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Modelling the competitiveness of a catching-up economy



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MODELLING THE COMPETITIVENESS OF A CATCHING-UP ECONOMY

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MODELLING THE COMPETITIVENESS OF A CATCHING-UP ECONOMY¹

Introduction

Despite – or maybe because of its massive popularity - the concept of competitiveness at the macro level is elusive and frequently misunderstood. For many, it is tempting to see national competitiveness as a zero-sum game: where one country must lose for the other to win in the global marketplace (Holden, 1990; Scott & Lodge, 1985). In this sense, the notion of competitiveness in the narrow, trade performance-related perspective has a negative connotation and if not seen through a proper lens may inspire counter-productive, populist policy moves. “Ne-omercantile” policies, potentially leading to large-scale overcapacities (Hager, 1987) and/or end-product price increases (McGee, 1996), may include the introduction of subsidies and other artificial means of protection for internationally non-competitive industries, preventing countries from conducting necessary structural reforms (Cotis, De Serres, & Duval, 2010, p. 19) – the fact famously referred to by P. Krugman (1994) as a “dangerous obsession”.

What tends to be frequently – intentionally or unintentionally - forgotten by the politicians is, that competitiveness on the macro level is not a simple sum of activities of internationally competitive companies. The macro goals differ from these on the micro level and are of qualitative, not quantitative nature. Thus, national competitiveness as the ability to reach developmental goals, should be seen through the prism of theory of growth and development in the era of globalization. National competitiveness is not about outperforming the others in terms of trade surplus, but about the ability to “produce high and rising standard of living for its citizens”. In this sense, decreasing labor costs may constitute a basis for competitive advantage of a company and ultimately lead to its higher profits but the cost competitiveness of a country, rooted in low wages or weak currency, is not a sustainable means of increasing national wealth (Porter, 1990; Snowdon & Stonehouse, 2006). This goal can be achieved through providing an environment that enables companies and whole industries to improve levels of productivity over longer periods of time, enabling continuous economic upgrade of a nation (Porter, 1990, p. 84).

¹ This project is funded by the National Science Centre, Poland (project: 2015/17/B/HS4/02075)



Competitiveness is thus a dynamic phenomenon, that evaluated in relative terms denotes how well a country performs in relation to other countries in the global economy (Berger, 2008; Ezalea-Harrison, 2005, p. 84; Fagerberg, Srholec, & Knell, 2007, p. 1595). Benchmarking should be however conducted carefully, with competitiveness analyzed within groups of countries with similarities in terms of level of economic development (Cho & Moon, 2005a). This implies that modelling of competitiveness of a catching-up economy needs to take under consideration unique characteristics of these countries. Research shows that catching-up economies are contextually different from the developed countries and generally tend to have a weaker institutional and technological infrastructure (Fagerberg & Srholec, 2005).

As the national growth factors are often underdeveloped, the pace of catching-up can be accelerated by the ability to establish long-term, mutually-beneficial relations to global actors – both other countries and multinational enterprises. Thus, openness is of particular importance for the competitiveness of economies at lower levels of development, that through successful integration within the global economy have a chance for an accelerated convergence (Kolodko, 2001, p. 282).

The theory of international trade, confirmed by empirical results, show that economic success of one country rarely harms the wellbeing of other countries (Cotis et al., 2010, p. 19), supporting the positive sum game nature of relations on the macro level. The benefits of openness are not only limited to gains from international trade but strengthened by the advantages of participation in international in- and out- flows of production factors (Lall, 2004; K. H. Zhang, 2010, 2014). Flows of foreign direct investment, through direct and indirect spill-over effects on the host economy, prove to be an important factor, accelerating the convergence process.

Thus, in this paper, departing from the narrow trade perspective, competitiveness as a dynamic phenomenon denotes the national ability to reach developmental goals, further divided into fundamental and instrumental ones. The paper constitutes the first comprehensive attempt to conceptually model competitiveness of a catching-up economy as a new method for cross-national benchmarks. In this model, the “ability to upgrade” socio-economic positioning, embodied in pace of convergence, constitutes a fundamental goal for a catching-up economy. The ability to reach this fundamental goal is enabled by achieving an instrumental objective: the evolution of a position within the international division of labor. Reaching both fundamental and instrumental



goals of the nation is supported by the ability of companies operating within their territories to sustain the pressure of global competition (Porter & Rivkin, 2012, p. 56). The creation of the environment, supportive of globally competitive companies – both domestic and international - depends on the set of interrelated social, institutional, economic and technological determinants of convergence.

The paper is divided into five sections. After an introduction, the second part opens with a discussion on the concept of national competitiveness. The third section concentrates on the notion of competitiveness of a catching-up economy and deals with the question whether socio-economic convergence of countries at lower levels of development can be achieved in parallel to the pursuit of the most developed countries for raising levels of their national competitiveness. In the fourth part, the paper elaborates on the factors determining the socio-economic convergence, which leads to the presentation of the conceptual model of the competitiveness of a catching-up economy in the fifth section. The sixth section concludes the main findings, suggesting research directions and elaborates on policy implications for the mid-range emerging economies of Central and Eastern Europe.

Competitiveness of a nation: in search of definitional consensus

“Competitiveness” is a multidisciplinary research area, frequently conceptualized and analyzed by scholars from diverse fields of business and economics studies (Babu, 2002; Berger, 2008; Bhawsar & Chattopadhyay, 2015; Bienkowski, 2008; Bracey, 2008; Kinra & Antai, 2010; Klein, 1988; Krugman, 1996; Minford, 2006; Önsel et al., 2008; Voinescu & Moisoiu, 2015; Waheeduzzaman & Ryans, 1996). Such a popularity results in confusion in defining, modelling, and measuring this multidimensional phenomenon.

Despite years of investigation into the complex subject of “competitiveness” in the media, politics, and academic debate - it still constitutes a controversial research field. Firstly, because simplistic extensions of competitiveness from the strategic management-rooted micro level to macro level may result in populist understanding of international trade as a zero-sum game category. In this case, a narrow trade performance oriented view on competitiveness, where one country has to lose for the other to win may lead to protectionist policy moves and trade wars – the fact famously referred to by P. Krugman as a dangerous obsession (Krugman, 1994, 1996). Secondly,



definitional problems result from the lack of distinction between competitiveness on different levels of aggregation. Research shows that there are at least 10 different approaches of analyzing competitiveness (Zmuda, 2017) – which are frequently confused or treated as one. The attempts to develop a taxonomy of competitiveness as a multidimensional category address it at the micro (firm), mezzo (industry/cluster) and macro (national economy) levels and classify the sources of competitiveness for each of the levels of analysis, distinguishing three types of variables: the whole economy, industry, and a firm². The overview of the possibilities to grasp the very sense of each of these 10 approaches to analyze competitiveness have been summarized in table 1.

On the basis of the overview of approaches for defining competitiveness, a comprehensive systemic model of international competitiveness has been developed (Zmuda, 2017). In this model (presented in figure 1), all three competitiveness levels are evaluated as parts of a complex whole, where none of the layers should be seen in isolation. Each of the layers influences the other, creating a system of complex interrelations. The metaphor of an onion denotes that competitiveness is a multi-dimensional phenomenon, encompassing three aggregation layers: micro (firm), mezzo (industry/cluster) and macro (whole economy). In the systemic perspective, the interconnected layers of competitiveness create a complex whole – a competitiveness sphere. Agents at each of the aggregation levels have their respective goals, which are met in a form of cumulative efforts, that shift the systemic competitiveness into a higher level, enabling the economy to develop further (Zmuda, 2017).

² In-depth discussion on the approaches to analyze competitiveness can be found in the forthcoming paper by M. Zmuda *Towards a taxonomy of international competitiveness* (Zmuda, 2017) .

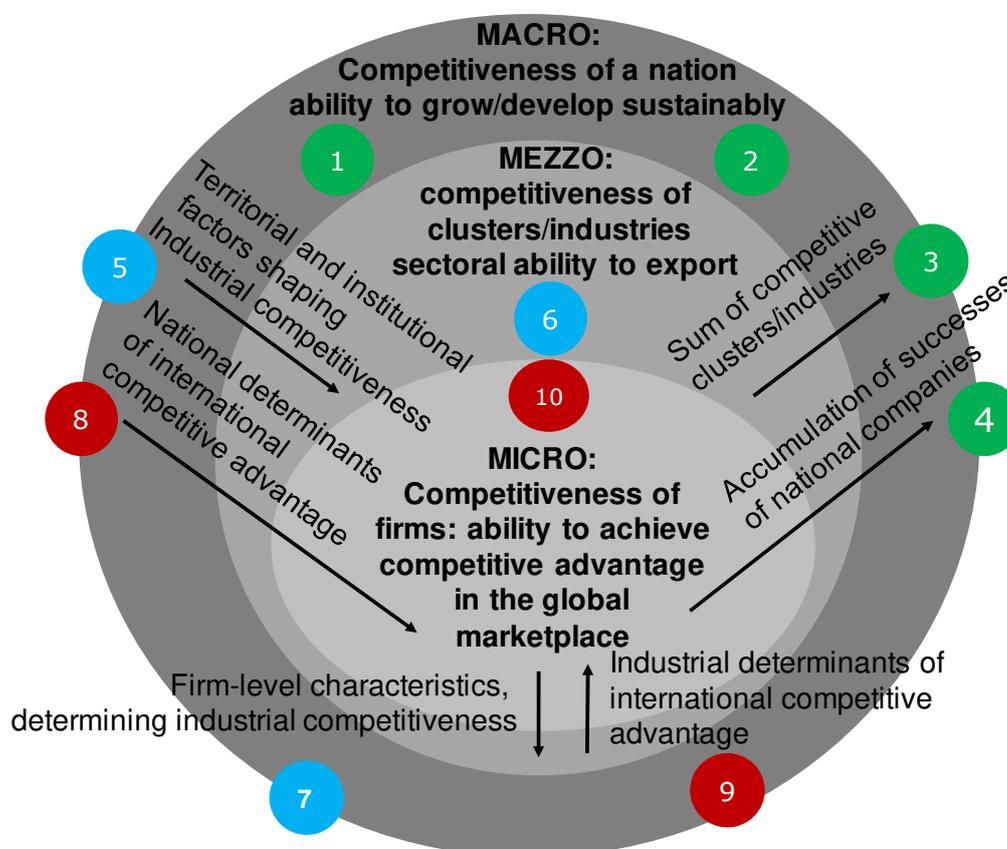
Analysis Level	MACRO				MEZZO			MICRO		
Analysis Focus	Evaluates competitiveness of a national economy				Evaluates competitiveness of industries/clusters as a platform for innovation, stimulating national competitiveness			Evaluates competitiveness of firms as building blocks of competitive clusters and nations		
Variable	Whole Economy	Whole Economy	Industry	Firm	Whole Economy	Industry	Firm	Whole Economy	Industry	Firm
Analysis Category	1 Macro-Macro	2 Macro-Macro	3 Mezzo-Macro	4 Micro-Macro	5 Macro-Mezzo	6 Mezzo-Mezzo	7 Micro-Mezzo	8 Macro-Micro	9 Mezzo-Micro	10 Micro-Micro
Analytical Approach	Competitiveness as the ability of a nation to grow in GDP terms	Competitiveness as the ability of a nation to develop sustainably in beyond-GDP terms	Competitiveness of a nation as a sum of competitive industries/cluster: ability to increase productivity through innovation, resulting in structural adjustments	Competitiveness of a nation as a cumulative ability of firms acting within the national boundaries to compete globally (domestic market share, export performance)	Territorial and institutional factors shaping the emergence of clusters (new economic geography; institutional economy)	Sectoral factors shaping the emergence of clusters (Porter's Diamond of Competitive Advantage and its extensions)	Firm-level characteristics, determining diffusion of knowledge and creation of innovation within clusters	Political, legal, and social-economic factors shaping the ability of a company to achieve above-average return (institutional perspective on business)	Sectoral factors (Porter's 5) shaping the ability of a company to achieve above-average return (industrial-organization perspective)	Resources and activities creating core competencies as a base for above-average returns (resource-based view on a firm)
Author(s)	(Zorzi & Schnatz, 2010); (Landau, 1990); (Bujancă & Ulman, 2015); (Huemer, Scheubel, & Walch, 2013); (Huggins & Izushi, 2015); (Radło, 2008); (Ketels, 2016).	(Samans, Blanke, Corrigan, & Drzeniek, 2015; Thore & Tarverdyan, 2016); (Doryan, 1993)	(Johnston & Chinn, 1996); (Castellacci, 2008); (Wysockińska, 2012)	(Chesnais, 1986); (Papakidakis, 1994, 1996).	P. Krugman (1991); (Tingvall, 2004); (Boschma & Lambooy, 1999); (Buckley & Ghauri, 2004; Ottaviano & Puga, 1998; Redding, 2010)	(Porter, 1990); (Huggins & Izushi, 2015)	(Lewin & Volberda, 1999; Van den Bosch, Volberda, & de Boer, 1999); ; (Van den Bosch et al., 1999); (Fundeanu & Badele, 2014)	(North, 1990); (Williamson, 1981)	(Porter, 1981); (Porter, 1980); (Dess, Ireland, & Hitt, 1990; McGahan & Porter, 1997, 1997; B. M. Sharp, Bergh, & Li, 2013)	(Barney, 1986; Conner, 1991; Mahoney & Pandian, 1992; Wernerfelt, 1984); (Rumelt, 1997; Wernerfelt, 1995); (Prahalad & Hamel, 1990).

Table 1: Approaches to analyze international competitiveness

Source: own elaboration based on (Chaudhuri & Ray, 1997, pp. M-85) in



Figure 1: "Competitiveness Onion": A multi-layered model of international competitiveness



Source: own elaboration based on (Chaudhuri & Ray, 1997, pp. M–85) in (Zmuda, 2017). Following the elaboration presented in Table 1, the "Onion" groups competitiveness definitions into three aggregation levels: macro (in green), mezzo (in red), micro (in blue).

The universal approach to competitiveness (disregarding the aggregation level of analysis) is to define this phenomenon as ability (of an agent) to achieve its goals. The macro layer of the competitiveness reflects the national ability to grow/develop sustainably and is understood as a sum of competitive industries/clusters with their joined capacities to increase productivity through innovation (“ability to grow/develop sustainably”). Cumulative shifts in productivity within industries stimulate the evolution of industrial trade specialization and result in structural adjustments (“ability to adjust”). Internationally competitive industries/clusters are made up of firms able to compete in global markets (“ability to sell”) (Zmuda, 2017).



The systemic character of the model shows that agents do not reach their goals in isolation. The “onion” is made of cumulative efforts at each of the aggregation levels (bottom-up dependencies: research categories 3 and 4). Furthermore, each of the layers constitutes a powerful determinant of competitiveness, achieved at the remaining levels of aggregation (top-down determinants: research categories 5, 8 and 9; bottom-up determinants: research category 7) (Zmuda, 2017).

Catching-up economies as a strategic group on the global competitiveness map

For the proper understanding and shaping of competitiveness on the macro level, it is important to stress its relative nature – nation’s performance should be thus benchmarked to its historical achievements but also to its closest peers. In this sense, it is essential to differentiate the countries and based on their developmental characteristics, categorize them into the “strategic groups”³ (Cho & Moon, 2005). One of the most popular divisions of the macro-actors in the global arena differentiates three groups of countries: the developed, less developed (“or euphemistically: the developing”) and catching-up economies (Cho & Moon, 1998, 2005; Fagerberg & Srholec, 2005; Pritchett, 1997).

Developing and catching-up countries are contextually different from the mature, developed industrialized economies and tend to have weaker regulatory and normative institutions, as well as underdeveloped physical and technological infrastructure (Abramowitz, 1986). These contextual characteristics affect the business profitability (relative to the developed economies) - but here the developing and catching-up economies differ substantially. Developing countries, due to their underdevelopment and lack of basic infrastructure which is necessary to conduct business operations, constitute a very risky business environment and are frequently neglected as investment locations. This fact even further pushes them behind the developed economies, stimulating the vicious circle of underdevelopment and global divergence. On the contrary, the catching-up economies, due to the achievement of basic institutional and infrastructural conditions for business, combined with a “set of social capabilities”, offer opportunities for above-average

³ In theory of strategic management, a strategic group is a group of actors within one industry that shares common strategic characteristics and follows similar business-level strategies.



returns on invested capital. This encourages mobile factors of production to flow into these locations, supporting the socio-economic convergence within regions.

The notion of competitiveness of a catching-up economy, departing from the trade perspective, is thus understood in this paper in the growth-theory context (Radło, 2008b, p. 77; Reinert, 1995, pp. 23–24) as the ability to increase the national productivity levels and grow in the socio-economic terms to reach the levels of the most developed countries. In the light of the above, the central points of discussion on the competitiveness of a catching-up economy are closely related to the convergence debate: why countries achieve different growth rates; what is the basis for an accelerated pace of convergence of some mid-range economies while the others lag behind; and how through integration within the international division of labor the convergence of the poorer countries can be accelerated in the long-term.

The assumption of “convergence” in the sense that “poor economies tend to grow faster than rich ones in per capita terms” (Barro & Sala-i-Martin, 1992, p. 224) can be rooted in the neo-classical growth model. In the closed economy conditions with an exogenous technological change, the per capita growth rates should be negatively correlated with the initial level of per capita production output or income (Solow, 1956), resulting in the decreasing income and productivity gaps between the economies on different levels of economic development in the long-term. Here, convergence emerges as a result of deterioration in prospective growth at the level of economic activity as a result of diminishing returns (Barro & Sala-i-Martin, 1992).

In times of globalization: in the case of liberalized international trade and free flow of production factors the situation is more complex. Cross-national technology transfer and migration of human capital, embodying the advanced know-how, should further speed up the rate of convergence. This assumption is supported by the open-economy neoclassical growth model, where the convergence is driven by the technological diffusion, enabling the closing of the technological gap in the less developed countries (Barro & Sala-i-Martin, 1992). According to economic theory, integration will cause countries to specialize according to their comparative advantages in terms of technology and endowments. In addition, if the accumulation rates of endowments and technology are unequal amongst countries, specialization patterns will change over time (Tingvall, 2004, p. 666).



The regional economic integration in general and particularly the European Union, emphasizes as its prominent internal goal: the socio-economic cohesion between the member states and as their key external goal: the increased competitiveness of the EU as a whole in the global markets. The question arises however how far, in the era of liberalized flows of production factors and opportunistic relocation strategies of the MNEs, the pursuit of increasing living standards in the more- privileged (richer) EU states endanger the upgrade in socio-economic well-being of the less-privileged (poorer) EU countries - thus contradicting the cohesion objective. Another issue that has been raised in relation to the competitiveness-cohesion goals was whether or not the principle of the cohesion does not endanger the quality of the research undertaken within the EU (through unequal re-distribution of the research fund in favor of the poorer countries) - thus endangering its global competitiveness (M. Sharp, 1998). The third controversial topic field within the cohesion-competitiveness discussion would be the fear of the richer countries' population for the relocation of labor-intensive activities of internationally acting companies to the poorer countries within the integration grouping. This would support the convergence of the catching-up economies (for example the CEE countries within the EU) but on the other hand, stimulate the increasing structural unemployment within the richer countries. All these aspects should not be underestimated in the competitiveness-cohesion research, and if not addressed properly by academia and policy makers, may lead to protectionists policies, frequently raised by the populist parties across Europe. In this sense, it is worth elaborating on the factors supporting convergence, that firstly: shift the position of a catching-up economies within the international division of labor and secondly: increase the competitiveness of a whole integration grouping.

Factors determining the pace of socio-economic catching-up

The results of the empirical research on convergence (divergence) are largely ambiguous. The big picture, based on the results of global long-term studies show, that we are rather experiencing "a big time divergence" than a global convergence of living standards (Pritchett, 1997). This is the universal reality, except for some regions, that due to favorable external conditions man-



aged to speed up their growth and thus reached the socio-economic standards of the most developed countries in a relatively short time span.⁴ That is why L. Pritchett (1997) argues, that the convergence is an exclusive privilege of the narrow group of most “developed”, “advanced capitalist countries”. In the same time the majority of the less developed countries is not following the convergence path.

This implies that backwardness is not a certain condition for convergence. Over the years of investigation, a wide body of research has come up with the conditions upon which a catching-up economy has a chance for an accelerated closure of the socio-economic gap to the most developed countries. These conditions can be generally divided into two sub-categories: the factors that have been “inherited”, that do not change over time, and the factors “that can be shaped” over time by a well designed and implemented competitiveness–enhancing policies. The main inherited elements, that determine the starting position of a country in the competitive battle, can be narrowed down to the national geography, history and culture (social substance). The area of policy interventions covers the technological and absorptive capacity, general level of governance and quality of human resources and institutions (Fagerberg & Srholec, 2005). An overview of the most prominent convergence determinants has been presented below.

Among the key elements, traditionally shaping the national wellbeing of nations are the **geopolitical factors**: the availability of natural resources and geographic position. Interestingly and despite the fact that they do not change over time, the impact of the same unchanged factor on the competitive position of a country may evolve. For example, Ireland as a remote, resource-poor, England-dependent island “at the end of Europe” has been for years one of the most marginalized countries on the continent – thus its geopolitical situation was constituted as one of the main developmental barriers. Together with a progressing European integration and liberalization of global trade and investment flows, Irish geographic location between USA and the EU, together with the long years of emigrations to USA and cultural ties to England, have been changed into valuable assets of the island, supporting the strategic building of its competitiveness (Anyadike-Danes, Hart, & Lenihan, 2011; Burnham, 2003; O’Sullivan, 1993).

⁴ Examples of successful convergence include: the states within the USA, Western Europe to USA, Cohesion countries to the EU-core.



Another aspect that does not evolve over time and cannot be influenced by policy interventions is the social fabric surrounding the business, embodied in the local **culture**. Culture is understood in this context as a set of core values that legitimizes different objectives and supports different behaviors. The Cultural Selectivity Hypothesis suggests the link between the culture and level of national competitiveness, with flexibility, continuous improvement and individualism as being the features supporting individual and macro success (Tsang, 1999). Language, religion, ethnic grouping (Fagerberg & Srholec, 2005) have their roots in the history of a country/ region. These significantly influence the national attitudes and constitute an important part of national cognitive maps (Wilson, Lindbergh, & Graff, 2014, p. 307), setting “the context of choice” (Patten, 2014) and building up social capital (Fukuyama, 1995). Research shows that distinct values across the nations can support or hinder the accumulation of knowledge, thus impacting their ability to compete on the global markets (Tsang, 1999).

Besides the “inherited” factors, there are also elements that can be influenced by a well-designed strategy. Catching-up just like developing economies, lag behind the developed countries in regard to technological competence but what enables the convergence process is the capability to assimilate the inflows of knowledge from outside. Successful diffusion of knowledge is a prerequisite for building an internationally competitive position over the long term. Diffusion of knowledge should be understood in this context as the process of spreading know-how through different channels to the participants of the system. This implies that the line between innovation and diffusion is blurred, because “the generation and then the adaptation of knowledge are parts of the same process” (Dörschuck, 2004). A significant implication for a catching-up economy can be drawn: if a country does not have sufficient resources and/or **technological capability** to create its own knowledge, it can adopt foreign knowledge and learn how to imitate it.

Effective knowledge diffusion depends to a large extent on the host country's **absorptive capabilities** that are essential to master a new technology, adapt it to local conditions, refine and then develop it in the long term. These capabilities, embodied in **human capital** and the general level of the education, determine the pace of technological progress. Absorption capabilities are not limited to the ability to acquire information from outside, but are additionally related to the skill of applying the in-flowing knowledge and its dissemination throughout the national innovation



system. As a result, the link between knowledge diffusion and the process of refining and learning depends on the conditions (skills and abilities) of the individuals within the countries, reflecting the cumulative and non-linear nature of this phenomenon. This points out that absorption capacity is a dynamic process, based on improving abilities to harness the accumulated knowledge. In this sense, returning to Schumpeter's idea, through feedback within the system, the linear innovation process takes the form of a closed cycle. Such a broadly understood human-side of a catching-up is labeled by Abramowitz as a social capability. In his works he stresses that convergence is possible when a catching-up country is "technologically backward but socially advanced" (Abramowitz, 1986, p. 388).

Wide body of research stresses the impact of the quality and stability of **institutions** on the pace of convergence. The institution-based approach is rooted in the theory of transaction costs by R. Coase and further developed by William in 1970s. According to this concept, transaction costs are high when institutions do not regulate and do not eliminate the opportunistic behavior of individuals and business entities. As a result, the stronger the institutions, the lower the risk and the higher the levels of trust in business deals. This stimulates the long-term investment and determines the effective utilization of physical and human capital. Thus institutions, influencing the productivity, stimulate the ability of a nation to reach its socio-economic goals. Institutions in the broad sense indicate the "quality of governance" in the country and in the narrow sense point out to "rules of the game" (Fagerberg & Srholec, 2005).

One of the fundamental tasks of institutions is, to minimize risks by signaling to the actors within the system what behavior is acceptable. As the institutions can evolve over time, research stresses the importance of the stability of the institutional order and **governance**. Rapid institutional changes increase the uncertainty and confuse the market participants, which negatively impacts long-term investment decisions.

Rules of the game cover conditions impacting the economic freedom (to execute market transactions), by supporting property rights and its legal protection. These factors are essential for the emergence of competition on the micro level. The economic freedom is restricted by institutions through the legal framework that aims to eliminate the opportunistic behavior of individuals and



economic entities that could harm other system participants. Such fundamental limitations include the legal conditions that guarantee compliance with the contract. This category also includes the compliance with patents, licensing rights or concessions.

Smart integration within the international division of labour as a strategy to boost competitiveness of a catching-up economy

As there is none, commonly accepted definition of a catching-up economy, in this study it is defined by its relatively underdeveloped position towards the most advanced countries in relation to available resources, supply of production factors, technology/know how, market scale and demand sophistication (Abramowitz, 1986, p. 8). Thus, the characteristics of a catching-up economy that prohibit its high competitiveness include: lower GDP level per capita (imposing lower purchasing power and lower wages), underdeveloped technological capabilities and infrastructure (limiting the national innovation) but at the same time a persisting absorption capacity (enabling knowledge imitation as a prerequisite for a prospective independent knowledge creation). Through these restrictions, a small economy is forced to a greater degree of openness than its "larger counterparts."

For a catching-up economy - with limited access to resources and often not possessing large, sophisticated internal markets - the convergence, being the main growth objective, can be reached through the "extension" of its supply and demand base (Castello, Ozawa 1999; Molendowski, Zmuda 2013). This can be achieved by integration within the network of global interconnections - predominantly through the opening of the economy to the flows of foreign direct investment (supply extension through access to advanced production factors via inflows of FDI and access to basic production factors via outflows of FDI), as well as the engagement in international trade (demand extension, enabling higher efficiency through economies of scale).

Thus, progressing globalization enables catching-up economies to strengthen their international position. Following this observation, S. Castello and C. Ozawa formulated the definition of a catching-up economy, as a country that is limited by its own economic potential, thus in order to improve productivity and socio-economic prosperity, must strategically, based on its strengths, take advantage of the opportunity to integrate within the global markets.



This stresses the role of a “Smart strategy” (Lall, 2004) in shaping competitiveness of a catching-up economy. Following the concept of a developmental state it would “design a state capacity to intervene in the economy to guide its development” (Barbara, 2008; Caldentey, 2008). The goal of such a strategy is to design a growth path for the country within the global economy by strengthening the areas of specialization towards those based on knowledge and innovation. Based on the strategic management approaches, reaching the developmental goals may be achieved through strategic actions that are building upon national strengths, exploit the external opportunities or actions that are taking advantage of opportunities which aim at overcoming national weaknesses. Such a “Smart Strategy” has thus two dimensions: internal that aims at boosting national convergence abilities and external that supports the attraction of foreign production factors to the selected industries of the future.

In its internal dimension, designing strategies to shape competitiveness is being referred to as “creating the right environment for output maximization”, that in consequence leads to the increased national welfare (Cotis et al., 2010, pp. 19–20). The main focus of these strategies should be put on stimulating market competition and strengthening firm’s and worker’s ability to adjust to the competitive pressures. The considered main policy areas include: investment in physical and technological infrastructure (Kiel, Smith, & Ubbels, 2014; Palei, 2015), strengthening social capital through investment in education and health (Baldacci, Clements, Gupta, & Cui, 2008), enforcement of regulations in the product and labor markets (Blahó & Szajp, 2005), encouraging entrepreneurship and enterprise development (Acs & Szerb, 2007; Bateman, 2000), providing support for SMEs (Taylor, 2004), and supporting broadly understood economic freedom (Bujancă & Ulman, 2015) as well as the openness of the economy (Slaughter, 1997; Z. Zhang, 2001).

In its external dimension, the strategy should support the development of strong agencies to support foreign investors (Huff, 1999). Considering the internal supply and demand constraints, which may naturally prohibit catching-up economies from realizing their developmental goals, an economic upgrade can be based upon smart integration within the global economy.



Competitiveness model of a catching-up economy

The presented taxonomy of approaches to competitiveness has highlighted the complexity of this research field. It has been shown that the popularity in the media and large number of studies on competitiveness result in a lack of one recognized set of characteristics of a competitive economy. Whereas there are many competing approaches for defining and modeling national competitiveness in general, there are no models of a competitive catching-up economy. As this group of countries is characterized by a set of “distinctive features”, constraining their ability to compete, there is a need to highlight these features in a respective model. This area of investigation calls for particular attention from a perspective of a catching-up economy, facing a middle-income trap. This is a situation in which a certain level of socio-economic development has been fulfilled (lifting such an economy to the mid-range income level), but the country gets stuck in its current competitive position and further convergence is stopped.

Thus, as a summary of findings presented in this paper, a multidimensional view on the competitiveness of a catching-up economy has been developed. It is a result of the analysis of the competitiveness dimensions and their respective meanings, incorporating the convergence determinants. The findings have been presented in a form of a "competitiveness pyramid of a catching-up economy", presented in Figure 2.

Following the definition adopted in this paper, competitiveness is associated with the national ability to achieve its developmental goal. The goals have been further divided into fundamental and instrumental ones; whereas reaching instrumental goal supports reaching the fundamental goal. The socio-economic upgrade, that enables converging to the standard of the most developed countries, has been set as fundamental goal of a catching-up economy. It has been thus placed on the top of the pyramid - as the crowning of efforts undertaken at lower pyramid levels. The instrumental goal is to strengthen the country's position within the international division of labor, understood as increasing the profits from domestic and foreign production factors and exchanging them under the open economy conditions. Reaching this goal is manifested through the evolution of an export structure towards the knowledge-based specialization, as a result of increased levels of innovation and improved productivity. All the developmental goals are referred to as the **competitiveness outputs**.



National competitiveness (the ability to reach macro goals) is enabled by cumulative successes of companies operating within its territory. Their single successes, reflected in the productivity levels are rooted in the quality of the business environment. Hence, the national sources of competitive advantage constitute a set of **competitiveness throughputs** of a catching-up economy. The more supportive the environment for the development of innovative players within a certain territory, the larger the chances for success of domestic companies within the international markets and the greater the chance of foreign production inflows. Strong companies build up mezzo competitiveness: at the cluster and industry level.

One of the most well-known approaches to model national conditions for achieving competitive advantage at the firm level has been proposed by M. Porter (1990). In his diamond model, the development of innovative sectors stimulates the competitiveness of the entire economy. Sector innovation is perceived broadly, both in terms of applied technologies and processes as well as new business initiatives. By increasing the degree of innovation of enterprises, operating within individual sectors, the productivity of the involved production factors increases. The productivity is understood in this sense as the value of production generated by a unit of labor or capital. This value is expressed in turn in the quality of the product and reflected in its price. In Porter's original concept, the level of economic competitiveness is determined by interdependent factors at the microeconomic level: factor conditions, demand conditions, related and supporting industries and firm strategies.

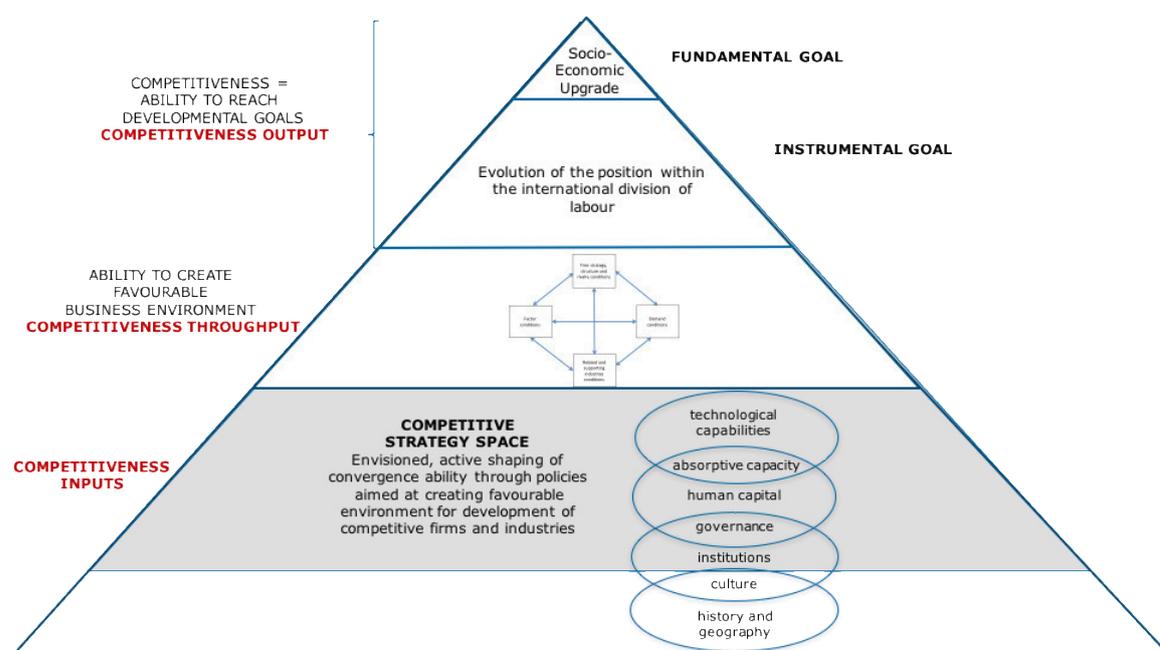
In this popular discourse, numerous researchers focused their attention on adjusting the diamond model to the characteristics of a global economy to reflect the growing importance of international trade and flows of production factors for the national competitiveness. The most comprehensive approach has been proposed by H. Moon, A. Rugman, and A. Verbeke in the concept of the generalized double diamond (Chang Moon, Rugman, & Verbeke, 1995). Their model has been applied by numerous researchers to highlight the growing importance of international interconnections in shaping competitive advantage of smaller, catching-up economies (Liu & Hsu, 2009; Molendowski & Zmuda, 2013; Postelnicu & Ban, 2010).

The base of the pyramid, the **competitiveness inputs**, is made of a set of main convergence determinants, supported by a smart competitive strategy. The strategy includes all the actions



that governments take to strengthen the convergence ability through investment in national resources and infrastructure, improvement of the quality of business environment and social capital as well as increasing attractiveness of the location for foreign direct investment.

Figure 2: Pyramid model of a catching-up economy



Source: own elaboration based on competitiveness models by National Competitiveness Council (2016), Diamond of national competitive advantage (Porter, 1990), integrated framework for convergence analysis (Fagerberg & Srholec, 2005, p. 33)

The competitiveness inputs (the factors that have been inherited and those that can be shaped by policy interventions over time) enable throughput competitiveness: competitiveness of a country determined by quality of a business environment that supports the companies operating within its territory to successfully compete in the global markets (Porter & Rivkin, 2012). The cumulative success of companies and industries in the global competitive arena support reaching the output competitiveness. The model stresses the active role of the government in designing and implementing a strategy to boost national competitiveness.



Conclusions and policy implications for CEE economies

National competitiveness may be scientifically meaningless and politically “dangerous” if not understood properly. Especially, in times of populist, nationalistic voices, frequently heard in politics and the media, when a new wave of protectionism and neomercantilism awaits at the door, the meaningful notion of national competitiveness should be emphasized. This phenomenon should be rooted in solid theoretical framework and be understood as a national ability to reach developmental goals in times of global interconnections; the goals that cannot be achieved in isolation. Therefore, competitiveness should be seen in categories of a positive-sum-game, as an output of international cooperation not as aggressive competition at the macro level.

Referring to the strategic management basics on how to achieve competitiveness, two different strategies can be distinguished (Aiginger, 2014; Aiginger and Böheim, 2015). “Low-road competitiveness” (concept inspired by the cost-leadership business level strategy) focusing on the cost-based competition. Here, countries are offering low wages, low taxes and low energy prices (mainly the emerging economies) to win the competitive battle. On the contrary “high-road competitiveness” (concept inspired by the differentiation business level strategy) is focusing on national efforts aimed at raising productivity through development of innovative capabilities to become a quality/innovation leader (Aiginger, 2014, p. 18). This strategic competitiveness distinction is easy to grasp and reflects the situation in the modern international competitive arena but raises a couple of fundamental questions. Firstly: is the low-road competitiveness sustainable and enables the mid-range catching-up economies to reach their developmental goals? Secondly: which strategies should the mid-range catching-up economies follow in order not to be constrained by the middle-income trap.

Public policy makers of catching-up economies should be concerned about the competitiveness of their countries – in a positive, open-minded, action-encouraging, international synergies-promoting manner. Instead of using “trade war metaphors” to support populist arguments of “economic nationalism” (Ali, 2013), the policy focus should be put on building a sound and entrenched institutional environment, enabling the development of strong local companies, simultaneously ensuring open integration within the international trade and investment flows (Thompson, 2004). Competitiveness should be seen through the prism of effective “smart” policies (Lall,



2004), efficiently facilitating development of modern, competitive markets, industries and societies – leading to a socio-economic upgrade, the fundamental goal of a catching-up economy. There is an urgent need for “intangible investment” in research and development abilities from both Structural Funds and domestic resources. Strengthening the social capabilities should be supported by the exchange programs together with training and networking within the regional grouping (M. Sharp, 1998b). Moreover, it is essential to retain high levels of trust – amongst both national and foreign business actors as numerous studies reveal that one of the greatest enemies to international competitiveness are rapid institutional changes that phase out the long-term investment (Thompson, 2004) .

It takes time to build up both tangible and intangible assets supporting high-road competitiveness, but without further intensive efforts to strengthen institutions, social and innovation capabilities together with investment in innovative infrastructure, the mid-range economies of Central and Eastern Europe are in a danger of being stuck in a middle-income trap.

This paper constitutes a theoretical foundation for the empirical investigation into the competitiveness of the new EU-10 member states in years 2000-2014.



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