Moon, 2013). Subsequent studies focus on the determination of trade flows in terms of comparative advantage, with a particular focus on the opportunity costs of producing different goods domestically. For instance, the "Heckscher-Ohlin theory" (Heckscher, 1919; Ohlin, 1933) states that comparative advantage between countries is the result of their differences in the abundance of natural and factor endowments. The theory suggests that a nation should specialise in producing and exporting products which require more intensive use of locally abundant factors of production. Following this path, later studies separate capital into human capital (skilled labour) and physical capital, and examine them in greater depths (e.g. Baldwin, 1971; Kravis, 1956).

The seminal work of Posner (1961) shifts our focus away from intersectoral opportunity costs and argues that one of the main sources of advantage of a country is its relative technological position against its competitors. After Posner (1961), a strand of literature follows the technology-gap theory of international trade – that is, trade flows are primarily driven by widespread technological asymmetries between countries (e.g. Amable & Verspagen, 1995; Cimoli, 1988; Dosi, Grazzi, & Moschella, 2015; Dosi, Pavitt, & Soete, 1990; Krugman, 1979a). For instance, Amable and Verspagen (1995) indicate that technological capacities (patents and investments in technology) are major determinants in shaping the dynamics of exports. Vernon's (1966) "product life cycle theory" further contributes to the technology-gap literature, with the argument that comparative advantage could be shifted from developed nations to developing nations through the flow of technology over time. Audretsch and Feldman (1996) follow this path by focusing on R&D spillovers.

Contemporary competitiveness theories are built upon the works of Dixit and Stiglitz (1977) and Krugman (1979b, 1980) (see Olczyk, 2016 for a review). Dixit and Stiglitz (1977) model imperfect competition with highly differentiated products and downward-sloping demand curves. In the imperfect competitive market, Krugman argues that increasing returns to scale (Krugman, 1979b, 1980) – that is, productivity-determines trade advantages and the direction of export. Subsequent studies have connected competitiveness to production location (e.g. Krugman, 1991), productivity and trade growth (e.g. Melitz, 2003), and domestic environmental regulations (e.g. Copeland & Taylor, 2004).

In the management literature, international competitiveness theories are based on Porter's (1990) Diamond Model. The model illustrates four country-specific determinants of competitiveness – factor endowments, demand conditions, related and supporting industries (clusters), and firm strategy, structure, and rivalry-with two external factors – chance and government. This model explains factors which make a nation a successful home base for a particular industry and how firms could take advantage of the favourable conditions. Further development of the Diamond Model includes Moon, Rugman and Verbeke (1998), Moon and Cho (2000), and Cho, Moon and Kim (2009). Moon *et al.'s* (1998) "generalized double diamond model" incorporates both domestic and international diamond and emphasizes foreign direct investment (FDI) of a nation. Moon and Cho (2000) add to the Diamond Model four human resource related variables – workers, politicians

and bureaucrats, entrepreneurs, and professionals. Cho *et al.*'s (2009) "dual double diamond" model integrates the international context of the double diamond model and the human factors, and therefore covers four dimensions of domestic physical factors, domestic human factors, international physical factors, and international human factors.

At the industry and firm levels, companies need to take advantage of their home country competitiveness (Porter, 1990). Empirically, research shows that 36% of the variance in profitability could be attributed to the firms' characteristics and actions (McGahan, 1999). Extant literature mostly follows a resource-based view of competitiveness, that is, firm competitiveness is a combination of resources and a firm's capabilities to use these resources. The resource-based view can be considered as closely related to Porter's Diamond model, considering factor endowment, demand conditions, and clusters as resources, and firm's strategy, structure, rivalry, and interaction in its clusters as capabilities to use the resources.

Even though literature agrees on the resource-based view, resources and capabilities are modelled in various ways (see Wach, 2014 for a review). For instance, Prahalad and Hamel (1990) propose that a firm's competitiveness, in the short run, is the outcome of price and performance attributes of its existing products; and in the long run, comes from the firm's ability to build products at lower cost and more speedily than competitors. Buckley, Pass and Prescott (1992) model three competitiveness dimensions: (1) competitive performance, (2) competitive potential (i.e. resources used to generate performance), and (3) competitive process (i.e. management of the company). Ajitabh and Momaya (2004) propose the asset-processes-performance (APP) framework. They argue that firms' competitiveness depends on the combination of tangible and intangible assets (e.g. materials, technology, reputation, trademarks, and human resources) and the process within the organisation (e.g. strategic management process, human resources process, operations management process, and technology management process). Assets and process contribute to the firm's competitive performance which is reflected in productivity, quality, costs, and financial, technological and international performance.

Within this resource-based view of competitiveness, one strand of research focuses in particular on innovation and entrepreneurship. Ma and Liao (2006) model three sources of firm competitiveness as (1) technological capability (R&D capability and manufacturing capability), (2) resource exploiting capability (technological learning, human resource), and (3) managerial capability (organisational and marketing). Man, Lau and Chan (2002) develop a competitiveness framework for small and medium-sized enterprises (SMEs). They propose that other than general factors applicable to all firms, entrepreneur attributes such as experience, knowledge, and skills are particularly important for SMEs. They suggest that SMEs need to focus on building entrepreneurial competencies in order to gain competitiveness. Subsequent work of Daszkiewicz and Wach (2012) model the competitiveness of SMEs as results of business innovativeness, internationalisation, and the formal and informal networks. Other studies which examine competitiveness of small business and entrepreneurs include Acs and Amorós (2008), Audretsch, Hülsbeck and Lehmann (2012), and González-Pernía, Peña-Legazkue and Vendrell-Herrero (2012).

Table 3 summarises theories of competitiveness and their developments.

Table 3. Theories of competitiveness and their developments

Theories	Description & development
Panel A: Country level theories	
Absolute Advantage Theory & Comparative Advantage Theory	- Based on Smith (1776), Ricardo (1817), absolute or comparative advantage determines trade flow. - Subsequent studies include Baldwin (1971), Kravis (1956), Heckscher (1919), and Ohlin (1933), among others.
Technology -Gap Theory of International Trade	- Based on Posner (1961), trade flows are primarily driven by widespread technological asymmetries between countries. - Later developed by Vernon's (1966) "product life cycle theory" on the shift of technology from developed to developing nations. - Subsequent studies include Amable and Verspagen (1995), Audretsch and Feldman (1996), Cimoli (1988), Dosi *et al.*, (1990, 2015), and Krugman (1979a), among others.
New Trade Theory	- Based on Dixit and Stiglitz (1977) and Krugman (1979b, 1980), productivity growth is the main driver of competitiveness in the imperfect competitive market. - Subsequent studies include Copeland and Taylor (2004), Krugman (1991), and Melitz (2003), among others.
Diamond Model	- Based on Porter (1990), competitiveness depends on long run productivity. The four underlying conditions driving the competitiveness of a country's companies include: factor endowments, demand conditions, related and supporting industries (clusters), and firm's strategy, structure, and rivalry. - Further developments of the Diamond Model include Moon *et al.'s* (1998) "generalized double diamond model", Moon and Cho's (2000) addition of human factors, and Cho *et al.*'s (2009) "dual diamond model".
Panel B: Industry- & firm – level theories	
Resource-based Theory	- Firm & industry level competitiveness is a combination of resources and a firm's or industry's capabilities to use these resources. - Prahaland and Hamel (1990): price & performance combination. - Buckley *et al.* (1992): performance, potential, and process. - Ajitabh and Momaya (2004): asset-processes-performance (APP).
New development of Resource-based Theory: innovation & entrepreneurship	- Ma and Liao (2006): technological capability, resource exploiting capability, managerial capability. - Man *et al.* (2002): entrepreneurs' characteristics. - Daszkiewicz and Wach (2012): business innovativeness, internationalisation, and formal and informal networks.

Source: own study.

Determinants of Competitiveness: Macroeconomic Factors

Literature has identified two broad categories of the determinants of international competitiveness: macroeconomic conditions and microeconomic strategies. Macroeconomic conditions set a context which creates opportunities for competitiveness at national, regional, and cluster levels and sets the stage for the firm level competitiveness. Macroeconomic determinants include factors such as institutions (e.g. rules and regulations), economic and

financial policies and developments, physical infrastructure and geographic factors. Microeconomic strategies have a direct impact on a firm's competitiveness and include factors such as the sophistication of a firm's strategies and operation, and its interaction with other firms (i.e. clusters). Within the Diamond framework, macroeconomic conditions set the factor endowment, demand conditions, and structure of the clusters and rivalry, whereas microeconomic drivers are mostly related to a firm's strategy, structure, its response to rivalry and interaction within clusters. This subsection reviews literature on macroeconomic conditions and the next subsection on microeconomic drivers.

Examining the macroeconomic factors of competitiveness, the first driver is institutions, mostly rules and regulations that governments impose on markets and companies. Institutions define a broader context in which regulations and policies are made and industry- and firm-level productive activities take place, and therefore have long been a focus of competitiveness analysis (Delgado *et al.*, 2012). A number of studies have found a significant long-term relationship between the nature of institutions and the competitiveness at country, industry, and firm levels (e.g. Hall & Jones, 1999). Particular aspects of institutional quality that have been carefully examined include the rule of law (La Porta, Lopez-de-Silanes, Shlefer, & Vishny, 1998), the quality of government (Kaufmann, Kraay, & Mastruzzi, 2008), corruption (Shleifer & Vishny, 1993), colonial origins (Acemoglu, Johnson, & Robinson, 2001), and the overall regulatory quality (Brunet, 2012).

Macroeconomic policy, including monetary and fiscal policy, as well as the stage and development of a nation's economy and market are also the focus of competitiveness research. Factors found to be important to long-term competitiveness of a nation and companies within the nation include monetary policy and interest rate (e.g. Sinn, 2014), exchange rate and related policy (e.g. Cooper, 2014; Gulati, Knif, & Kolari, 2013), access to capital (e.g. Ragan & Zingales, 1998), restrictions on capital flows (e.g. Delgado *et al.,* 2012), government spending and taxation (e.g. Vietor & Weinzierl, 2012), innovation policy (e.g. Furman, Porter, & Stern, 2002), environmental policy (e.g. Esty & Porter, 2005), and the quality of administrative practices, such as low costs and fast process of starting a business (e.g. Branstetter, Lima, Lowell, & Venancio, 2014). As a result of various policies, developments of physical infrastructure (e.g. Garcia-Milà, McGuire, & Porter, 1996) and human capital, including quantity and quality of workforce training, higher education, managerial education and research (e.g. Krueger & Lindahl, 2001), have also been found to be important drivers for competitiveness at the macroeconomic level. A country's policy and the degree of openness also have a significant impact on competitiveness (e.g. Dollar & Kraay, 2003). Specifically, openness impacts international knowledge transfer (e.g. MacGarvie, 2006). In addition, sophisticated and demanding domestic buyers are also considered as important macro-level drivers, as they allow firms to anticipate future changes and opportunities in other markets and thereby encourage domestic firms to innovate and build profitable international position that are difficult for foreign firms to match (Porter, 1990).

Prior studies have also found that competitiveness is related to a country's endowments, such as geographic location (e.g. climate, time zone, and coastlines) (e.g. Gallup, Sachs, & Mellinger, 1999) and natural resource (e.g. Van der Ploeg, 2011). In this review, the author considers endowments as important macro-level drivers for national and firm competitiveness. Table 4 summarises the macroeconomic factors discussed above, along with selected studies of each factor.

Table 4. Macroeconomic determinants of competitiveness based on selected previous studies

Factors	Discussion
Institutions: rules and regulations	- overall impact (Hall & Jones, 1999), - rule of law (La Porta *et al*., 1998), - quality of government (Kaufmann *et al*., 2008), - corruption (Mauro, 1995; Shleifer & Vishny, 1993), - colonial origins (Acemoglu *et al*., 2001), - regulatory quality (Brunet, 2012).
Economic and market policies and developments	- monetary policy and interest rate (Andrén & Oxelheim, 2002; Sinn, 2014), - exchange rate policy (Andrén & Oxelheim, 2002; Cooper, 2014; Gulati *et al.*, 2013), - access to capital (Aghion, Howitt, & Mayer-Foulkes, 2007; Ang, 2008; King & Levine, 1993; Rajan & Zingales, 1998), - restrictions on capital flows (Delgado *et al.*, 2012), - government spending and taxation (Vietor & Weinzierl, 2012), - innovation policy (Fagerberg, 1988; Furman *et al*., 2002; Jaffe, 1995), - environmental policy (Esty & Porter, 2005; Porter & Van der Linde, 1995), - costs of starting a business (Branstetter *et al*., 2014), - workforce training, higher education, managerial education and research (Gennaioli, La Porta, Lopez-de-Silanes, & Shleifer, 2013; Krueger & Lindahl, 2001), - physical infrastructure (Aschauer, 1989; Garcia-Milà *et al*., 1996; Gramlich, 1994), - nation-wide human capital (Krueger & Lindahl, 2001) - openness and international knowledge transfer (Baldwin, 2004; Bernard & Jensen, 1999; Bernard, Jensen, Redding, & Schott, 2007; Branstetter, 2006; Coe & Helpman, 1995; Dollar & Kraay, 2003; Frankel & Romer, 1999; MacGarvie, 2006), - sophisticated and demanding local buyers (Porter, 1990).
Endowment	- geographic location (e.g. Gallup *et al*., 1999), - natural resource (e.g. Van der Ploeg, 2011).

Source: own study.

Determinants of Competitiveness: Microeconomic Factors

While the macroeconomic drivers discussed above create an environment in which businesses can gain competitiveness, it depends on the firm itself to grab the opportunities. Microeconomic factors are those which have a direct influence on the firm's productivity. This article categorises microeconomic factors into two groups: (1) firm strategy and structure which refer to the sophistication of various strategies and operations of a firm, and (2) cluster and rivalry which examine how a firm interacts with other firms in its clusters and deals with rivalry.

First, previous studies that examine the impact of firm strategy on competitiveness have found a significant role of strategic management (e.g. Porter, 1990), financial management (e.g. Salazar, Sot, & Mosqueda, 2012), human resource management (e.g. Oishi, 2013), operation and manufacturing management (e.g. Russell & Taylor, 2006), marketing management (e.g. Shang *et al.*, 2009), innovation strategy (e.g. Forsman, Temel, & Uotila, 2013), information technology (IT) management (e.g. Ross, Beath, & Goodhue, 1996), internationalisation strategy (e.g. Delgado *et al*., 2012), sustainability (e.g. Rao & Holt, 2005) and corporate social responsibility (CSR) (e.g. Zhang, 2013), among others. Studies have also found the above factors to be important for small business, with the additional entrepreneur attributes, such as experience, knowledge, and skills (e.g. Man *et al.*, 2002). With

respect to firm structure, studies have documented that ownership structures of companies (i.e. private vs. state-owned, conglomerate vs. single-business) are important for efficiency and competitiveness (Megginson & Netter, 2001).

Second, clusters of related and supporting industries are geographic agglomerations of companies, suppliers, service providers, and associated institutions in a particular location (Porter, 1990, 1998). Porter (1998) argues that firms in a cluster are often better able to perceive new buyer needs, actions of other firms, and new technological and operational opportunities. The interconnections among firms and industries within a cluster facilitate knowledge spillovers and thereby increase firms' capacity for innovation and stimulating new business formation. Empirical evidence shows that the presence of strong clusters enables companies to achieve high productivity and raises regional performance (Feldman & Audretsch, 1999; Glaeser & Kerr, 2009; Delgado *et al*., 2010, 2014). Studies have also examined strategies of cluster management (e.g. Ketels *et al.*, 2012).

For domestic rivalry, studies have found high levels of competition on local markets to be crucial for performance (e.g. Porter & Sakakibara, 2004). Specifically, from an industry perspective, competition affects industry dynamics including the entry of new firms, the exit of underperforming old firms, and the performance patterns across existing firms (e.g. Bloom, Sadun, & Van Reenen, 2012). Table 5 summarises the microeconomic factors and strategies discussed above.

Table 5. Microeconomic determinants of competitiveness based on selected previous studies

Factors	Discussion
Firm strategy and structure	- strategic management (Grupp, 1997; Loch, Chick, & Huchzermeier, 2008; Porter, 1990), - financial management (Randøy, Oxelheim, & Stonehill, 2001; Salazar *et al.*, 2012), - human resource management (Delgado *et al.*, 2012; Oishi, 2013; Smith, 1995; Wright, Ferris, Hiller, & Kroll, 1995), - operation and manufacturing management (Corbett & Van Massenhove, 1993; Mehra, 1998; Rao & Holt, 2005; Russell & Taylor, 2006), - marketing management (Shang *et al.*, 2009), - innovation (Bosma, Stam, & Schutjens, 2011; Dangelico & Pujari, 2010; Forsman *et al.*, 2013; Grupp, 1997; Reeve & Deimler, 2011), - IT management (Ollo-López & Aramendía-Muneta, 2012; Ross *et al.*, 1996), - internationalisation strategy (Altomonte & Ottaviano, 2011; Delgado *et al*., 2012), - sustainability and CSR (Dangelico & Pujari, 2010; Rao & Holt, 2005; Zhang, 2013), - small business strategies & management (Acs & Amorós, 2008; Audretsch *et al.*, 2012; Daszkiewicz & Wach, 2012; González-Pernía Peña-Legazkue, & Vendrell-Herrero, 2012; Horne, Lloyd Pay, & Roe, 1992; Man *et al*., 2002), - ownership structures (Megginson & Netter, 2001).
Firm rivalry and interaction in clusters	- benefits of clusters (Delgado *et al.*, 2010, 2014; Feldman & Audretsch, 1999; Glaeser & Kerr, 2009; Porter, 1998), - cluster management (e.g. Ketels *et al*., 2012), - benefits of rivalry and industry dynamics (Bloom & van Reenen, 2007; Bloom *et al.*, 2012; Nickell, 1996; Porter & Sakakibara, 2004).

Source: own study.

As a result of understanding the macro- and micro- level factors, measures of competitiveness usually take a multi-dimensional approach that captures all recognized factors. Two most used measures, the *Global Competitiveness Report* (GCR) published by

WEF and the IMD's *World Competitiveness yearbook* (WCY), both consider drivers of competitiveness by including factors such as institutions, macroeconomic environment, education, financial market development, innovation, among others. The measurements of the factors are then aggregated to calculate an overall ranking.

Competitiveness in the Era of the 4IR

While previous studies in competitiveness literature have extensively examined the role of technology and innovation (see Dosi *et al.*, 2015 for a review), this article models competitiveness in the era of the 4IR through an ecosystematic approach. The 4IR could impact competitiveness at country-, industry-, and firm- levels, and through both the macroeconomic and microeconomic drivers. As a result, all relevant parties, including governments, businesses, and individuals should react in a systematically consistent way. This subsection synthesises the discussions above and presents a competitiveness model in the era of the 4IR (Figure 1). More discussions on policy implication and managerial actions of the model are included in the "Discussion" section.

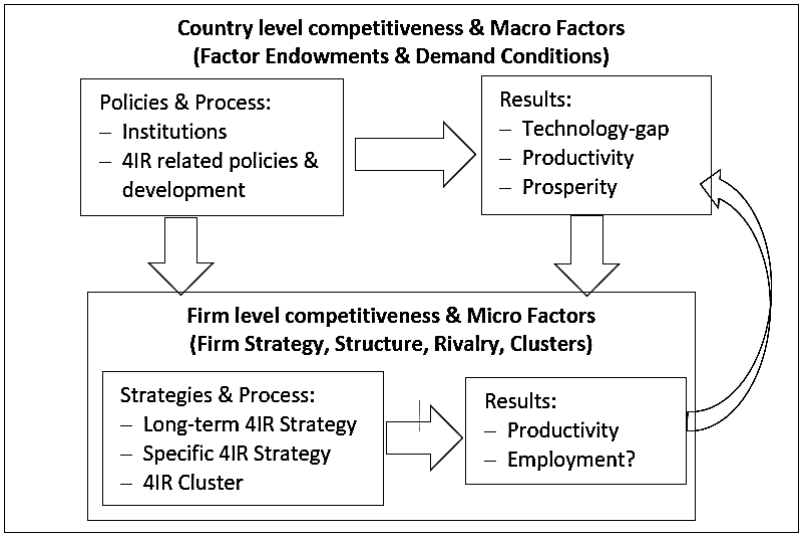

Figure 1. An ecosystematic approach to competitiveness in the era of the 4IR
Source: own elaboration.

First, macroeconomic factors and their cross-border differences determine national competitiveness, which also set the context for the industry- and firm- level competitiveness. Specifically, institutions and 4IR-related policies and developments (such as development of innovation and IT infrastructure) could potentially increase a country's technology advantage compared to other countries, therefore improving the country's competitiveness. This is consistent with the technology-gap theory of international trade literature. Technological advancements from the 4IR would also improve productivity and potentially prosperity of a nation.

At the micro level, a firm's long-term strategy and its specific operations in various areas such as finance and marketing towards 4IR-related advancement could improve its productivity and competitiveness. The 4IR could also change firms' interaction

within a cluster, by either changing the dynamics within the cluster, such as the increasingly important role of research-oriented universities, or adding new players into a cluster, such as cloud-based big data providers. Together, firm strategies and new cluster dynamics should improve productivity but may come at a cost of employment with the threat of automation that replaces current low-skill jobs.

Between the macro (national) and micro (firm) level, macro-level policies and results set the context and therefore impact the micro-level dynamics. Also, the firm level results on competitiveness and employment from the 4IR would also change the country level results and national competitiveness, which in turn impact 4IR-related policies.

DISCUSSION

This section further discusses the ecosystematic approach of competitiveness under the 4IR (Figure 1), with a particular focus on the impact of the 4IR on competitiveness definitions and theories, and its policy and managerial implications. Future research directions are also addressed here.

Definitions and Theories of Competitiveness under the 4IR

First, the technological advancement and the economic development have shifted the focus of competitiveness from the cost & market share-based view to the productivity-based view. Extreme automation in the 4IR has the potential to take over low cost labours, and therefore make nations and firms which rely on low cost labours less competitive. Similarly, nations and firms that currently suffer from high labour costs could become more competitive by using automation. With the 4IR, we see the increasing importance of innovation and the need to improve productivity to sustain and gain competitiveness at all levels. This has an important policy implication – to achieve prosperity, the goal for economic and business policies should be to facilitate companies to access emerging technologies and incorporate these technologies into companies' innovation and operational processes.

Second, applying the technology advancement of the 4IR to theories of competitiveness, we need to focus on the role of technology in forming a nation's competitiveness and the technological transfer from developed countries to the emerging markets, following the path of the technology-gap theory. There are two opposing ways in which the 4IR could potentially affect comparative advantage of nations. On the one hand, extreme connectivity facilitates the transfer of technology and therefore reduces the gap between countries in technology-based and knowledge-based comparative advantages. On the other hand, because of its well-developed infrastructure and the pools of high-skill works, developed nations could take advantage of the 4IR in ways that emerging markets cannot, which leads to a larger gap of competitive/comparative advantages between these countries. It is an empirical question with regard to which effect dominates and how different country-level institutions and developments can mitigate the effect, which calls for future research.

Ecosystematic Approach of Competitiveness under the 4IR

Using Figure 1 as a framework, this article suggests that government, business, society, and individuals respond to the 4IR in a systematic way, as the 4IR significantly influences all parties involved. First, the development of the 4IR requires a nation to provide innovation-friendly

institutions where regulations and social norms promote innovation, creativity, entrepreneurship, and collaboration. For instance, as intellectual property (IP) becomes vital in the 4IR, a nation's robust IP protection will contribute to its competitiveness. This is because strong IP protection will encourage innovators to capitalise on their idea and attract investors, such as venture capital and angel investors, which eventually improves the whole ecosystem and clusters of innovation. Also, local policies which reduce the cost and the number of days of opening and registering a business can also help promote entrepreneurial ideas.

Protections for investors, such as the creditors' right and minority shareholder protection, are also vital to allow the well-functioning of financial markets that fund innovations. This is particularly important for new ways of entrepreneurial finance, such as equity or debt crowdfunding – the practice of funding a project or business online by raising funds from a large number of people. Crowdfunding, along with venture capital and angel investors, makes it easier for companies and entrepreneurs to raise fund for new business ideas and various forms of innovation. Stable interest rates and exchange rates also allow investors to better manage risk, thereby better encouraging investors to fund innovations.

Second, the 4IR changes the combination of factors of production for a firm to be successful. While traditional businesses depend on heavy investment in tangible assets and human capital to achieve economies of scale, new businesses in the 4IR are able to use a small amount of capital and human resources investment and fewer tangible assets to achieve economies of scale. This is achieved again through the extreme automation and connectivity. Examples include the sharing economy and the crowdsourcing models of doing business. Besides the benefit it brings, the 4IR also requires significant advancement of the factors of production, including (1) education systems that teach content and competence relevant to the 4IR and equip students to work in a complex, digital, and changing environment, (2) high-skilled workers who are able to understand new technology more effectively and to adapt and maximise subsequent economic returns, and (3) better information and communication technology (ICT) infrastructure to support new developments, such as blockchain, big data and cloud computing, and to ensure cyber security (UBS, 2016).

Third, demand conditions and the clusters of related and supporting industries have also been changed, in particular by the Internet of Things which brings consumers closer to its production. Companies can get instant feedback from customers through social media, which leads to more sophisticated and demanding consumers. This also eliminates some players in the value chain (i.e. different levels of wholesalers), ultimately changing the structure of a cluster. Another example is the use of big data that allows businesses to better understand consumers' needs and patterns, thereby cutting costs, boosting profits, and increasing competitiveness. Big data also change the composition of business clusters as big data providers, software firms, and cyber security companies are now important players.

Fourth, firms need to design strategies and structures that take advantage of the 4IR. For instance, with the increased connectivity among various stakeholders of a company, information becomes more available and organisational structure becomes more flattened. The degree of competition is also likely to change with more business selling on the Internet. On an international level, while trade was once dominated by large (multinational) companies, today low costs of communication and transactions open up international business to smaller firms and entrepreneurs around the world. This shift

changes companies' global strategies and competition dynamics, which requires businesses, large and small, to be prepared for and take advantage of.

Fifth, we also need to understand some potential threats of the 4IR to national prosperity and standard of living. As the 4IR leads to extreme automation, low-skill jobs (e.g. assembly line work), which have already been heavily affected by basic automation, could be further impacted. In addition, an increasing range of middle-skill jobs will also become vulnerable (UBS, 2016). One example is the rise of robo-advising in banks and asset management – algorithm-based financial advising that automatically allocate and manage clients' assets with minimal human intervention, which has started to take away some jobs from human advisors. Automation from the 4IR leads to an increase in unemployment rate, imposing a negative impact on the standard of living of the unemployed.

Another potential challenge is the de-centralised global system enabled by the blockchain technology, which relies for its existence on the interconnection of a large number of computers without a centralised supervision and monitoring agent. While it has many advantages, such as keeping unchangeable and permanent records and significantly lowering cross-border transaction costs, it imposes challenges for tracking cross-border capital flows, and its anonymity encourages crimes. Future research needs to address these threats and challenges that the 4IR may impose on prosperity and competitiveness, and empirically tests the pros and cons of the 4IR in various areas.

CONCLUSIONS

This article conducts a systematic literature review on the definitions, theories, and determinants of international competitiveness. The literature review addresses links among competitiveness at country, industry, and firm levels, as well as the interconnection between macroeconomic drivers and the micro-level firm strategies. This calls for an ecosystematic approach to model competitiveness under the Fourth Industrial Revolution, which this article does. Implications for the country level policies, as well as the firm level strategies are also discussed.

This article is limited in the following ways. First, as the concept of the 4IR and its many technologies are still in the early stage, many of the arguments on policy and managerial implications are based on the author's speculation, without much theoretical or empirical support. Second, with the early stage of many technologies, their real impacts have yet to be materialised and therefore this study is at best exploratory.

The 4IR has been affecting and will continue to change our understanding of international competitiveness. This calls for more future theoretical research which will model the 4IR into the competitiveness framework and empirical works to examine the impact of the 4IR. This could be achieved either through adding extreme automation and connectivity as new factors and sources to current competitiveness frameworks or by examining how technology and new business model impact the effect of current factors. This effect can also be examined under different national institutional and economic conditions. Another potential strand of literature is to explore the country-level evidence of the 4IR and its impact on productivity and the standard of living. Yet another direction of future research is to evaluate whether current competitiveness measures are still capturing the true competitiveness and if not, to build some theoretical work to guide the weights assigned to competitiveness drivers, considering the impact of the 4IR.

REFERENCES

Acemoglu, D., Johnson, S., & Robinson, J. (2001). The colonial origins of comparative development. *American Economic Review*, 91(5), 1369-1401. doi: 10.1257/aer.91.5.1369

Acs, Z.J., & Amorós, J.E. (2008). Entrepreneurship and competitiveness dynamics in Latin America. *Small Business Economics,* 31(3), 305-322. doi: 10.1007/s11187-008-9133-y

Aghion, P., Howitt, P., & Mayer-Foulkes, D. (2007). The effect of financial development on convergence: Theory and evidence. *Quarterly Journal of Economics*, 120(1), 173-222. doi: 10.1162/0033553053327515

Ajitabh, A., & Momaya, K. (2004). Competitiveness of firms: Review of theory, frameworks and model. *Singapore Management Journal*, 26(1), 45-61. doi: 10.1177/0972150915581115

Altomonte, C., & Ottaviano, G.I.P. (2011). The role of international production sharing in EU productivity and competitiveness. *European Investment Bank Papers*, 16(1), 62-89. Retrieved on May 30, 2017 from https://www.econstor.eu/handle/10419/54672

Amable, B., & Verspagen, B. (1995). The role of technology in market shares dynamics. *Applied Economics*, 27, 197-204. doi: 10.1080/00036849500000024

Andrén, N., & Oxelheim, L. (2002). Exchange-rate and interest-rate driven competitive advantages in the EMU. Retrieved on June 15, 2017 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=525422

Ang, J. (2008). A Survey on recent developments in the literature on finance and growth. *Journal of Economic Surveys*, 22(3), 536-576. doi: 10.1111/j.1467-6419.2007.00542.x

Aschauer, D.A. (1989). Is public expenditure productive?. *Journal of Monetary Economics*, 23(2), 117-200. doi: 10.1016/0304-3932(89)90047-0

Audretsch, D.B., & Feldman, M. (1996). R&D spillovers and the geography of innovation and production. *American Economic Review*, 86(3), 630-640.

Audretsch, D.B., Hülsbeck, M., & Lehmann, E.E. (2012). Regional competitiveness, university spillovers, and entrepreneurial activity. *Small Business Economics*, 39(3), 587-601. doi: 10.1007/s11187-011-9332-9

Babbie, E. (2012). *The practice of social research*. Belmont, CA: Wadsworth Cengage Learning.

Baldwin, R. (1971). Determinants of the commodity structure of US trade. *American Economic Review*, 61(March), 126-148.

Baldwin, R. (2004). Openness and Growth: What's the Empirical Relationship?. In R. Baldwin & L. Winters (Eds.), *Challenges to Globalization: Analyzing the Economics* (pp. 499-526). Chicago, IL: University of Chicago Press. doi: 10.7208/chicago/9780226036557.003.0014

Bernard, A., & Jensen, J. (1999). Exceptional exporter performance: Cause, effect, or both?. *Journal of International Economics,* 47(1), 1-25. doi: 10.1016/S0022-1996(98)00027-0

Bernard, A., Jensen, J., Redding, S., & Schott, P. (2007). Firms in international trade. *Journal of Economic Perspectives*, 21(3), 105-130. doi: 10.1257/jep.21.3.105

Bhawsar, P., & Chattopadhyay, U. (2015). Competitiveness: Review, reflections and directions. *Global Business Review*, 16(4), 665-679. doi: 10.1177/0972150915581115

Bloom, N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *Quarterly Journal of Economics*, 122(4), 1351-1408. doi: 10.1162/qjec.2007.122.4.1351

Bloom, N., Sadun, R., & Van Reenen, J. (2012). The organization of firms across countries. *The Quarterly Journal of Economics*, 127(4), 1663-1705. doi: 10.1093/qje/qje029

Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic approaches to a successful literature review*. London: Sage.

Bosma, N., Stam, E., & Schutjens, V. (2011). Creative destruction and regional productivity growth: Evidence from the Dutch manufacturing and services industries. *Small Business Economics,* 36(4), 401-418. doi: 10.1007/s11187-009-9257-8

Brander, J.A., & Spencer, B.J. (1985). Export subsidies and international market share rivalry. *Journal of international Economics*, 18, 83-100. doi: 10.1016/0022-1996(85)90006-6

Branstetter, L. (2006). Is foreign direct investment a channel of knowledge spillovers? Evidence from Japan's FDI in the United States. *Journal of International Economics*, 68(2), 325-344. doi: 10.1016/j.jinteco.2005.06.006

Branstetter, L., Lima, F., Lowell, J.T., & Venancio, A. (2014). Do entry regulations deter entrepreneurship and job creation? Evidence from recent reforms in Portugal. *The Economic Journal*, 124(577), 805-832. doi: 10.1111/ecoj.12044

Brunet, F. (2012). Regulatory quality and competitiveness in recent European Union member states. *L'Europe en Formation,* 364, 59-90. doi: 10.3917/eufor.364.0059

Buckley, P.J., Pass, C.L., & Prescott, K. (1988). Measures of international competitiveness: A critical survey. *Journal of Marketing Management*, 4(2), 174-200. doi: 10.1080/0267257X.1988.9964068

Buckley, P.J., Pass, C.L., & Prescott, K. (1992). *Servicing international markets: Competitive strategies of firms*. Cambridge: Blackwell.

Chikan, A. (2008). National and firm competitiveness: A general research model. *Competitiveness Review*, 18(1), 20-28. doi: 10.1108/10595420810874583

Cho, D.S., & Moon, H.C. (2013). *From Adam Smith to Michael Porter: Evolution of competitiveness theory*. Singapore: World Scientific Publishing Company.

Cho, D.S., Moon, H.C., & Kim, M.Y. (2009). Does one size fit all? A dual double diamond approach to country-specific advantages. *Asian Business and Management*, 8(1), 83-102.

Ciampi Group (1995). Enhancing European Competitiveness. Retrieved on June 15, 2017 from http://aei.pitt.edu/2866/

Cimoli, M. (1988). Technological gaps and institutional asymmetries in a north-south model with a continuum of goods. *Metroeconomica*, 39(3), 245-274. doi: 10.1111/j.1467-999X.1988.tb00878.x

Coe, D., & Helpman, E. (1995). International R&D Spillovers. *European Economic Review*, 39, 859-887. doi: 10.1016/0014-2921(94)00100-E

Conway, P., Janod, V., & Nicoletti, G. (2005). *Product market regulation in the OECD countries* (Economics Department Working Paper No. 419). Paris: OECD. doi: 10.1787/18151973

Cooper, R.N. (2014). Exchange rate choices. Retrieved on November 1, 2017 from https://dash.harvard.edu/bitstream/handle/1/34307223/exchangeratechoices.pdf?sequence=3

Copeland, B., & Taylor, M.S. (2004). Trade, growth, and the environment. *Journal of Economic Literature*, 42(1), 7-71.

Corbett, C., & Van Wassenhove, L. (1993). Trade-offs? What trade-offs? Competence and competitiveness in manufacturing. *California Management Review,* 35(4), 107-122. doi: 10.2307/41166757

Dangelico, R.M., & Pujari, D. (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. *Journal of Business Ethics*, 95(3), 471-486.

Daszkiewicz, N., & Wach, K. (2012). *Internationalization of SMEs: Context, models and implementation*. Gdańsk: Gdańsk University of Technology Publishers.

Delgado, M., Ketels, C., Porter, M.E., & Stern, S. (2012). *The determinants of national competitiveness* (NBER Working Paper No. 18249). doi: 10.3386/w18249

Delgado, M., Porter, M.E., & Stern. S. (2010). Clusters and entrepreneurship. *Journal of Economic Geography,* 10(4), 495-518. doi: 10.1093/jeg/lbq010

Delgado, M., Porter, M.E., & Stern. S. (2014). Clusters, convergence and economic performance. *Research Policy,* 43(10), 1785-1799. doi: 10.1016/j.respol.2014.05.007

Dollar, D., & Kraay, A. (2003). Institutions, trade, and growth. *Journal of Monetary Economics*, 50(1), 133-162. doi: 10.1016/S0304-3932(02)00206-4

Dosi, G., Grazzi, M., & Moschella, D. (2015). Technology and costs in international competitiveness: from countries and sectors to firms. *Research Policy*, 44(10), 1795-1814. doi: 10.1016/j.respol.2015.05.012

Dosi, G., Pavitt, K., & Soete, L. (1990). *The economics of technical change and international trade*. New York: New York University Press.

Esty, D.C., & Porter, M.E. (2005). National environmental performance: An empirical analysis of policy results and determinants. *Environment and Development Economics*, 10(4), 391-434. doi: 10.1017/S1355770X05002275

Fagerberg, J. (1988). International competitiveness. *Economic Journal,* 98(391), 355-374. doi: 10.2307/2233372

Feldman, M., & Audretsch, D. (1999). Innovation in cities: Science-based diversity, specialization and localized competition. *European Economic Review*, 43(2), 409-429. doi: 10.1016/S0014-2921(98)00047-6

Forsman, H., Temel, S., & Uotila, M. (2013). Towards sustainable competitiveness: Comparison of the successful and unsuccessful eco-innovators. *International Journal of Innovation Management*, 17(3), 1340015-1–1340015-26. doi: 10.1142/S136391961340015X

Frankel, J., & Romer, D. (1999). Does trade cause growth?. *American Economic Review*, 89(3), 379-399.

Furman, J., Porter, M.E., & Stern, S. (2002). The determinants of national innovative capacity. *Research Policy*, 31(6), 899-933. doi: 10.1016/S0048-7333(01)00152-4

Gallup, J.L., Sachs, J.D., & Mellinger, A.D. (1999). Geography and economic development. *International Regional Science Review*, 22(2), 179-232. doi: 10.1177/016001799761012334

Garcia-Milà, T., McGuire, T., & Porter, R. (1996). The effect of public capital in state-level production functions reconsidered. *Review of Economics and Statistics*, 78(1), 177-180. doi: 10.2307/2109857

Gennaioli, N., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2013). Human Capital and Regional Development. *The Quarterly Journal of Economics*, 128(1), 105-164. doi: 10.1093/qje/qjs050

Glaeser, E.L., & Kerr, W.R. (2009). Local industrial conditions and entrepreneurship: How much of the spatial distribution can we explain?. *Journal of Economics and Management Strategy*, 18(3), 623-663. doi: 10.1111/j.1530-9134.2009.00225.x

González-Pernía, J.L., Peña-Legazkue, I., & Vendrell-Herrero, F. (2012). Innovation, entrepreneurial activity and competitiveness at a sub-national level. *Small Business Economics*, 39(3), 561-574. doi: 10.1007/s11187-011-9330-y

Gramlich, E.M. (1994). Infrastructure investment: A review essay. *Journal of Economic Literature* 32(3), 1176-1196.

Grupp, H. (1997). The links between competitiveness, firm innovative activities and public R&D support in Germany: An empirical analysis. *Technology Analysis and Strategic Management*, 9(1), 19-33. doi: 10.1080/09537329708524267

Gulati, A., Knif, J., & Kolari, J. (2013). Exchange rate shocks and firm competitiveness in a small, export-oriented economy: The case of Finland. *Multinational Finance Journal*, 17(1/2), 1-47.

Hall, R.E., & Jones. C.I. (1999). Why do some countries produce so much more output per worker than others?. *Quarterly Journal of Economics,* 114(1), 83-116. doi: 10.1162/003355399555954

Heckscher, E. (1919). The effects of foreign trade on the distribution of income. *Ekonomisk Tidskrift*, 21, 497-512.

Horne, M., Lloyd, P., Pay, J., & Roe, P. (1992). Understanding the competitive process: A guide to effective intervention in small firms sector. *European Journal of Operational Research*, 56(1), 54-66. doi: 10.1016/0377-2217(92)90292-H

Iansiti, M., & Lakhani, K.R. (2017). The truth about Blockchain. *Harvard Business Review*, 95(1), 118-127.

International Institute of Management Development (IMD) (2017). *World Competitiveness Yearbook.* Retrieved on June 15, 2017 from http://www.imd.org/wcc/world-competitiveness-center-rankings/competitiveness-2017-rankings-results/

Jaffe, A. (1995). Environmental regulation and the competitiveness of U.S. manufacturing: What does the evidence tell us?. *Journal of Economic Literature*, 33(1), 132-163.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2008). *Governance matters VII: Governance indicators for 1996-2007* (World Bank Policy Research Working Paper No. 4654). Washington, D.C.: World Bank. doi: 10.1596/1813-9450-4280

Ketels, C. (2016). Review of competitiveness frameworks: An analysis conducted for the Irish National Competitiveness Council. Retrieved on June 15, 2017 from http://www.hbs.edu/faculty/Publication%20Files/Review%20of%20Competitiveness%20Frameworks%20_3905ca5f-c5e6-419b-8915-5770a2494381.pdf

Ketels, C., Lindqvist, G., & Sölvell, O. (2012). Strengthening clusters and competitiveness in Europe. The role of cluster organisations. Retrieved on November 1, 2017 from http://www.clusterobservatory.eu/eco/uploaded/pdf/1352713149177.pdf

King, R., & Levine, R. (1993). Finance, entrepreneurship, and growth. *Journal of Monetary Economics*, 32(3), 513-542. doi: 10.1016/0304-3932(93)90028-E

Kravis, I.B. (1956). Wages and foreign trade. *Review of Economics and Statistics*, 38, 14-30. doi: 10.2307/1925555

Krueger, A., & Lindahl, M. (2001). Education for growth: Why and for whom?. *Journal of Economic Literature*, 39(4), 1101-1136. doi: 10.1257/jel.39.4.1101

Krugman, P. (1979a). A model of innovation, technology transfer, and the world distribution of income. *Journal of Political Economy*, 87(2), 253-266. doi: 10.1086/260755

Krugman, P. (1979b). Increasing returns, monopolistic competition and international trade. *Journal of International Economics*, 9(4), 469-479. doi:10.1016/0022-1996(79)90017-5

Krugman, P. (1986). *Strategic trade policy and new international economics*. Cambridge, MA: MIT Press.

Krugman, P. (1990). *Rethinking international trade*. Cambridge, MA: MIT Press.

Krugman, P. (1991). Increasing returns and economic geography. *Journal of Political Economy*, 99, 483-499. doi: 10.1086/261763

Krugman, P. (1994). Competitiveness: A dangerous obsession. *Foreign Affairs*, 73(2), 28-44. doi: 10.2307/20045917

La Porta, R., Lopez-de-Silanes, F., Shlefer, A., & Vishny, R. (1998). Law and Finance. *Journal of Political Economy*, 106(6), 1113-1155. doi: 10.1086/250042

Levine, R. (2005). Law, endowments, and property rights. *Journal of Economic Perspectives*, 19(3), 61-88.

Loch, C.H., Chick, S., & Huchzermeier, A. (2008). *Management quality and competitiveness: lessons from the industrial excellence award*. Berlin: Springer Science & Business Media.

Ma, N., & Liao, M. (2006). A firm-level study of the international competitiveness: Theoretical analysis and empirical findings. *International Journal of Innovation and Technology Management*, 3(1), 21-41. doi: 10.1142/S0219877006000685

MacGarvie, M. (2006). Do firms learn from international trade?. *Review of Economics and Statistics*, 88(1), 46-60. doi: 10.1162/rest.2006.88.1.46

Man, W.Y., Lau, T., & Chan, K.F. (2002). The competitiveness of small and medium enterprises: A conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*, 17(1), 123-142. doi: 10.1016/S0883-9026(00)00058-6

Mauro, P. (1995). Corruption and Growth. *Quarterly Journal of Economics,* 110(3), 681-712. doi: 10.2307/2946696

McGhan, A.M. (1999). Competition, strategy and business performance. *California Management Review*, 41(3), 268-274. doi: 10.2307/41165998

Megginson, W., & Netter, J. (2001). From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature,* 39(2), 321-389.

Mehra, S. (1998). Perpetual analysis and continuous improvement: A must for organizational competitiveness. *Managerial Finance*, 24(1), 19-27. doi: 10.1108/03074359810765309

Melitz, M.J. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica*, 71(6), 1695-1725. doi: 10.1111/1468-0262.00467

Momaya, K. (1998). Evaluating international competitiveness at the industry level. *Vikalpa*, 23(2), 39-46. doi: 10.1177/0256090919980206

Moon, H.C., & Cho, D.S. (2000). National competitiveness: A nine factor approach and its empirical application. *Journal of International Business and Economy*, Fall, 17-38.

Moon, H.C., Rugman, A., & Verbeke, A. (1998). A generalized double diamond approach to the competitiveness of Korea and Singapore. *International Business Review*, 7(2), 135-150. doi: 10.1016/S0969-5931(98)00002-X

Nickell, S. (1996). Competition and corporate performance. *Journal of Political Economy*, 104(4), 724-746. doi: 10.1086/262040

Nicoletti, G., & Scarpatta, S. (2003). *Regulation, Productivity and Growth* (OECD Working Paper No. 347). Paris: OECD. doi: 10.1787/18151973

Ohlin, B. (1933). *Interregional and international trade*. Cambridge: Harvard University Press.

Oishi, N. (2013). Migration and competitiveness in science and engineering in Japan. *Migration Letters*, 10(2), 228-244.

Olczyk, M. (2016). A systematic retrieval of international competitiveness literature: A bibliometric study. *Eurasian Economic Review*, 6(3), 429-457. doi: 10.1007/s40822-016-0054-9

Ollo-López, A., & Aramendía-Muneta, M.E. (2012). ICT impact on competitiveness, innovation and environment. *Telematics and Informatics*, 29(2), 204-210. doi: 10.1016/j.tele.2011.08.002

Perenyi, Á. (2016). Diagnosing cluster competitiveness using firm level data in the profit-growth nexus framework. *Acta Oeconomica*, 66(3), 469-463. doi: 10.1556/032.2016.66.3.4

Porter, M.E., & Sakakibara, M. (2004). Competition in Japan. *Journal of Economic Perspectives*, 18(1), 27-50. doi: 10.1257/089533004773563421

Porter, M.E. (1990). *The Competitive Advantage of Nations*. New York, NY: The Free Press.

Porter, M.E. (1996). What is strategy?. *Harvard Business Review*, 74(6), 61-78.

Porter, M.E. (1998). Clusters and competition: New agendas for companies, governments, and institutions. In M.E Porter (Ed.), *On Competition.* Boston: Harvard Business School Press. doi: 10.1.1.199.4104

Porter, M.E., & Van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *Journal of Economic Perspectives*, 9(4), 97-118. doi: 10.1257/jep.9.4.97

Posner, M.V. (1961). International trade and technical change. *Oxford Economic Papers*, 13(3), 323-341. doi: 10.1093/oxfordjournals.oep.a040877

Prahalad, C.K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, 68, 79-90.

PwC (2017). *Innovation for the earth: Harnessing technological breakthroughs for people and the planet*. Retrieved on June 15, 2017 from https://www.pwc.com/ee/et/publications/pub/innovation-for-the-earth.pdf

Rajan, R., & Zingales, L. (1998). Financial dependence and growth. *American Economic Review,* 88(3), 559-586. doi: 10.3386/w5758

Randøy, T., Oxelheim, L., & Stonehill, A. (2001). Corporate Financial Strategies for Global Competitiveness. *European Management Journal*, 19(6), 659-669. doi: 10.1016/S0263-2373(01)00091-3

Rao, P., & Holt, D. (2005). Do green supply chains lead to competitiveness and economic performance?. *International Journal of Operations & Production Management*, 25(9), 898-916. doi: 10.1108/01443570510613956

Reeves, M., & Deimler, M. (2011). Adaptability: The new competitive advantage. *Harvard Business Review*, 89(7/8), 135-141. doi: 10.1002/9781119204084.ch2

Ross, J.W., Beath, C.M., & Goodhue, D.L. (1996). Developing long-term competitiveness through IT assets. *Sloan Management Review*, 38(1), 31-42.

Russell, R.S., & Taylor, B.W. (2006). *Operation management: Quality and competitiveness in a global environment*. Hoboken: John Wiley & Sons.

Salazar, A., Sot, R., & Mosqueda, R. (2012). The impact of financial decisions and strategy on small business competitiveness. *Global Journal of Business Research*, 6(2), 93-103.

Schwab, K. (2015). The fourth industrial revolution: What it means and how to respond. *Foreign Affairs*. Retrieved on June 6, 2017 from https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution

Schwab, K. (2016). *The fourth industrial revolution*. New York, NY: Crown Business.

Shang, J., Yildirim, T.P., Tadikamalla, P., Mittal, V., & Brown, L.H. (2009). Distribution network redesign for marketing competitiveness. *Journal of Marketing*, 73(2), 146-163. doi: /10.1509/jmkg.73.2.146

Shleifer, A., & Vishny, M. (1993). Corruption. *Quarterly Journal of Economics,* 108(3), 599-617. doi: 10.2307/2118402

Sinn, H.W. (2014). Austerity, growth and inflation: Remarks on the Eurozone's unresolved competitiveness problem. *The World Economy*, 37(1), 1-13. doi: 10.1111/twec.12130

Siudek, T., & Zawojska, A. (2014). Competitiveness in the economic concepts, theories and empirical research. *Oeconomia*, 13(1), 91-108. Retrieved on June 15, 2017 from http://yadda.icm.edu.pl/yadda/element/bwmeta1.element.agro-b3b94eea-5c1c-4805-9a76-c82799727548

Smith, S. (1995). World class competitiveness. *Managing Service Quality*, 5(5), 36-42. doi: 10.1108/09604529510100387

UBS White Paper (2016). *Extreme automation and connectivity: The global, regional, and investment implications of the Fourth Industrial Revolution*. Retrieved on June 15, 2017 from https://www.ubs.com/global/en/about_ubs/follow_ubs/highlights/davos-2016.html

Van der Ploeg, F. (2011). Natural resources: Curse or blessing?. *Journal of Economic Literature*, 49(2), 366-420.

Vernon, R. (1966). International investment and international trade in the product cycle. *Quarterly Journal of Economics*, 80, 190-207. Retrieved on June 15, 2017 from http://www.jstor.org/stable/1880689

Vietor, R., & Weinzierl, M.C. (2012). Macroeconomic policy and U.S. competitiveness. *Harvard Business Review*, 90(3), 113-116.

Wach, K. (2014). The theoretical modelling of the firm-level international competitiveness in business studies. In D. Kiendl-Wendner & K. Wach (Eds.), *International competitiveness in Visegrad countries: Macro and micro perspectives* (pp. 101-124). Graz: Fachhochschule Joanneum.

World Economic Forum (2016). *Global competitiveness report 2016-2017*. Retrieved on June 15, 2017 from https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1

Wright, P., Ferris, S.P., Hiller, J.S., & Kroll, M. (1995). Competitiveness through management of diversity: Effects on stock price valuation. *Academy of Management Journal*, 38(1), 272-287. doi: 10.2307/256736

Yermack, D. (2017). Corporate governance and blockchains. *Review of Finance*, 21(1), 7-31. doi: 10.1093/rof/rfw074

Zhang, Y. (2013). Relation between social responsibility and enterprise long-term competitiveness. *International Journal of Emerging Technologies in Learning*, 8(5), 21-26. Retrieved on November 8, 2017 from https://www.learntechlib.org/p/130258/

Author

Chen Liu

Assistant Professor in Finance at the School of Business at Trinity Western University (Canada). PhD in Finance from the Smith School of Business at Queen's University (Canada). Research areas include finance, financial technology (FinTech), entrepreneurship, and international business. Extensive experience in finance and entrepreneurship teaching and consulting.

Correspondence to: Dr. Chen Liu, School of Business, Trinity Western University; 7600 Glover Road, Langley, B.C., Canada; e-mail: Chen.Liu@twu.ca

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RCEP versus TPP with the Trump Administration in the USA and Implications for East Asian Economic Cooperation

Sang Chul Park

ABSTRACT

Objective: The objective of this article is to evaluate the two mega FTAs, namely RCEP and TPP in the Asia Pacific region in general and the new trends and directions of these mega FTAs with Trump Administration in the USA in particular. Moreover, it estimates implications for East Asian Economic cooperation. The article deals with possible impacts on the US withdrawal from TPP and post TPP visions. Furthermore, it also analyses what implications can be provided for East Asian economic cooperation.

Research Design & Methods: In order to meet the research targets, various methods are used, such as the method of critical analysis of literature, the inference method, and the method of statistical analysis, which include quantitative and qualitative analyses.

Findings: While investigating regional economic integration between RCEP and TPP with the member states, it is visible that the majority of the member states in the two mega FTAs are more dependent on RCEP than on TPP. It means that RCEP can generate more economic benefits to the member states in the region than TPP in the long run.

Implications & Recommendations: It implicates that RCEP can play important roles in shaping new trade governance in the Asia Pacific region which could establish Asia Pacific Free Trade Agreement (APFTA).

Contribution & Value Added: The originality of this work lies in exploring the two mega FTAs in the Asia Pacific region, how they have competed with each other and implemented their national trade strategies.

Article type:	research paper
Keywords:	Mega FTA; protectionism; economic growth; FTA strategy; economic cooperation
JEL codes:	C33, F21

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INTRODUCTION

It is absolutely true that global trade has contributed to a rapid economic growth in the world since the Second World War. However, the growth of the trade volume started to slow down in the global economy particularly after the global financial crisis in 2008. In 2016, the growth in the world trade volume in goods and services reached only 1.9% although its forecast was 2.8% based on the statistics of the World Trade Organization (WTO). The WTO forecasts that the world trade volume could grow 2.4% in 2017, while the International Monetary Fund (IMF) projects the trade volume growth of 3.8% in the same year. Regarding the IMF statistics, the global GDP growth is projected to rise by 3.4% in 2017 and it rose by 3.1% last year. It concerns deep uncertainty about the near -term economic and policy developments which are increasing the forecast risk in 2017. The slowdown in the emerging markets was the main reason why the global trade growth was lower than expected in 2016. Among the emerging markets, however, East Asian countries are expected to return to modest growth in 2017 (WTO, 2017; IMF, 2017).

The world trade volume in merchandise tended to grow on average 1.5 times higher than the world GDP growth from 1981 to 2016. During the 1990s, it grew more than twice as high than the world GDP. However, the ratio of trade growth to GDP growth has become more or less equal since the global financial crisis except for the years 2010 and 2011. After the global financial crisis, the G20 was formed to overcome the global financial crisis and to fight against the trade protectionism. Despite such close cooperation between the G20 member states, the trade growth rate in 2016 marked lower than the world GDP growth rate, that is the fourth time since 1981. Therefore, many countries have tried to create bilateral, multilateral, regional and mega FTAs since the 2000s in order to boost their trade volumes and economic growths. This new approach worked properly till before the global financial crisis, but started to show its limitation after the crisis (WTO, 2017; National Board of Trade, 2016).

Moreover, the trade patterns have changed dramatically, particularly since the 2000s. These can be explained as the following two patterns. Firstly, the intensity of economic growth has shifted from the West to the East. Supply chains in the globe have been linked increasingly between developed and developing countries deeper than ever. It recognises the fact that emerging economies account for the majority of the global economic growth due to their high economic growth based on increasing productivity with the trade liberalisation first time since the global financial crisis. Secondly, regional trade arrangements such as bilateral, multilateral, and mega free trade agreements (FTAs) have proliferated at a global scale, but nowhere more so than in Asia (Hearn & Myers, 2015; Melitz & Redding, 2014; Melitz & Trefler, 2012).

In 2016, there were 228 free trade agreements (FTAs) in the world, and among them 147 FTAs were signed and came into effect in the Asia and Pacific region. 68 FTAs are still under negotiation, 5 FTAs are signed but not yet in effect, and 3 FTAs are discontinued. All FTAs are either bilateral or multilateral. Singapore is the leading country with 33 FTAs, and India follows with 28 FTAs. Three major East Asian countries, South Korea with 25 FTAs, Japan with 24 FTAs and China with 23 FTAs also play significant roles in terms of FTA due to their national economic sizes in the region (Asia Regional Integration Center, 2015).

In addition to bilateral and multilateral FTAs, the Asia Pacific region has become the common ground for mega FTAs which are in the process to build Regional Comprehensive

Economic Partnership (RCEP) led by ASEAN officially, but by China practically and Trans Pacific Partnership (TPP) led by the United States. China negotiates RCEP with ten ASEAN member states and six nations with which ASEAN have trade agreements. RCEP aims to promote regional economic integration in East Asia. Among 16 nations in RCEP, seven nations participate in TPP as well. TPP targets to rebalance US political and economic interests against the Chinese emerging in the region as a part of global strategies.

RCEP was expected to be completed by the end of 2016, but is still in the process. It is planned to be completed in 2017, and China pushes hard to complete it because it has already announced the protection of the free trade mechanism based on globalisation in the World Economic Forum in January 2017, while TPP faces turbulence after the Trump government announced its official withdrawal from TPP in January 2017 although twelve member states agreed to TPP in October 2016. As a result, the future of mega FTAs in the Asia Pacific region has become unforeseeable, particularly in TPP (Graceffo, 2017).

This article focuses on mega FTAs, such as RCEP and TPP, on how these will develop in the near future. Additionally, it deals with possible impacts on the US withdrawal from TPP and post-TPP visions. Furthermore, it also analyses what implications can be provided for the East Asian economic cooperation. In order to meet the research targets, various methods are used, such as the method of critical analysis of literature, the inference method, and the method of statistical analysis, which include quantitative and qualitative analyses.

LITERATURE REVIEW

Theoretical Debates

Economic regionalism based on de jure regional economic integration can be defined as an institutional combination of separate national economies into larger economic blocs or communities. Usually, the process is understood as a state-led project which promotes a definable geographic area by the development of specific institutions and strategies. Thus, economic regionalism is a conscious and coherent, top-down policy of states (Robson, 1998; Beeson & Stubbs, 2012).

By contrary, regionalisation based on de facto regional economic integration is regarded as a process of integration, in which market factors such as an activity of enterprises and other private entities interested in developing cross-border relations play the most important roles. In such a way, it generates an increase in trade, investment and production in the region. Thus, compared to regionalism, regionalisation is a spontaneous, complex and bottom-up process by which material patterns of transnational transactions among individuals and groups knit a loosely defined geographical area together (Söderbaum, 2012; Beeson & Stubbs, 2012).

The distinction between the terms of regionalism and regionalisation are of key importance in East Asia, as this region's market integration processes diverge from the institution based approaches in Europe and North America. As a result, East Asian countries have become increasingly interdependent in terms of trade, investment, finance and production. The predominance of regionalisation in East Asia does not mean that processes of regionalism do not exist. On the contrary, they exist, but rather as 'soft' regionalism or informal regionalism (Pempel, 2010; Zhao, 1998; Katzenstein, 1997).

Furthermore, it is also fully possible that East Asian regionalism anticipates that the evolutionary dynamics of institutionalising East Asia will take place in the coming decades because East Asian countries' turn to bi-lateral FTAs shows their increasing interests in institutional engagement. In fact, a number of bi-lateral FTAs completed in the 2000s created a lattice regionalism in East Asia that will ultimately take from bi-lateral to pluri-lateral and regional path toward institutionalisation. With time, several bi-lateral FTAs will turn to region-wide FTAs without any regional centre because interlocking and overlapping FTAs generate inevitably high transaction costs, such as spaghetti bowl effects (Dent, 2003).

In fact, East Asian countries joined multiple institutions whose memberships overlap with each other because they were not able to develop a core regional institution being the basis for regional integration and cooperation in terms of economy and politics owing to differences in terms of religion, history, ethnic groups, etc. Moreover, regional institutions in East Asia have developed in the areas of individual issue without creating systematic linkages. As a result, there is no regional institution which deals with economies, politics, and security comprehensively (Katzenstein, 2005; Pempel, 2013).

An economic integration is the process of removing progressively those discriminations which occur at national borders. Another definition describes it as the abolition of discrimination between economic units that belong to different national states. The economic integration means the absence of various forms of discrimination between national economies. Countries interested in the process usually start from a simpler form of free trade zone, and then progress through more advanced forms of the customs union, common market, economic union, up to full economic union. In practice, however, this sequence does not always occur, and the achievement of the final stage is challenging, as it entails a level of political integration that causes the withdrawal from sovereignty in member states (Hosny, 2013; Balassa, 1962).

Accordingly, the theory of pluri-lateral and regional path toward institutionalisation in East Asia is adopted to explain East Asian economic integration processes in the article. The reason why that is the pluri-lateral theory can be explained by East Asian dynamic economic development more comprehensively than the theories of soft regionalism or informal regionalism.

MATERIAL AND METHODS

Mega FTAs in Asia Pacific Region

Regional Comprehensive Economic Partnership (RCEP)

After several years of discussions on the desirability and feasibility of Asian economic cooperation, East Asian countries led by the ASEAN member states decided to establish the Regional Comprehensive Economic Partnership (RCEP). The countries participating in the RCEP negotiations are the ten ASEAN member states and six other countries, such as Korea, China, Japan, India, Australia, and New Zealand. They began the negotiations in 2013.

East Asia has not established a region-wide FTA due to different opinions among East Asian economies about creating the region-wide FTA. It was a long process to agree to the RCEP. Regional economic cooperation in East Asia began to intensify in order to deal with the Asian Financial Crisis in 1997 as the first ASEAN+3 (Korea, China, and Japan) Summit Meeting was held in 1998. In the summit, Korea proposed to set up the East Asia Vision

Group (EAVG) in order to overcome economic and financial problems collectively in the region. Moreover, EAVG studied a long term vision for economic cooperation in the region. The expert group developed further the idea of East Asia Free Trade Area (EAFTA) in 2002 and proposed ASEAN+3 economic ministers that the EAFTA first needs to negotiate among ASEAN countries and their memberships can be open to other East Asian economies. However, this proposal was not accepted by ASEAN+3 ministers in 2006. The economic rationale of EAFTA was based on highly developed production networks and supply chains among ASEAN+3 countries and harmonising the rules of origins among these countries which could create tangible economic benefits. Additionally, the cooperation among ASEAN+3 countries has developed the most feasible regional framework in East Asia (Urata, 2013; EAFTA, 2009; ASEAN Secretariat, 2009; Kawai & Wignaraja, 2011).

Parallel to the ASEAN+3 approach, Japan proposed the Comprehensive Economic Partnership in East Asia (CEPEA) at the ASEAN+6 economic ministers' meeting in 2006, which is an agreement of the region-wide FTA covering ASEAN+6 member states. These 16 countries are also the member states of the East Asia Summit which began in 2005. Japan's economic rationale to set up the CEPEA was that the economic advantage of the CEPEA could be larger than that of the EAFTA because the incorporation of resource-rich Australia and rapidly growing India could generate the economic growth of East Asia as a whole. However, the reason why Japan suggested the CEPEA is that Japan tried to play a role in the leadership for setting up a regional institution because China took the initiative in the EAFTA discussions. By competing with each other between China and Japan to take the leadership in the establishment of the region-wide FTA under the EAFTA and the CEPEA, China speeded up the process of regional economic integration in East Asia when Japan decided to participate in the Trans Pacific Partnership (TPP) in 2011 (Kawai & Wignaraja, 2008; Xiao, 2015).

The Chinese motivation to establish the region-wide FTA was stronger than of any other country in the region because it observed increasing US influences to form a regional economic framework in the Asia Pacific region under the TPP. Under these circumstances, ASEAN proposed the RCEP involving ASEAN and its FTA partners in 2011 because it did not want to lose ASEAN centrality in East Asian regional integration. ASEAN understood that it could lose its role of the leadership position in the process of economic integration in East Asia if big economies in the region and half of ASEAN member states participate in the negotiation of TPP. Additionally, ASEAN tried to maintain its centrality in the regional economic cooperation. After signing ASEAN+1 (China) FTA, ASEAN and its regional partners were concerned about the Asian noodle bowl effects which became new obstacles to establish new regional production networks based on free markets in East Asia. Therefore, the RCEP has emerged as a tool to integrate ASEAN+1 (China) FTA in order to support their common aspirations of the region (Yi, 2014).

Furthermore, ASEAN announced the guiding principles for the negotiations of the RCEP which include the WTO consistency, transparency, and open accession to ASEAN's FTA partners and others. Based on such principles, four ASEAN member states, such as Brunei, Malaysia, Singapore, and Vietnam, participated in the TPP as well. As a result, ASEAN+6 leaders agreed to launch the negotiations of the RCEP in 2012 and to start in 2013. The RCEP was scheduled to conclude by the end of 2015, but did not meet the target and was rescheduled

to be completed in 2017. It targets to reassure the free trade commitment in the world (ASEAN Secretariat, 2012; Urata, 2013; Hearn & Myers, 2015; Johnston, 2017), (Figure 1).

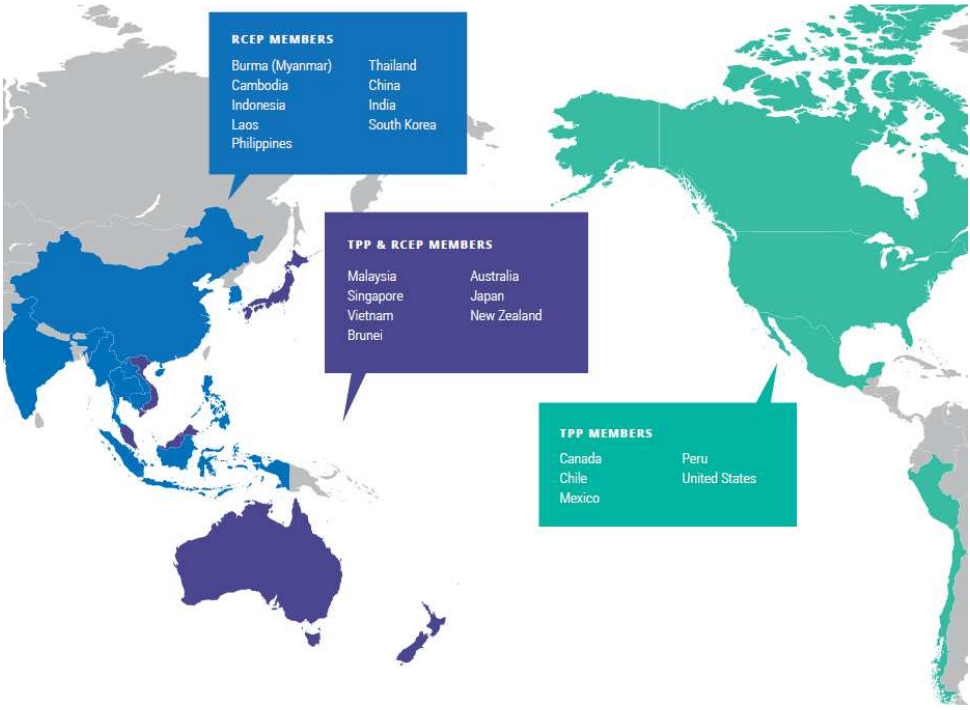

Figure 1. RCEP and TPP Member States (As of 2015)
Source: adopted by Hearn & Myers, 2015.

In fact, the RCEP is a strong rival of the TPP in the East Asian economic integration. It includes more than 3.4 billion population, the output of about 22.7 trillion US dollars, and accounts for around 44.5 percent of the world trade in 2015. Its GDP accounted for 30.6%, and the total trade volume was 9.31 trillion US dollars in the same year. There is no doubt that the RCEP could create the world largest trading bloc, if it is successfully concluded. It could provide major implications for the global economy, such as the spread of global production networks, reducing inefficiencies of multiple Asian FTAs, etc. (Suh, 2014; World Bank, 2016; World Integrated Trade Solution, 2017), (Figure 2).

The RCEP needs strong leadership which is absolutely necessary to conclude the negotiations successfully. The leadership must be based on the ASEAN centrality because its role is regarded as impartial. In addition, China and Japan might not trust each other due to their rivalry in the region. In fact, the RCEP is a tool for rising China in the region. ASEAN, Korea, and Japan are concerned that China will eventually dominate East Asia through the China-led East Asia Economic Community. Therefore, some countries such as Japan, Myanmar, the Philippines, Vietnam have actively tried to balance between China and the US in order to hedge China's possible threat. Therefore, the RCEP based on the ASEAN centrality can play a role in checking the rise of China and balancing the power in the region (Suh, 2014).

Since the Trump Administration in USA started in January 2017, the prospects of the RCEP have changed dramatically because the US government officially announced its withdrawal from the TPP. It will open the door for China to play a more pronounced leadership role in the region. In the Asia Pacific region, China is already a major trade and investment partner for the TPP member states. Canada and Mexico seek to open trade talks with China, while Chile, Australia, New Zealand and Malaysia try to expand their existing trade and investment deals. Furthermore, seven of twelve TPP member states participate in the RCEP negotiations. Therefore, China could gain new opportunities to expand trade and investment in other TPP markets after the US withdrawal (Shott, 2017).

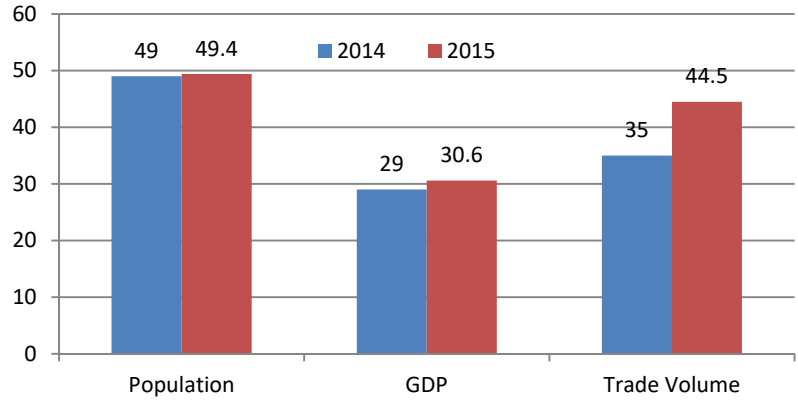

Figure 2. RCEP's Share in the World Population, GDP, and Trade (%)]
Source: WTO, World Trade Statistics, 2015, 2016, World Bank, 2016.

The collapse of the TPP leaves China as the leader of large scale regional economic integration with the RCEP which plays the role of the main pillar. Moreover, RCEP will probably be more open to new members in the Asia Pacific region. China foresees Chile and Peru's participation in the RCEP and emphasises its intention to keep its scheme open to any possible member states. As a result, the RCEP may enhance the regional and global roles of China which potentially contributes to creating bilateral rivalry with the USA. Among the major member states in the RCEP, their priorities are very diverse. China enhances its intention to make the RCEP the basis of trade rules in the Asia Pacific region, while Japan focuses on providing a high level of liberalisation comparable to that of the TPP. India is keen to provide the liberalisation of trade in goods more than in services and investment, while Korea stands for high level of liberalisation in trade and investment. Despite wide and different national interests among member states, they have agreed to discuss goods, services, and investment as one package, primarily at India's insistence. The prospects of the RCEP seem to be positive because compromises leading to the agreement are feasible. Sixteen member states have accumulated their experiences by completing ASEAN+1 (China) FTA, ASEAN+3 (China, Japan and Korea) FTA, and other bilateral FTAs in the region (Kumar & Charlton, 2017).

During the 2016, the APEC Summit and the 2017 World Economic Forum (WEF), China announced to accelerate the RCEP negotiations. However, it is doubtful that China can put the RCEP agenda forward officially because the RCEP is officially led by ASEAN, and the trade pack includes members which may not accept the Chinese dominating

negotiations. Accordingly, China supports the ASEAN member states trying to complete the RCEP negotiations for Chinese national interests in 2017 that can celebrate the ASEAN 50th anniversary. At the same time, ASEAN may strive for a better quality trade pact in the absence of the TPP. After completing the RCEP negotiations, China can use it as a tool to set up trade rules in the region (Basu Das, 2017).

Trans Pacific Partnership Agreement (TPP)

The USA participated in the TPP negotiations in 2010 and took over its leadership after the former President Obama announced his Asia Pivot Policy which aims to create US-led trade rules in the Asia Pacific region. The reason is that global trade and investment are critical to the US economic performance and national security. The USA has realised that more than 95 percent of the world's population and 80 percent of its purchasing power exist outside the USA. Additionally, the Asia Pacific region will create most of the consumption growths in the future. Therefore, it is critical for the US government to complete region-wide trade agreements such as TPP with allies and other countries in the region in order to strengthen its influential powers. The TPP rules bring benefit to the USA given their scope and treatment of sectors that are critical to the future of the US economic growth and the vitality of the US economy (Schell & Shirk, 2017).

The TPP can be regarded as a new global standard for international trade. With 29 chapters, 12 member states set up new disciplines on certain activities, such as regulatory coherence, supply chain competitiveness, and small and medium-sized enterprises (SMEs), which were not addressed in FTAs and the WTO until the TPP was signed in 2015. It is the reason why the TPP is regarded as a 21st century regional FTA.

In fact, the TPP is a mechanism to isolate China in East Asia. Therefore, a serious imbalance could take place in the two competing mega FTAs if Korea and Taiwan become the 13th and 14th members of the TPP. It is the high standard of agreement and creates a high barrier for China to overcome in the near future. Although the TPP does not intend to marginalise China in East Asia, it is not possible for China to accept the content of the TPP because China cannot change its policies to sustain economic growth and ensure social stability. The Chinese leadership understands that a rapid market reform is not a feasible pathway so that China cannot participate in the TPP negotiations at least in the near future (Suh, 2014).

However, China should concern Japanese participation in the TPP negotiations because Japan's entry into the negotiations means that the US has taken a step forward in isolating China in the region. In this situation, Korean and Taiwanese participations in the TPP may not be desirable for China. It could even provoke a serious imbalance between the TPP and the RCEP. China could suffer from declining competitiveness, if Korea and Taiwan joined the TPP negotiations in terms of the trade position based on economy and security. The impact could be largely instable in the region.

The TPP's position in the world economy and trade is very significant as well. Its output of 12 member states accounted for 27.8 trillion US dollars in 2015 although its population share is slightly higher than 11 percent in the same year. TPP's GDP share in the world economy increased from 38 percent in 2014 to 38.2 percent in 2015 although global GDP declined by 4.2 percent in the same period. The total world trade volume in 2014 accounted for 23.4 trillion US dollars and declined to 20.9 trillion US dollars in 2015 that accounts for a 11.2 percent decline. However, total trade share of the TPP in the world trade increased from 32% in 2014 to 41.5 percent in 2015. It shows clearly the TPP's weight in the world economy

and trade. As a result, the TPP became the second largest mega FTA in terms of its GDP and trade volume (World Bank, 2016; World Integrated Trade Solution, 2017), (Figure 3).

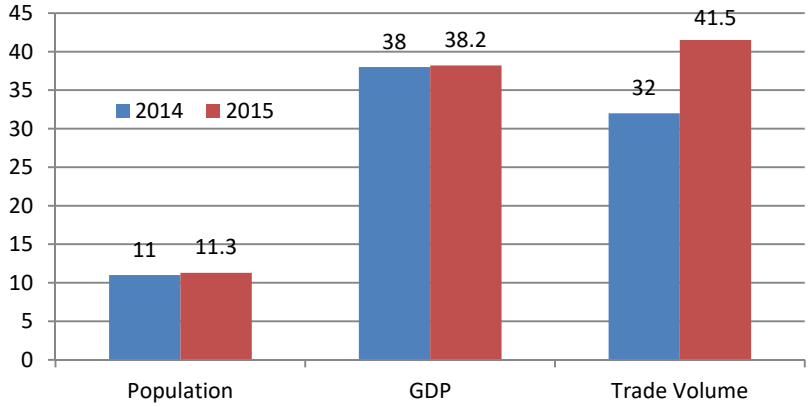

Figure 3. TPP's Share in the World Population, GDP, and Trade (%)
Source: WTO, World Trade Statistics, 2015, 2016; World Bank, 2016.

The TPP was launched in 2010, and its negotiations were completed in October 2015, it was signed in February 2016. It had grown into twelve member states drawn from the APEC member states and they have to ratify it in their legislatures. Among the member states, only Japan ratified in the Diet on 9 December 2016 and tried to persuade other member states, despite the withdrawal from the TPP by Trump administration. The US government formally withdrew from the TPP in January 2017. Given its current legal status, the TPP cannot enter into force without the US ratification. The US withdrawal from the TPP may hinder its further process ultimately because of the Article 30.5 in the TPP agreement. According to Article 30.5, at least six members accounting for 85 percent of the total GDP in TPP member states must ratify before the agreement enters into force. The share of US GDP accounted for 64.8 percent of the total TPP GDP in 2015, which is absolutely overwhelming compared to any other member state. Therefore, the US withdrawal makes it numerically impossible for other member states to meet the requirement (Nikkei Asian Review, 2016; Wilson, 2017; USTR, 2017), (Figure 4).

The impacts of the US withdrawal from the TPP have resulted in dramatic changes of trade policies in many nations participating in the TPP. Particularly Asian countries started to reappraise their regional trade strategies. Many Asian governments regard the TPP without the US participation as impossible. As a result, their trade policies have shifted to ongoing RCEP negotiations. During the Lima APEC Summit in November 2016, trade policies and RCEP's potential roles in the region were discussed between member states. In the summit, China as a driving force behind the RCEP pledged its commitment to economic openness and pushed to complete RCEP negotiations. Even Japan addressed its priority of trade policy from the TPP to the RCEP (Reuters, 2016; Wilson, 2017).

The USA will set up the three principles in its trade policy under Trump administration. Firstly, it will focus on bilateral FTA negotiations rather than multilateral FTA negotiations. Replacing the TPP by pursuing bilateral trade deals with the TPP member states is the signal to change its trade policy. Secondly, it will consider to renegotiate and to reform the

existing agreements, such as NAFTA and Korea US FTA. Last, but not least the USA will point out all unfair trade practices which put the US national economy at disadvantage by creating trade deficit job loss, hollowing out manufacturing sectors, etc. (Wah, 2017).

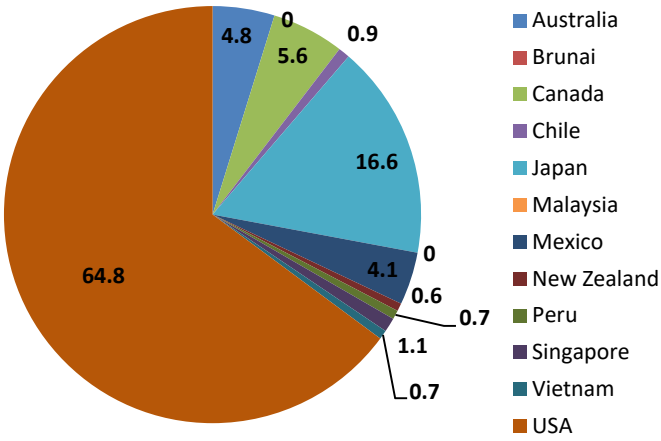

Figure 4. GDP Share of TPP Member states (As of 2015, %)
Source: World Bank, 2016.

RESULTS AND DISCUSSION

Analysis on RCEP AND TPP

Two mega FTAs such as the RCEP and TPP have been competing with each other in order to set the trade rules in the Asia Pacific region till the USA took the leadership to complete the TPP negotiations in 2015. Twelve member states of the TPP finally concluded the mega FTA in October 2015, and Japan already ratified it in the Diet in December 2016 although the Japanese government knew that the then President elect Trump announced the withdrawal from the TPP when his government would come to power. It means that all the member states focus on their national interests as their first priority to access to the mega FTAs. Therefore, the USA pulled out its membership in TPP, while Japan has tried hard to rescue the TPP without the USA.

In the global economy, the year 2015 is a turning point to mark negative growths in terms of the world GDP and trade compared to the previous year since the global financial crisis in 2008. Therefore, its economic impact on Asia and Pacific region is also significant. Under such a negative economic environment, the RCEP was able to increase its global GDP share from 29 percent in 2014 to 30.6 percent in 2015, while the TPP could expand its share from 38 percent to 38.2 percent marginally in the same period. The reason for it is that the RCEP member states particularly in developing economies, such as China, India, Indonesia, Malaysia, the Philippines, Thailand, Vietnam were vigorous and created high economic growths in 2015, while the TPP member states could not generate high economic growths except for Malaysia, Mexico, Vietnam in the same year.

Additionally, the RCEP increased its global share of trade from 35 percent in 2014 to 44.5 percent in 2015, while the TPP expanded its share from 32 percent to 41.5 percent in the same period. Both were able to increase their trade share by nearly 10 percent compared to the previous year, although the total volume of the world trade declined by 12.1 percent from 2014 to 2015. In the RCEP, the Chinese trade volume declined from 4.3 trillion US dollars in 2014 to 3.7 trillion US dollars in 2015, which was a 14.1 percent decline. In the TPP, the US trade volume decreased from 4.05 trillion US dollars to 3.4 trillion US dollars in the same period, which was a 15.8 percent decline. Although two leading nations' trade volumes declined, other developing economies' trade volume in the Philippines and Vietnam increased. At the same time, trade volumes in other regions declined more than in the Asia Pacific region. As a result, their trade share increased to 44.5 percent and 41.5 percent in 2015, respectively (Table 1 and 2).

In the RCEP, three major economies, namely China, Japan and Korea show different patterns of trade trend from 2013 to 2015. Firstly, Chinese import volumes increased from 1.79 trillion US dollars in 2013 to 1.81 trillion US dollars in 2014 and declined heavily to 1.32 trillion US dollars in 2015. However, its export volume increased continuously from 2.15 trillion US dollars in 2013 to 2.24 trillion US dollars in 2014 and 2.37 trillion US dollars in 2015. This trend is closely related to the new Chinese industry policy focused on a domestic consumption driven growth strategy in the 12th Five Year Plan (2011-2015). By implementing the strategy, China created a historically high trade surplus with 359 billion US dollars in 2013, 435 billion US dollars in 2014, and 1.05 trillion US dollars in 2015.

Secondly, Japanese import volumes increased from 785 billion US dollars in 2013 to 799 billion US dollars in 2014, but declined to 626 billion US dollars in 2015. Its export volumes increased slightly from 695 billion US dollars in 2013 to 699 billion US dollars in 2014, but declined heavily to 625 billion US dollars in 2015. During that period, Japan made trade deficits continuously. Lastly, Korean trade pattern looks different compared with other two major economies. Korean import volumes decreased continuously from 535 billion US dollars in 2013 to 524 billion US dollars in 2014 and 437 billion US dollars in 2015. Its export volumes declined also from 618 billion US dollars in 2013 to 613 billion US dollars and 527 billion US dollars in 2015. However, Korea made a large amount of trade surplus during the period as the Chinese case (Table 1).

In the TPP, two major economies such as USA and Japan have clearly the same pattern of the trade trend. US import volumes increased from 2.29 trillion US dollars in 2013 to 2.39 trillion US dollars in 2014, but declined to 2.31 trillion US dollars in 2015. Its export volumes increased from 1.59 trillion US dollars to 1.63 trillion US dollars, but dropped to 1.50 trillion US dollars heavily in the respective years. As a result, the USA made heavy trade deficits in a row, which is the same in the Japanese trade pattern (Table 2).

It indicates that the RCEP may have a higher potential than the TPP to grow further in the future because the majority of the member states, particularly China, India, and ASEAN countries can create high economic growth based on their trade volume increase. Although four ASEAN member states, such as Brunei, Malaysia, Singapore, Vietnam participate in the TPP, their roles in contributing to a massive expansion for trade growth in the TPP must be limited. Therefore, the roles of these four ASEAN member states can be intensified in the RCEP along with other rapidly developing nations, such as China, India, Indonesia, the Philippines, Thailand, etc., rather than in the TPP as a whole.

Table 1. Trade Trend in RCEP Member states (100 Million of US Dollars)

Nations	2013		2014		2015	
	Import	Export	Import	Export	Import	Export
China	17.896	21.486	18.087	22.438	13.238	23.722
Brunei	49	118	37	111	32	64
Cambodia	95	65	107	75	107	85
India	4.817	3.192	4.724	3.284	3.907	2.644
Indonesia	1.763	1.821	1.683	1.753	1.782	1.760
Japan	7.846	6.949	7.990	6.992	6.256	6.249
Korea	5.354	6.182	5.241	6.130	4.365	5.269
Laos	N.A.	N.A.	N. A.	N. A.	N. A.	N. A.
Malaysia	1.717	2.023	1.729	2.075	1.762	2.002
Myanmar*	39	73	39	73	42	76
New Zealand	387	397	410	420	365	344
Philippines	622	445	672	498	702	586
Singapore	3.617	4.374	3.582	4.378	2.967	3.466
Thailand	2.274	2.275	2.094	2.267	2.020	2.109
Vietnam	1.233	1.320	1.301	1.502	1.658	1.620
Australia	2.497	2.542	2.403	2.407	2.001	1.878

* statistics in 2010.

Source: World Integrated Trade Solution, 2017.

Table 2. Trade Trend in TPP Member states (100 Million of US Dollars)

Nations	2013		2014		2015	
	Import	Export	Import	Export	Import	Export
USA	22.943	15.920	23.855	16.333	23.068	15.039
Australia	2.497	2.542	2.403	2.407	2.001	1.878
Brunei	49	118	37	111	32	64
Canada	4.727	4.664	4.739	4.783	4.192	4.088
Chile	747	764	686	750	630	634
Japan	7.846	6.949	7.990	6.992	6.256	6.249
Malaysia	1.717	2.023	1.729	2.075	1.762	2.002
Mexico	3.816	3.807	4.004	3.977	3.952	3.806
New Zealand	387	397	410	420	365	344
Peru	417	429	407	395	301	332
Singapore	3.617	4.374	3.582	4.378	2.967	3.466
Vietnam	1.233	1.320	1.381	1.502	1.658	1.620

* statistics in 2010.

Source: World Integrated Trade Solution, 2017.

Implications for the East Asian Economic Cooperation

Economic benefits for the RCEP and TPP for the Asia Pacific region have already been studied by the computable general equilibrium (CGE) model. Given the analysis of the CGE model, the RCEP generates a total increase of 644 billion US dollars which accounts for 2 percent of Asian GDP by 2025 based on its GDP in 2007, while the TPP generates 223 billion US dollars in the same year (Petri & Plummer, 2014).

Additionally, two mega FTAs could reduce the noodle bowl effect of overlapping bilateral FTAs in the region that hinder the member states from increasing trade volumes and strengthening their trade interdependence and regional economic integration. In fact, the noodle bowl effect has caused high costs to utilise preferential concessions for the private sector because the private sector must pay attention to different rules and regulations. Accordingly, the RCEP and the TPP can solve the negative effect and achieve a complete set of free trade principles which could contribute to generating the economic growth and increasing productivity in the member states (Estevadeordal & Taylor, 2013; Park, 2016).

Trade dependency in the Asia Pacific region has increased substantially since the year 2000. The majority of East Asian economies have become more dependent on the RCEP than the TPP. Even Australia and New Zealand show their higher trade dependency on the RCEP than the TPP. However, the Chinese trade dependency on the RCEP was 14.96 percent in 2002 and decreased to 14.39 percent in 2012 slightly, while its trade dependency on the TPP accounted for 17.77 percent and declined to 15.78 percent in the same period substantially. The Chinese trade dependency on ASEAN+3 also declined from 14 percent to 11.98 percent in the same period as well.

However, the US trade dependency on ASEAN+3, RCEP, and TPP increased in the same period. Its trade dependency on ASEAN+3 increased from 5 percent to 6.52 percent, while its trade dependency on the RCEP accounted for 4.96 percent in 2002 which increased to 7.17 percent in 2012. Its trade dependency on TPP also increased from 7.76 percent to 8.87 percent in the same period. It means that the Chinese economy has been less dependent in the regional economic system and has become more globalised, while the US economy has become more integrated in the Asia Pacific economic system although its shares are much lower than those of the Chinese (Table 3).

The US withdrawal from the TPP can be regarded as a strategic turning point in the open economic order. In fact, the TPP cannot continue without the US participation. Therefore, the RCEP can be the only one mega FTA in the region that can solve the most of negative problems for many bilateral FTAs. As a result, the RCEP is now the most significant initiative on the global trade scene in this regard.

East Asian economies are the most dynamic in the world economy and integrated to a high extent although there is no virtual legal framework as like the EU and NAFTA except ASEAN. Thus, the RCEP provides several implications for the East Asian economic cooperation as follows; Firstly, East Asian economies need to establish a solid platform to intensify the regional economic integration for their further economic growth by forming a region-wide FTA. Secondly, the RCEP can contribute to the liberalisation of trade and investment in the region. Still several nations such as China, India, Indonesia, and many of developing countries in RCEP have barriers to trade and investment. Easy liberalization could create large economic gains not only for developing countries, but also for developed countries in the RCEP. Last, but not least, the RCEP is a pathway to create a Free Trade Area of Asia and the Pacific (FTAAP) which pushes for opening market and deepening reforms to strengthen economic integration not only for member states, but also for Europe and the rest of the world (Armstrong & King, 2017; Basu Das, 2017).

Table 3. Trade Interdependency Ratio in Mega FTAs Member states (2002-2012, %)

Category	ASEAN+3		RCEP		TPP	
	2002	2012	2002	2012	2002	2012
Brunei	61.57	74.99	68.75	91.99	54.97	62.32
Cambodia	25.19	48.11	25.68	49.37	33.63	38.64
Indonesia	22.61	25.83	25.55	29.04	22.98	19.08
Laos*	–	84.5	–	85.7	–	–
Malaysia	85.25	77.84	91.79	87.49	89.13	55.63
Myanmar*	–	80.8	–	90.5	–	–
Philippines	39.89	24.98	42.09	26.34	52.4	20.1
Singapore	123.14	131.28	133.95	148.22	124.18	83.09
Thailand	48.62	67.69	52.35	74.67	52.61	51.05
Viet Nam	48.94	80.8	54.4	86.89	37.87	48.44
China	14	11.98	14.96	14.39	17.77	15.78
Japan	6	11.68	7.1	13.31	6.94	7.88
Korea	20	36.75	21.72	41.16	22.3	28.33
Australia	15	19.28	17.1	21.27	15.07	11.5
India	4	9.71	4.05	10.6	5.17	8.22
New Zealand	13	17.11	22.52	25.39	23.78	19.18
USA	5	6.52	4.96	7.17	7.76	8.87

Source: Adopted by NEAT Working Group based on UN Comtrade and WDI Database, 2014.

CONCLUSIONS

Trade and investment have contributed to the global economic growth substantially during the last five decades. In that period, the growth rate of trade has been twice as high as the economic growth rate. The global financial crisis in 2008 caused a severe decline of trade and marked a negative economic growth. Since the global financial crisis, the world economy has started to recover by strengthening the trade growth. However, the global trade growth rate has started to be lower than the global economic growth rate since 2012. Finally, the global trade growth rate declined in 2015 compared to the previous year.

Despite the slowdown of the trade growth, many countries prefer to choose regional bilateral FTAs instead of multilateral FTAs in order to boost their economic growth. This trend spread out in the Asia Pacific region, and countries in the region have continuously developed to negotiate pluri-lateral FTA, such as China, Japan, Korea FTA and mega FTAs, such as RCEP and TPP.

Mega FTAs are not only for economic cooperation, but also for the political and security cooperation in the Asia Pacific region. Therefore, these mega FTAs compete with each other by setting trade rules, although both declared to open to any member states in the region. Therefore, the countries participating in mega FTAs are keen to calculate their national interests which must be maximised by choosing proper mega FTAs. In this sense, the RCEP focuses mainly on East Asian economic interests in particular, while the TPP seeks for economic interests in the Asia Pacific region as a whole although all nations in the region do not participate in the agreements.

The RCEP is still in the process of completing its negotiation and targets to be completed in 2017, while the TPP was already completed in 2015. However, the US withdrawal from the TPP in January 2017 changed the situation of mega FTAs completely. As a result, the TPP is not expected to put in force without the US participation because the US economic share among the TPP member states accounted for nearly 65 percent in 2015. Although Japan has tried strongly to persuade the US government to reconsider the participation in the TPP, the US government rejected it. Japan also asked other member states to ratify the TPP agreement. However, no member nation has ratified the agreement except it. Therefore, the RCEP is the only mega FTA in the region which will represent East Asian and Oceania economic interests and attract other Pacific nations.

Many East Asian countries need to participate in the RCEP in order to solve the noodle bowl effect, because their regional bilateral FTAs overlap. Additionally, many developing nations in the region need to liberalise their trade and investment in the RCEP in order to develop their national economies further. Moreover, the member states have to utilise the RCEP as a platform to intensify the regional economic integration which creates the regional economic system interdependent.

By creating the regional economic bloc representing East Asian economic interests, the RCEP can develop further to create the region-wide FTA that is FTAAP pursuing open markets, protecting the global free trade system and generating further global economic growth. Therefore, the RCEP can play roles in a close regional economic integration in East Asian countries which must be a pathway to set FTAAP not only for the Asia Pacific region, but also for other part of economic regions. For it, not only large sized economies such as China, Japan, India, and Korea, but also small sized economies such as Malaysia, Thailand, and Vietnam must play their roles as member states actively in RCEP. After launching the FTAAP, it may be possible that all member states can set new governance of the global trade.

REFERENCES

Armstrong, S., & King, A. (2017). *East Asia's Economic Agreement*, 19th Feb. East Asia Forum. Retrieved on April 27, 2017 from http://www.eastasiaforum.org/2017/02/19/east-asias-economic-agreement/

ASEAN Secretariat (2009). *ASEAN Plus Three Cooperation*. Retrieved on April 17, 2017 from http://www.asean.org/asean/external-relations/asean-3/item/asean-plus-three-cooperation

ASEAN Secretariat (2012). *Guiding Principles and Objectives for Negotiating the Regional Comprehensive Economic Partnership*. Retrieved on April 17, 2017 from http://www.asean.org/asean/asean-summit/item/asean-framework-forregionalcomprehensive-economic-partnership

Asia Regional Integration Center (2015). *Free Trade Agreements*. Retrieved on April 15, 2017 from https://aric.adb.org/fta-all

Balassa, B. (1962). The Theory of Economic Integration. *The Economic Journal*, 72(286), 389-391.

Basu Dasu, S. (2017). The Future of Trade Diplomacy. *Perspective*, Feb(9), ISEAS Yusof Ishak Institute.

Beeson, M., & Stubbs, R. (2012). *Routledge Handbook of Asian Regionalism*. London and New York: Routledge.

Dent, C.-M. (2003). Networking the Region? The Emergence and Impact of Asia Pacific Bilateral Free Trade Agreement Projects. *The Pacific Review*, 16(1), 1-28.

EAFTA (2009). *Desirable and Feasible Option for an East Asia FTA*, A Report by Joint Expert Group on EAFTA Phase II Study. Retrieved on April 15, 2017 from http://www.dtn.go.th/files/275/FTA/acc/240.pdf

Estevadeordal, A., & Taylor, A.M. (2013). Is the Washington Consensus Dead? Growth, Openness, and the Great Liberalization, 1970s-2000s. *Review of Economics and Statistics*, 95(5), 1669-1690.

Graceffo, A. (2017). China at Davos: US-China Relations are the focus of the World Economic Forum, Jan. 23, *Foreign Policy Journal*. Retrieved on April 15, 2017 from https://www.foreignpolicyjournal.com/2017/01/24/china-at-davos-us-china-relations-are-the-focus-of-the-world-economic-forum/

Hearn, A.H., & Myers, M. (2015, July). China and TPP: Asia Pacific Integration or Disintegration?. *The Dialogue, China and Latin America Report*.

Hosny, A.S. (2013). Theories of Economic Integration: A survey of the economic and political literature. *International Journal of Economy, Management and Social Sciences*, 2(5), 133-155.

International Monetary Fund (IMF) (2017). *World Economic Outlook: A Shifting Global Economic Landscape*. Washington D.C.: IMF.

Johnston, E. (2017). *16 Nation RCEP Talks Resume in Wake up of TPP's Demise, Japan Times, Feb. 27*. Retrieved on April 18, 2017 from http://www.japantimes.co.jp/news/2017/02/27/business/16-nation-rcep-talks-resume-wake-tpps-demise/#.WPWAGSa1v4Y

Katzenstein, P. (1997). Introduction: Asian Regionalism in Comparative Perspective. In P. Katzenstein & T. Shiraishi (Eds.), *Network Power: Japan and Asia* (pp. 1-46). Ithaca, USA: Cornell University Press.

Katzenstein, P. (2005). A *world of Regions: Asia and Europe in the American Imperium*. Ithaca, USA: Cornell University Press.

Kawai, M., & Wignaraja, G. (2008). EAFTA or CEPEA: Which Way Forward?. *ASEAN Economic Bulletin*, 25, 113-139.

Kawai, M., & Wignaraja, G. (2011). Asian FTAs: Trends, Prospects, and Challenges. *Journal of Asian Economics*, 22(1), 1-22. https://doi.org/10.1016/j.asieco.2010.10.002

Kumar, M., & Charlton, B. (2017). *RCEP will step into gap as Trump pulls out of TPP, Jan. 23, Oxford Analytica Daily Brief*. Retrieved on 21 April, 2017 from https://dailybrief.oxan.com/Analysis/DB217448/RCEP-will-step-into-gap-as-Trump-pulls-out-of-TPP

Melitz, M.J., & Trefler, D. (2012). Gains from Trade When Firms Matter. *Journal of Economic Perspectives*, 26(2), 91-118.

Melitz, M.J., & Redding, S. (2014). Heterogeneous Firms and Trade. In G. Gopinath, E. Helpman & K. Rogoff (Eds.), *Handbook in International Economics* (vol. 4, pp. 1-54). Oxford: North Holland.

National Board of Trade (2016). *Protectionism in the 21st Century*. Stockholm: NBOT.

Nikkei Asian Review (2016). *Japan Ratifies TPP despite Trump's Threat, Dec. 10*. Retrieved on 24 April, 2017 from http://asia.nikkei.com/Politics-Economy/International-Relations/Japan-ratifies-TPP-despite-Trump-s-threat

Park, S.C. (2016). Korea's Trade Strategies for Mega Free Trade Agreements in Regional and Global Economic Integration. *International Organizations Research Journal*, 11(4), 19-40.

Pempel, T.J. (2010). Soft Balancing, Hedging, and Institutional Darwinism: The Economic Security Nexus and East Asian Regionalism. *Journal of East Asian Studies*, 10, 209-238.

Pempel, T.J. (2013). Regional Institutions and the Economy-Security Nexus. In T.J. Pempel (Ed.), *The Economy Security Nexus in Northeast Asia* (pp. 146-163). London: Routledge.

Petri P.A., & Plummer M. (2014). *Asia-Pacific Regional Integration: Economic Effects and Implications for the Global Trading System, Econobrowser, 5 June*. Retrieved on April 27, 2017 from http://econbrowser.com/archives/2014/06/

Reuters (2016). *APEC leaders vow to fight protectionism, look to China on trade* (20 November). Retrieved on April 27, 2017 from https://www.reuters.com/article/us-apec-summit/apec-leaders-vow-to-fight-protectionism-look-to-china-on-trade-idUSKBN13F117

Robson, P. (1998). *The Economics of International Integration.* London and New York: Routledge.

Schell, O., & Shirk, S.L. (2017). *US Policy Toward China: Recommendations for a New Administration*. New York: Asia Society Center on US China Relations.

Shott, J.J. (2017). *US Trade Policy Options in the Pacific Basin: Bigger is Better, Policy Brief,* Peterson Institute for International Economics. Retrieved on April 21, 2017 from https://piie.com/system/files/documents/pb17-7.pdf

Söderbaum, F. (2012). Theories of Regionalism. In M. Beeson & R. Stubbs (Eds.), *Routledge Handbook of Asian Regionalism* (pp. 11-22). London and New York: Routledge.

Urata, S. (2013). *Constructing and Multilateralizing the Regional Comprehensive Economic Partnership: An Asian Perspective* (ADBI Working Paper Series no. 449). Tokyo: ADBI.

Suh, J.K. (2014). Korean Bridge: Balancing Asian Economic Regionalism between the United States and China. In G. Rozman (Ed.), *Joint US-Korea Academic Studies* (vol. 25, pp. 188-199). Washington D.C.: Korea Economic Institute of America.

The Office of the U.S. Trade Representative (USTR) (2017). *The Trans-Pacific Partnership. Final Provisions*. Retrieved on April 24, 2017 from https://ustr.gov/sites/default/files/TPP-Final-Text-Final-Provisions.pdf

Wah, W.S. (2017, March). Exploring the New Order of Global Trade amid the US Trade Policy Shift. *Economic Review*. Retrieved on December 1, 2017 from http://www.bochk.com/dam/investment/bocecon/SY2017008 (en).pdf

Wilson, J. (2017). *Australian Trade Diplomacy; Shaping the Future of the Asian Economic Architecture through Regional Trade Multilateralism*. Perth: Perth US Asia Centre.

World Bank (2013). *Malaysia Trade Indicators*. Retrieved on April 27, 2017 from http://wits.worldbank.org/CountryProfile/en/Country/MYS/Year/2013

World Bank (2017). *Data Bank*. Retrieved on April 19, 2017 from http://databank.worldbank.org/data/databases/%26nbsp;trade-data?pagenumber=4

World Integrated Trade Solution (2017). Retrieved on April 19, 2017 from http://wits.worldbank.org/#

World Trade Organization (WTO) (2017). Trade Statistics and Outlook: Trade Recovery Expected in 2017 and 2018, Amid Policy Uncertainty. Press/793. Retrieved on April 19, 2017 from https://www.wto.org/english/news_e/pres17_e/pr791_e.htm

Xiao, Y. (2015, April 20). Competitive Mega-regional Trade Agreement: Regional Comprehensive Economic Partnership (RCEP) vs. Trans Pacific Partnership (TPP). *CUREJ Electronic Journal*. Retrieved on April 16, 2017 from http://repository.upenn.edu/curej

Yi, Q. (2014). The RCEP: A Chinese Perspective. In G. Tang & P.A. Petri (Eds.), *New Directions in Asia-Pacific Economic Integration* (pp. 131-137). Honolulu: East-West Center.

Zhao, S. (1998). Soft versus Structural Regionalism: Organizational Forms of Cooperation in Asia Pacific. *The Journal of East Asian Affairs*, 12(1), 96-134.

Author

Sang Chul Park
Full Professor at Graduate School of Knowledge based Technology and Energy, Korea Polytechnic University and Adjunct Professor at Center for Science-based Entrepreneurship, Korea Advanced Institute of Science and Technology (KAIST), South Korea. Research areas: industrial policy and regional development, studies on innovation systems on science parks and innovative clusters in particular, energy policy, sustainable development strategy, high technology ventures, international business and trade.
Correspondence to: Sang Chul Park Graduate School of Knowledge based Technology and Energy, Korea Polytechnic University Gyeonggi 429-793, South Korea, e-mail: scpark@kpu.ac.kr

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Productivity Gap: A Chance or an Obstacle in Absorbing Benefits from FDI in a Host Country

Liwiusz Wojciechowski

ABSTRACT

Objective: The objective of this study was to determine the relationship between labour productivity in Poland, the presence of foreign direct investment and productivity gap between Poland and the EU-15.

Research Design & Methods: Panel data techniques including pooled, fixed and random effects models, as well as diagnostic tests were used in this study. The idea was to find the relation between labour productivity measured by gross value added per employee (or hours worked) and the degree of the penetration of foreign capital.

Findings: While investment decisions regarding the choice of a country are determined by the size of the target market, the distance is still a negative factor in the creation of FDI volume. Additionally, the backwardness of business or its relative proximity in terms of labour productivity in relation to the EU-15 is an unfavourable factor when it comes to the improvement of productivity.

Implications & Recommendations: The results that we have obtained confirm the hypothesis that there exists an optimal level of productivity gap implying high absorption benefits of FDI presence. Moreover, an increasing involvement of foreign investors in different sectors implies both higher productivity of these sectors and the gap reduction. This may prove that too small or too huge productivity gap is an obstacle to the absorption of benefits from the presence of foreign capital to boost productivity by local firms.

Contribution & Value Added: The study contributes to the observation in the existing literature that an increasing accumulation of FDI is accompanied by the progressive convergence of productivity between the UE-15 and Poland almost across all sectors. The heterogeneity of the phenomenon is noticeable on the sectoral level, which seems to be unsaid in the majority of empirical studies basing on national-aggregated data.

Article type: research paper
Keywords: internationalisation; productivity gap; FDI; panel analysis; sectoral study
JEL codes: C33, F21

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INTRODUCTION

The main objective of this study is to determine the relationship between the presence of foreign direct investment (FDI) and labour productivity in the host country and the size of productivity gap between Poland and economically developed countries of the EU-15, which are the main providers of FDI into Poland. The investigation was carried out on the basis of the concept of absorption capacity of the economy. It was decided to regress the labour productivity, measured by gross value added per employee and the degree of penetration of foreign capital, expressed as the ratio of the stock FDI in section to gross value added on the NACE level. We considered gross value added per worker (hour worked) in the EU-15 and Poland as a variable expressing the level of technological gap in the individual sections. Panel data techniques (including models with fixed and random effects (Baltagi, 2005) for comparable annual data from Eurostat and National Polish Bank for the period 1997-2014.

We tested the hypothesis espousing non-linear, inverted U-shaped relationship between the productivity gap and obtained benefits from the presence of FDI in terms of increasing productivity. It was a priori assumed that there is an optimal level of development gap implying maximal absorption benefits from the presence of FDI (Kolasa, 2007), which may be confirmed by a negative impact of the level of the technological gap of sectors. This may prove that too small or too large technological gap is a barrier to absorb the benefits of the presence of foreign capital to productivity growth of enterprises in the host country investments (Damijan, Knell, Boris, & Rojec 2003; Damijan, Rojec, Majcen, & Knell 2013; Cieślik, 2005; Wach & Wojciechowski, 2014, 2016a, 2016b).

The inflow of FDI is one of the factors which may influence the development of catching-up economies. Foreign investment contributes not only to an increase in the value of the total capital in economy, but also causes improvement of technology and efficiency of resource utilising in terms of technological progress.

The results of the study also show that FDI had an impact on the progressive convergence of productivity and wealth of the European Union countries. The paper is structured as follows: in Section 1 we present the existing literature body giving assumptions for the theoretical concept. Then in Section 2 we prepare a preliminary analysis of the collected data and we move with empirical observations to econometric modelling in Section 3. Section 4 concludes and suggests some policy recommendations, as well as further in-depth research intentions.

LITERATURE REVIEW

Technology diffusion from foreign companies to local ones may be carried out through different channels (Ciołek & Golejewska, 2005; 2006). Technology can be embodied not only in tangible assets, but also in patents, know-how and managerial skills (Blomström, Kokko, & Zejan, 1994). While in the short term companies with foreign capital do not need to invest much in human capital but just rely on experience gained by workers in the host country, the situation is quite different in the long term. In this situation, many employees who have gained experience can migrate back to domestic companies that offer them a chance to gain the experience and qualifications acquired by entities with the participation of foreign capi-

tal. The results of an empirical analysis for the after-transformation period suggest that companies with foreign capital have not contributed to the restructuring of local companies but have even led to the deterioration of the situation on the market. Djankov and Hoeckman (2000, pp. 49-50) obtained for the Czech Republic similar results as Ciołek and Golejewska (2006) and Golejewska (2009) did for Poland. It could indicate the weakness of domestic companies and their weak absorption capacity in terms of increasing competition.

In literature on this subject, the prevailing view is that foreign ownership has positive impact on the economy of the host country (Damijan *et al.*, 2003, pp. 2-4). Researchers suggest that the effects of this presence may be in the net result of several factors related to the characteristics of the host country (a developed/ developing one), and as shown by recent studies – also in the motives and the type of investment undertaken. While in most transition economies FDI inflow initially could lead to negative spillover effects (e.g. the phenomenon of market stealing) (Żukowska-Gagelman, 2000, p. 223), it is expected that at the moment positive effects can outweigh the negative ones.

Literature concerning productivity gap in catching-up countries via productivity increasement is extent but still inconclusive. Findlay (1978) reveals that the rate of technological progress in the host country is an increasing function of the technology gap between that country and the investor's country and also the increasing function of acquired FDI. Haddadl and Harison (2001) assumed that foreign companies are more productive and have lower growth rates than domestic ones. That implies convergence which is observed especially in low-tech sectors characterised by the lack of the ability of local companies to assimilate high technology. Karpaty and Lundberg (2004) found that indirect benefits of FDI depend on the absorption capacity of local entities in terms of their own R&D activity. Dimelis (2005) found positive relationship between the technological position of domestic enterprises and indirect effects accompanying FDI in the host country. Negative effects of FDI are observed rather among domestic companies in economies which liberalise trade and introduce market mechanisms in economies characterised by technological backwardness (Sczepkowska-Flis, 2008). However, Glass and Saggi (1998) stated that the technological gap between the host country and the origin of FDI can be treated as an indicator of the absorption capacity of enterprises, i.e. the greater distance the lower quality of technology transferred and lower potential benefits accompanying FDI. Kokko, Tansinis and Zeman (1996) demonstrated that local companies can benefit from the activities of foreign companies in the single market if the gap is not too high, which potentially allows to absorb more efficient technical or organisational solutions. When analysing FDI productivity spillovers concerning technology gap in electrical and electronic industries in Malesia Khalifah, Salleh and Adam (2015) pointed that there is negative (or insignificant) impact of FDI spillover effects on TFP. They also noticed that there exists mixed evidence on the effects of interactions between FDI spillovers and the technology gap and suggested that fine-tuning of fiscal incentive schemes for FDI to arrive at positive net benefits may prove to be a daunting task in the Malaysian E&E industries. In his recent study, Herzer (2017) found a positive long-run effect of FDI on TFP basing on the cointegration analysis of Bolivian time series over the period 1980-2011. The direct motivation of the authors to conduct this study was a paper by Meyer and Sinani (2009) where the authors suggest a curvilinear relationship between spillovers and the host country's level of development in terms of income, institutional framework and human capita. We decided to verify the hypothesis of

a nonlinear, reversed, U-shaped relationship between productivity gaps, and the benefits of the presence of foreign capital in terms of productivity growth.

The current knowledge does not give a clear answer to the question of the impact of FDI on productivity. The results of empirical studies are still inconclusive. Although there is empirical evidence pointing to the varied scale and direction of the impact of FDI on various economic aspects of the host country, there is still no comprehensive theory explaining the complex mechanism of the impact of FDI on the efficiency of resources utilisation. It should also take into account the possibility that FDI and productivity are linked and that there is a bidirectional relationship between them. This issue is particularly important because on the one hand FDI can contribute to changes in productivity in the host country, but on the other hand its level and dynamics may imply that FDI should be undertaken in a given country. Therefore, in both theoretical and technical terms it does not authorise us to consider these categories separately. This fact remains ignored by the majority of the researchers of this phenomenon, despite the dynamic development of the quantitative approach and its application in economics. Thus, it should be assumed that the presence of indirect effects of FDI in the host country varies (both in time and the strength and direction of impact), depending on the host country specifics, the technological gap and finally, on institutional factors. As already mentioned, a two-way relationship between the presence of FDI and productivity in the host country should be assumed, taking into consideration the endogenous nature of FDI.

These two assumptions are reflected in the copyright framework of the created concept, which will be subject to empirical verification (Figure 1). According to the proposed model, the amount and quality (type) of foreign direct investment located in a host country is determined by pull and push factors, which is inseparably connected with motives for making those investments. The (technological) gap between the investor and host countries, in turn, may impact the economy of the host country (both directly and indirectly).

In this study we modify the well-known technological gap concept, assuming that the level of the productivity gap between foreign and national companies is positively correlated with diffusion of productivity. Findlay (1978) showed a positive correlation between the technology gap and the possibilities of catching up with the leader (that is, the country of origin of FDI), which implies the reduction of the technological gap. Opponents of this conclusion state that the gap may limit the absorption of the benefits of the presence of FDI. Backward economies which use outdated technologies may not be able to absorb the potentially positive effects posed by the presence of foreign capital (Teece, 1997, p. 243; Aitken, 1999, pp. 606-607). Contrary to the majority of the literature, we assume that both large and small differences between technology used by different countries may be associated with relatively low benefits from the presence of foreign capital. However, we can find somehow similar approach in the work by Meyer and Sinani (2009). We assume that there should also be a minimum level of technological advancement of economies (branches, enterprises) for them to be able to take advantage of the diffusion of productivity implied by the presence of FDI. Literature suggests there are significant differences between impact of FDI on productivity when controlling investors' origins and motives (Javrocik, 2004; Javrocik-Smarzyńska, Saggi, & Spatarenau 2004). Both cooperation and competition between local and foreign firms

occurs (Kokko, 1996). The theoretical framework presented in Figure 1 is based on Dunning (1973, 1992) and the theory of economy development stages of Ozawa (1992).

Most recent studies of Hussain and Haque (2016) found that FDI is positively correlated with the economic growth in a developing country. Baltabaev (2014), when analysing 49 countries found that the incensement in FDI stocks leads to higher productivity growth. In the view of the authors of this study, the question of the importance of the origin of FDI in the case of potential benefits for the host country is also examined in the work by Azeroual (2016). He concludes that the source country of investment, in particular those which originate from France and Spain, TFP is differently impacted. Indeed, the impact of French investments on TFP is negative and statistical significant, especially in medium and high level technology industries of Marocco. Demeti and Rebi (2014) conclude that between productivity and FDI a strong positive correlation and one side causation exist since productivity can cause FDI, but not the contrary.

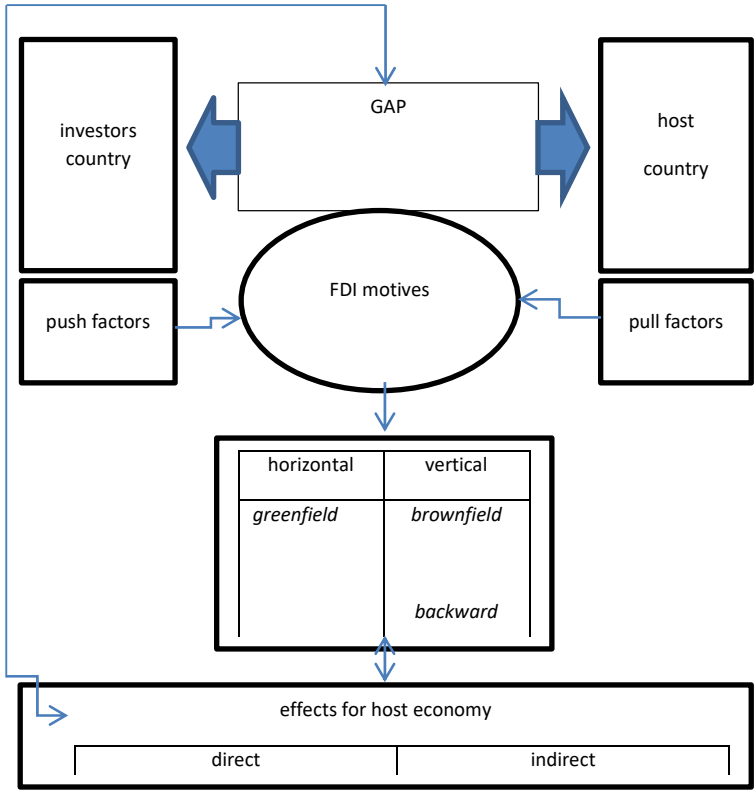

Figure 1. Author's concept for theoretical model
Source: own elaboration.

MATERIAL AND METHODS

The main objective of this study is to check the existence of potential dependence between labour productivity and FDI accumulation across sections of the Polish economy. We also

concern about differences in absorbing capacity in terms of productivity gap. The hypotheses we are checking are as follows: (i): The technological gap between Poland and the EU in the sectoral dimension is constantly decreasing, which is a sign of the catching-up effect; (ii): The greater the share of foreign capital in a given sector, the higher the productivity of the sector; (iii): There is a non-linear parabolic relationship between productivity and productivity gap. In this study we use yearly data covering the 1997-2014 period. Data on FDI divided into 11 NACE sectors[1] were obtained from the balance of payments statistics of the National Bank of Poland, while the data for productivity comes from Eurostat (Table 1).

Table 1. List of variables used in models

No	name	description	formula	abbreviation	unit
1	FDI_pos_mEUR_i,t	Stock FDI in i-sector in t-period	-	FDI	millions of EUR
2	GVA__mEUR_PL_i,t	GVA in i-sector in t-period in Poland	-	GVA_PL	millions of EUR
3	GVA__mEUR_EUR_i,t	GVA in i-sector in t-period in EU-15	-	GVA_UE	millions of EUR
4	EMP_t_hours_PL_i,t	Number of hours worked in i-sector in t-period in Poland	-	EMP_h_PL	thousand
5	EMP_t_hours_UE-15_i,t	Number of hours worked in i-sector in t-period in EU-15	-	EMP_h_UE	thousand
6	EMP_t_employees_PL_i,t	Number of employees in i-sector in t-period in Poland	-	EMP_e_PL	thousand
7	EMP_t_ employees_UE_i,t	Number of employees in i-sector in t-period in Poland	-	EMP_e_UE	thousand
8	GVA_employees_UE-15_i,t	Productivity in i-sector in t-period in EU-15 (type a)	(3)/(7)	GVA_e_UE	–
9	GVA_employees_PL_i,t	Productivity in i-sector in t-period in Poland (type a)	(2)/(6)	GVA_e_PL	–
10	GVA_hours_UE-15_i,t	Productivity in i-sector in t-period in EU-15 (type b)	(3)/(5)	GVA_h_UE	–
11	GVA_hours_PL_i,t	Productivity in i-sector in t-period in Poland (type b)	(2)/(4)	GVA_h_PL	–
12	GAP_1	Productivity GAP (type a)	(8)/(9)	GAP_1	–
13	GAP_2	Productivity GAP (type b)	(10)/(11)	GAP_2	–
14	FDI_GVA_PL_i,t	The share of stock FDI in GVA in i-sector in t-period in Poland	(1)/(2)	FDI_BIZ	%

Source: own study.

At the end of 2014, the value of stock FDI in Poland amounted to almost 172 billion EUR. Nearly 30% of this amount was invested in manufacturing (cat. C. NACE rev. 2), mainly in the production of food, beverages and tobacco products, as well as refined petroleum

[1] A (Agriculture, forestry and fishing), B + E (Mining and quarrying + Water supply, sewerage, waste management and remediation activities), C (Manufacturing), F (Construction), G + I (Wholesale and retail trade repair of motor vehicles and motorcycles + activities with accommodation and services catering), J (Information and communication), K (Financial and insurance activities), L (Real estate activities), M + N (Professional, scientific and technical activities + services administration and support service activities), O + Q (Human health and social work activities), R + U (Activities in arts, entertainment and recreation + Other services).

products, chemicals, pharmaceuticals, rubber and plastic (C19T22). Almost 59% of the stock FDI was invested in services, respectively (mainly in wholesale and retail trade, repair of cars and motorcycles, manufacturing and financial, insurance as well as professional and scientific activities. At the turn of the twentieth and twenty-first century (1997-2001), the average annual growth rate of stock FDI exceeded 37%. Since the Polish accession to the EU we have observed substantial, nearly 28% average annual growth in the rate of stock FDI. During the crisis period (2002-2003) and 2008, and also during a decline in investors' confidence in emerging markets in 2011 and 2013, the slowdown in the growth rate without significant divestments was observed. Nevertheless, the pace of divestment did not exceed 5% y/y. In the mesoeconomic scale there was observed the highest growth in FDI between the years 2003 and 2014 in branches of O + Q, R + U and a (in relative terms). During that period, a substantial amount of capital was invested in the processing industry (nearly 36.1 billion), financial activities and insurance (28.8 billion EUR) retail and wholesale trade, and hotel and catering services (18.3 billion EUR).

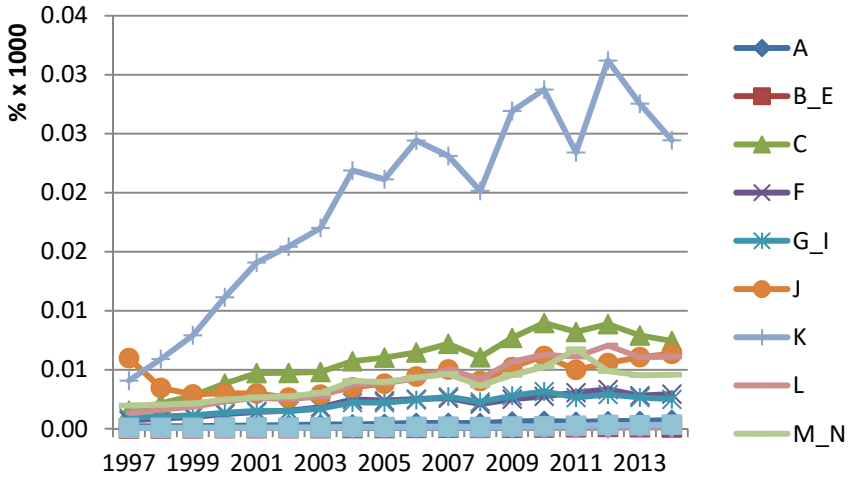

Figure 2. The share of stock FDI in the gross value added employment in i-sector in t-period in Poland
Source: own elaboration.

In the analysed period, we observed a substantial increase in the involvement of FDI in Poland, which was particularly noticeable in financial and insurance (cat. C) activities (Figure 2). The largest absolute increase in productivity per employee and per hours worked has been found in the operational activity of the real estate as well as information and communication markets (cat. J) (Figures 3 and 4). In 1997-2014, a significant decrease in the technological gap between Poland and the old European Union countries was observable. The most spectacular improvement occurred in areas such as agriculture, forestry and fishing, (cat. A), information and communication (cat. J), and real estate services (cat. L). Despite a relatively high growth of the interest of foreign capital in the Polish construction industry, productivity increased slightly, and the output gap remained almost unchanged. An interesting fact is that activities related to real estate output gap increased significantly. Pearson correlation coefficients that were calculated for both Poland and the

EU-15, for each category of the NACE, were characterised by high positive values, which ultimately implied a strong linear and dependency, as shown in Figure 5 and Figure 6.

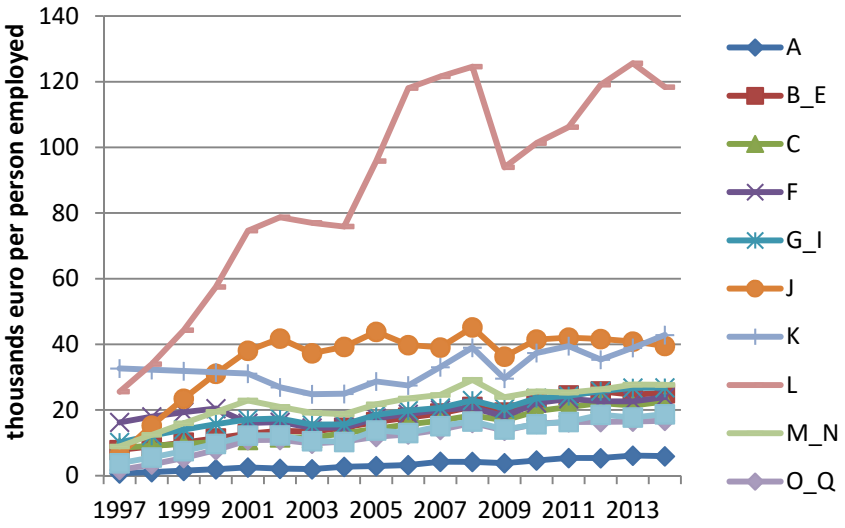

Figure 3. The productivity (per person employed) in the i-sector in t-period t-in Poland
Source: own elaboration.

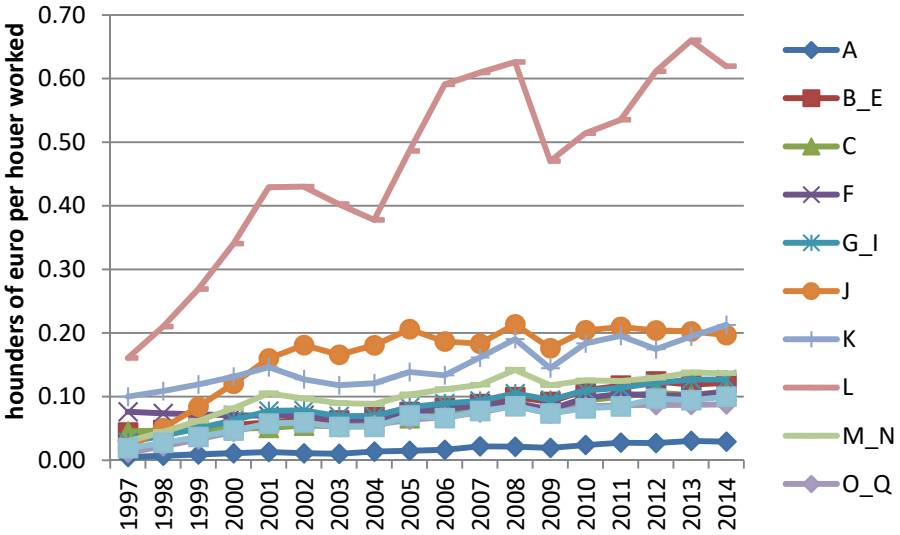

Figure 4. Productivity (per hour worked) in the i-sector in t-period t-in Poland
Source: own elaboration.

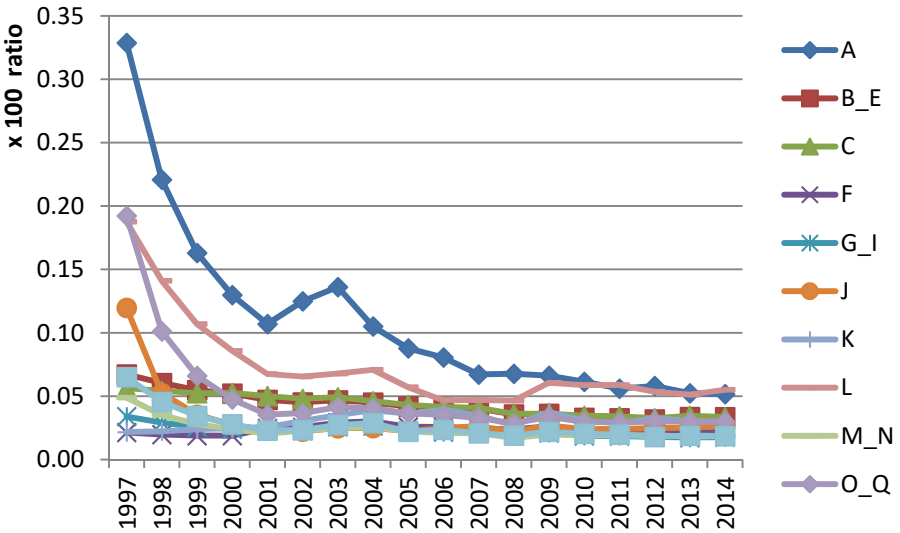

Figure 5. Productivity gap per person employed between the UE-15 and Poland
Source: own elaboration.

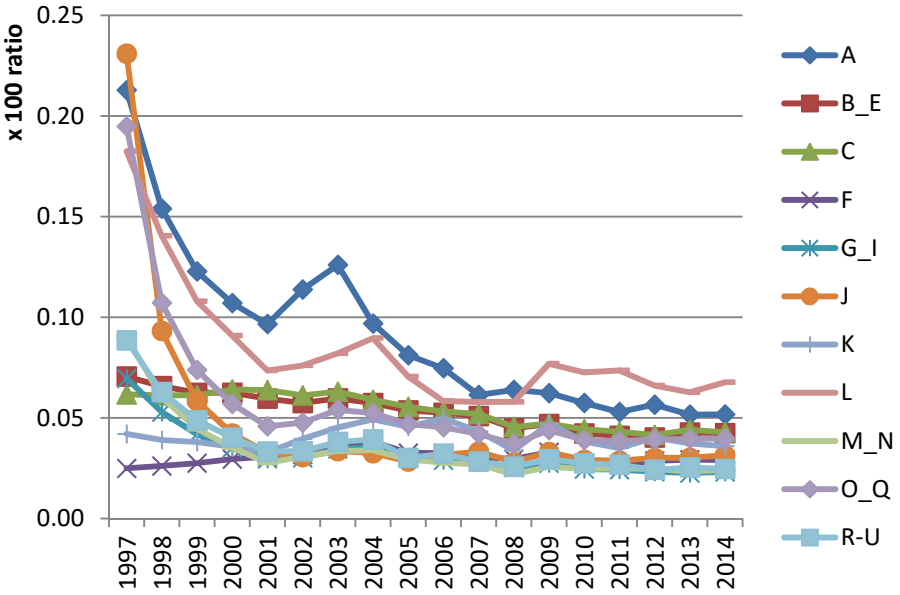

Figure 6. Productivity gap per person hour worked between the UE-15 and Poland
Source: own elaboration.

The methodology used in the paper and the conclusions drawn on this basis are not without weaknesses. The data in nominal terms used in this study may pose questions, but there are no PPP sector deflators available which would provide reliable international or sectoral comparisons. The problem of measuring the productivity was bypassed by considering it in terms of productivity per worker and per hour (as robust analysis). Some data shortages resulted in unbalanced panel. The data analysis suggests significant differences both in the productivity levels and productivity gap. The functional form that we use in the study is only partially embedded in the literature in the Cobb-Douglas production function, however, it includes also the selected elements of the trans-log function with the interactions, which was the subject of the hypotheses verification. The paper nevertheless presents innovative results, partly in line with the results obtained by Meyer and Sinani (2009), indicating the non-linear dependence of the FDI benefits on productivity gaps.

In order to estimate the impact of the involvement of foreign capital on labour productivity in Poland, we considered three different forms of the model and, alternatively, two measures of productivity: per person employed and per hour worked. In model (1) we combined labour productivity per person employed with the degree of the penetration of FDI in the sector (expressed as a share of stock FDI to GVA in the same sector) and the product of this factor through the gap in productivity per worker between the EU-15 and Poland, and the same two-component factor squared. In model (2), labour productivity per employee has been regressed on the degree of penetration of foreign capital in the sector, as well as the productivity gap in the first and second power. In model (3), as opposed to model (2), we postulate an interaction between the degree of the penetration of foreign capital and the gap productivity. For models 4-6, there was analogous reasoning, with a variable expressing productivity being gross value added per an hour worked in the *i*-th sector in the *t*-th year.

$$GVA_{employees_{PL\,i,t}} = const + \beta_1 \frac{FDI_{pos_{mEUR\,i,t}}}{GVA_{mEUR_{PL\,i,t}}} + \\ +\beta_2 \left(\frac{FDI\_pos\_mEUR_{i,t}}{GVA\_mEUR\_PL_{i,t}}\right) x \left(\frac{GVA\_employees\_UE15_{i,t}}{GVA\_emplyees\_PL_{i,t}}\right) \\ + \beta_3 \left[\left(\frac{FDI\_pos\_mEUR_{i,t}}{GVA\_mEUR\_PL_{i,t}}\right) x \left(\frac{GVA\_employees\_UE15_{i,t}}{GVA\_emplyees\_PL_{i,t}}\right)\right]^2 \\ + u_{i,t} \tag{1}$$

$$GVA_{employees_{PL\,i,t}} = const + \beta_1 \frac{FDI_{pos_{mEUR\,i,t}}}{GVA_{mEUR_{PL\,i,t}}} + \\ +\beta_2 \left(\frac{GVA\_employees\_UE15_{i,t}}{GVA\_emplyees\_PL_{i,t}}\right) + \beta_3 \left[\left(\frac{GVA\_employees\_UE15_{i,t}}{GVA\_emplyees\_PL_{i,t}}\right)\right]^2 + u_{i,t} \tag{2}$$

$$GVA_{employees_{PL\,i,t}} = const + \beta_1 \frac{FDI_{pos_{mEUR\,i,t}}}{GVA_{mEUR_{PL\,i,t}}} + \\ +\beta_2 \left(\frac{GVA_{employees_{UE15\,i,t}}}{GVA_{employees_{PL\,i,t}}}\right) + \\ +\beta_3 \left(\frac{FDI\_pos\_mEUR_{i,t}}{GVA\_mEUR\_PL_{i,t}}\right) x \left[\left(\frac{GVA\_employees\_UE15_{i,t}}{GVA\_emplyees\_PL_{i,t}}\right)\right]^2 + u_{i,t} \quad (3)$$

$$GVA_{hours_{PL\,i,t}} = const + \beta_1 \frac{FDI_{pos_{mEUR\,i,t}}}{GVA_{mEUR_{PL\,i,t}}} + \\ +\beta_2 \left(\frac{FDI_{pos_{mEUR\,i,t}}}{GVA_{mEUR_{PL\,i,t}}}\right) x \left(\frac{GVA_{hours_{UE15\,i,t}}}{GVA_{hours_{PL\,i,t}}}\right) + \\ +\beta_3 \left[\left(\frac{FDI\_pos\_mEUR_{i,t}}{GVA\_mEUR\_PL_{i,t}}\right) x \left(\frac{GVA\_hours\_UE15_{i,t}}{GVA\_hours\_PL_{i,t}}\right)\right]^2 + u_{i,t} \quad (4)$$

$$GVA\_hours\_PL_{i,t} = const + \beta_1 \frac{FDI\_pos\_mEUR_{i,t}}{GVA\_mEUR\_PL_{i,t}} + \beta_2 \left(\frac{GVA\_hours\_UE15_{i,t}}{GVA\_hours\_PL_{i,t}}\right) \\ + \beta_3 \left[\left(\frac{GVA\_hours\_UE15_{i,t}}{GVA\_hours\_PL_{i,t}}\right)\right]^2 + u_{i,t} \quad (5)$$

$$GVA\_hours\_PL_{i,t} = const + \beta_1 \frac{FDI\_pos\_mEUR_{i,t}}{GVA\_mEUR\_PL_{i,t}} + \beta_2 \left(\frac{GVA\_hours\_UE15_{i,t}}{GVA\_hours\_PL_{i,t}}\right) \\ + \beta_3 \left(\frac{FDI\_pos\_mEUR_{i,t}}{GVA\_mEUR\_PL_{i,t}}\right) x \left[\left(\frac{GVA\_hours\_UE15_{i,t}}{GVA\_hours\_PL_{i,t}}\right)\right]^2 + u_{i,t} \quad (6)$$

The six models presented above were estimated using panel techniques and covers the years 1997-2014 for 11 NACE rev. 2 sections of economy. While using panel econometric models, we postulate that every individual and every period of the research is characterised by individual specificity, which may be included in the model through the introduction of individual and periodic effects. The general form of the model of the panel is expressed as follows:

$$y_{it} = \beta_0 + \sum_{p=1}^{k} \beta_p x_{p\,i,t} + n_i + v_t + u_{i,t} \quad (7)$$

where:

k - is the number of variables in the model;
n_i - is the individual effect for the *i*-th unit;
v_t - is the result of periodical for the *t*-th year
$u_{i,t}$ - is a random term.

Provided that individual and periodic effects exist, the model can be defined as bidirectional. These effects can be either fixed (fixed effects FE) or random (random effects RE). The presence of the effects of fixed amounts simply comes to the attribution of another intercept

parameter to each of the audited entities. In this case, it is reasonable to estimate the model using GLS, which takes into account correlation between components of the same unit or period. When individual and periodical effects are included in the disturbing factor, assumptions about the lack of correlation of these effects with the explanatory variables of the model should be true. When they are not, the methods of estimation based on OLS give burden results. In the assessment of the effects which need to be taken into account, we use the Hausman specification test. Under the conditions of the truth of the null hypothesis that both GLS estimator and OLS are consistent and unbiased, but GLS is more efficient, which indicates the selection of the model RE. The alternative hypothesis, indicating that GLS estimator is biased, the preferred model is the one with fixed FE effects. We also took into account the results of the Breusch-Pagan test when estimating the model.

RESULTS AND DISCUSSION

Statistical analysis of data concerning FDI and both Poland's and the EU-15's productivity was the first stage preceding estimation. Thanks to the use of panel techniques we estimated models with specifications presented in paragraph 3. The procedure for the selection of models was as follows:

- pooled estimation model;
- diagnostic tests of:
  1. the residual variance (The culture model of pooled, Ha- FE);
  2. Breusch-Pagan Test (The culture model of pooled, Ha- model RE);
  3. Hausman Test (The culture model RE, Ha- FE):
     - estimation of the proper model;
     - assessment of the model when it comes to its:
       1. statistical properties;
       2. interpretational properties.

Table 2. Estimated panel models for productivity

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Const	7.845***	11.286***	9.714***	18645***	22531***	22380***
β_1	14.079***	6.515***	8.565***	43900***	10149***	20537***
β_2	0.273			-6243.4**		
β_3	-0.149**	-0.426***	-0.0776***	-321.1*	-37.11***	-854.5***
Hausman test	FE	RE	FE	FE	FE	FE
LSDV-R^2 (%)	87.55	-	86.92	85.90	83.56	87.60
Within-R^2 (%)	26.91	-	23.18	27.17	15.09	35.94
LSDV F p-value	7.13e-76	-	6.49e-75	6.13e-71	7.79e-66	4.75e-77
Joint test on named regressors p-value	1.70e-012	-	2.56e-011	1.23e-012	2.27e-018	1.29e-018
Test for constant p-value	7.63e-062	-	2.26e-073	1.37e-057	1.30e-058	6.62e-074
AIC	1179.45	1565.40	1187.32	4200.43	4228.79	4173.01
BIC	1225.48	1575.26	1230.07	4246.46	4271.53	4215.76
HIQ	1198.08	1569.39	1204.62	4219.06	4246.09	4190.32

p-value <0,01 ***; p-value<0,05 ** p-value<0,1*

Source: own study.

According to all the models analysed, an increase in the share of foreign capital in a given sector corresponded with an increase in labour productivity (per person employed and per hour worked). The analysed models partly suffer from autocorrelation. In model (1) the element of the interaction of the involvement of foreign capital in the sector with a gap of production per employee was not relevant. However, before this factor is squared, the assessment of the statistical parameter is negative and it is statistically significant when the risk is lower than the acceptable 0.05 level of significance. It means that, due to the shape of an inverted parabolic function, sectors characterised with the highest increase in productivity are those where values of the gap are rather average. Negative and statistically significant evaluations of β3 parameter were also obtained in model (2) (no interaction) and (3) (excluded from the interaction of the factor subject to exponentiation). Similar results were obtained for models 4-6, while taking into account productivity per hour worked instead of the employee. In order to determine the course of the function describing the addictive effect of the involvement of foreign capital on the productivity of the sector in the host country, (β1), the size of the (changes in) the output gap, the results summarised in Table 3 were examined. After the outliers for selected sections had been excluded (A, C, F, G + I, J, K, M + N), it was found out that there is a postulated relationship between coefficient (β1) and the change in the output gap. The more the gap between sectors of Poland and the EU changed, the smaller benefits from the presence of FDI were. Thus, the ones which "benefited" most were those which were characterised by a moderate change in the output gap, which is in some way about the ability of initial absorption. By limiting the analysis to sections A, C, J, K, M + N, we realised that the greater the initialised gap in productivity was, the greater the expressed "benefits" were reaped by sectors. The assumption here was that the gap in productivity expressed as the quotient of productivity in the *i*-th sector in period *t*-including the EU-15 and Poland in 1997 was higher than 16 times (which was not uncommon, Figure 5 and 6).

Table 3. Dependencies between the benefits from the presence of FDI for individual sector and the size of the productivity gap

NACE	*GVA_hours_PL_i.t*		*GVA_employees_UE-15_i.t*		*GAP1 1997*	*GAP1 2014*	change_ *GAP1_ 2014/1997*
	β_1	β_3	β_1	β_3			
A	46.498 ***	7.2493	88658.7 ***	26995.1 ***	21.3	5.2	4.1
B_E	1831.78***	-3933 ***	3.58e+06***	-1.35e+07***	7.1	4.2	1.7
C	20.39 ***	-0.48 **	40808.8***	-1941.64 ***	6.2	4.3	1.4
F	51.85 ***	1.74063	116744 ***	2578.17	2.5	2.9	0.9
G_I	53.93 ***	-27.83**	113357 ***	-94061.7***	7.0	2.3	3.0
J	32.79 ***	0.46***	84096.4 ***	3460.57***	23.1	3.1	7.4
K	10.93 ***	-0.016458	22510.7 ***	166.10***	4.2	3.6	1.2
L	155.43 ***	-1.52023 *	277812 ***	-6943.00**	18.2	6.8	2.7
M_N	25.38 **	2.49192	63107.3 ***	-11005.4*	9.0	2.4	3.7
O_Q	1081.85***	-3143.06	1.8e+06 ***	8.42E+06	19.5	4.0	4.9
R-U	426.95 ***	-774.01	814973 ***	-2.50E+06	8.9	2.5	3.6

p-value <0,01 ***; p-value<0,05 ** p-value<0,1*

Source: own study.

The obtained results suggest a positive influence of the presence of foreign capital on labour productivity in Poland, in particular the NACE sections. Available data do not indicate whether the productivity of domestic firms is improving, so only the net effect of FDI is examined. From the point of view of the research plan, the statistical parameters obtained are in line with the expectations, in particular negative for GAP^2, which implies the assumed non-linearity. Due to the observed non-stationarity of the analysed time series, an error correction model appears to be more appropriate, however, a long-run relationship between FDI and GVA in all sectors was not found (see Havranek & Irsova, 2010). Only the GAP level was neglected in the study, such as the technical arming of labour due to the lack of data on sectoral capital was neglected. Significant differences in GAP and productivity may suggest the need for an individual analysis for individual sectors because of heterogeneity problem. In one of recent studies, Hussain and Haque (2016) found that FDI contribute positively to the economic growth of a developing country which is Bangladesh. Baltabaev (2014), using panel data for 49 countries over the period 1974-2008 and the existence of Investment Promotion Agencies in the host countries showed that incensement in FDI stock leads to higher productivity growth. He finds a significant positive effect on the interaction between FDI stock and the distance to the technological frontier, suggesting that the ability of technologically backward countries to absorb technologies developed at the frontiers increases as more FDI stock is accumulated. The results obtained by Roy (2016) who investigated effects of FDI on TFP, taking into consideration the role of the initial distance of the country from the technology frontier determining the net effect of FDI on TFP also suggest convergence in terms of productivity. He found that the net effect of FDI on the TFP growth decreases with an increase in the distance, which is opposite to Findlay's model. His analysis also suggests that if the initial distance of a country exceeds a threshold level, then the leader will have a locomotive effect and can pull the followers along, while in the other situation there is a significant negative impact of FDI which increases with distance, as a result of which the net benefit from FDI can be miniscule. To a large extent, the obtained results are quality-comparable to those mentioned in literature.

CONCLUSIONS

This article aimed at verifying the hypothesis that espouses a non-linear, inverted, U-shaped relationship between the technology gap and the benefits from the presence of foreign capital in the form of increased productivity. Statistical analysis of the time series indicates that while in 1997-2014 there was an increase in the involvement of foreign investors in the context of FDI in Poland in all sectors, with different dynamics and volume, there was also an increase in the productivity of sectors. The comparison of 1997 with 2014 shows a significant reduction in the productivity gap between Poland and the EU-15 in almost all major categories of the NACE. At the same time, the fact that productivity grew more dynamically in Poland may be indicative of processes characterised by convergence, which is a legitimate subject of a separate, in-depth analysis. The estimated models, which take into account the degree of the penetration of foreign capital, productivity gap and interactions, bring the expected results, proving at the same time that the accumulation of FDI in Poland occurred simultaneously with the increase in productivity. What is more, the backwardness of business or its relative proximity in terms of labour productivity in relation to the EU-15 was an unfavourable factor when it comes to the improvement of productivity.

The obtained results confirm the stated hypothesis. An increased involvement of foreign capital in different sectors of the economy imply higher productivity of these sectors. Although with an increasing technological gap, GVA in a sector typically grow to a certain point, and after exceeding it, they decrease (see Girma, Gong, Gorg, & Lancheros, 2014; Görg & Greenway, 2004). The analysis confirmed hypothesis (i) (the technological gap between Poland and the EU in the sectoral dimension was constantly decreasing through the analysed period, which is a sign of the catching-up effect. We observed that the greater the share of foreign capital in a given sector was, the higher the labour productivity of the sector was. The assumed and confirmed formula of the model concerning non-linearity suggests that the dependence between productivity and technological gap is not simply linear. The obtained results do not allow to reject hypothesis (iii) that there exists an optimal level of productivity gap implying high absorption benefits of the FDI presence because of a negative and statistical significant parameter with GAP^2. We observe the highest benefits from the presence of FDI especially for mid-gap sectors. The results point to the importance of supporting relatively backward sectors to allow them *ti* absorb benefits from FDI.

In further studies, we intend to use more disaggregated and comparable NACE data in terms of 64 industries. Factors which may constitute a restriction in these studies are statistical data which are not readily available or comparable and developed with the use of different methodologies. In subsequent studies, there will be more emphasis on the structure and changes of dynamics and its distribution within individual sectors, including changes resulting from restrictions of employment and growth in value-added tax or other alternative measures, just as sold production, postulated in the literature on this subject. An important limitation of the research, which will be discussed thoroughly in further studies, is the inclusion of entities with the majority of domestic capital as potential beneficiaries of the presence of FDI in the economy (in industries).

REFERENCES

Aitken, B.J., & Harrison, A. (1999). Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. *American Economic Review*, 89(June), 605-618. doi: 10.1257/aer.89.3.605

Azeroual, M. (2016). The Impact of Foreign Direct Investment on the Productivity Growth in the Moroccan Manufacturing Sector: Is Source of FDI important?. *Journal of International and Global Economic Studies*, 9(1), 29-45.

Baltagi, B.H. (2005). *Econometric Analysis of Panel Data* (3rd ed.). Chichester: John Wiley & Sons, Ltd.

Baltabaev, B. (2014). Foreign Direct Investment and Total Factor productivity Growth: New Macro-Evidence. *The World Economy*, 37(1), 311-334.

Blomström, M., Kokko, A., & Zejan, M. (1994). Host country competition, labour skills, and technology transfer by multinationals. *Review of World Economics*, 130(3), 521-533.

Bouoiyour, J. (2003). *Labor Productivity, Technological Gap and Spillovers: Evidence from Moroccan Manufacturing Industries* (WPCATT Working papers). University of Pau.

Cieślik, A. (2005). *Geografia inwestycji zagranicznych. Przyczyny i skutki lokalizacji spółek z udziałem kapitału zagranicznego w Polsce*. Warszawa: Wydawnictwo Uniwersytetu Warszawskiego.

Ciołek, D., & Golejewska A. (2006). Dyfuzja produktywności jako efekt pośredni FDI w polskim przemyśle przetwórczym w latach 1993-2002. *Prace i Materiały Wydziału Zarządzania UG Ekonometria*, 4(3), 41-52.

Ciołek, D., & Golejewska, A. (2005). *Wpływ bezpośrednich inwestycji zagranicznych na polski przemysł przetwórczy w oparciu o dane panelowe z lat 1993-2002.* Materiały zgłoszone na IX Ogólnopolskie Seminarium Naukowe*,* Dynamiczne Modele Ekonometryczne. Toruń: Wydawnictwo UMK.

Damijan, J.P., Knell, M., Boris, M., & Rojec, M. (2003). *Technology Transfer through FDI in Top-10 Transition Countries: How Important are Direct Effects, Horizontal and Vertical Spillovers?* (William Davidson Working Paper no. 549). Retrieved on April 4, 2017 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=404241

Damijan, J.P., Rojec, M., Majcen, B., & Knell M. (2013). Impact of Firm Heterogeneity on Direct and Spillover Effects of FDI: Micro Evidence from Ten Transition Countries. *Journal of Comparative Economics*, 41(3), 895-922.

Demeti, A., & Rebi, E. (2014). Foreign direct investments (FDI) and Productivity in Albania. *Interdisciplinary Journal of Research and Development*, I(1), 7-14.

Djankov, S., & Hoekman, B. (2000). Foreign Investment and Productivity Growth in Czech Enterprises. *World Bank Economic Review*, 14(1), 49-64.

Dimelis, P.S. (2005). Spillovers from Foreign Direct Investment and Firm Growth: Technological, Financial and Market Structure Effects. *The Economic of Business*, 12(1), 85-104.

Dunning, J.H. (1973). The determinants of international production. *Oxford Economic Papers*, 25(3), 289-336. https://doi.org/10.1093/oxfordjournals.oep.a041261

Dunning, J.H. (1992). *Multinational Enterprise and the Global Economy*. Wokingham: Addison Wesley.

Findlay, R. (1978). Relative Backwardness, Direct Foreign Investment and the Transfer of Technology: A Simple Dynamic Model. *Quarterly Journal of Economics*, 92(1), 1-16. doi: 10.2307/1885996

Girma, S., Gong, Y., Gorg, H., & Lancheros, S. (2014). *Estimating Direct and Indirect Effects of Foreign Direct Investment on Firm Productivity in the Presence of Interactions between Firms* (Kiel Working Papers Series no. 1961). Retrieved on April 4, 2017 from https://www.ifw-members.ifw-kiel.de/publications/estimating-direct-and-indirect-effects-of-foreign-direct-investment-on-firm-productivity-in-the-presence-of-interactions-between-firms/KWP_1961.pdf

Glass, A., & Saggi, K. (1998). International Technology Transfer and the Technology Gap. *Journal of Development Economics*, 55(2), 369-398.

Golejewska, A. (2009). Productivity Spillovers from Foreign Direct Investment in Polish Manufacturing 1993-2006. *Analizy i Opracowania KEIE UG*, 2, 3-16.

Görg, H., & Strobl, E. (2004). *Foreign direct investment and local economic development: Beyond productivity spillovers* (GEP Research Paper no. 11). Nottingham, UK: The University of Nottingham.

Görg, H., & Greenaway, D. (2004). Much ado about nothing: do domestic firms really benefit from foreign direct investment. *World Bank Research Observer*, 19(2), 171-198. doi: 10.1093/wbro/lkh019, 171-197

Haddad, M., & Harrison A.E. (1993). Are There Positive Spillovers from Direct Foreign Investment? Evidence Panel Data for Marocco. *Journal of Development Economics*, 42(1), 51-74.

Havranek, T., & Irsova, Z. (2010). Meta-Analysis of Intra-Industry FDI Spillovers: Updated Evidence. *Finance a úver-Czech Journal of Economics and Finance*, 60(2), 151-174.

Herzer, D. (2017). Foreign direct investment and total factor productivity in Bolivia. *Applied Economics Letters*, 24(6), 399-403.

Hussain, M.E., & Haque, M. (2016). Foreign Direct Investment, Trade, and Economic Growth: AN Empirical Analysis of Bangladesh. *MDPI Economies*, 4(2), doi:10.3390/economies4020007

Javorcik, B. (2004). Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages. *American Economic Review*, 94(3), 605-627.

Javorcik-Smarzyńska, B., Saggi, K., & Spatareanu, M. (2004). *Does it matter where you come from? Vertical spillovers from foreign direct investment and the nationality of investors* (The World Bank Policy Research Working Paper Series no. 3449). Retrieved on April 4, 2017 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=625327

Khalifah, N.A., Salmah, M.S., & Radziah A. (2015). FDI productivity spillovers and the technology gap in Malaysia's electrical and electronic industries. *Asian Pacific Economic Literature*, 29(10), 142-160.

Karpaty, P., & Lundberg L. (2004). *Foreign Direct Investment and Productivity Spillovers in Swedish Manufacturing* (Working Paper Series no. 2). Örebro, Sweden: The Örebro University.

Kokko, A. (1996). Productivity spillovers from competition between local firms and foreign affiliates. *Journal of International Development*, 8(4), 517-530, doi: 10.1002/(SICI)1099-1328(199607)8:4<517::AID-JID298>3.0.CO;2-P

Kokko, A., Tansinis, R., & Zelman, M.C. (1996). Local Technological Capability and Productivity Spillovers from FDI in the Uruguayan Manufacturing Sector. *Journal of Development Studies*, 32(4), 602-611. https://doi.org/10.1080/00220389608422430

Kolasa, M. (2008). How does FDI inflow affect productivity of domestic firms? The role of horizontal and vertical spillovers, absorptive capacity and competition. *The Journal of International Trade & Economic Development. An International and Comparative Review*, 17(1), 155-173. https://doi.org/10.1080/09638190701728131

Konings, J. (2001). The effects of foreign direct investment on domestic firms. Evidence from firm-level panel data in emerging economies. *Economics of Transition*, 9(3), 619-633.

Meyer, K.E., & Sinani, E. (2009). When and Where Does Foreign Direct Investment Generate Positive Spillovers? A Meta-Analysis. *Journal of International Business Studies*, 40(7), 1075-1094. doi: 10.1057/jibs.2008.111

Ozawa, T. (1992). Foreign direct investment and economic development. *Transnational Corporation*, 1, 6-8.

Pandya, S.S. (2016). Political Economy of Foreign Direct Investment: Globalized Production in Twenty-First Century. *Annual Review of Political Science*, 45, doi: 10.1146/annurev-polisci-051214-101237

Pawłowska, E., & Wojciechowski, L. (2015). Znaczenie napływu ZIB w kontekście wzrostu i rozwoju gospodarczego na przykładzie krajów Grupy Wyszehradzkiej. In K. Woźniak (Ed.), *Narzędzia analityczne w naukach ekonomicznych (pp.).* Kraków: Wyd. MFiles.

Roy, S. (2016). Foreign direct investment and total factor productivity growth: does distance from technology frontier matter?. *Global Business and Economics Review*, 18(2). Retrieved on April 4, 2017 from https://doi.org/10.1504/GBER.2016.075527

Sjoholm, F. (1999). Technology gap, competition, and spillovers from FDI: evidence from establishment data. *Journal of Development Studies*, 36(1), 55-73.

Stančík, J. (2007). Horizontal and Vertical Spillovers: Recent Evidence from the Czech Republic. *CERGE-EI Working Papers Series*, 340.

Teece, D.J. (1977). Technology transfer by multinational firms: The resource cost of transferring technological know-how. *The Economic Journal*, 87(346), 242-261.

Szczepkowska-Flis, A. (2008). Wewnątrzbranżowe efekty spillover bezpośrednich inwestycji zagranicznych. *Ruch Prawniczy, Ekonomiczny i Socjologiczny*, LXX(1), 171-184.

Tondl, G., & Fornero, J.A. (2010). *Sectoral productivity and spillover effects of FDI in Latin America* (FIW Working Paper series no. 053). Retrieved on April 4, 2017 from https://ideas.repec.org/p/wsr/wpaper/y2010i053.html

Wach, K. (2015). Entrepreneurship Without Borders: Do Borders Matter for International Entrepreneurship. *Problemy Zarządzania*, 2(51), 82-92.

Wach, K., & Wojciechowski, L. (2014). The factors of outward FDI from V4 countries from the perspective of the EU and the EMU membership: A panel gravity model approach. *Acta Universitatis Lodziensis Folia Oeconomica*, 5(307), 157-170.

Wach, K., & Wojciechowski, L. (2016a). Determinants of Inward FDI into Visegrad Countries: Empirical Evidence Based on Panel Data for the Years 2000-2012. *Economics and Business Review*, 2(1), 34-52. doi: 10.18559/ebr.2016.1.3

Wach, K., & Wojciechowski, L. (2016b). Inward FDI and entrepreneurship rate: Empirical evidence on selected effects of FDI in Visegrad countries. *Journal of Economics and Management*, 24(2), 42-54. doi: 10.22367/jem.2016.24.04

Żukowska-Gagelman, K. (2000). Productivity spillovers from foreign direct investment in Poland. *Economic Systems*, 24(3), 223-256.

Author

Liwiusz Wojciechowski

PhD Student at the Faculty of Management of the Cracow University of Economics (Poland). Master in Econometrics and Computer Sciences as well as in International Finance and Banking (University Gdańsk, Poland); Bachelor in International Trade, in Econometrics and Computer Sciences, as well as in Spatial Planning (University of Gdańsk, Poland).

Correspondence to: Mgr Liwiusz Wojciechowski, Cracow University of Economics, Faculty of Economics and International Relations, Department of International Trade, 31-510 Kraków, ul. Rakowicka 27, Poland, e-mail: liwiusz.w@o2.pl

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The Evolution of the Virtuality Phenomenon in Organisations: A Critical Literature Review

Mehmet A. Orhan

ABSTRACT

Objective: The purpose of this study is to present a review of the scholarly literature development on virtual teams and to redefine the key characteristics and features of 'team virtuality' and 'virtual teams'. Even though previous literature reviews enhanced the understanding of the implications brought about by virtual teams, this study differs from earlier studies in a number of ways.

Research Design & Methods: A literature review through content and citation analyses was conducted using the Web of Science, ABI/Inform and EBSCO databases in order to comprehensively explore all definitions and characteristics of the concepts of 'virtual team' and 'team virtuality'. A total of 265 articles published between 2006 and 2014 were analysed, and the details of the analyses are herein presented.

Findings: The analyses reveal that the characteristics and definitions are often contradictory and rarely correspond, thereby attesting to the lack of consensus in the literature. I present a portrait that tackles the literature's focus on virtual team's geographic dispersion and its dependency on electronic communication as the core sources of virtuality, as a defining characteristic of virtuality remain to be the lack of face-to-face contact.

Implications & Recommendations: The major implication is that a unified definition is proposed in order to measure virtuality more comprehensively by addressing the gap observed in past research.

Contribution & Value Added: This article contributes to the literature incorporating the studies from the most extensive fields of research. After considering different approaches and dimensional constructs, it has become clear that constructing a single dimension that all research could agree upon is an insurmountable challenge due to the variations of existing definitions as outlined in this article.

Article type: literature review, content analysis
Keywords: virtual teams; team virtuality; definition; literature review; content analysis
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INTRODUCTION

Over the last two decades, we have been living in an increasingly connected society, where we interact with each other at a much higher frequency, even though we no longer need to meet face to face. Today, business organisations are those that benefit from the vast availability and accessibility of electronic communication tools; not only due to cost advantages, but also due to greater flexibility offered by these new technologies (Bell & Kozlowski, 2002). To improve organisational performance and competitiveness, companies have started investing in virtual teams and related technologies (Ale Ebrahim, Ahmed, & Taha, 2009). Advancements in communication technologies have also allowed organisations to reorganise their work structures by outsourcing tasks and workforces to another corner of the world for cheaper and easier labour (Janssen & Joha, 2008; Curseu, Schalk, & Wessel, 2008; Hertel, Geister, & Konradt, 2005; Kirkman, Rosen, Tesluk, & Gibson, 2004; Montoya-Weis, Massey, & Song, 2001; Townsend, DeMarie, & Hendrickson, 1998; Lipnack & Stamps, 1997). The most common of these new work structures, "virtual teams" (VT), has now become an inseparable part of today's business world (Vartiainen, 2006). With this monumental development, a great deal of scholarly attention has been paid to virtual team research, quickly becoming one of the most popular topics in many different disciplines ranging from management to education, and from psychology to computer sciences. The different perspectives have contributed a very rich and diverse input on the design, processes, leadership and outcomes associated with team virtuality. It is believed that the majority of employees in multinational organisations take a role in a virtual team environment (Martins, Gilson, & Maynard, 2004; Kanawattanachai & Yoo, 2002). On the other hand, with the diversity of interdisciplinary approaches to the concept of "virtual teams", the meaning of "virtuality" is treated differently. The increased usage of information communication technology (ICT) tools in society have attracted researchers to explore online social relations, so that the term "virtual" has become a widespread phenomenon in social sciences. Mackenzie (2006) and Massumi (2002) oppose the idea of virtuality referring exclusively to ICT-mediated interactions or something that is related to the Internet. From a philosophical perspective, virtuality mainly refers to an abstract concept which signals temporality and distance to reality (Styhre, 2006). The semantic meaning of virtuality is thus closely linked to an approximation of real existence (Shields, 2006). Burt (2009) and Benson (2007) argue that the Internet, as a digital platform, connected virtual communities so online social relations attempt to replicate the real ones. However, the word "virtual" is commonly used interchangeably with other words referring to a state which involves either something that is online or related to a certain level of electronic communication and network, in addition to the Internet (Nyström & Asproth, 2013; O'Keefe & Chen, 2011). The consequent ambiguity means that constructing a precise, comprehensive definition is even more difficult due to these different perspectives.

As of yet, there is still no universal understanding of what a virtual team is and how it should be defined (Gilson, Maynard, Young, Vartiainen, & Hakonen, 2015). When virtual teams first emerged, they were considered merely to be temporary task forces assigned to particular, short-term projects (Lipnack & Stamps, 1997, 1999; Jarvenpaa & Leidner, 1999). Today, the virtuality concept has expanded from its initial definition in order to capture individual level, task-related virtualities in addition to team virtuality (Orhan, 2014; Orhan, Rijsman, & van Dijk, 2016). While the novel approaches focus on a simplified measuring tool for the degree of virtuality (Hoch &

Kozlowski, 2014; Maynard, Mathieu, Rapp, & Gilson, 2012), earlier measures based on older definitions are still widely in use in current research literature.

The literature also embraces a set of additional (and sometimes even conflicting) dimensions. Kimble (2011, p. 7) exemplifies the inconclusive characteristics between several existing definitions as follows:

> *The term virtual team can be applied to a number of different types of groups. Team membership may be relatively stable (e.g., in an established sales team) or change on a regular basis (e.g., in project teams). Members may be drawn from the same organization or from several different organizations (e.g., when projects involve consultants or external assessors). Team members may work in close proximity (e.g., in the same building) or geographically distantly (e.g., in different countries) and, similarly, team members may work at the same or at different times (e.g., depending on whether the team members are in the same time zone)*.

The goal of this article is to examine the variations of the existing dimensions of virtuality, and to determine common characteristics which can add clarity to the definition of it. Even though previous literature reviews enhanced the understanding of the implications brought about by virtual teams, this study differs from earlier studies in a number of ways. First, I argue that the concept of virtuality is a multidisciplinary phenomenon (de Guinea, Webster, & Staples, 2012), whereas the majority of literature reviews narrowed their focus to a small number of disciplines and limited their review scope to the major business, management, information systems, psychology, and communications journals (Martins *et al*., 2004; Gibson & Gibbs, 2006; Kirkman, Gibson, & Kim, 2012). Virtual teaming is a term, as well as a common practice, widely used in fields as divergent as engineering, library sciences, computer sciences, cybernetics, education, economics and industrial relations. Therefore, this systematic review examines the issue of virtuality from a much broader perspective. Second, the methodology used in this article was purposely objective rather than restrictive. Unlike previous studies, articles were included in review regardless of the number of citations they received and the reputation of the journals which published them. Even to expand the scope further, EBSCO, ABI/INFORM Global and Web of Science databases are utilised for an objective comparison. To observe trends and patterns of virtuality, the review years between 2006 and 2014 were analysed. These new results from the wider review range have underscored the necessity of solidifying a universal definition of virtuality. While this study lays definitions contained in the reviewed articles on the table, the proposed definition does not wipe the slate clean. Instead of creating additional confusion, this review aims to streamline the variations in the already existing definitions of virtual team research and summarise their common ground.

The article is structured in the following way: The subsequent section introduces the methodology of the article and the descriptive nature of the review. Findings of citation and content analysis are presented in the next section. Final sections include discussions, implications and limitations, as well as conclusion of this article.

MATERIAL AND METHODS

To find relevant articles about virtuality, the following search terms were used in the Web of Science, ABI/INFORM Global and EBSCO databases between 2006 and 2014:

- "virtuality";
- "virtual team";
- "virtual teams";
- "virtualness";
- "virtual collaboration";
- "dispersed teams".

Based on the initial search results, 685 articles were collected from three databases. After several runs of manual and automated analyses, the duplicate articles, book reviews, conference and working papers, and other irrelevant titles (e.g. editorial notes) were removed, leaving 380 research articles. All of 380 articles were scanned based on the fact whether they included an operational or conceptual definition of virtuality. After scanning 380 articles, 115 were discarded, because 76 did not contain any definitions and 39 were found irrelevant. The number of usable articles for content and citation analyses was 265, as shown in Table 1.

Table 1. Number of articles found, scanned and reviewed by databases

Databases	Articles		
	Reviewed	**Scanned**	**No. of Search Results**
Web of Science	118	154	234
EBSCO	129	202	365
ABI/Inform Global	18	24	86
Total	**265**	**380**	**685**

Source: own study.

Table 2 illustrates the number of articles per journal. The analyses carried out using the input from 173 journals, of which 45 included more than 1 article in their issues between the search period selected. This list includes the publications from various domains.

For the categorisation of the subject domains of journals, the classification information based on the fields assigned by each database was used. When there were more than two fields attributed, the highest two ranking domains were matched. When the domain information in the databases was not available, the journal's self-reported area of domain was recorded. According to the internal analysis, the highest number of research about virtual teams was conducted in the business/management domain with a total of 157 articles. Out of 157, there were 58 from the single domain of business/management journals. The second largest number of the articles reviewed was from the journals with multiple fields of business/management and psychology with 42 articles. The total number of articles with single domain was found as 145, while the remaining 120 articles came from multidisciplinary domains (combination of two different domains). These results prove the multidisciplinary perspective of virtuality in teams in general. The number of articles reviewed per domain is presented in Table 3. Diagonals in the table refer to the number of articles which are published in a single discipline journal. Other figures in the table represent the number of journals combining two different disciplines.

Table 2. Journals and number of published articles reviewed

Name of the Journal	No. of Articles Reviewed
IEEE Transactions on Professional Communication	11
Computers in Human Behaviour	8
Team Performance Management	8
Small Group Research	8
International Journal of E-Collaboration	5
Journal of Management Information Systems	5
Group Decision and Negotiation	5
International Journal of Project Management	5
Journal of Information Science	3
Information Systems Journal	3
Information & Management	3
Behaviour & Information Technology	3
Journal of Information & Knowledge Management	3
Group & Organization Management	3
Gruppendynamik und Organisationsberatung	3
Journal of Product Innovation Management	3
Journal of Leadership & Organizational Studies	2
Journal of Computer-Mediated Communication	2
Human Factors & Ergonomics in Manufacturing	2
African Journal of Business Management	2
Communications of the ACM	2
Expert Systems with Applications	2
Journal of Managerial Psychology	2
Global Business & Organizational Excellence	2
Journal of Computer Information Systems	2
Information Technology & People	2
Journal of General Management	2
Journal of Personnel Psychology	2
European Journal of Engineering Education	2
Journal of the Association for Information Systems	2
Journal of Management Education	2
Leadership Quarterly	2
Journal of Organizational Behavior	2
MIS Quarterly	2
Organizational Behavior & Human Decision Processes	2
International Journal of Cross Cultural Management	2
Knowledge Management Research & Practice	2
American Journal of Business	2
Management Research News	2
Quarterly Review of Distance Education	2
Organization Science	2
Revista de Psicologia del Trabajo y de Las Organizaciones	2
Proceedings of World Academy of Science: Engineering & Technology	2
The DATA BASE for Advances in Information Systems	2
Project Management Journal	2
Other Journals with 1 article	128
Total	**265**

Source: own study.

Table 3. Number of reviewed articles by domain of the journals

Domain	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Total
(1) Business/Management	58							
(2) Information Systems	33	25						
(3) Communication/Media Studies	3	4	14					
(4) Psychology	42	–	–	11				
(5) Education	4	2	–	–	9			
(6) Computer Science	–	–	–	–	–	6		
(7) Others*	17	7	1	3	3	–	23	
Total	**157**	**38**	**15**	**14**	**12**	**6**	**23**	**265**

* Others include the following categories: Social Sciences, Engineering, Economics, Planning and Development, Ergonomics, Applied Sciences, Sociology, Medicine, Public Relations, Philosophy, Cultural Studies, Statistics, Industrial and Labour Relations
Source: own study.

LITERATURE REVIEW AND THEORY DEVELOPMENT

Citation Analysis

For the citation analysis, the definition of virtuality in each of 265 articles was recorded. Out of 265, 152 articles (57.36%) used at least one cited reference for its definition. It is found that researchers of these 152 articles used past sources of 249 articles when citing the definition of virtuality. The remaining 113 articles (42.64%) either provided no reference or reported a definition that was based on a self-constructed novel discussion. Table 4 below presents the most frequently cited references.

Table 4. Most frequently cited references

Cited Reference for Virtuality Definition	No. of Articles Citing	Cited Reference for Virtuality Definition	No. of Articles Citing
Martins *et al.,* 2004	17	Kirkman & Mathieu, 2005	7
Jarvenpaa & Leidner, 1999	17	Gibson & Cohen, 2003	4
Lipnack & Stamps, 2000	14	Malhotra, Majchrzak, & Rosen, 2007	4
Powell, Piccoli, & Ives, 2004	13	Jarvenpaa & Leidner, 1998	4
Bell & Kozlowski, 2002	12	Mowshowitz, 1997	3
Townsend *et al.*, 1998	11	Griffith & Neale, 2001	3
Hertel *et al.*, 2005	10	Cohen & Gibson, 2003	3
Lipnack & Stamps, 1997	9	Lipnack & Stamps, 1999	3
Maznevski & Chudoba, 2000	9	Kirkman *et al.*, 2004	3
		Duarte & Snyder, 1999	3

Source: own study.

The mostly cited references included the definitions of the same authors' earlier contributions. The definitions form Lipnack and Stamps's three studies (2000, 1999 and 1997) were cited in 26 later studies reviewed. Similarly, both works of Jarvenpaa and Leidner (1999, 1998) were referenced in 21 articles collectively. Finally, the direct definitions of Gibson and Cohen (2003) and Cohen and Gibson (2003) received a total of seven mentions in the reviewed articles. For establishing a foundation built on previous research, the direct quotes most frequently used in defining virtual teams and subsequently virtuality are presented in

Table 5. There are a total of 12 studies which are relatively popular, constituting 49.43% of the definitions used in the reviewed articles. The direction of literature has gone beyond the dichotomous view of virtual teams vs. traditional teams to a continuum of team virtuality (Dixon & Panteli, 2010). The earlier literature contains definitions from both perspectives. Therefore, in Table 5, the defined concept is explicitly specified.

Most articles reviewed in this study argue that virtuality in teams is linked to corporal characteristics of teams. In this regard, the majority of the cited definitions demonstrate the physical aspects of virtuality that are linked to content related aspects such as geographic/organisational dispersion, information technology use or lack of face-to-face communication. Nevertheless, the definition proposed by Kirkman and Mathieu (2005) added a seminal knowledge to the literature related to the process related aspect of virtuality; the amount of informational value, shared via computer mediated interactions, and the synchronicity of virtual interactions within the team environment. According to this definition, the extent of the use of electronic communication tools is not the only warrant of a high degree of virtuality. The impact of the frequent use of electronic tools, and therefore the extent of virtuality is much higher when the value of information is higher and information sharing takes place in less synchronous conditions. The characteristics of task structures play an important role in determining the level of team virtuality. Teams that accomplish tasks which require higher team interdependence will be considered more virtual, if information is exchanged over electronic tools with asynchronous modes of communication.

Table 5. Most cited definitions

Authors, Year (page no)	Concept defined	Definition
Martins *et al*., 2004 (p. 808)	VT	"*whose members use technology to varying degrees in working across locational, temporal, and relational boundaries to accomplish an interdependent task*"
Jarvenpaa & Leidner, 1999 (p. 792); 1998	Global VT	"*temporary, culturally diverse, geographically dispersed, electronically communicating work group*"
Lipnack & Stamps, 2000 (p. 18)	VT	"*a group of people who work interdependently with a shared purpose across space, time, and organizational boundaries using technology*"
Powell *et al*., 2004 (p. 7)	VT	"*groups of geographically, organizationally and/or time dispersed worker brought together by information and telecommunication technologies to accomplish one or more organizational tasks*"
Bell & Kozlowski, 2002 (p. 25)	VT	"*the key characteristics of virtual teams that distinguish them from conventional teams are* *(a) the spatial distance between team members that restricts face-to-face communication and* *(b)the resulting use of technological communication to connect team members*"
Townsend *et al*., 1998 (p. 17)	VT	"*groups or geographically and/or organizationally dispersed coworkers that are assembled using a combination of telecommunications and information technologies to accomplish an organizational task*"

Authors, Year (page no)	Concept defined	Definition
Hertel *et al*. (2005, p. 71)	VT	"*consists of (a) two or more persons who (b) collaborate interactively to achieve common goals, while (c) at least one of the team members works at a different location, organization, or at a different time so that (d) communication and coordination is predominantly based on electronic communication media*"
Lipnack & Stamps (1997)	VT	*"unlike conventional teams, a virtual team works across space, time, and organizational boundaries with links strengthened by webs of communication technologies"*
Maznevski & Chudoba (2000, p. 473 and p. 474)	Global VT	"*internationally distributed groups of people with an organizational mandate to make or implement decisions with international components and implications. They are typically assigned tasks that are strategically important and highly complex*" & "*Kristof et al. (1995) and Jarvenpaa and Leidner (1998) describe global virtual teams as culturally diverse and geographically dispersed. We add that global virtual teams are also global in their task"*
Kirkman & Mathieu (2005, p. 702)	Team Virtuality	"[is defined] *using three dimensions:* *(a) the extent to which team members use virtual tools to coordinate and execute team processes (including communication media such as e-mail and videoconferencing and work tools such as group decision support systems,* *(b) the amount of informational value provided by such tools, and (c) the synchronicity of team member virtual interaction.*"
Gibson & Cohen (2003, p. 4)	Team Virtuality	"*To be considered virtual to some degree, a team must have the following three attributes:* *- It is a functioning team-a collection of individuals who are interdependent in their tasks, share responsibility for outcomes, see themselves and are viewed by others as an intact social unit embedded in one or more social systems, and collectively manage their relationships across organizational boundaries (Hackman, 1987; Alderfer, 1977)*.* *- The members of the team are geographically dispersed.* *- The team relies on technology-mediated communications rather than face-to-face interaction to accomplish their tasks*."
Malhotra *et al*. (2007, p. 60)	VT	"*whose members are geographically distributed, requiring them to work together through electronic means with minimal, or in extreme circumstances, no face-to-face interaction*"

Source: own study.

Even though the normative theory of science acknowledges that the contribution of past research within a certain field can be measured best by analysing the citing behaviour of researchers, social constructivist theory, on the other hand, argues that citation analysis is not the best way to illustrate the theoretical development of a concept, because concepts socially evolve over time (Serenko & Dumay, 2015). Moreover, past research delivers evidence that authors are prone to cite studies that are published by well-known researchers or in reputable journals, which are not necessarily scientifically and theoretically the most reflective ones (de Villiers & Dumay, 2013). To overcome the biased inclination of citing behaviour, content analysis is considered a sensible way to objectively analyse social

constructs. Therefore, to understand the underlying concepts and latent relations between social constructs, it may be imperative to conduct a content analysis. In the next section, the details and results of the content analysis are presented.

Content Analysis

In addition to the citation analysis which examines the most cited studies in the virtuality research, a separate content analysis is conducted to review the qualitative nature of the dataset. The main benefit of using a content analysis is that the deductive approach allows researchers to observe the directions and trends of research over time. Systematic coding makes content analysis a powerful tool due to improved replicability (Stemler, 2001). For all articles reviewed, author information, publication information, defined concept and selected definitions were recorded. A sample of coding is illustrated below (Table 6). Before moving to coding, all definitions and dimensions were copied separately. All reviews, checks and coding were made manually. For improved accuracy, the articles were reviewed twice in order not to skip any definition cited in the reviewed articles, and coded accordingly. Labels of coding are exhibited in Table 7. Those labels were created based on the dimensions or characteristics defined.

Table 6. Sample coding

Authors, Year (page no)	Concept defined	Operational / Theoretical Definitions	Coding*
Martins *et al.*, 2004 (p. 808)	VT	"*whose members use technology to varying degrees in working across locational, temporal, and relational boundaries to accomplish an interdependent task*"	ICT, GD, TD, RB, INTT
Schiller & Mandviwalla, 2007 (p. 13)	VT	"*(a) Members interact through interdependent tasks guided by common purposes (Lipnack & Stamps, 1997), (b) they use CMC or telecommunication media substantially more than face-to-face communication (Anawati & Craig, 2006; Fiol & O'Connor, 2005; Griffith & Neale,2001), and (c) they are geographically dispersed from each other (Cohen & Gibson, 2003; Griffith & Meader, 2004).*"	ICT, GD, MF2F, INTT
Schweitzer & Duxbury, 2010 (p. 272)	VT	"*In our opinion, geographic dispersion should be sufficient to warrant the term virtual team.*"	GD
Guo *et al.*, 2009	VT	"*groups of people engaged in a common organizational task through electronic information and communication technologies.*"	ICT

* Refer to Table 7 for the coded dimensions.
Source: own study.

The content analysis in this article starts with shedding light on the descriptive nature of virtuality characteristics. When defining virtuality, a total number of 779 dimensions were used in 265 studies. This indicates that the mean number of dimensions used in a single definition was 2.95 with a 1.40 standard deviation. Out of 265 articles, 83 reported a definition that is composed of two dimensions. Although a single dimension was sufficient for 33 studies (12.45%), as many as nine separate dimensions for one definition were

encountered. Table 8 shows the details of the frequency statistics of dimensions used in a single definition. The numbers in parenthesis identify the number of articles which cited the dimension in question as a single defining characteristic of virtuality.

Table 7. Labels of coding

Code	Labels	Including
ICT	ICT mediated interaction	electronic communication,
GD	Geographic dispersion	spatial dispersion, locational dispersion, different locations, *etc*.
TD	Temporal dispersion	time dispersion, time-zone differences
OD	Organisational dispersion	different organisational membership
MF2F	Minimal face-to-face-contact	rare f2f meetings, limited encounters
INTT	Interdependent tasks	interdependent group
CD	Cultural diversity	cultural dispersion
TL	Temporary lifespan	temporary membership, no future
LF2F	Lack of face-to-face-contact	no physical contact, lack of personal contact, no chance to contact f2f
RB	Relational boundaries	no social cues, limited context cues
INDT	Independent tasks	independent individuals, no task coordination required
ID	International dispersion	different countries, worldwide dispersion
ND	National dispersion	diverse in national culture, cultural dispersion
SYNC	Synchronicity	(a)synchronicity, simultaneous work processes, asynchronous responses, asynchronous communication
NH	No previous history	no past
PW	Project work	

Source: own study.

The analysis further revealed that 229 of 265 articles (86.42%) treated ICT-mediated interaction as the major defining characteristic of virtuality. Out of these, 21 considered ICT-mediated interactions as the only determinant of virtuality, as they refer to no other related dimension. In nine studies, geographic dispersion (GD) was the only characteristic that distinguishes virtuality from traditional settings. GD was thus found to be another major dimension that characterises virtuality. A total of 208 articles (78.49%) used GD as a distinctive feature of virtuality, whereas three studies using a single dimension considered face-to-face contact to be the defining factor. Minimal face-to-face contact (MF2F) was used in 45 (16.98%) and lack of face-to-face contact (LF2F) was used in 22 articles (8.30%). Temporal

dispersion (TD) and organisation dispersion (OD) dimensions were among those very highly referred to, although only one article considers temporal dispersion as a stand-alone characteristic. TD is used as a typical construct in 75 cases (28.30%), whereas OD is used in 58 cases (21.89%). In addition to the listed dimensions, "others" include "simultaneous work processes," "knowledge intensive," "information value," "process informatisation," "technology dispersion," "complex tasks,", "agilities in functions, workplaces, competencies, work contracts, equipment, functional dependencies, and hierarchical dependencies".

Table 8. Frequency table of dimensions used in definitions

Dimension*	Total Frequency of Dimensions used in Definitions	Dimension	Total Frequency of Dimensions used in Definitions
ICT	229 (21)	RB	14
GD	208 (9)	SYNC	7
TD	75 (1)	NH	6
OD	58	ID	4
MF2F	45 (2)	ND	4
INTT	41	INDT	4
LF2F	23 (1)	PW	3
CD	20	LD	2
TL	17	Others	19
Total Count of Dimensions: 779			

* Refer to Table 7 for the coded dimensions.
Source: own study.

As there are many dimensions considered vital to varying degrees, it is essential to visualise how these dimensions are incorporated to formulate a preferred definition. To begin, four most frequently used dimensions were selected; ICT use, geographic dispersion, temporal dispersion and organisational dispersion. These particular dimensions were put under the microscope because there were 570 uses versus the total number of dimensions used, which is 779. With the Venn diagram in Figure 1, each dimension is presented as a unique set, where the numbers in the intersections denote the number of studies using the specific dimension.

The definitions which incorporate both ICT use and geographic dispersion have the highest occurrences in this review: 178. On the other hand, 102 cases included both geographic dispersion and ICT usage but they concluded that neither temporal dispersion nor organisational dispersion is a distinctive determinant that typifies virtuality. However, 34 articles reach the conclusion that both temporal dispersion and organisational dispersion are required when ICT usage and geographic dispersion are present in virtuality.

Even though Martins *et al.* (2004), as one of the most commonly cited references in virtuality research, asserted that geographic dispersion is the most commonly noted dimension, this content analysis revealed that the emphasis on geographic dispersion was succeeded by ICT-mediated interactions. This finding confirms with the studies of Cohen and Gibson (2003), Gibson and Gibbs (2006), Stanko and Gibson (2009) and Gilson *et al*. (2015) which argued that geographic dispersion, coupled with ICT-mediated interactions, were the most frequently attributed characteristics of virtuality.

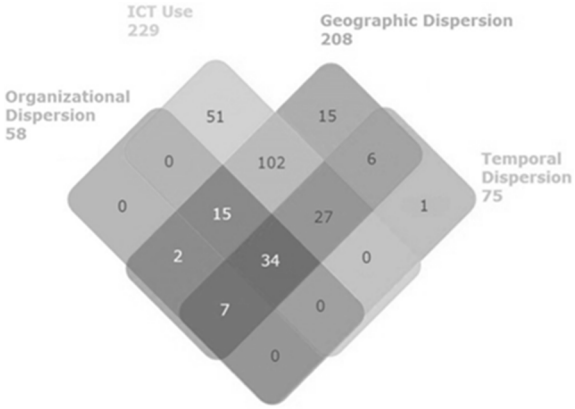

Figure 1. Venn diagram of most frequently used dimensions in definitions
Source: own elaboration.

Another iteration of Venn diagram (Figure 2) was formulated in order to assess the impact of F2F contact dimension after leaving out temporal and organisation dispersion. The reason is twofold. First, in the reviewed articles, the operational definition of virtuality was based on the lack of F2F contact, even when high ICT use and geographic dispersion were cited. Second, when the measurement of virtuality in the empirical studies was examined, the assessment of the extent of F2F contact was more common. The analyses also revealed that out of the 178 articles containing both ICT and GD dimensions, 42 cases report lack or minimal face-to-face contact as the most defining characteristic. Of 265 studies, the extent of virtuality was measured in 94 studies (35.47%). Among these 94 studies, 78 (82.98%) either utilised the degree of face-to-face communication in their virtuality measures or assessed face-to-face interactions as a control variable in the studies. This illustrates that the extent of face-to-face communication (or the lack thereof) determines the degree of virtuality, even though its presence in theoretical definitions is found to be less frequent.

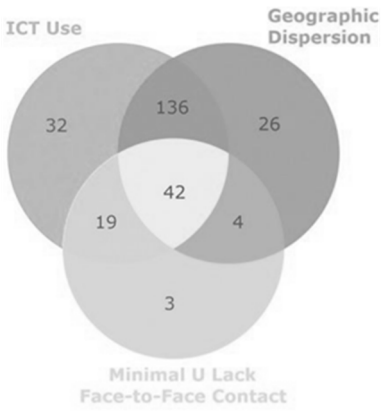

Figure 2. Venn diagram: ICT & geographic dispersion & minimal face-to-face contact
Source: own elaboration.

Based on the content analyses presented in this section, the discussions section addresses the research questions set out in the introduction. The findings of these citation and content analyses have suggested evidence how virtuality can be defined and measured. The majority of defining characteristics include the dependence on ICT use, the spatial dispersion of team members, and the extent of face-to-face communication. Often these dimensions are used collectively to define the virtuality concept. On the other hand, the use of single dimension for defining virtuality is not rare, either. With these findings, this study also renders how virtual team research has been evolving over the last few years, especially after virtuality has been considered to be a multifaceted construct. In the next section, the interplay between these dimensions is elaborated in addition to the implications and limitations.

DISCUSSION

There has been a growing body of literature on virtual team research over the last 20 years. The existing research includes both empirical studies and theoretical approaches. However, it is often argued that the vastness of this empirical research has overshadowed the theoretical foundation and conceptualisation required to understand what virtuality really means (Martins *et al*., 2004). This resulted in a long list of items that proved to be of little practical value, or was irrelevant for the understanding of team virtuality (Maynard & Gilson, 2013; Hakonen & Lipponen, 2008; Gibson & Gibbs, 2006; Chudoba, Wynn, Lu, & Watson-Manheim, 2005; Kirkman & Mathieu, 2005). Even though some scholars claimed that a minimum level of consensus had been reached in defining a virtual team (Johnson Bettenhausen, & Gibbons, 2009; de Leede, Kraan, den Hengst, & van Hooff, 2008), this study has shown that the literature is loaded with many different (and sometimes even conflicting) dimensions.

In spite of the polarisation of research in defining what virtuality actually means, the results may reflect that some level of consensus is still achievable. In the organisational context, the attainment of team tasks is achieved in real terms without the physical formation of a team. A team is still a functioning social system (Curseu, 2006), but as these systems' achievements are highly dependent on information exchange through electronic communication, the large body of the literature considers virtual equal to digital (Mackenzie, 2006; Massumi, 2002). As the Internet provided a digital platform and connected virtual communities, online social relations functioned as well as if they were real (Burt, 2009; Benson, 2007). As a result, with the increased usage of information communication technology tools, the term "virtual" has become a widespread phenomenon that attracted researchers in social sciences to explore the social relations occurring online. There are also other alternative approaches to describing virtuality. Although these early examples of virtual work show that the virtual team phenomenon is not a new concept, its theoretical conceptualisation, evolution and widespread implementation in business context does have a relatively short history. New technologies, which allowed for synchronous communication at a cheaper and faster rate, enabled more flexible and versatile structures in the last decades. The dominant approach to the current state of virtual teams, therefore, is that virtual teams are virtual due to the high dependence on information communication tools and technologies. However, under the light of review findings, I argue that the dependence might be the consequence of lack of (or barriers to) face-to-face communication. One of the reasons for barriers might be geographic dispersion, but the lack of face-to-face communication can also be a preferred choice. So, virtual teams are virtual; not because of high ICT usage, but

because of the lack of face-to-face communication possibilities or because of preferences. Thus, the theoretical contribution of this study is to broaden the definitions of virtual teams by removing both geographic dispersion and dependency on the electronic communication and information technologies elements. The analyses also show that while the existing definitions propose multiple dimensions, including geographic temporal, organisational dispersion, electronic communication, task interdependence, or even cultural diversity, the measurement of virtuality often requires fewer dimensions. It confirms with Martins *et al.* (2004) that the operational definition differs from the theoretical propositions. It would be more appropriate to define virtual teams as any team that does not communicate face-to-face to accomplish team tasks. This definition also enables the coherence between the measurement and conceptualisation. The differences of communication methods other than ICT tools, and geographic dispersion can moderate the impacts of virtuality.

Recently, the need for unity and cohesion in quantifying virtuality measurement has been cited in the literature by Gilson *et al*. (2015). This is considered as particularly important because how operational definition is conceptualised determines the choice of virtuality measurement (e.g. the extent of ICT use or geographical distance between members). These variations can impose different implications if there is no unity and consistency in measurements. In this study, I have shown that the majority of reviewed articles either utilised the degree of face-to-face communication in virtuality measurements or assessed the level of face-to-face interactions as a control variable in the studies to determine the impact on virtuality. This illustrates that the extent of face-to-face communication (or the lack thereof) determines the degree of virtuality, even though its presence in theoretical definitions is found to be less frequent. As a result, one can argue that researchers studying virtuality are in agreement with the fact that face-to-face communication is one of the most significant defining factors of virtuality.

However, as many others, this study does not come without its limitations. As the sole author of this article, I recognise the fact that the reliability of this study could have been improved with a secondary coder in order to measure inter-coder reliability, which is considered as crucial for content analyses. However, considering the purpose of this review, the data and findings can still be considered reliable since the content and citation analyses rely on a straightforward method, as discussed in the methodology section.

Another limitation can be related to the selection of academic databases. The data was obtained from prominent, mainstream social sciences databases. With open access journals becoming more popular, there is a growing trend toward publishing with them and, in turn, respect for online journals within the scholarly community is slowly gaining momentum (Acharya, Verstak, Suzuki, Henderson, Iakhiaev, Lin, & Shetty, 2014). Although this review is one of the most extensive studies on virtual teams, inclusion of other databases could broaden the picture. For future research, scholars can include additional years and databases to track the changes in the virtuality research to understand the direction of conceptualisation.

CONCLUSIONS

Given the extensive nature of the literature review covering the years between 2006 and 2013, the citation and content analyses presented here exhibited the varying treatment of definitions of virtuality in the literature. After considering different approaches and dimensional constructs, in addition to variations in the same dimensions, it has become clear

that constructing a single dimension that all research could agree upon is an insurmountable challenge due to the variations of existing definitions as outlined in this article. But determining the common ground for virtuality measurement is a matter of urgency. A unified means of measuring, however, could only be developed by isolating the dimension shared by all of the definitions: the extent of face-to-face communication. However, the impacts of other dimensions cited for defining virtuality should also guide researchers to determining the moderating and mediating impacts of virtuality.

This study examined how the number of dimensions and boundaries defined in the literature varies significantly. Consequently, only a limited number of studies defined virtuality as deriving primarily from the lack of face-to-face interaction in physical settings. Geographic dispersion and ICT may be the causes of not being able to meet face-to-face, but they do not axiomatically mean that team members perpetually fail to meet face-to-face in order to complete their tasks. Any team can score high on a virtuality scale without being geographically dispersed and without using ICT. All it takes is for team members not to see each other. From the practical point of view, in order to increase competitiveness, researchers and practitioners may need to understand both the advantages and disadvantages of the lack of face-to-face interactions in organisations, as new forms of doing work make virtually everyone virtual.

REFERENCES

Acharya, A., Verstak, A., Suzuki, H., Henderson, S., Iakhiaev, M., Lin, C.C.Y., & Shetty, N. (2014). Rise of the rest: The growing impact of non-elite journals. *CoRR: arXiv preprint arXiv*:1410.2217, doi: 10.1111/ecoj.12254

Ale Ebrahim, N., Ahmed, S., & Taha, Z. (2009). Virtual teams: A literature review. *Australian Journal of Basic and Applied Sciences, 3*(3), 2653-69.

Bell, B.S., & Kozlowski, S.W.J. (2002). A typology of virtual teams: Implications for effective leadership. *Group & Organization Management, 27*, 14-49.

Benson, O. (2007). The rise of the blogger. *The Philosophers Magazine*, *37*(1), 12-14.

Burt, K. (2009). The Internet: Proposing an infrastructure for the philosophy of virtualness. *Techne: Research in Philosophy & Technology, 13*(1), 50-68.

Chudoba, K.M., Wynn, E., Lu, M., & Watson-Manheim, M.B. (2005). How virtual are we? Measuring virtuality and understanding its impact in a global organization. *Information Systems Journal*, *15*, 279-306.

Cohen, S.G., & Gibson, C.B. (2003). In the beginning: Introduction and framework. In C.B. Gibson & S.G. Cohen (Eds.), *Virtual teams that work: Creating conditions for virtual team effectiveness* (pp. 1-13). San Francisco: Jossey-Bass.

Curseu, P.L. (2006). Emergent states in virtual teams: A complex adaptive systems perspective. *Journal of Information Technology, 21*(4), 249-261.

Curseu P.L., Schalk, R., & Wessel, I. (2008). How do virtual teams process information? A literature review and implications for management. *Journal of Managerial Psychology, 23*(6), 628-652.

de Guinea, A.O., Webster, J., & Staples, D.S. (2012). A meta-analysis of the consequences of virtualness on team functioning. *Information & Management, 49*(6), 301-308.

de Villiers, C., & Dumay, J. (2013). Construction of research articles in the leading interdisciplinary accounting journals. *Accounting, Auditing & Accountability Journal, 26*(6), 876-910.

Dixon, K.R., & Panteli, N. (2010). From virtual teams to virtuality in teams. *Human Relations*, *63*(8), 1177-1197.

Duarte, D.L., & Snyder, N.T. (1999). *Mastering virtual teams: Strategies, tools, and techniques that succeed*. San Francisco, CA: Jossey-Bass.

Gibson, C.B., & Cohen, S.G. (2003). *Virtual teams that work: Creating conditions for virtual team effectiveness*. San Francisco, CA: Jossey-Bass.

Gibson, C.B., & Gibbs, J.L. (2006). Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation. *Administrative Science Quarterly*, *51*(3), 451-495.

Gilson, L.L., Maynard, M.T., Young, N.C.J., Vartiainen, M., & Hakonen, M. (2015). Virtual teams research: 10 years, 10 themes, and 10 opportunities. *Journal of Management*, *41*(5). 1313-1337.

Griffith, T.L., & Neale, M.A. (2001). Information processing in traditional, hybrid, and virtual teams: From nascent knowledge to transactive memory. In B.M. Staw & R.L. Sutton (Eds.), *Research in Organizational Behavior* (vol. 23, pp. 379-421). Greenwich, CT: JAI Press.

Guo, Z., D'Ambra, J., Turner, T., & Zhang, H. (2009). Improving the effectiveness of virtual teams: A comparison of video-conferencing and face-to-face communication in China. *IEEE Transactions on Professional Communication, 52*(1), 1-16.

Hakonen, M., & Lipponen, J. (2008). Procedural justice and identification with virtual teams: The moderating role of face-to-face meetings and geographical dispersion. *Social Justice Research, 21*(2), 164-178.

Hertel, G., Geister, S., & Konradt, U. (2005). Managing virtual teams: A review of current empirical research. *Human Resource Management Review*, *15*, 69-95.

Hoch, J.E., & Kozlowski, S.W.J. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. *Journal of Applied Psychology*, *99*(3), 390-403.

Janssen, M., & Joha, A. (2008). Emerging shared service organizations and the service-oriented enterprise: Critical management issues. *Strategic Outsourcing: An International Journal*, *1*(1), 35-49.

Jarvenpaa, S.L., & Leidner, D.E. (1998). Communication and trust in global virtual teams. *Journal of Computer-Mediated Communication, 3*(4), doi: 10.1111/j.1083-6101.1998.tb00080.x

Jarvenpaa, S.L., & Leidner, D. (1999). Communication and trust in global virtual teams. *Organization Science*, *10*(6), 791-815.

Johnson, S.K., Bettenhausen, K., & Gibbons, E. (2009). Realities of working in virtual teams: Affective and attitudinal outcomes of using computer-mediated communication. *Small Group Research*, *40*(6), 623-649.

Kanawattanachai, P., & Yoo, Y. (2002). Dynamic nature of trust in virtual teams. *The Journal of Strategic Information Systems*, *11*(3), 187-213.

Kirkman, B.L., Gibson, C.B., & Kim, K. (2012). Across borders and technologies: Advancements in virtual teams research. In S.W. Kozlowski (Ed.), *Oxford Handbook of Industrial and Organizational Psychology* (vol. 1, pp. 789-858). New York: Oxford University Press.

Kirkman, B.L., & Mathieu, J.E. (2005). The dimensions and antecedents of team virtuality. *Journal of Management*, *31*(5), 700-718.

Kirkman, B.L., Rosen, B., Tesluk, P.E., & Gibson, C.B. (2004). The impact of team empowerment on virtual team performance: The moderating role of face-to-face interaction. *Academy of Management Journal*, *47*, 175-192.

Lipnack, J., & Stamps, J. (1997). *Virtual teams: Reaching across space, time and organizations with technology*. New York, NY: Wiley.

Lipnack, J., & Stamps, J. (1999). Virtual teams: The new way to work. *Strategy & Leadership, 27*(1), 14-19.

Lipnack, J., & Stamps, J. (2000). *Virtual teams: People working across boundaries with technology*, (2nd ed.). New York, NY: John Wiley & Sons.

Mackenzie, A. (2006). Java™: the practical virtuality of internet programming. *New Media & Society, 8*(3), 441-465.

Malhotra, A., Majchrzak, A., & Rosen, B. (2007). Leading virtual teams. *Academy of Management Perspectives, 21*(1), 60-70.

Martins, L.L., Gilson, L.L., & Maynard, M.T. (2004). Virtual teams: What do we know and where do we go from here?. *Journal of Management*, *30*(6), 805-835.

Massumi, B. (2002). *Parables for the virtual: Movement, affect, sensation*. Durham, NC: Duke University Press.

Maynard, M.T., & Gilson, L.L. (2013). The role of shared mental model development in understanding virtual team effectiveness. *Group & Organization Management, 39*(1), 3-32.

Maynard, M.T., Mathieu, J.E., Rapp, T.L., & Gilson, L.L. (2012). Something(s) old and something(s) new: Modeling drivers of global virtual team effectiveness. *Journal of Organizational Behavior, 33*(3), 342-365.

Maznevski, M.L., & Chudoba, K. (2000). Building space over time: Global virtual team dynamics and effectiveness. *Organizational Science, 11*(5), 473-492.

Montoya-Weiss, M., Massey, A., & Song, M. (2001). Getting it together: Temporal coordination and conflict management in global virtual teams. *Academy of Management Journal*, *44*, 1251-62.

Mowshowitz, A. (1997). On the theory of virtual organization. *Systems Research and Behavioral Science, 14*(6), 373-384.

Nyström, C.A., & Asproth, V. (2013). Virtual teams - Support for technical communication?. *Journal of Organisational Transformation & Social Change, 10*(1), 64-80.

O'Keefe, M., & Chen, E.T. (2011). The impact of emergent Web 2.0 on virtual teams. *Communications of the IIMA, 11*(2), 91-106.

Orhan, M.A. (2014). Extending the individual level of virtuality: Implications of task virtuality in virtual and traditional settings. *Administrative Sciences*, *4*(4), 400-412.

Orhan, M.A., Rijsman, J.B., & Van Dijk, G.M. (2016). Invisible, therefore isolated: comparative effects of team virtuality with task virtuality on workplace isolation and work outcomes. *Revista de Psicología del Trabajo y de las Organizaciones*, *32*(2), 109-122.

Powell, A., Piccoli, G., & Ives, B. (2004). Virtual teams: a review of current literature and directions for future research. *ACM Sigmis Database*, *35*(1), 6-36.

Schiller, S.Z., & Mandviwalla, M. (2007). Virtual team research - An analysis of theory use and a framework for theory appropriation. *Small Group Research, 38*(1), 12-59.

Schweizer, L., & Duxbury, L. (2010). Conceptualizing and measuring the virtuality of teams. *Information Systems Journal, 20*(3), 267-295.

Shields, R. (2006). Virtualities. *Theory Culture & Society, 23*(2-3), 284-286.

Serenko, A., & Dumay, J. (2015). Citation classics published in knowledge management journals. Part I: articles and their characteristics. *Journal of Knowledge Management, 19*(2), 401-431.

Stanko, T.L., & Gibson, C.B. (2009). Virtuality here and now: The role of cultural elements in virtual teams. In R.S. Bhagat & R.M. Steers (Eds.), *Cambridge Handbook of Culture, Organization, and Work* (pp. 272-304). Cambridge, UK: Cambridge University Press.

Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research & Evaluation*, *7*(17), 137-146.

Styhre, A. (2006). Peer learning in construction work: Virtuality and time in workplace learning. *Journal of Workplace Learning, 18*(2), 93-105.

Townsend, A.M., DeMarie, S.M., & Hendrickson, A.R. (1998). Virtual teams: Technology and the workplace of the future. *Academy of Management Executive*, *12*, 17-29.

Vartiainen, M. (2006). Mobile virtual work – concepts, outcomes and challenges. In E. Andriessen & M. Vartiainen (Eds.), *Mobile Virtual Work: A New Paradigm?* (pp. 13-44). Heidelberg, Germany: Springer.

Author

Mehmet A. Orhan

Assistant Professor at the Faculty of Social Sciences of Charles University in Prague, Lecturer of Organizational Psychology at the Faculty of Arts of the same university and Faculty Member at the University of Liverpool Online Programmes. His research focuses on human-computer interaction in various domains, including organisational, educational and social settings. He obtained his PhD in Organizational Psychology from Tilburg University in the Netherlands.

Correspondence to: Mehmet A. Orhan, PhD, Charles University in Prague, Faculty of Social Sciences, Smetanovo Nabrezi 6, Prague, Czech Republic, e-mail: mehmet.orhan@fsv.cuni.cz

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Business Environment and Economic Growth in the European Union Countries: What Can Be Explained for the Convergence?

Agnieszka Głodowska

ABSTRACT

Objective: The objective of this article is to present the results of research on the economic growth and business environment of the European Union countries in the context of convergence processes. Additionally, the article presents the results of investigation on the impact of business environment on economic growth.

Research Design & Methods: Methods applied in the study are analysis and synthesis of the literature on the subject, as well as quantitative tools: descriptive statistics and multivariate regression. The analysis includes 28 countries of the European Union in the years 2000-2016 for economic growth and 2010-2018 for business environment.

Findings: Changes in the business environment across the European Union, as well as upward trends indicate a gradual approach of member economies in these areas. A quantitative analysis of the dependence of growth on business environment has also been confirmed.

Implications & Recommendations: The results can be important for policy makers. Demonstrating a positive link between business environment and economic growth should be viewed as a guideline for reforms, changes and regulatory improvements. This elaboration can be treated as a preliminary study on interrelation between business environment and economic growth in the context of economic convergence. Further research on the influence of business environment on economic convergence within the European Union countries is highly recommended.

Contribution & Value Added: The originality of this work lies in the connection of two different research problems: economic growth and business environment, as well as the study of links between these two areas.

Article type:	research paper
Keywords:	business environment; economic growth; convergence; European Union; multivariate regression
JEL codes:	F43, F15, O44, M16

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INTRODUCTION

The analysis of development trends and changes taking place in the business environment are two very important research topics. Searching for the sources of growth is a very common problem in literature. Similar observations are made regarding the business environment and its analysis in the context of firms' operation. The combination of these two areas in search for mutual dependence and causality is no longer so deeply recognised.

Therefore, this article aims to present the results of research on the economic growth and business environment of the European Union countries in the context of convergence processes. In the first place, this refers to the convergence of income, understood as the equalisation of GDP per capita of the European Union countries over time and then to the convergence of the business environment of these economies. As variables which describe the business environment, the Easy of Doing Business Index developed by the World Bank was chosen. Additionally, the article presents the results of investigation of the impact of business environment on economic growth in the European Union countries.

Methods applied in the study are analysis and synthesis of the literature on the subject, as well as quantitative tools. To verify the diversification of economic growth and business environment descriptive statistics and the coefficient of dispersion are used. To indicate relations between business environment and economic growth multivariate regression and backward stepwise regression are applied.

This article is divided into substantive parts. The first part contains an overview of previous studies regarding the issue being explored: economic convergence, business environment and interrelations between these two problems. Section two introduces the study methods and their assumptions. The third part presents the results of own investigation and discussion. The article ends with main conclusions as well as limitations of the work and recommendations for future research.

LITERATURE REVIEW

Trend analysis and the search for the sources of economic growth are particularly important for integrated economies. Integration implies the idea of convergent growth. It is understood as a process of similarity and convergence of economies in terms of economy and income (Próchniak & Witkowski, 2016). Convergence analysis may be limited to observing macroeconomic indicators. Particularly popular is the analysis of the nominal convergence referring to the so-called Maastricht criteria, which determine the country's membership in the Economic and Monetary Union. However, the analysis of economic convergence is, in most cases, reduced to examining the level and rate of economic growth expressed in GDP per capita.

The convergence process in the European Union understood in such a way is a matter of great concern. This is a topic in itself recognised in the literature of the subject. It is difficult, however, to find an unequivocal position on the process of economic convergence in the EU area. In the works of Mello and Perrelli (2003), Alexe (2012), Cuestas, Monfort and Ordones (2012), the lack of economic convergence of the EU member states is shown. However, the vast majority of studies confirm the development of EU economies in line with the economic convergence hypothesis (Verblane & Vahter, 2005; European

Commission, 2010, 2014; Rapacki & Próchniak, 2014; Matkowski & Próchniak, 2014; Głodowska, 2017; Deichmann, Eshghi, Haughton, & Li, 2017). There is also evidence of the existence of club convergence, i.e. economic convergence within a selected groups of states (Antonakakis, Christou, Cunado, & Gupta, 2017; Furková & Chocholatá, 2016).

The presented studies on economic convergence in the European Union have a lot of limitations. It is worth noting that in a number of studies out of a larger group of countries primarily the EU15 countries are surveyed, which does not enable the possibility of observing economic cohesion within the EU member states themselves (Islam, 2003; Smolny, 2000; Barro, Sala-i-Martin, 2003; De la Fuente, 2003; Milanovic, 2003). This approach has emerged in the literature of the subject, with the deepening of the European integration and the accession of new countries. Interest in the convergence of the EU states has increased in the context of analysing the impact of the economic integration on the economic convergence of states (Gianetti, 2002; Verblane & Vahter, 2005; Matkowski & Próchnik, 2006; Recher & Kurnoga, 2017). According to Alexe (2012), not all countries which have acceded to the European Union after 2004 are approaching the Western Europe countries in terms of GDP per capita growth. Cuestas, Monfort and Ordones (2012) indicate the existence of club convergence. Stanišić (2012) confirms the existence of convergence in the 25 EU Member States without Romania and Bulgaria, while in the group of old EU15 and newly accepted EU10 Member States, treating both groups separately, rather divergent tendencies are observed. Maciejewski (2017) indicates to a higher growth rate in poorer countries but does not confirm permanent tendency in the EU countries to become similar. The authors Rapacki and Próchniak (2009, 2014), and Matkowski and Próchniak (2009, 2014) have a wealth of achievements in the area of the convergence of Central and Eastern European countries. These authors largely confirm the occurrence of the convergence of Central and Eastern European countries in relation to the Western Europe.

The studies conducted so far on the income convergence of the European Union countries do not provide clear conclusions. This may be due to differences in the applied research methodology, the accepted research period or the number of countries covered by the analysis. Most of the works is of selective character. In view of the existing shortcomings of the research so far, an attempt has been made to analyse the economic growth of the EU countries expressed in GDP per capita, while making the following hypothesis:

H1: The area of the European Union is becoming more homogeneous in terms of business conditions and at the same time recognises constant improvement of the business environment properties.

The advantage of own studies is the inclusion of all the member states in the analysis, as well as the adoption of a relatively long research period. In addition, it should be remembered that the analysis of income convergence is only part of the presented research. Addressing the problem in relation to the business environment in the EU countries, as well as examining the impact of the environment on economic growth is the added value of convergence research.

Business environment convergence results from the assumptions of the European Single Market. The creation of a common market is intended to stimulate growth and job creation and make Europe a more competitive and attractive place for investment and innovation (European Commission, 2016). The business environment as a subject of scientific research is recognised in the literature of the subject, but above all in relation to its influence on the functioning of companies (Dickson, Weaver, & Vozikis, 2013; Wach, 2016; Głodowska, Pera, & Wach,

2016). The analysis of the differentiation of business environment in the EU countries is not a popular topic. One can talk about a kind of research gap in this area. Therefore, this article is an attempt to partially fill this gap, assuming the second hypothesis:

H2: The area of the European Union is becoming more homogeneous in terms of business conditions and at the same time recognises constant improvement of the business environment properties.

The issues of business environment are more often taken up in scientific studies in the context of interaction with other subjects or research areas. And so it can affect the business environment on the functioning of companies or on the macroeconomic perspective of the economy (Lizińska, Marks-Bielska, & Serocka, 2014). The prerequisites for seeking the dependence between business environment and economic growth are derived from the theoretical assumptions of institutional economics, international business and entrepreneurship. According to institutional economics, it is quite obvious that the knowledge and understanding of economic processes can only take place through widely defined institutions which encompass not only the economic category but also the legal, political, sociological or organisational categories. The first work on the impact of institutions on economic growth was published at the end of the 1980s. The pioneering work of Kormendi and Meguire (1985) did not confirm fully the hypothesis of the relationship between civil liberty and political rights and economic growth in the 47 countries surveyed. Similar conclusions are drawn from the elaboration of Scully (1988) and Helliwell (1994). Knack and Keefer (1995) have shown that law enforcement institutions are crucial for economic growth. The authors were the first to apply the aggregate measures developed by international institutions: International Country Risk Guide (ICRG) and Business Environment Risk Intelligence (BERI). The 1990s were filled with numerous publications using the Economic Freedom Index by the Fraser Institute, on the basis of which attempts were made to demonstrate the relationship between the regulatory environment and the growth of economy (Ayal & Karras, 1998; Dawson, 1998; Easton & Walker, 1997).

An excellent addition to the review of research on business environment linked with economic growth is international business. In this field, the studied areas should be considered through the prism of the internationalisation process, the functioning of multinational corporations, as well as the location of foreign direct investment (Ganni, 2011; Edrees, 2015; Bobenič-Hintošová, Kubíková, & Ručinský, 2016). In recent years, the area of research related to the internationalisation process has been very dynamic, which indicates that the environment is essential for deciding on internationalisation as well as for its development (Belniak, 2015; Lisowska, 2016; Wach, 2016). On the other hand, internationalisation as a contribution to more efficient specialisation and resource allocation can be considered as an important factor for growth processes in economy. Lejko and Bojnec (2011) investigated the relationship between internationalisation at the macro level and the scale of foreign investment, as well as economic growth in the Central and Eastern European countries. At the micro level, it is also studied how the process of internationalisation contributes to the creation of new jobs, innovation and the overall improvement of the competitiveness of the business entities (Boermans & Roelfsema, 2015). In the light of the entrepreneurial theory, business environment is the foundation for developing a modern market economy. It contributes to the emergence of new companies, which in turn results in improved competitiveness and innovation (Klapper & Love, 2010).

Messaoud and Teheni (2014) rightly point out that the overwhelming number of works do not directly relate to the causal link between business environment and economic growth. According to the authors, works which indirectly relate to the researched issues, indicating, for example, the correlation between business environment and productivity, investment, innovativeness or efficiency of factors of production, prevail. The methodology employed by the World Bank, implemented by Djankov, La Porta, Lope – de – Silanes and Shleifer (2002), contributed significantly to the growth of studies dealing directly with business environment – economic growth. Hanusch (2012) examined the extent to which the Doing Business indicators impacted the reform process in 175 economies, indicating that the Doing Business components of contract execution and borrowing are of the utmost importance. Dawson (2006) studied the indirect and direct impact of business regulation on growth. He argued that countries with fewer business restrictions reported higher growth rates due to higher total factor productivity. Similar results were obtained by Castro, Clementi and MacDonald (2004), Haider (2012) and Ani (2015). Ani (2015) presents an analysis of the relationship between the components of the Doing Business Index and Gross Domestic Product in 29 East, South and South East Asian countries. It turns out that in these countries, the most important factors for the economy were: dealing with construction permits, getting credit, registering property and trading across borders, while the first two factors affected the economy in a limited manner.

The above-mentioned articles refer to a large number of countries. Most studies cover several dozen or more economies (Hanusch, 2012; Edrees, 2015; Hussain & Haque, 2016). Against this background, the research gap on the European Union area is highlighted. Conducting research on the relationship between business environment and economic growth in the European Union seems to be particularly justified. Stimulating economic growth and improving Europe's competitiveness by removing barriers, creating an environment conducive to investment and innovation is rooted in the very idea of integration. It is also formally constituted by the concept of creating the European Single Market. Given the above, the following research hypothesis was formulated:

H3: Business environment affects the level of economic growth. In the European Union, positive changes in the components of the business environment have had a positive effect on the pace of economic growth.

MATERIAL AND METHODS

The aim of this article is to present the results of a comparative analysis of the economic growth and business environment of the European Union countries in the context of convergence processes. In the first place, this refers to the convergence of income, understood as the equalisation of GDP per capita in the European Union countries over time and then the convergence of the business environment of these economies. In addition, the results of studies on the impact of business environment on economic growth in the area of European Union countries are presented.

For the analysis of economic growth, a measure of GDP per capita expressed in terms of purchasing power parity was used. Business environment is understood as a whole of phenomena, processes, entities, units shaping the functioning and development of companies. As variables which describe the business environment of the European Union

countries, the Doing Business Index developed by the World Bank was chosen. This is a measure proposed by Djankov, La Porta, Lope – de – Silanes and Shleifer (2002), which comprehensively covers all the key aspects of establishing and running a business, especially from an international business perspective. The aggregate measure of the Easy of Doing Business Index consists of ten subcategories shown in Table 1.

Table 1. The Easy of Doing Business Indicators characteristics

Abbr.	Subindices	Components
SB	Starting a Business	Procedures to start and operate a company (number) Time required to complete each procedure (days) Costs required to complete each procedure (% of income per capita) Paid – in minimum capital (% of income per capita)
DCP	Dealing with Construction Permits	Procedures to build a warehouse (number) Time required to complete each procedure (days) Costs required to complete each procedure (% of warehouse value) Building Quality Control (scale)
GE	Getting Credit	Procedures to obtain electricity connections (number) Time required to complete each procedure (days) Costs required to complete each procedure (% of income per capita) Reliability of supply and transparency on tariff index (scale) Price of electricity (USD per kilowatt-hour)
RP	Registering Property	Procedure to transfer title of immovable property (number) Time required to complete each procedure (days) Costs required to complete each procedure (% of property value)
GC	Getting Credit	Strength of legal rights index (scale) Depth of credit information index (scale) Credit bureau coverage (% of adults) Credit registry coverage (% of adults)
PI	Protecting Minority Investors	Extent of disclosure index (scale) Extent of director liability index (scale) Easy of shareholder suits index (scale) Extent of conflict of interest regulation index (scale) Extent of shareholder rights index (scale) Extent of ownership and control index (scale) Extent of corporate transparency index (scale) Extent of shareholders governance index (scale) Strength of minority investor protection index (scale)
PT	Paying Taxes	Tax payments for manufacturing company (number per year) Time required to comply with three major taxes (hours per year) Total tax and contribution rate (% of profit before all taxes) Postfiling index
TAB	Trading Across Borders	Time to export: Border and documentary compliance (hours) Costs to export: Border and documentary compliance (USD) Time to import: Border and documentary compliance (hours) Costs to export: Border and documentary compliance (USD)
EC	Enforcing Contracts	Time required to enforce a contract through the courts (days) Costs required to enforce a contract through the courts (% claim value)
RI	Resolving Insolvency	Time required to recover debt (years) Cost required to recover debt (% of debtor's estate) Outcome Recovery rate for secure creditor (USD)

Source: own study based on the World Bank (2017).

The World Bank methodology uses a dual approach to measuring business environment using the following measures: 1) it is a ranking of countries based on the Easy of Doing Business Index, 2) it is a relative ranking of each country with regard to the benchmark, i.e. the country with the highest score. The benchmark economy is measured on a scale from 0 to 100, where 0 is the lowest and 100 is the benchmark. The assessment of the business environment in the economies compared is done for the aggregate measure as well as the individual indices. In this article, the Easy of Doing Business Index and its constituents are used in a relative way, i.e. on a scale of 0-100 for all economies of the European Union (EU28).

A analysis of the convergence of both economic growth and business environment was conducted on the basis of descriptive statistics as well as the coefficient of dispersion of GDP per capita and the Easy of Doing Business Index. The decreasing value of the dispersion coefficient in subsequent years indicates the occurrence of the convergence process. It is called sigma convergence (Leaonardo, 2005; Wałęga, 2014; Głodowska, 2017). The discrepancy is due to the limited availability of Doing Business data, which was actually introduced in 2004, but the unified methodology and data availability only come from 2010.

The variables of the aggregate measure Easy of Doing Business (Table 1) were used to analyse the relationship between business environment and economic growth in the European Union. They are explanatory variables. The economic growth expressed by the GDP per capita index is explained. Assuming a system of time delays, the business environment measures will concern 2015, and the economic growth will be from 2016. The adopted assumption is that business environments affect economic growth with annual time lags. As a research tool, multiple regression as well as backward stepwise regression were used. The model was verified by normality test, autocorrelation, heteroscedasticity and stability tests. The adopted model is in the form (1):

$$Y_i = b_0 + b_1 X_1 + \cdots + b_k X_k + e_i \quad (1)$$

where:

Y_i - dependend varialbe (GDP per capita);

X_1, X_k - independend variables (SB,DCP,GE,RP,GC,PI,PT,TAB,EC,RI).

RESULTS AND DISCUSSION

Results of the descriptive statistics of GDP per capita and the aggregated value of the Easy of Doing Business Index for the European Union countries were presented using box figures. The descriptive statistics for business environment cover the years 2010-2018, and for GDP per capita 2000-2016.

On the basis of descriptive statistics, the business environment of the European Union countries can be characterised as moderately differentiated. Visually, the gap between the highest and lowest values of Easy of Doing Business seems to be significant, but the scale shows that there is a difference of about 25 points in the year of the greatest divergence. It should be noted that the business environment measure for each country is depicted relatively, i.e. with regard to the benchmark economy. In the early years of the analysis, the heterogeneity of the business environment in the EU was considerably greater. In the coming years, we can talk about the progressive convergence of business environment in the EU member states. This is evidenced by the decreasing distance between the upper and lower limits, as well as between the first quartile (lower edge of the box) and the third quartile

(upper edge of the box). It can also be seen from the figure that in the presented period there was an improvement of the business environment of the EU countries, understood as the reduction of the distance from the best result = 100. This is due to an increase in the median value, an increase in the minimum value as well as the left-sided asymmetry stating that more countries have higher values of features in recent years of the analysis.

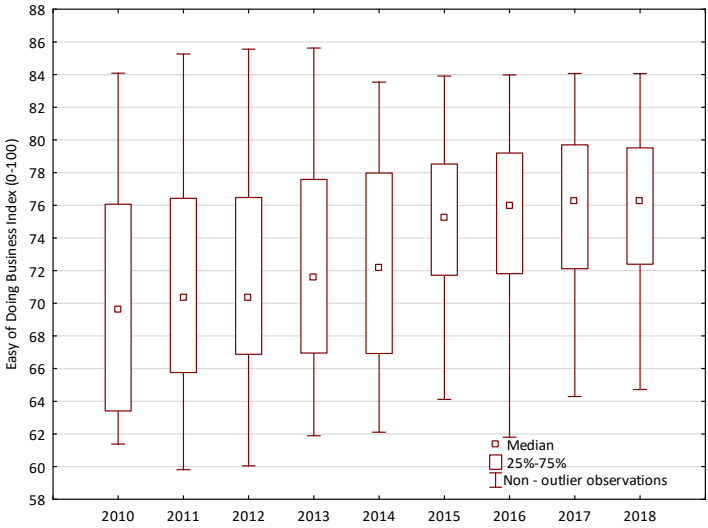

Figure 1. Descriptive statistics of the Easy of Doing Business Index for the EU countries in the years 2010-2018

Source: own elaboration based on the World Bank Database.

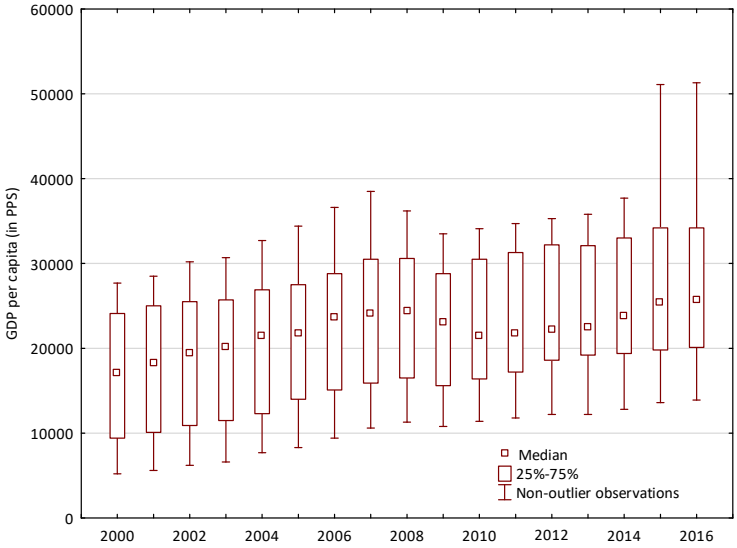

Figure 2. Descriptive statistics of GDP per capita for the EU countries in the years 2000-2016

Source: own elaboration based on the World Bank Database.

The results of analysis of the distribution of GDP per capita in the EU countries show a very large income gap. This variability is far greater than in the case of the business environment presented in Figure 1. It is also difficult to assess the nature of growth trends in the context of convergence or divergence. It should be noted that Figure 2 presents the values for the EU countries without Luxembourg since the very high GDP per capita values for that country caused the overall lack of readability of Figure 2. The item illustrating GDP per capita of Luxembourg in Figure 2 would be treated as the so-called "outlier". Luxembourg's income per capita is several times higher than the average GDP per capita of other member states. Large income diversification in the EU is visible on the basis of the gap between the highest and the lowest GDP per capita and in the different groups of countries coming in the first, second and third quartiles respectively. In the following years, the increase in the income per capita of the poorest countries is visible, with the growth rate significantly higher than in 2007. After that year, the growth rate of the poorest countries declines, and in the case of the richest countries, GDP per capita has fallen sharply. Median values are also lowered. However, the visible left-sided asymmetry between 2009 and 2014, saying that more countries have higher GDP per capita levels may indicate that the economic crisis of 2007-2009 had a particularly negative impact on selected economies, which has caused a significant reduction in the value of the median. Figure 2 also shows that greater income homogeneity is observed in the group of countries with higher GDP per capita (fourth quartile). The last two boxes of the Figure illustrate this particular situation. In the last two years of observation, the opposite trend is visible, that is, the distance between the upper limit and the upper edge of the box drastically increases. This is due to a very dynamic growth of income per capita in Ireland, visible right-sided asymmetry is the consequence of only this case.

Figures 3 and 4 present the results of the sigma convergence analysis which states that the dispersion of income distribution per capita decreases over time.

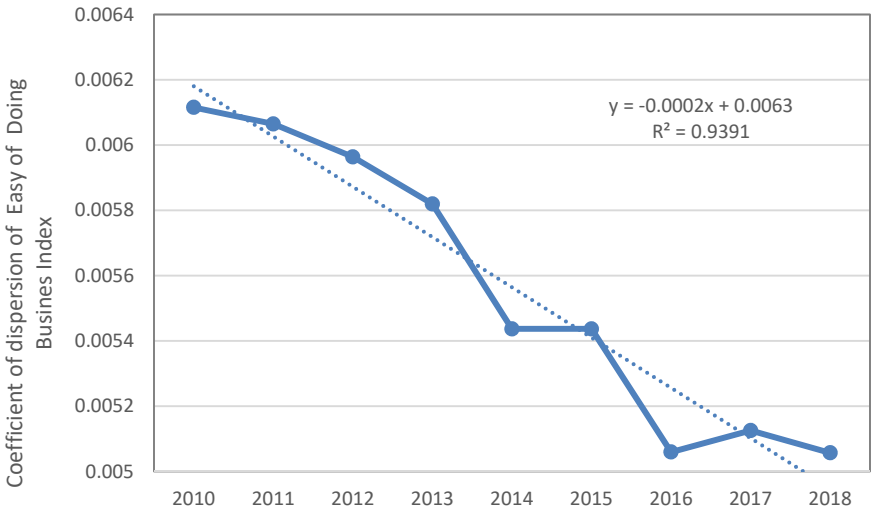

Figure 3. Sigma convergence of the Easy of Doing Business Index in the EU countries in the years 2010-2018

Source: own elaboration based on the World Bank Database.

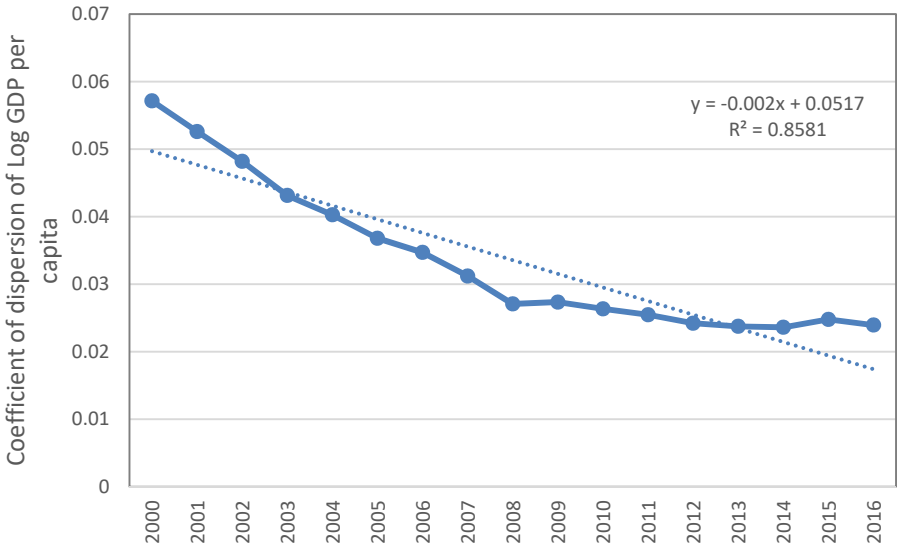

Figure 4. Sigma convergence of GDP per capita in the EU countries in the years 2000-2016
Source: own elaboration based on the World Bank Database.

Inclination of the figure line indicates the progressive convergence of the business environment as well as the income of the European Union countries, with the trend being more pronounced in Figure 3. We can therefore say that in the analysed years the EU economies were approaching in terms of the environmental conditions of business. In the case of GDP per capita, convergence is clearly visible until 2007, a decisive slowdown of convergence has occurred after 2007, which confirms the negative impact of the crisis of 2007-2009 on the growth processes in the Union. The determination coefficient in both cases achieves a relatively high value indicating very good fit of the model to the empirical data. It proves that hypotheses 1 and 2 were confirmed in the article.

The results of the analysis of the relationship between the business environment and the economic growth of European Union countries are presented in Table 2.

The regression model validation deemed that the errors are normally distributed (Dornik-Hansen Test, p-value 0.7095) and that there is no heteroscedasticity in the model (White Test, p-value 0.3191). Additionally, the result of Ramsey Reset Test showed that the error does not exist (Ramsey Reset Test, p-value 0.3941).

On the basis of the regression analysis it can be stated that the business environment as measured by the Easy of Doing Business Index has a significant impact on the economic growth of the EU countries. This is shown by p-value for F Statistics (0.0449) as well as the standard error of the model (1.001147). It is worth adding that p-value is relatively high and very close to the established statistical significance assuming we accept the standard level of statistical significance 0.05. The determination coefficient of 0.597 states that the model is moderately well suited to real values. About 60% of the total variability in growth can be explained by changes in the value of the Easy of Doing Business Index, and above all by registering property, protecting investors, paying taxes, and enforcing contracts. Thus, hypothesis 3 was positively verified in the article. On the basis of backward step-

wise regression one may identify the areas of business environment which are most important for economic growth. With the p-value at 0.0065 and determination coefficient of 0.599 it turns out that paying taxes most affect the economic growth of the analysed countries. This area refers to the number and timing of payments within a year, the size of interest rates, taxation of labour and other tax liabilities.

Table 2. Regression summary for the effect of the business environment on economic growth among the EU countries

Variable	Coefficient	Std.Error	t-Statistic	p-value.
Constant	5.2189	4.3925	1.188	0.2511
SB	−0.0786	0.0456	−1.725	0.1027
DCP	−0.0357	0.0293	−1.222	0.2385
GE	−0.0441	0.0260	−1.697	0.1079
RP	**0.0490**	**0.0216**	**2.272**	**0.0364**
GC	−0.0263	0.0166	−1.587	0.1310
PI	**0.0753**	**0.0372**	**2.023**	**0.0591**
PT	**0.0701**	**0.0313**	**2.236**	**0.0390**
TAB	−0.0611	0.0690	−0.8858	0.3881
EC	**0.0477**	**0.0272**	**1.756**	**0.0971**

$R = 0.7728$; $R^2 = 0.5973$; Adjusted $R^2 = 0.3604$; $F(10, 17) = 2.5213$; $p < 0.0449$; Std.Err. of Estimate: 1.0011
Source: own study based on the World Bank and Eurostat Databases.

The results of the analysis of convergence processes of the business environment and the income of the European Union countries confirm the existence of changes consistent with the hypothesis of convergence. In the area of income convergence analysis, these results are in line with the study conducted by Matkowski and Próchniak (2009, 2014). Similar results were also obtained by Stanišić (2012), while in this study, the group of countries was more numerous, including Bulgaria, Romania and Croatia. It is therefore an advantage to include all members of the Union in the study. The analysis of business environment points to moderate diversity of the European Union states under this area. However, the complexity, turbulence and unpredictability of the environment are emphasised (Witkowska, 2007; Militaru & Pavel, 2012). Linking business environment with economic growth seems to be justified. Dependency analysis indicates a significant impact of business environment on the level of income of the analysed economies. Similar results were obtained by Ani (2015) for the Asian group of countries, as key determinants of economic growth, the author pointed out trading across barriers, dealing with construction permits, getting credit and registering property. This is in line with previous studies by Djankov, McLiesh and Ramalhom (2006) and Haunsch (2011). Messaoud and Teheni (2014) conducted a very detailed study of 162 countries between 2007 and 2011 using not only easy of doing business indices as dependent variables but also control variables. This is a more complex and detailed study. The authors point to the positive correlation between business environment and economic growth, but these results are not so clear. The lack of comparable research for a group of European Union states is, on the one hand, an advantage of the study, thus filling the gap. On the other hand, there is no possibility of referring to and confronting competing elaborations.

CONCLUSIONS

The purpose of the article was to compare the business environment and the economic growth of European Union countries as well as changes taking place in these areas in the context of the convergence of the European Union. Moreover, an attempt was made to verify the extent to which business environment implies economic growth. Changes in the business environment across the European Union, as well as upward trends indicate a gradual approach of member economies in these areas. A quantitative analysis of dependence of growth on the business environment has also been confirmed.

Positive verification of the research hypotheses is very important. It is believed that the elaboration has strong application properties. The results obtained can be important for policy makers. Demonstrating a positive link between business environment and economic growth should be viewed as a guideline and orientation for reforms, changes and regulatory improvements.

The study is not deprived of limitations. They are formal as well as substantive. The scope of analysis was largely determined by the availability of data. In the case of examining the dependence of economic growth on the business environment, it is suggested to accept more research periods, i.e. to conduct panel research. It is also worth to include other variables that are also considered to be determinants of growth. Analysis of the convergence itself was based on the so-called classical measure resulting from neoclassical growth theory. In subsequent studies, it is recommended to include a more complex tool based on the assumptions of the endogenous growth model. In addition, in subsequent studies it is worth increasing the number of years accepted for analysis, which in view of the upward trend is highly recommended. This elaboration can be treated as a preliminary study on interrelation between business environment and economic growth in the context of economic convergence of the EU countries. Further research on the influence of business environment not only on economic growth but also on economic convergence within the European Union countries is highly recommended.

REFERENCES

Alexe, I. (2012). How Does Economic Crisis Change the Landscape of Real Convergence for Central and Eastern Europe?. *Romanian Journal of Fiscal Policy (RJFP), 3*(1), 1-8.

Ani, T.G. (2015). Effect of Ease of Doing Business to Economic Growth among Selected Countries in Asia. *Asia Pacific Journal of Multidisciplinary Research, 3*(5), 139-145.

Antonakakis, N., Christou, C., Cunado, J., & Gupta, R. (2017). Convergence patterns in sovereign bond yield spreads: Evidence from the Euro Area. *Journal of International Financial Markets Institutions & Money, 49*, 129-139. doi: 10.1016/j.intfin.2017.03.002

Ayal, E.B., & Karras, G. (1998). Components of economic freedom and growth: An empirical study. *Journal of Developing Areas, 32,* 327-338.

Barro, R.J., & Sala – i – Martin, X. (2003). *Economic Growth.* Cambridge – London: The MIT Press.

Belniak, M. (2015). Factors Stimulating Internationalisation of Firms: An Attempted Holistic Synthesis. *Entrepreneurial Business and Economics Review, 3*(2), 125-140. http://doi: 10.15678/EBER.2015.030209

Bobenič-Hintošová, A., Kubíková, Z., & Ručinský, R. (2016). Does Quality of Business Environment Influence Foreign Direct Investment Inflows? A Case of Cenral European Countries. *European Journal of Management*, 3(1). doi: 10.5817/CEJM2016-1-1

Boermans, M.A., & Roelfsema, H. (2016). Small firm internationalization, innovation, and growth. *International Economics and Economic Policy, 13*(2), 283-296.

Castro, R., Clementi, G.L., & MacDonald, R. (2004). Investor Protection, Optimal Incentives, and Economic Growth. *The Quarterly Journal of Economics, 119*(3), 1131-1175.

Cuestas, J.C., Monfort, M., & i Ordonez, J., (2012). *Real Convergence in Europe; A cluster analysis* (Sheffield Economic Research Paper Series SERP no. 2012023). Sheffield: University of Sheffield.

Deichmann, J.I., Eshghi, A., Haughton, D., & Li, M. (2017). Socioeconomic Convergence in Europe One Decade After the EU Enlargement of 2004: Application of Self – Organizing Maps. *Eastern European Economics, 55*(3), 236-260. doi: 10.1080/00128775.2017.1287547

Dawson, J.W. (1998) Institutions, investment and growth: new cross-country and panel data evidence. *Economic Inquiry, 36*, 603-619.

Dawson, J.W. (2006). Regulation, Investment, and Growth across Countries. *Cato Journal, 26*(3). 489-509.

De la Fuente, A. (1997). The Empirics of Growth and Convergence: A Selective Review. *Journal of Economic Dynamics and Control, 21*(1), 23-73.

Dickson, P.H., Weaver, K.M., & Vozikis, G.S. (2013). The Impact of the Institutional Environment on SME Internationalization: An Assessment of the Environmental Assumptions of Emerging Integrated Models of Internationalizatoin. *Journal of Applied Business and Economics, 15*(3), 43-55.

Djankov, S., La Porta, R., Lope-de-Silanes, F., & Shleifer, A. (2002). The Regulation of Entry. *The Quarterly Journal of Economics, 117(*1), 1-37.

Djankov, S., McLiesh, C., & Ramalhom, R. (2006). Regulation and growth. *Economics Letters, 92*(3). 395-401

Easton, S., & Walker, M. (1997). Income, growth, and economic freedom. *American Economic Review, 87*(2), 328-332.

Edrees, A. (2015). Foreign Direct Investment, Business Environment and Economic Growth in Sub-Saharan Africa. Pooled Mean Group Technique. *Journal of Global Economy*, *3*(2), 144-149. doi:10.4172/2375-4389.1000144

European Commission (2010). *Investment in Europe's Future. The Fifth Cohesion Report.* Brussel: European Commission.

European Commission (2014). *Investment for Jobs and Growth. Promoting Development and Good Governance in EU Regions and Cities. The Sixth Cohesion Report*. Brussel: European Commission.

European Commision (2016). *Report on Single Market integration and competitiveness in the EU and its Member States.* Brussel: European Commission.

Eurostat Database. Economy and Finance Database. Retrieved on October 12, 2017 from http://ec.europa.eu/eurostat/data/database

Furková, A., & Chocholatá, M. (2016). Spatial Econometric Modelling of Regional Club Convergence in the European Union. *Ekonomicky Casopis, 64*(4), 367-386.

Ganni, A. (2011). The Relationship between Business Environment and Foreign Direct Investment in Developing Countries. *Global Review of Business and Economic Research GRBER*, *7*(1), 71-86.

Giannetti, M. (2002). The effects of integration on regional disparities: Convergence, divergence or both?. *European Economic Review, 46,* 539-567.

Głodowska, A., Pera, B., & Wach, K. (2016). International Environment and its Influence on the Entrepreneurial Internationalisation of the Firm: The Case of Polish Businesses, in: K. Wach & A. Żur (Eds.), Advancing Research in Entrepreneurship in Global Context: Conference Proceedings of the

8th ENTRE Conference. Kraków: Cracow University of Economics [Later published also as: Głodowska, A., Pera, B., & Wach, K. (2016). International Environment and its Influence on the Entrepreneurial Internationalisation of the Firm: The Case of Polish Businesses. *Problemy Zarządzania, 14*(3), 107-130].

Głodowska, A. (2017). Problem zbieżności dochodowej państw Unii Europejskiej w świetle klasycznych modeli konwergencji. In M. Maciejewski & K. Wach (Eds.), *Handel zagraniczny i biznes międzynarodowy we współczesnej gospodarce* (pp. 75-89). Kraków: Uniwersytet Ekonomiczny w Krakowie.

Haider, J.I. (2012). The impact of business regulatory reforms on economic growth. *Journal of The Japanese and International Economies, 26,* 285-307.

Hanusch, M. (2012). *The Doing Business Indicators, Economic Growth and Regulatory Reform* (World Bank Policy Research Working Paper no. 6176). Washington: World Bank.

Helliwell, J.F. (1994). Empirical Linkages Between Democracy and Economic Growth. *Journal of Political Science, 24,* 225-248.

Hussain, M.E., & Haque, M. (2016). Impact of Economic Freedom on the Growth Rate: A Panel Data Analysis. *Economies, 4*(5), 1-15. doi: doi:10.3390/economies4020005

Islam, N. (2003). What have we learned from the convergence debate?. *Journal of Economic Surveys, 17*(3), 309-362.

Klapper, L., & Love, I. (2010). *The Impact of Business Environment Reforms on New Firm Registration* (World Bank Policy Research Working Paper no. 5493). Washington: World Bank.

Knack, S., & Keefer, P. (1995). Institutions and Economic Performance: Cross – Country Tests Using Alternative Institutional Measures. *Economics and Politics, 7*(3), 207-227.

Kormendi, R.C., & Meguire, P.G. (1985). Macroeconomic Determinants of Growth: Cross-Country evidence. *Journal of Monetary Economics*, *16(2),* 141-163. https://doi.org/10.1016/0304-3932(85)90027-3

Lejko, I., & Bojnec, Š. (2011). Internationalization and Economic Growth: The Comparison of European Economies. Proceedings of 8th International Conference "Economic Integration, Competition and Cooperation", 6-9 April, Opatija, University of Rijeka. Retrieved on November 14, 2017 from https://ssrn.com/abstract=2232632 or http://dx.doi.org/10.2139/ssrn.2232632

Leonardo, R. (2005). Have Regions Converged? Sigma and Beta Convergence in Objective 1 and Other EU Regions between 1988 and 1999. In R. Leonardi (Ed.), *Cohesion Policy in the European Union* (pp. 89-106). London: Palgrave Macmillan.

Lisowska, R. (2016). The Potential of Business Environment Institutions and the Support for the Development of Small and Medium-sized Enterprises. *Entrepreneurial Business and Economics Review, 4*(3), 85-101, http://dx.doi.org/10.15678/EBER.2016.040307

Lizińska, W., Marks-Bielska, R., & Serocka, I. (2014). Operations Performed by Business Environment Institutions in the Process of Foreign Investment Acquisition: a Case Study of Investor Service Centres. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 9(4), 65-78. https://doi.org/https://doi.org/10.12775/EQUIL.2014.025

Maciejewski, M. (2017). Zróżnicowanie kondycji gospodarczej państw Unii Europejskiej. *Studia Ekonomiczne, 219,* 117-126.

Matkowski, Z., & Próchniak, M. (2005). Zbieżność rozwoju gospodarczego w krajach Europy Środkowo – Wschodniej i w stosunku do Unii Europejskiej. *Ekonomista, 3,* 293-320.

Matkowski, Z., & Próchniak, M. (2014). Realna konwergencja dochodowa w UE - pozycja i szanse Polski. In M.A. Weresa (Ed.), *Polska. Raport o konkurencyjności 2014. Dekada członkostwa Polski w Unii Europejskiej* (pp. 45-63). Warszawa: Instytut Gospodarki Światowej, Szkoła Główna Handlowa w Warszawie.

Mello, M., & Perrelli, R. (2003). Growth Equations: A Quantile Regression Exploration. *Quarterly Review of Economics and Finance*, *43*(4), 643-667.

Messaoud, B., & Teheni, Z.E.G. (2014). Business regulations and economic growth. What can be explained?. *International Strategic Management Review, 2*(2), 69-78.

Milanovic, B. (2003). *Income Convergence during the Disintegration of the World Economy, 1919-39* (World Bank Policy Research Working Paper no. 2941). Washington: World Bank.

Militaru, C., & Pavel, A.P. (2012). Euromanagement and European Business Environment. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 2*(1), 96-102.

Próchniak, M., & Witkowski, B. (2016). On the use of panel stationarity tests in convergence analysis: empirical evidence for the EU countries. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 11(1), 77-96. https://doi.org/https://doi.org/10.12775/EQUIL.2016.004

Rapacki, R., & Próchniak, M. (2014). The Impact of EU Membership on Economic Growth and Real Convergence of the Central and Eastern European Countries. *Ekonomia Journal, 39,* 39-87.

Recher, V., & Kurnoga, N. (2017). European Integration Perspectives: From Cohesion to Divergence?. *Acta Oeconomica, 67*(2), 195-214.

Scully, G.W. (1988). The Institutional Framework and Economic Development. *Journal of Political Economy, 96*(3), 652-662.

Smolny, W. (2000). Post-War Growth, Productivity Convergence and Reconstruction. *Oxford Bulletin of Economics and Statistics*, *62*(5), 589-606.

Stanišić, N. (2012). The effects of the economic crisis on income convergence 506 in the European Union. *Acta Oeconomica. Periodical of the Hungarian Academy of Sciences, 62*(2), 161-182.

Verblane, U., & Vahter, P. (2005). *An Analysis of the Economic Convergence Process in the Transition Countries* (Working Paper Series no. 37). Tartu: University of Tartu. Retrieved on July 24, 2017 from ftp://ftp.repec.org/opt/ReDIF/RePEc/mtk/febpdf/febawb37.pdf

Wach, K. (2016). Otoczenie międzynarodowe jako czynnik internacjonalizacji polskich przedsiębiorstw. *Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego, 30*(1), 7-20.

Wałęga, A. (2014). Spójność ekonomiczna regionów Polski przed i po przystąpieniu do Unii Europejskiej. *Badania Ekonometryczno-Statystyczne w Teorii i Praktyce, 203,* 172-180.

Witkowska, J. (2007). Foreign Direct Investment in the Changing Business Environment of the European Union's New Member States. *Global Economy Journal, 7*(4), 1-32. https://doi.org/10.2202/1524-5861.1233

World Bank (2017). *The Easy of Doing Business Indicator*. Retrieved on November 15, 2017 from http://www.doingbusiness.org/Custom-Query

Author

Agnieszka Głodowska
Assistant Professor at the Department of International Trade, Faculty of Economics and International Relations, Cracow University of Economics (Kraków, Poland). Lecturer of Methods of Payment in International Business, Risk and Insurance in International Business, Convergence Processes in the Economy. Her research focuses on international business, finance and risk in international business, convergence/divergence processes.
Correspondence to: Agnieszka Głodowska, PhD, Cracow University of Economics, Rakowicka 27, 31-510 Kraków, Poland, e-mail: glodowsa@uek.krakow.pl

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Exploring the Role of Ownership in International Entrepreneurship: How does Ownership Affect Internationalisation of Polish Firms?

Krzysztof Wach

ABSTRACT

Objective: The article focuses on the role of ownership in the process of entrepreneurial internationalisation of the firm. The main objective of the article is to verify whether and how ownership impacts on the level of internationalisation.

Research Design & Methods: The study elaborates on three dimensions of ownership, which are ownership structure (foreign vs. domestic), family ownership and the characteristics of the owner (age, sex, global mindset and knowledge – the last two measured on a 5-point Likert scale). The sample of 190 internationalised Polish businesses were used in order to verify the assumed hypotheses.

Findings: The investigated firms operating in Poland of foreign ownership are more internationalised, measured by TNI, than those of domestic capital only. As a general rule, the investigated non-family firms are more internationalised than family firms as for the average TNI value. International attitude of the entrepreneur-owner affect the level of internationalisation: the higher values of attitude index, the higher values of TNI. Neither the age nor the sex of the entrepreneur affect the level of internationalisation.

Implications & Recommendations: it is obvious that knowledge is one of the key factors affecting the internationalisation, especially market choices, entry modes as well as the speed of internationalisation. Although much has been done in this field, but it still needs further and deeper investigations.

Contribution & Value Added: The current study and its findings indicate that ownership is one of key aspects relevant for explaining the internationalisation of firms, but its impact on firms' international behaviour is somewhat equivocal.

Article type:	research paper
Keywords:	international entrepreneurship; international business; ownership; family firms
JEL codes:	F23, L20

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INTRODUCTION

Ownership plays a special role in international business, and it can be a factor stimulating the internationalisation of firms, however, ownership can be researched into from the trichotomous perspective.

Firstly, ownership structure affects internationalisation, especially in two poles, namely foreign versus domestic ownership (Anil, Tatoglu, & Ozkasap, 2014; Larimo & Arslan, 2013), however, ownership can affect internationalisation in different ways depending on the various ownership-stake-related aspects, thus these issues should be under careful empirical investigations. This paper tries to verify basic prior results linking ownership structure and internationalisation, but taking Polish economy as an example of emerging markets.

Secondly, for a few decades, ownership has also been discussed from the family perspective (Wiklund, Nordqvist, Hellerstedt, & Bird, 2013; Sciascia, Mazzola, Astrachan, & Pieper, 2012), distinguishing a separate research domain (family entrepreneurship or family business). Only two reviews of empirical studies have been published recently, nevertheless with no consensus on whether family ownership restrains or facilitates their internationalisation (Kontinen & Ojala, 2010; Pukall & Calabrò, 2014). From such a perspective, this article facilities to explore and disentangle the influence of familiness on the internationalisation (Merono, Monreal-Perez, & Sanchez-Marin, 2015).

Thirdly, ownership is also a certain element of entrepreneurship research, where it is usually reduced to the characteristics of the owner (Kurek & Rachwał, 2011), especially his/her international entrepreneurial orientation (Covin & Miller, 2014) or global mindset (Hagen & Zuchella, 2014). The basic characteristics of the owner includes four dimensions, namely sex, age, global mindset or knowledge. Rich literature in this field shows great importance of managerial behaviours for the internationalisation, however, Hutzschenreuter, Pedersen and Volverda (2007) postulate to pay more attention to managerial intentionality to internationalise (global mindset), especially in SMEs. Recently, Pla-Barber and Alegre (2014) have investigated into the role of knowledge and learning in internationalisation. Based on their review, it is obvious that knowledge is one of the key factors affecting internationalisation, especially market choices, entry modes. as well as the speed of internationalisation. Although much has been done in this field, but it still needs further and deeper investigations. This is why, this paper aims at exploring these relations and the impact of basic characteristics of the owner on the process of internationalisation.

As a matter of fact, putting all these three dimensions of ownership into one research study seems to be interesting, despite being a unidimensional approach to ownership, but trying to put three separate dimensions together (making a tiny step towards the multidimensional approach to ownership). Additionally, it meets all features of the international entrepreneurship research, which is gradually beginning to emerge as the dominant perspective in international business studies. Furthermore, it seems that this topic is rare in Central and Eastern Europe, including Poland (Puślecki, Staszkow, & Trąpczyński, 2014; Obłój & Ciszewska-Mlinarič, 2014; Bruton, Ahlstrom, & Obloj, 2008; Cieślik, Michałek, & Nasadiuk, 2015). Therefore, the purpose of this study was to examine whether and how ownership impacts on the level of internationalisation. Nevertheless, this article still uses the unidimensional approach to the ownership in

internationalisation (three various dimensions of ownership are treated separately). The article uses the research sample of 190 internationalised Polish businesses. The survey was conducted in 2014 on a random sample, however, the sample is not representative for the whole Polish business population.

LITERATURE REVIEW

Theoretical Framework and Hypotheses Development

International Entrepreneurship

A few previous decades have caused that not only the global economy but also the theory of international business have undergone a dramatic change, and the "new economic landscape requires a combination of entrepreneurship, innovation, and internationalization" (Hagen, Denicolai, & Zuchella, 2014, p. 111). The concept of 'international entrepreneurship' (IE) came into being in late 1980s (Kohn, 1988; Morrow, 1988; McDougall, 1989), however, the theory of IE was developed in mid 1990s, mainly by McDougall, who together with Oviatt developed this theory in the following years (Oviatt & McDougall, 1994; McDougall, Shane, & Oviatt, 1994; McDougall & Oviatt, 1996, 2000; Oviatt & McDougall, 2005). International entrepreneurship has been developing very intensively now (Al-Aali & Teece, 2014; Almor, Tarba, & Margalit, 2014; Covin & Miller, 2014; Hennart, 2014; Wach & Wehrmann, 2014). International entrepreneurship (Coviello & Jones, 2004; Coviello, McDougall, & Oviatt, 2011; Coviello, Jones, & McDougall-Covin, 2014), linking two research domains – entrepreneurship theory and international business theory (McDougall & Oviatt, 2000; McDougall-Covin, Jones, & Serapio, 2014; Zucchella & Sciabini, 2007; Wach & Wehrmann, 2014), is gradually beginning to emerge as the dominating approach within the internationalisation theory (the leading approach towards business internationalisation process) (Schweizer & Duxbury, 2010; Vahlne & Ivarson 2014; Jones, Coviello, & Tang, 2011; Coviello *et al.* 2014). International entrepreneurship specifically examines and prioritises the role of the entrepreneur as a key factor in the internationalisation process of the firm, especially of SMEs (Wach, 2015) alongside the external environment and the entrepreneurial process constituting the triad of international entrepreneurship or entrepreneurial internationalisation (Iodowska, Pera, & Wach, 2016).

There are different and numerous approaches towards international entrepreneurship studies. For instance, Hagen and Zuchella (2014) point out four research perspectives. Firstly, studies into a firm-level behaviour of entrepreneurial internationalisation over time exploring timing and speed of the internationalisation process (Jones & Coviello, 2005). Secondly, studies into international entrepreneurial dynamics enabling to recognise, discover and exploit new business opportunities in an international context (Mathews & Zander, 2007; Oyson & Whittaker, 2012). Thirdly, studies combining entrepreneurial internationalisation and corporate life cycle (CLC), which explore behaviour of entrepreneurial firms, especially born globals, at different stages of development (Gabrielsson, Kirpalani, Dimitratos, Solber, & Zuchella, 2008). Fourthly, the dynamic capabilities perspective is widely used in international entrepreneurship studies (Weerawardena, Mort, Liesch, & Knight, 2007; Freiling & Zimmermann, 2014). This approach explains the role of the entrepreneur, the learn-

ing process as the knowledge is the outcome in the entrepreneurial internationalisation. Of course, we can also support other perspectives to be included. For instance, Hagen and Zuchella (2014) link international entrepreneurship and high-growth entrepreneurship studies, introducing even a new term 'born to run' for high-growth born globals. Another very interesting perspective is linking innovation and international entrepreneurship (Hagen *et al.,* 2014), as innovation is indispensable and a prerequisite for all entrepreneurship studies.

The developments in international entrepreneurship and interlinked international business need to be complemented with parallel and supplementary research streams originated from entrepreneurship theory. Therefore, there is another side of entrepreneurial internationalisation (international entrepreneurship), which is the issue of ownership, understood in three different dimensions, as it was mentioned above.

Ownership Structure and Internationalisation

The level of ownership in overseas subsidiaries is a crucial issue for researchers in international business (Hennart, 2009). Many aspects of capital control and foreign ownership have been investigated so far, however, recent studies still show that there is no clear consensus.

Ownership structure of foreign affiliates has been one of the main themes in the international business studies worldwide. Fernandez and Nieto (2006) provide empirical evidence that a corporate blockholder supports the internationalisation of SMEs (a sample of 6,000 family SMEs in Spain). Using a sample of 1 324 Italian manufacturing SMEs, Cerrato and Piva (2012) provide empirical support that the presence of foreign shareholders positively affects the likelihood of going international. Such a positive relation is clearly illustrated by many research studies around the globe, and it is obvious that international investor provides unique knowledge on international markets (Bartha & Gubik, 2014; Wach, 2014), making the international commitment much easier, implementing the assumptions of the stages U-model of internationalisation (Johanson & Vahlne, 1997; Johanson & Wiedersheim-Paul, 1975), especially supporting by the networking (Johanson & Vahlne, 2009; Gorynia & Jankowska, 2008) and international links of a foreign investor.

It is worth checking whether such a positive correlation between the foreign ownership and the level of internationalisation occurs in the Polish economy as one of the broadly understood emerging markets, thus the first research hypothesis to be tested in this research study is as follows:

H1: Firms operating in Poland of foreign ownership are more internationalised, measured by TNI (transnationality index), than those of domestic capital only.

Familiness and Internationalisation

So far, several studies have addressed the issue of family ownership in international entrepreneurship. Sciascia *et al.* (2012, p. 15) emphasise that the empirical research "results of the role of family ownership in" the phenomenon of international entrepreneurship "are inconsistent". Kontinen and Ojala (2010), as well as Pukall and Calabrò (2014) have prepared recently a review of empirical studies linking familiness and internationalisation, and they concluded that there is no consensus on whether family ownership restrains or facilitates their internationalisation. On the one hand,

some studies show that family firms are much less internationalised than the others. On the other hand, some studies reveal that familiness positively affects internationalisation. It proves that there is still a research gap and these relations should be still investigated (Wach, 2015).

Zahra (2003) empirically supports the positive influence of family ownership on internationalisation, especially its scale and scope (a sample of 409 manufacturing firms from the USA), while Fernandez and Nieto (2005; 2006) show that family ownership negatively influences the internationalisation process measured by export intensity. Cerrato and Piva (2012) empirically confirm that the family involvement negatively influences the likelihood to export ($p < 0.05$), while "the presence of managers from outside the family is positively associated with the firm's choice to enter international markets" (p. 634). There is also another side of this argument, introduced by Sciascia *et al*. (2012, p. 16), who empirically "confirmed the inverted *U*-shaped relationship between family ownership and international entrepreneurship" (a sample of 1 035 family firms from the USA using an online questionnaire). Their data show that "the percentage of family ownership at which international entrepreneurship results at a maximum is 53%" (p. 22). Based on the database of SMEs listed on the Taiwan Stock Exchange (panel date for 77 firms for the years 2000-2007), Chen, Hsu and Chang (2014) found that high family ownership may promote internationalisation. Majority of researchers from Poland reveal that family-firms are less internationalised than the rest, however, some researchers show that family firms listed on the stock exchange are more internationalised (Daszkiewicz & Wach, 2014; Wach & Wojciechowski, 2014).

Merono *et al.* (2015) suggest that there is an evident need for further investigations disentangling the influence of familiness on internationalisation, thus taking into account the existing knowledge gap, the second research hypotheses to be tested in this research study was as follows:

H2: Familiness of ownership does not affect the internationalisation level, thus there is no difference between family and non-family firms as for TNI average value.

Entrepreneur Characteristics and Internationalisation

The last but not least dimension of ownership in international entrepreneurship is the entrepreneur-owner, who is a kind of 'a hub and a spoke' in the international entrepreneurship theory and research studies. Most researchers advocate that the entrepreneur-owner individual-specific factors, especially these mainly related to characteristics of the entrepreneur, positively impact the entrepreneurial internationalisation process (Ruzzier, Hisrich, & Antoncic, 2006). According to various prior research studies, these are, for example age, education, and work experience (Terjesen, Acs, & Audretsch, 2010).

Hutzschenreuter, Pedersen and Volverda (2007) discerned a knowledge gap, which makes them call for paying more attention to managerial intentionality to internationalise, which is also recognised by other researchers as a global mindset (Hagen & Zuchella, 2014). This issue is especially important in SMEs and international entrepreneurship studies.

Johanson and Vahlne (2009) perceive internationalisation as a process of learning and knowledge accumulation. Recently, many empirical research results linking various aspects of knowledge and internationalisation have been published. Knowledge affects especially market choices, entry modes, as well as the speed of internationalisation. For

Pla-Barber and Alegre (2014) it is evident that knowledge is one of the key factors affecting internationalisation, and in their editorial they call for further research exploring the exact role of knowledge in the internationalisation process. Ruzzier, Hisrich and Antoncic (2006, p. 490) conclude that entrepreneurial knowledge facilitates the recognition of new opportunities, especially in international markets.

The above mentioned two aspects of the entrepreneur's (owner's / manager's) characteristics are promising in the context of international business, but the classical approach to international entrepreneurship deals also with the basic characteristics of the entrepreneur-owner such as his/her sex or age (Ubrežiova, Wach, & Horvathova, 2008). Ruzzier, Hisrich and Antoncic (2006) emphasise that entrepreneurs and their individual characteristics play an important role in international entrepreneurship and international behaviours of firms, what is more, they state that "we cannot neglect the importance of entrepreneurs, widely recognized as the main variables in SMEs' internationalization" (p. 489), this is why these basic aspects were included in the study presented in this article.

Although much has been done in this field, it still needs further and deeper investigations. This is why, this article aims at exploring these relations and the impact of basic characteristics of the owner on the process of internationalisation. The research hypotheses to be tested in this research study were as follows:

H3: Both international attitude and prior knowledge of the entrepreneur-owner affect the internationalisation level of the investigated firms: the higher values of attitude and knowledge indices, the higher value of TNI.

H4: The age and the sex of the entrepreneur-owner do not affect the level of internationalisation of the investigated firms.

MATERIAL AND METHODS

In order to collect the empirical material, a quantitative research method was applied (Creswell, 2014; Fowler, 2009). The main research method for non-experimental quantitative research which was applied in this study was the research survey using a questionnaire for data collection "with the intent of generalizing from a sample to a population" (Creswell, 2014, p. 13). The survey was conducted in 2014.

Computer-assisted web interviewing (CAWI) was applied as the main survey method. This means that respondents (usually members of top management teams) answered the questions on their own using an online questionnaire which was password protected. The request to fill in the online questionnaire was sent to approximately 7000 Polish firms via a special dedicated e-mail, followed by a telephone conversation request, and 274 questionnaires were submitted, which means that the response rate was around 4%. Of these, 190 completely filled in questionnaires representing all sixteen regions of Poland were selected for further statistical processing. As mentioned above, the sample consists of 190 internationalised businesses from Poland, representing all sixteen administration regions, however, two regions were overrepresented (Table 1).

Management perceptions of firm-level variables are often used in entrepreneurship research (Naman & Slevin, 1993), and these perceptions can be obtained from interviews or from surveys using questionnaires. "One potential advantage of perceptual approaches

is a relatively high level of validity because researchers can pose questions that address directly the underlying nature of a construct" (Lyon, Lumpkin, & Dess, 2000, p. 1058).

The questionnaire was divided into four parts dedicated to different aspects under investigation, such as (i) the characteristics of the firm; (ii) the characteristics of the top management team; (iii) the characteristics of the industry; and (iv) the patterns of internationalisation.

Some variables were measured on an instrument as a continuous score (e.g. sex, age, number of employees) or discrete scores, while the majority of the questions were measured in categorical ways (e.g. type of the applied strategy) which are connected to nominal variables, including also the interval scale from 1 to 5 of the Likert scale. The investigated top management teams were asked to evaluate (from extremely low to extremely high) their global mindset and knowledge by using five different aspects (motivation to go international, cosmopolitism and international openness, knowledge about international markets, experience in international markets, professional business experience in general).

Table 1. Characteristics of the research sample (in %)

Size of the Firms		**Age of the Firms**	
micro	23	30 and more	18
small	23	20-29	33
medium-sized	30	19-10	26
large	24	9 and less	23
Sector of the Economy		**Scope of the Firm**	
agriculture	3	mainly domestic	17.6
industry	42	cross-border	2.8
service	55	only EU	16.7
		within and beyond EU	62.9

Source: own study based on a survey (*n* = 190).

Dichotomous variables were used very often to divide the population; however, in other cases dummy variables were used (e.g. traditional vs. rapid internationalisation). Two basic types of variables were applied – single indicators as well as overall assessment indexes. The single indicators were based directly on the questionnaire answers without any changes. On that basis, standardised indicators consisting of a couple of single indicators, i.e. the overall assessment indexes, were applied. Each of the overall assessment indexes was constructed through the sum of values indicated by the respondents for each question, and then it was divided by the sum of maximum values possible to be obtained. Finally, the averaged assessment was obtained, standardised in the interval from 0 to 1 (given in percentage in the interval from 0 to 100).

Based on the literature review, of which brief summary was presented above, the research framework includes three main independent variables (ownership structure, family ownership and the characteristics of the owner), while internationalisation level measured by TNI (transnationality index) is the dependent variable (Figure 1).

The statistical calculations were made by the use of the statistical software Statistica® PL v. 10. In the empirical study, the level of statistical significance (alpha or α) for statistical hypotheses testing was considered as 0.05. In addition to the well-known basic descriptive statistics, in order to verify the assumed hypothesis the following interferential statistical tests were applied: multivariate regression, Pearson Chi-square, the Pearson's correlation coefficient (PCC), the regression analysis, the Kruskal-Wallis one-way analysis of variance, one-way ANOVA analysis, as well as the Levene test.

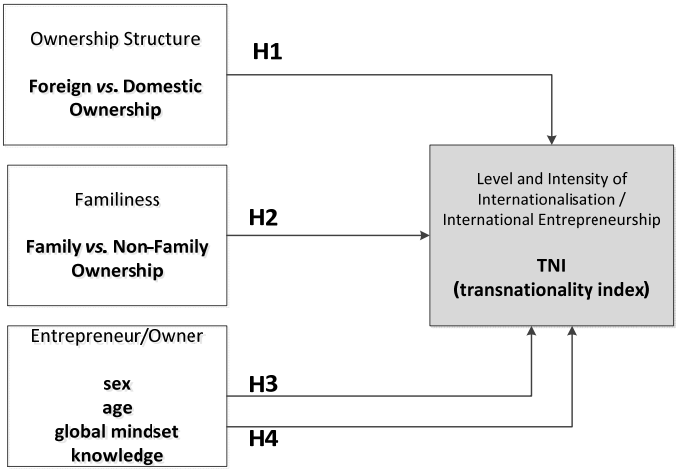

Figure 1. Conceptual research framework of the study
Source: own elaboration.

RESULTS AND DISCUSSION

The transnationality index (TNI) was used as the dependent variable. It is one of the better and universal measures applicable for both SMEs and large companies (Wall, Minocha, & Rees, 2010; Dunning & Lundan, 2008; Johnson & Turner, 2010). TNI index expresses the intensity of investing and localising abroad particular functions and/or operations of the firm. It is calculated as a weighted average of the three shares taking into account the relationship of foreign assets (A_F) to total assets (A_T), foreign sales (S_F) to total sales (S_T) and foreign employment (E_F) to total employment (E_T). This index is expressed as a percentage, and mathematically takes the form:

$$TNI = \frac{\frac{A_F}{A_T}+\frac{S_F}{S_T}+\frac{E_F}{E_T}}{3} * 100\ [\%] \quad (1)$$

The TNI index can reach theoretically values between 0 and 100, but in the research sample it could reach values between 1 and 100 (usually expressed in %), whereby 100 means the most internationalised business (in the sample there was no any un-internationalised businesses with the value of 0). The values among the investigated businesses varied from 1 to 77.33. The average value was almost 18. Only one fourth of all investigated businesses reached at least 30. Only one out of ten firms noted more than 50 (the ninth percentile was 49.83).

In the literature it is widely argued and evidenced that small and medium-sized enterprises (SMEs) are usually less internationalised than large companies. Up to a point, the size of the investigated firm matters, nevertheless not statistically significant using the Kruskal-Wallis one-way analysis of variance by ranks (H [3,190] = 2.531450, p = 0.469), as well as the Mood's median test (Chi-square = 2.521771, df = 3, p = 0.4714). On the whole, large and medium-sized companies are more internationalised (TNI = 21.8 and 20.6 respectively), while the small and micro businesses less, but in a reverse order (12.7 and 15.4 respectively).

Foreign Ownership

The Pearson's correlation coefficient (r = 0.42, p = 0.000) demonstrates the positive average linear relationship between foreign ownership (expressed as 0-100%) and the level of internationalisation measured by TNI (expressed as 1-100%).

To evaluate the relation between the TNI as the dependent variable and the foreign ownership (FO) as the independent variable, the regression analysis was applied. Based on the calculations, we can conclude that the estimated model can explain only about 17.5% the variability of the original TNI (R^2 = 0.1750) at the multivariate correlation coefficient r mentioned above. It is rather a low value as 82.5% of the variance is a random or can be explained by the influence of other, not included in the model, independent variables. Nonetheless, the average difference between the observed values of TNI and the theoretical values amounts to 18.167. The value of F statistics ([1,188], 39.894) and the corresponding level of the test probability *p* = 0.000 confirms statistically significant relationship. What is more, the value of *t* statistics (6.3162) recounts that the evaluation of the regression coefficient differs significantly from zero. The estimated equation of the regression takes the form of TNI = 12.1595 + 0.2062*FO. These findings suggest that the increase of 1 p.p. in foreign ownership causes by the increase of 0.2 p.p. in TNI. The results of this study from Poland are in conformity with the above mentioned results from Spain (Fernandez & Nieto, 2005) and from Italy (Cerrato & Piva, 2012).

Family Ownership

Moving to another ownership dimensions, the ANOVA one-way variance was applied to examine whether there is the dependence between the familiness (family versus non-family ownership) and the internationalisation level (TNI). The results of variance analysis (F = 6.15, p = 0.0140) suggest that TNI value is different among family and non-family ownership (the null hypothesis was rejected). Descriptive statistics bring more lights how to interpret the results in details (Table 2). The average internationalisation level of family firms is only 13.79%, while the TNI value for non-family firms is higher and amounts to 20.94%. TNI value exceeds 32.33% in the case of only 10% of family firms, whilst the ninth percentile for non-family firms is 63.33%, which simultaneously is the maximum TNI value for family firms. The results from Poland are not surprising, as they are in line with the empirical evidence from Spain (Fernandéz & Nieto, 2005; 2006) and from Italy (Cerrato & Piva, 2012).

Table 2. Two-way cross-tabulation for familiness ownership and TNI

Age	N	Mean	Std. Dev.	Std. Err.	Min	Q25	M	Q75	Max
Non-family firms	109	20.94	22.66	2.17	0	0.67	12.33	38.33	77.33
Family firms	81	13.79	14.73	1,63	0	1.67	9.33	23.33	63.33
All firms in total	190	17.88	17.88	1.45	0	1.00	10.00	30.00	77.33

Source: own study based on a survey (*n* = 190).

Owner's Characteristics

Last but not least, the entrepreneur's (owner's) characteristics was taken into special consideration by examining their sex, age, global mindset (attitude towards internationalisation) and knowledge on international markets, anyway three last variables are quantitative.

Regardless of the fact that the correlation between the age of the owner-entrepreneur is statistically nonsignificant, we can conclude that there are no grounds to reject the null hypothesis and the high value of the test probability (r = 0.01, p = 0.838). Examining the scatterplot may suggest that the value of TNI does not depend on the age of the entrepreneur as the spread of the cases is smooth and even.

As for the owner's sex, which is measured on a nominal scale (male, female), however, 90% of the sample were men (against 10% of women), and the respective calculations and especially due to the test probability (p = 0.83), there is no presumption against the neutral hypothesis. While there is no significance, it cannot be denied that studying the interaction plot (Figure 2) shows that as a general rule the sex does not impact the internationalisation level among the investigated owners-entrepreneurs, but the sub-samples are not large enough (19 women).

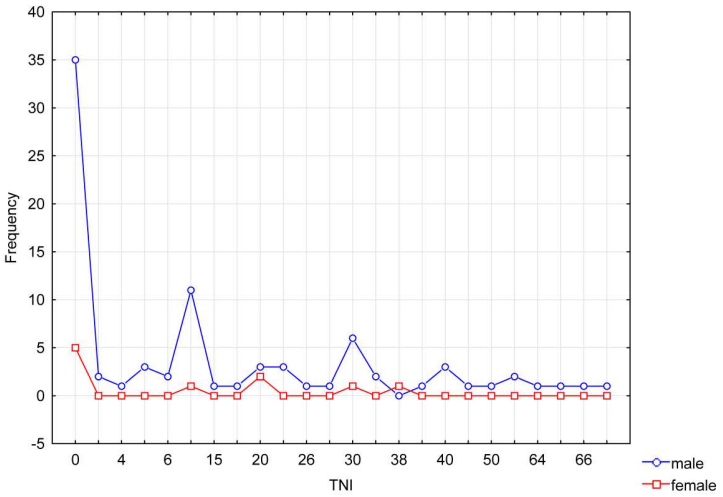

Figure 2. Interaction plot linking the owner's sex and internationalisation level
Source: own elaboration based on a survey (*n* = 190).

To characterise the owner-entrepreneur's features, two standardised variables were prepared based on a couple of questions evaluating the attitude and the knowledge on the Likert 5-scale expressed as 0-1 (or 0-100%). The coefficient r = 0.22 expresses a weak correlation between the openness to international markets as well as cosmopolitism of the owner and the value of TNI (p = 0.002). The scatterplot shows that the TNI is above 50%, whereas the attitude indicator is between 0.8 and 1.0 (0 means the lowest openness and cosmopolitism, and 1 the highest), otherwise its value is between 0.15 and 1.0. The coefficient r = 0.09 (p = 0.212) does not lead to the same conclusions. Based on the numbers, it is evident that a larger sample is needed, however, the scatterplot reveals that the TNI values can reach the

highest values at both very low and very high knowledge and experience in international markets, which can be a bit confusing and difficult to explain or even hard to accept.

Multidimensional ownership

The first step in the presented research results was to verify unidimensional dependences and relations between the internationalisation and three separate dimensions of ownership. Furthermore, the multidimensional analysis of ownership in internationalisation seems to be interesting as a kind of the novelty. This is why such an attempt at exploring that was made.

Table 3. Multivariate regression linking ownership and TNI

Model 1: TNI up to Q1 (0 – 1.7> n = 54, R^2 = 0.175397, corrected R^2 = 0.070128; $F(6,47)$ = 1.666183, p = 0.150385				
dependent variables	b	std. err. b	t	*p*-value
const	0.038	0.738	1.407	0.166
foreign ownership	**-0.006**	**0.002**	**-2.676**	**0.010**
family ownership	0.048	0.187	0.258	0.797
owner's gender	0.515	0.325	1.585	0.112
owner's age	-0.012	0.009	-1.272	0.210
owner's global mindset	**-1.394**	**0.781**	**-1.785**	**0.081**
owner's knowledge	0.963	0.736	1.308	0.197
Model 2: TNI up to Q2 (1.7 – 10> n = 41, R^2 = 0.057866, corrected R^2 = – 0.108394; $F(6,34)$ = 0.348044, p = 0.906082				
dependent variables	b	std. err. b	t	*p*-value
const	7.418	4.228	1.754	0.089
foreign ownership	-0.0245	0.030	-0.7771	0.442
family ownership	-0.486	0.967	-0.503	0.618
owner's gender	0.384	1.605	0.239	0.812
owner's age	-0.019	0.046	-0.403	0.690
owner's global mindset	-1.266	3.606	-0.351	0.728
owner's knowledge	2.047	2.474	0.828	0.414
Model 3: TNI up to Q3(10 – 30> n = 41, R^2 = 0.146958, corrected R^2 = – 0.003579; $F(6,34)$ = 0.976225, p = 0.456217				
dependent variables	b	std. err. b	t	*p*-value
const	10.734	10.132	1.059	0.297
foreign ownership	-0.044	0.029	-1.483	0.147
family ownership	-0.016	2.1243	-0.007	0.994
owner's gender	-5.194	4.568	-1.137	0.263
owner's age	0.080	0.099	0.806	0.426
owner's global mindset	12.171	8.982	1.355	0.184
owner's knowledge	0.805	7.733	0.104	0.918
Model 4: TNI above Q3 (30 – 100> n = 41, R^2 = 0.527084, corrected R^2 = 0.443628; $F(6,34)$ = 6.315730, p = 0.000155				
dependent variables	b	std. err. b	t	*p*-value
const	7.506	14.636	0.513	0.611
foreign ownership	**0.180**	**0.043**	**4.134**	**0.000**
family ownership	-2.917	4.076	-0.716	0.479
owner's gender	3.878	5.803	0.668	0.508
owner's age	0.145	0.142	1.015	0.317
owner's global mindset	**46.515**	**14.558**	**3.195**	**0.003**
owner's knowledge	-25.435	11.387	-2.234	0.032

Source: own study based on a survey (n = 190).

Multivariate regression was performed in order to verify the impact of independent variables describing ownership on TNI as a dependent variable. The results of the starting model (model 0) cannot be interpreted as the collection of variables is heteroscedastic (White's test), which means that there are sub-populations that have different variabilities than others. That is why, the answers were divided into four groups according to the level of TNI taking into considerations four quartiles (Table 3). Technically speaking, estimates are unsatisfactory – the first group results are difficult to explain and discuss (a minus sign), while there are not proofs for the second and the third group. There are only two clear and significant relations for the most internationalised firms (model 4). The change of foreign ownership and the change of global mindset cause the change of TNI. As for model 1, the least internationalised investigated firms (n = 54) are managed by the owners with low global mindset (negative impact with a minus sign), so this can be a good explanation why their internationalisation level is low. As for model 4, among the most internationalised investigated firms (n = 41) global mindset plays an important role in the internationalisation process and level.

There is no doubt that the attempt to catch multidimensional ownership phenomenon was very welcome and desired indeed, nevertheless there are no sound and broad findings. Even recently published works in highly-ranked journals still deal with the ownership as a unidimensional problem, such as ownership concentration (major shareholder's international preference), ownership structure (state vs. non-state), family ownership. Oesterle, Richta and Fisch (2013, p. 195) support the "cubic stretched u-shaped" relationship between the stake of the largest owner and a firm's international diversification" understood as the international preference of the owner. This result is with line of the result presented in this article that global mindset of owners stimulates internationalisation, but still it is an unidimensional approach. Based on the research of Zhang, Ma, Wang, Li, & Huo, 2016, the relation between ownership (measured only as state-owned enterprises, SOE and non-state-owned enterprises, none-SOE) and internationalisation was supported, nevertheless no detailed dependencies within the ownership characteristics were supported and shown, as the researchers conclude that "we cannot claim a thorough understanding of the impact of ownership as a boundary condition of our conceptual and empirical knowledge about the internationalization behavior of Chinese SME" (p. 532). D'Angelo, Majocchi and Buck (2016), based on their empirical results, were also able only to make general remarks: family controlled firms are less internationalised than family influenced firms, as well as the role of family managers and external managers is different in these two types of family firms. Also Lin (2012) based on his 772 publicly-listed firms from Taiwan (2000-2008) reports that there is no clear evidence how family impacts the internationalisation. To conclude, unfortunately also results presented in this article suggests that there is still a need to deepen this research problem, nevertheless it clearly illustrates that each step forward, even the attempt presented here, is needed for further studies.

CONCLUSIONS

All in all, it is apparent from the foregoing arguments that international entrepreneurship is becoming the major approach towards business internationalisation, exploring numerous aspects of international business from the entrepreneurship perspective. The fact of the matter is that many aspects of international business, even those well-grounded in the

theory of entrepreneurship, are still unexplored in international context (international entrepreneurship). Therefore, this study was designed to explore some links between ownership and international entrepreneurship in Poland.

The initially assumed four research hypotheses (H1, H2, H3, H4), due to the calculations and obtained research results, were shaped, slightly changed and extended into five final hypotheses (H1, H2a, H3a, H3b, H4) which were confirmed:

H1:	Firms operating in Poland of foreign ownership are more internationalised, measured by TNI, than these of domestic capital only.	confirmed
H2:	Familiness of ownership does not affect the internationalisation level, thus there is no difference between family and non-family firms as for TNI average value.	rejected
H2a:	As a general rule, the investigated non-family firms are more internationalised than family firms as for the average TNI value.	confirmed
H3:	Both international attitude and prior knowledge of the entrepreneur- owner affect the internationalisation level of investigated firms: the higher values of attitude and knowledge indices, the higher value of TNI.	X
H3a:	International attitude of the entrepreneur-owner affect the level of internationalisation of the investigated firms: the higher values of attitude index, the higher value of TNI.	confirmed
H3b:	The prior knowledge of the entrepreneur-owner concerning international markets affects the internationalisation level of the investigated firms: the higher value of knowledge index, the higher value of TNI.	nonsignificant
H4:	The age and the sex of the entrepreneur-owner does not affect the level of internationalisation of the investigated firms.	confirmed

The current study and its findings indicate that ownership is one of the key aspects relevant for explaining the internationalisation of firms, but its impact on firms' international behaviour is somewhat equivocal. Based on the survey results and statistical calculations, the following conclusions should be drawn up:

1. The level of internationalisation of the investigated firms is rather moderate, measured by the TNI (on the scale from 1 to 100%), the average value was almost 18, while only one fourth of the firms exceeded 30 and one of ten firms noted more than 50. Taking into consideration the fact that the larger economy is, the less open it is, the level of internationalisation of investigated Firms is rather optimistic.
2. Foreign ownership correlates with the level of internationalisation measured by TNI. The more foreign capital in the investigated firms, the more internationalised they are (Pearson's correlation coefficient). What is more, the change of 1 percentage point in TNI is caused by the change of 0.2 percentage point in foreign ownership (regression). Similarly, Anil *et al.* (2014) more advanced entry modes (direct investment) are facilitated or constrained by the size and multinational experience of the firm and multinationalism, including foreign ownership) stimulates a higher level of internationalisation.

3. Investigated family firms operating in Poland are less internationalised than their counterparts of general businesses (variance analysis, *F* test, ANOVA). Similarly, relying on data from a sample of Spanish SMEs, Fernández and Nieto (2006) evidenced that internationalisation is negatively related to family ownership and positively related to corporate ownership. Also Merino and colleagues (2015), on a sample of 500 Spanish firms, found that the family experience positively affect internationalisation. This is partially in line with the results of Cerrato and Piva (2012). Using a sample of Italian SMEs, they evident that the involvement of the owing family negatively influences internationalisation, however, after going international "both the degree of internationalisation and geographical scope in family-managed firms are not significantly different from nonfamily-managed firms" (p. 617).
4. Global mindset understood as the international orientation of the entrepreneur/owner stimulates internationalisation (linear correlation). What is more, it paid a very important role in the most internationalised investigated firms (multivariate regression). The change in TNI is caused by the change of the entrepreneur's / owner's intentionality to go internationalise. Similar results are included in various empirical research and discussed in reviews (Hutzschenreuter, Han, & Kleindienst, 2010; Hutzschenreuter, Pedersen, & Volverda, 2007). Using a sample of 121 Polish firms, Ciszewska-Mlinarič (2015) indicates that global mindset is a key capability relevant for explaining the internationalisation, but its impact seems to be somewhat equivocal.

Empirical Limitations

Like all research, this study is not without some notable limitations. First of all, the research sample is not representative, thus, it is not possible to absolutise the result over the whole population of Polish businesses, however, it illustrates rightly and correctly the situation of firms operating in Poland. Nevertheless, the findings might not be entirely representative. Secondly, the survey and the perceptual approach have their own limitations as they use non-absolute data, nevertheless these techniques are very popular and enable a relatively high level of validity, commonly accepted by researchers worldwide (Lyon *et at.,* 2000).

Future Research Directions

More studies in this area will be of interest. Firstly, future studies should seek to develop longitudinal research designs. Thus, this is just a preliminary research study. Nonetheless, it would be interesting to have panel data allowing to test entrepreneurial features of international business in more details.

Secondly, as for the owner characteristics, a particularly interesting study should examine entrepreneurial intentions and their antecedents at one point in time. In addition, it would be useful to investigate into the international entrepreneurial orientation (Covin & Miller, 2014).

Thirdly, linking family ownership and international entrepreneurship in this study design is very preliminary. There is no absolute answer to this question as for example the inverted *U*-shape curve (Sciascia *et al.,* 2012) should be examined in Poland. Doubtless, the role of the family in international entrepreneurship seems to be still unexplored and needs further detailed research studies.

REFERENCES

Al-Aali, A., & Teece, D.J. (2014). International Entrepreneurship and the Theory of the (Long-Lived) International Firm: A Capabilities Perspective. *Entrepreneurship Theory and Practice*, 38(1), 95-116. DOI: 10.1111/etap.12077

Almor, T., Tarba, Sh.Y., & Margalit, A. (2014). Maturing, Technology-Based, Born-Global Companies: Surviving Through Mergers and Acquisitions. *Management International Review*, 54 – in press, DOI: 10.1007/s11575-014-0212-9

Anil, A., Tatoglu, E., & Ozkasap, G. (2014). Ownership and market entry mode choices of emerging country multinationals in a transition country: evidence from Turkish multinationals in Romania. *Journal of East European Management Studies*, 19(4), 413-452.

Bartha, Z., & Gubik, A.S. (2014). The Role of Business Knowledge in the Internationalisation Process of Hungarian Corporations (chapter 6). In D. Kiendl-Wendner & K. Wach (Eds.), *International Competitiveness in Visegrad Countries: Macro and Micro Perspectives* (pp. 125-142). Graz: Fachhochschule Joanneum.

Bruton, G.D., Ahlstrom, D., & Obloj, K. (2008). Entrepreneurship in emerging markets: where we are today and where we need to move to in the future. *Entrepreneurship: Theory and Practice*, 32(1), 1-14.

Cerrato, D., & Piva, M. (2012). The internationalization of small and medium-sized enterprises: the effect of family management, human capital and foreign ownership. *Journal of Management & Governance*, 16(6), 617-644. DOI: 10.1007/s10997-010-9166-x

Chen H.-L., Hsu, W.-T., & Chang, Ch.-Y., (2014). Family Ownership, Institutional Ownership and Internationalization of SMEs. *Journal of Small Business Management*, 52(4), 771-789.

Cieślik, A., Michałek, J., & Nasadiuk, I. (2015). Determinants of export performance of Ukrainian firms. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 10(3), 91-103. https://doi.org/https://doi.org/10.12775/EQUIL.2015.026

Ciszewska-Mlinarič, M. (2015). Global Mindset and Internationalization of Polish SMEs: Antecedents and Outcomes. *Problemy Zarządzania*, 13(1[2]), 93-113. DOI: 10.7172/1644-9584.51.7

Coviello, N.E., & Jones, M.V. (2004). Methodological issues in international entrepreneurship research. *Journal of Business Venturing*, 19(4), 485-508.

Coviello, N.E., Jones, M.V., & McDougall-Covin, P. (2014). Is International Entrepreneurship research a viable spin-off from its parent disciplines? In A. Fayolle & P. Riot (Eds.), *Institutionalization of Entrepreneurship: Hopes and Pitfalls for Entrepreneurship Research*. London, UK: Routledge.

Coviello, N.E., McDougall, P.P., & Oviatt, B.M. (2011). The emergence, advance and future of international entrepreneurship research — An introduction to the special forum. *Journal of Business Venturing*, 26(6), 625-631. DOI 10.1016/j.jbusvent.2011.07.002

Covin, J.G., & Miller, D. (2014). International Entrepreneurial Orientation: Conceptual Considerations, Research Themes, Measurement Issues, and Future Research Directions. *Entrepreneurship Theory and Practice*, 38(1), 11-44. DOI: 10.1111/etap.12027

Creswell, J.W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Los Angeles, CA: SAGE Publications Inc.

D'Angelo, A., Majocchi, A., & Buck, T. (2016). External managers, family ownership and the scope of SME internationalization. *Journal of World Business*, 51(4), 534-547,

Daszkiewicz, N., & Wach, K. (2014). Motives for Going International and Entry Modes of Family Firms in Poland. *Journal of Intercultural Management*, 6(2), 5-18.

Dunning J.H., & Lundan, S.M. (2008). *Multinational Enterprises and the Global Economy* (2nd ed.). Chelterham–Northampton, MA: Edward Elgar.

Fernandez, Z., & Nieto, M.J. (2005). Internationalization Strategy of Small and Medium-Sized Family Businesses: Some Influential Factors. *Family Business Review*, 18(1), 77-89.

Fernandez, Z., & Nieto, M.J. (2006). Impact of ownership on the international involvement of SMEs. *Journal of International Business Studies*, 37(3), 340-351.

Fowler, F.J. (2009). *Survey Research Methods* (4th ed.). Thousand Oaks, CA: Sage.

Freiling, J., & Zimmermann, M. (2014). Internal and External Learning Races in 'Born Transnationals': What are the Driving Forces?. *Entrepreneurial Business and Economics Review*, 2(1), 19-35. http://dx.doi.org/10.15678/EBER.2014.020103

Gabrielsson, M., Kirpalani, M., Dimitratos, P., Solber, C., & Zuchella, A. (2008). Born globals: propositions to help advance the theory. *International Business Review*, 17(4), 385-401.

Głodowska, A., Pera, B., & Wach, K. (2016). International Environment and its Influence on the Entrepreneurial Internationalisation of the Firm: The Case of Polish Businesses. In K. Wach & A. Żur (Eds.), *Advancing Research in Entrepreneurship in Global Context: Conference Proceedings of the 8th ENTRE Conference.* Kraków: Cracow University of Economics.

Gorynia, M., & Jankowska, B. (2008). Clusters – a Useful Concept of Increasing the Internationalization of SMEs. The Case of Furniture, Automotive and Boiler-making Clusters in Poland. Proceedings of the International Conference *An Enterprise Odyssey: Tourism, Governance and Entrepreneurship* (pp. 1153-1162). Zagreb: University of Zagreb.

Gubik, A.S., & Bartha, Z. (2014). SMI Internationalisation Index (SMINI) based on the Sample of the Visegrad Countries (chapter 2). In A.S. Gubik & K. Wach (Eds.), *International Entrepreneurship and Corporate Growth in Visegrad Countries* (pp. 23-40). Miskolc: University of Miskolc.

Hagen, B., Denicolai, S., & Zuchella, A. (2014). International entrepreneurship at the crossroads between innovation and internationalization. *Journal of International Entrepreneurship*, 12(2), 111-114.

Hagen, B., & Zuchella, A. (2014). Born Global or Born to Run? The Long-Term Growth of Born Global Firms. *Management International Review*, 54(4), 497-525. DOI: 10.1007/s11575-014-0214-7

Hennart, J.-F. (2009). Down with MNE-centric Theories! Market Entry and Expansion as the Bundling of MNE and Local Assets. *Journal of International Business Studies*, 40(9), 1432-1454.

Hennart, J.-F. (2014). The Accidental Internationalists: A Theory of Born Global. *Entrepreneurship Theory and Practice*, 38(1), 117-135. DOI: 10.1111/etap.12076

Hutzschenreuter, T., Han, U.-S., & Kleindienst, I. (2010). Exploring the role of managerial intentionality in international business. In T. Devinney, T. Pedersen & L. Tihanyi (Eds.), *The Past, Present and Future of International Business & Management* (Advances in International Management, Volume 23, pp. 113-135). Emerald Group Publishing Limited.

Hutzschenreuter, T., Pedersen, T., & Volverda, H.W. (2007). The role of path dependency and managerial intentionality: A perspective on international business research. *Journal of International Business Studies*, 38(7), 1055-1068.

Johanson, J., & Vahlne, J.-E. (1977). The Internationalization Process of the Firm: A Model of Knowledge Development and Increasing Foreign Commitments. *Journal of International Business Studies*, 8(1), 23-32.

Johanson, J., & Vahlne, J.-E. (2009). The Uppsala Internationalization Process Model Revisited: From Liability of Foreignneess to Liability of Outsidership. *Journal of International Business Studies*, 40(9), 1411-1431.

Johanson, J., & Wiedersheim, P. (1975). The internationalisation of the firm: Four Swedish cases. *Journal of Management Studies*, 12(3), 305-322.

Johnson, D., & Turner, C. (2010). *International Business. Themes and Issues in the Modern Global Economy* (2nd ed.). Oxon – New York, NY: Routledge.

Jones, N.V., & Coviello, N. (2005). Internationalisation: conceptualising an entrepreneurial process of behaviour in time. *Journal of International Business Studies*, 36(2), 227-244.

Jones, N.V., Coviello, N., & Tang, Y.K. (2011). International Entrepreneurship Research (1989-2009): A Domain Ontology and Thematic Analysis. *Journal of Business Venturing*, 26(6), 632-659.

Kohn, T.O. (1988). *International Entrepreneurship: Foreign Direct Investment by Small U.S.-based Manufacturing Firms*. Unpublished DBA Thesis, Harvard University, Ann Arbor, MI (university microfilms).

Kontinen, T., & Ojala, A. (2010). The Internationalization of Family Businesses: A Review of Extant Research. *Journal of Family Business Strategy*, 1, 97-107.

Kurek, S., & Rachwał, T. (2011). Development of entrepreneurship in ageing populations of The European Union. *Procedia. Social and Behavioral Sciences*, 19, 397-405.

Larimo, J., & Arslan, A. (2013). Determinants of foreign direct investment ownership mode choice: Evidence from Nordic investments in Central and Eastern Europe. *Journal of East European Management Studies*, 18(2), 232-263.

Lin, W.-T. (2012). Family ownership and internationalization processes: Internationalization pace, internationalization scope, and internationalization rhythm. *European Management Journal*, 30(1), 47-56.

Lyon, D.W., Lumpkin, G.T., & Dess, G.G. (2000). Enhancing Entrepreneurial Orientation Research: Operationalizing and Measuring a Key Strategic Decision Making Process. *Journal of Management*, 26(5), 1055-1085. DO: 10.1177/014920630002600503

Mathews, J., & Zander, I. (2007). The international dynamics of accelerated internationalisation. *Journal of International Business Studies*, 38(3), 387-403.

McDougall, P.P. (1989). International versus Domestic Entrepreneurship: New Venture Strategic Behavior and Industry Structure. *Journal of Business Venturing*, 4(6), 387-400. DOI: 10.1016/0883-9026(89)90009-8

McDougall, P.P., & Oviatt, B.M. (1996). New Venture Internationalization, Strategic Change, and Performance: A Follow-up Study. *Journal of Business Venturing*, 11(1), 23-42. DOI: 10.1016/0883-9026(95)00081-X

McDougall, P.P., & Oviatt, B.M. (2000). International Entrepreneurship: The Intersection of Two Research Paths. *The Academy of Management Journal*, 43(5), 902-906. DOI: 10.2307/1556418

McDougall, P.P., Shane, S., & Oviatt, B.M. (1994). Explaining the Formation of International New Ventures: The Limits of Theories from International Business Research. *Journal of Business Venturing*, 9(6), 469-487. DOI: 10.1016/0883-9026(94)90017-5

McDougall-Covin, P., Jones, M.V., & Serapio, M.G. (2014). High-Potential Concepts, Phenomena, and Theories for the Advancement of Entrepreneurship Research. *Entrepreneurship Theory and Practice*, 38(1), 1-10. DOI: 10.1111/etap.12090

Merono, F., Monreal-Pérez, J., & Sánchez-Marin, G. (2015). Family SMEs' Internationalisation: Disentangling the Influence of Familiness on Spanish Firms' Export Activity. *Journal of Small Business Management*, 53(4), 1164-1184. DOI: 10.1111/jsbm.1211

Morrow, J.F. (1988). International entrepreneurship: A new growth opportunity. *New Management*, 3(5), 59-61.

Naman, J.L., & Slevin, D.P. (1993). Entrepreneurship and the concept of fit: A model and empirical tests. *Strategic Management Journal*, 14(2), 137-153. DOI: 10.1002/smj.4250140205.

Obłój, K., & Ciszewska-Mlinarič, M. (2014). Systemic effects of internationalization of Polish companies. In G. Kołotko (Ed.), *Management and Economic Policy for Development*, Chapter: Systemic effects of internationalization of Polish firms (pp.73-94). NY, US: Nova Publishers.

Oesterle, M.-J., Richta, H.N., & Fisch, J.H. (2013). The influence of ownership structure on internationalization. *International Business Review*, 22(1), 187-201.

Oviatt B.M., & McDougall, P.P. (1994). Towards a Theory of International New Ventures. *Journal of International Business Studies*, 25(1), 44-64.

Oviatt, B.M., & McDougall, P.P. (2005). Defining international entrepreneurship and modeling the speed of internationalization. *Entrepreneurship Theory and Practice*, 29(5), 537-553

Oyson, M., & Whittaker, D.W. (2010). An Opportunity-Based Approach to International Entrepreneurship: Pursuing Opportunities Internationally through Prospection. In Proceedings of the 18th Annual High Technology Small Firms Conference. May 27-28, 2010, The Netherlands.

Pla-Barber, J., & Alegre, J. (2014). The role of knowledge and learning in internationalization. *International Business Review*, 23(1), 1-3. DOI: 10.1016/j.ibusrev.2013/09.05

Pukall, T.J., & Calabrò, A. (2014). The Internationalization of Family Firms: A Critical Review and Integrative Model. *Family Business Review*, 27(2), 103-125. DOI: 10.1177/0894486513491423

Puślecki, Ł., Staszków, M., & Trąpczyński, P. (2014). International Business Research in Poland: Critical Review of Selected Publications. *Studia Negotia*, 59(2), 5-24.

Ruzzier, M., Hisrich, R.D., & Antoncic, B. (2006). SME internationalization research: past, present, and future. *Journal of Small Business and Enterprise Development*, 13(4), 476-497. DOI: 10.1108/14626000610705705

Schweizer, R., Vahlne, J.-E., & Johanson, J. (2010). Internationalization as an Entrepreneurial Process. *Journal of International Entrepreneurship*, 8(4), 343-370.

Sciascia, S., Mazzola, P., Astrachan, J.H., & Pieper, T.M. (2012). The role of family ownership in international entrepreneurship: exploring nonlinear effects. *Small Business Economics*, 38, 15-31. DOI 10.1007/s11187-010-9264-9

Terjesen, S.A., Acs, Z.J., & Audretsch, D.B. (2010). International Business, Entrepreneurship and the Global Economy (chapter 16). In Z.J. Acs & D.B. Audretsch (Eds.), *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction* (International Handbook Series on Entrepreneurship, Vol. 5, 2nd. ed). New York – Heidelber: Springer. DOI: 10.1007/978-1-4419-1191-9_16

Ubrežiová, I., Wach, K., & Horváthová, J. (2008). Entrepreneurship in small and medium-sized enterprises: Comparative study between Slovakia and Poland for the years 2001-2007. *Agricultural Economics*, 54(8), 358-366.

Vahlne, J.-E., & Ivarsson, I. (2014). The globalization of Swedish MNEs: Empirical evidence and theoretical explanations. *Journal of International Business Studies*, 45(3), 227-247.

Wach, K. (2014). The Role of Knowledge in the Internationalisation Process: An Empirical Investigation among Polish Businesses (chapter 7). In D. Kiendl-Wendner & K. Wach (Eds.), *International Competitiveness in Visegrad Countries: Macro and Micro Perspectives* (pp. 143-158). Graz: Fachhochschule Joanneum.

Wach, K. (2015). Incremental versus Rapid Internationalisation of Firms: Results of Exploratory Investigation from Poland. *Entrepreneurial Business and Economics Review*, 3(4), 37-48. http://dx.doi.org/10.15678/EBER.2015.030403

Wach, K., & Wehrmann, C. (2014). Entrepreneurship in International Business: International Entrepreneurship as the Intersection of Two Fields (chapter 1). In A.S. Gubik & K. Wach (Eds.), *International Entrepreneurship and Corporate Growth in Visegrad Countries* (pp. 9-22). Miskolc: University of Miskolc.

Wach, K., & Wojciechowski, L. (2014). The Size and the Strategic International Orientation: The Use of EPRG Model among Polish Family and Non-Family Firms. *Przedsiębiorczość i Zarządzanie*, XV(7[1]), 143-156.

Wall, S., Minocha, D., & Rees, B. (2010). *International Business* (3rd ed.). Harlow–Essex: Prentice Hall.

Weerawardena, J., Mort, G., Liesch, P., & Knight, G. (2007). Conceptualizing accelerated internationalization in the born global firm: a dynamic capabilities perspective. *Journal of World Business*, 42(3), 294-306.

Wiklund, J., Nordqvist, M., Hellerstedt, K., & Bird, M. (2013). Internal versus External Ownership Transition in Family Firms: An Embeddedness Perspective. *Entrepreneurship Theory and Practice*, 37(6), 1319-1340.

Zahra, S.A. (2003). International expansion of U.S. manufacturing family business: The effect of ownership and involvement. *Journal of Business Venturing*, 18(4), 495-512.

Zhang, X., Ma, X., Wang, Y., Li, X., & Huo, D. (2016). What drives the internationalization of Chinese SMEs? The joint effects of international entrepreneurship characteristics, network ties, and firm ownership. *International Business Review*, 25(2), 522-534.

Zucchella, A., & Scabini, P. (2007). *International Entrepreneurship – Theoretical foundations and Practice*. New York: Palgrave Macmillan.

Author

Krzysztof Wach
Associate Professor of the Cracow University of Economics (Poland) – director of the Department of International Trade. Habilitated doctor of economics (DEcon), PhD in management, specialist in international entrepreneurship, author of several books and over 150 scientific articles, editor-in-chief of the scientific quarterly 'Entrepreneurial Business and Economics Review' (Poland) and the scientific biannual 'International Entrepreneurship' (Poland), member of editorial boards of several scientific journals, including 'Journal of Management and Business Administration Central Europe' (Poland), 'Society and Economy' (Hungary), 'Theory – Methodology – Practice' (Hungary), 'Central European Review of Economics & Finance' (Poland), 'Business Excellence' (Croatia), 'Studia Negtia' (Romania), 'Entrepreneurship – Education' (Poland); in the years 2012-2017 an OECD and the European Commission national expert for entrepreneurship, participant of various international education and research projects (e.g. Jean Monnet, Atlantis, International Visegrad Fund IVF, Central European Initiative CEI), visiting professor in various American and European universities, including Grand Valley State University (Grand Rapids, USA), Roosevelt University (Chicago, USA), University of Detroit Mercy (Detroit, USA), Loyola University Chicago (Chicago, USA), Northumbria University (Newcastle, UK), University College London (UK), Technical University of Cartagena (Cartagena, Spain), Fachhochschule Joanneum (Graz, Austria), University of Zagreb (Croatia), Shanghai Lixin University of Accounting and Finance (China). Since 2017, he has been a Research Fellow of Futures Entrepreneurship Centre, at the Plymouth University, UK and a Visiting Scholar of the Faculty of Economics and Business, University of Zagreb (2017-2019). He is also a member of the Academy of International Business (AIB) – Executive Board of AIB-CEE Chapter vice-chair for programme 2018, and the member of European International Business Academy (EIBA).
Correspondence to: Prof. UEK, dr hab. Krzysztof Wach; Cracow University of Economics; Faculty of Economics and International Relations; Department of International Trade; ul. Rakowicka 27, 31-510 Kraków, Poland; e-mail: wachk@uek.krakow.pl

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