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Local and Regional Economy in Theory and Practice

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### RETHINKING REGIONAL COMPETITIVENESS. THE ROLE OF PRODUCTIVITY

**Summary:** There is a heated discussion in the academic literature on issues around place, territorial and regional competitiveness and its relation to productivity. The article aims to answer three questions, namely: 1. What precisely is meant by the competitiveness of regions? 2. In what sense do they compete? and 3. What is the relationship between regional competitiveness and regional productivity? The results of the analysis showed that there is still no consistent theoretical framework for answering the research questions unambiguously. The common measure of economic performance in the form of output per head of population is a combination of workforce factors, particularly the employment rate and labour productivity, however there are still some empirical problems with measuring the latter precisely at regional level. Both indicators are recognized as measures of revealed competitiveness, however, they reveal little of the sources of competitive advantage of a region.

**Keywords:** regional competitiveness, productivity, theoretical analysis.

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#### 1. Introduction

The notion of regional competitiveness has attracted a lot of attention since Porter published *The Competitive Advantage of Nations* (1990). In the relatively narrow sense, regional competitiveness might be defined as the success with which regions compete with one another in some way. The broader definition respects the determinants and dynamics of a region's long-term prosperity. It is difficult to understand regional competitiveness because these different concepts tend to get confused [Bristow 2010, p. 14]. The relativity of competitiveness causes the need for comparative regional analysis and the search for the best practice [Golejewska 2013]. Consequently, the number of analyses and measures implemented for indicating "the winner" is still increasing. Berger [2011, p. 22-25] presents a detailed survey of almost 50 analyses of regional competitiveness, where the number of indicators ranged from 3 to 246. According to the author, different approaches share a number of common characteristics. Since competitiveness cannot be measured directly, a multi-dimensional approach is required.

The article aims to answer three questions, namely: 1. What is meant precisely by the competitiveness of regions?, 2. In what sense do regions compete? and 3. What is the relationship between regional competitiveness and regional productivity? The analysis is based on a comprehensive survey of the theoretical literature.

#### 2. "Stuck in the middle"

Competitiveness means different things to different authors [Budd and Hirmis 2004, pp. 1016]. According to Dunning [Dunning, Bannerman and Lundan 1998], competitiveness is "the way of discussing the relative performance of economies in a benchmarking sense. It can help identify areas of the economy that are lagging behind but not the reasons for those lags". Applying this definition, the most common measure of competitiveness is GDP *per capita*. For Porter [2000] "the only meaningful concept of competitiveness is productivity" and that "productivity is the prime determinant in the long run of a nation's standard of living. For it is the root cause of per capita income". Krugman [1996], states that "nations compete for world markets in the same way that corporations do" and "that a nation which fails to match other nations productivity or technology will face the same kind of crisis as a company that cannot match the costs or products of its rivals."

One of the most comprehensive definitions of macroeconomic competitiveness often quoted in the literature are the definitions given by the President's Commission on Competitiveness [1984, p. 2] and the European Commission [1999, p. 4]. According to the former, a nation's competitiveness is "the degree to which it can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously expanding the real incomes of its citizens. Competitiveness at national level is based on superior productivity performance and the economy's ability to shift output to high productivity activities which in turn can generate high levels of real wages. Competitiveness is associated with rising living standards, expanding employment opportunities, and the ability of a nation to maintain its international obligations. It is not just a measure of the nation's ability to sell abroad, and to maintain a trade equilibrium." According to the European Commission, competitiveness may be defined as "the ability to produce goods and services which meet the test of international markets, while at the same time maintaining high and sustainable levels of income or, more generally, the ability to generate, while being exposed to external competition, relatively high income and employment. At microeconomic level, competitiveness means "the ability of firms to consistently and profitably produce products that meet the requirements of an open market in terms of price, quality, etc." [Martin 2003].

The focus on competitiveness concerns not only the macro or micro-scale, but also the regional, urban and local scales. Conceptualizing regional competitiveness is a rather hard task. It has been defined more poorly than micro and macroeconomic competitiveness. Regional competitiveness seems to be a concept that is "stuck in

the middle" because it appears to be neither the simple aggregation of firms nor a weighted disaggregation of the national economy [Golejewska 2012]. This is the reason why the regional level is the most difficult and complex one for analysing competitiveness.

There exist numerous definitions of place and territorial competitiveness, but there is still no accepted consensus on this topic [inter alia Steinle 1992, Storper 1997, the European Commission 1999, Camagni 2002, Kitson, Martin and Tyler 2004, Krugman 2003, Porter 2000, 2001, 2003, Bristow 2005, Martin 2005, Meyer-Steamer 2008, Dijkstra, Annoni and Kozovska 2011]. As mentioned in the introduction, the simplest concept of regional competitiveness means the success of a region in competition with other regions. The tendency to connect competitiveness and competition creates the scope for analytical, conceptual and operational confusion. This raises questions connected with ways in which regions compete, and whether either firm-based or more export-orientated or income-based concepts of competitiveness often used at national level can be suitably applied to regions. [Bristow 2010, p. 14]. Another question reflects the similarity between regions and firms. Although some regions, like some firms, grow faster than others and their relative shares of economic wealth are changing, they differ from firms in many aspects. Firstly, firms enter and exit markets whilst regions do not. Secondly, firms may go out of business if they are uncompetitive, territories do not. Thirdly, the success of one region has not necessarily to be at the expense of another. Regions rather cooperate with each other within networks of relations than choose conflict relations. Fourthly, regions, unlike firms, are focused not just on economic success or profit [Turok 2004]. Regions, or rather their institutions compete for many economic inputs in more sophisticated ways. According to Martin and Tyler [2003], regions can compete for investment by being able to attract foreign, private and public capital; for labour through their ability to attract skilled employees, entrepreneurs and creative innovation environments within local labour markets, and for technology by being able to attract knowledge and innovation activity [Budd and Hirmis 2004, p. 1022]. Such an approach to regional competitiveness coincides with Michael Storper's definition of place competitiveness as: "The ability of an (urban) economy to attract firms with stable or rising market shares in an activity while maintaining or increasing standards of living for those who participate in it" [1997, p. 20].

The broader definition of regional competitiveness is focused on the determinants and dynamics of a region's long-run prosperity. The European Commission [1999] emphasises that, though productivity is crucial for regional competitiveness, the focus on it should not obscure the need for its transposition into higher wages and profits. Even if a region has many highly competitive firms in the microeconomic sense, but are engaged in activities creating low value added per worker, the economy will not be competitive in the macroeconomic sense [Bristow 2010, p. 19]. It should also be noted that the export-oriented concept of competitiveness implemented at regional level can be problematic for two reasons. Firstly, it was originally defined

for national economies without questioning whether this is the most meaningful concept for use at sub-national level. Secondly, it refers to the problems connected with the concept of national competitiveness as defined in trade and export terms [Kitson, Martin and Tyler 2004]. One must remember that at regional level, such factors as exchange rate movements and price-wage flexibility, which increase wages and profits at national level may not exist, but there are other factors that can influence regional performance, such as the mobility of labour and capital between regions [Camagni 2002].

An interesting definition of regional competitiveness was presented by Meyer-Steamer [2008, p. 3]. The author defines (systemic) competitiveness of a territory as "the ability of a locality or region to generate high and rising incomes and improve livelihoods of the people living there." In contrast to the definition of the World Economic Forum [2002], which is focused on productivity, this definition stresses the benefits to people living in a region. According to the author, competitive regions are not only these which are productive. They should also be characterized by the sustained or improved level of comparative prosperity. Dijkstra, Annoni and Kozovska in the Regional Competitiveness Index (RCI) [2011, p. 3] integrate the perspective of both firms and residents. They define regional competitiveness as "the ability (of a region) to offer an attractive and sustainable environment for firms and residents to live and work in". According to this broad definition, regional competitiveness is not strictly related to firm productivity but also to "societal wellbeing and long term potential". This means that competitiveness should be measured by both GDP and qualitative aspects such as health and human capital development, which is coherent with Stilglitz's approach to competitiveness [Stiglitz, Sen and Fitoussi 2009]. Going forward, competitiveness may also be considered in the aspect of sustainability. Sustainable competitiveness is defined as "the set of institutions, policies, and factors that determine the level of productivity of a country while ensuring the ability of future generations to meet their own needs" [Blanke, Crotti, Drzeniek Hanouz, Fidanza, Geiger 2011, p. 54]. This means that an economy should be socially cohesive, living within its financial means and ensuring the efficient use of its resources. The Sustainable Competitiveness Index (SCI) comprises, apart from "traditional" elements, elements particularly important over the long term, such as demographics, social cohesion and environment.

### 3. Productivity, competitive advantage and regional competitiveness

According to the definitions, productivity is one of the important sources of competitiveness. Although regional productivity is a useful measure of revealed regional competitiveness [Gardiner, Martin and Tyler 2006], there are some empirical problems with measuring it precisely [Kitson 2004]. The problem concerns also the interpretation of regional productivity. Should empirical analysis of regional

competitiveness be focused on labour productivity, taking into account output/the number of hours worked, or on total factor productivity (TFP)? In the case of Europe, labour productivity is easiest to calculate because regional data on output and employment are available from Eurostat's Regional Database. However output indicators are also difficult to measure, especially those of services and the government sector. The estimation and interpretation of regional TFP are even more problematic because TFP requires data that are rarely available at sub-national level, thus the estimation of the regional production function is controversial. Productivity is only one aspect of revealed regional competitiveness. The second one is the regional employment rate. A high employment rate is as important as having a high output per worker. A focus just on the latter can be misleading. A region with rising labour productivity (by reducing employment) and persistent high unemployment, cannot be recognized as a region improving its long-term prosperity.

Table 1. Three theoretical perspectives on regional productivity growth

	E1	E al diama Consideral
Theory	Explanation of regional	Evolution of regional
	productivity differences	productivity differences
Neoclassical Growth	Regional differences in	Assumes constant returns to scale;
Theory	productivity due to different	diminishing returns to factors of production,
	factor endowments, and	free factor mobility and geographical
	especially differences in	diffusion of technology, so that low-
	capital/labour ratios and	productivity regions should catch up
	technology	with high productivity ones, i.e. regional
		convergence in productivity.
Endogenous Growth	Regional differences	Implications for regional productivity
Theory	in productivity due to	evolutions depend on the extent to which
	differences in capital/labour	low-technology regions catch up with high-
	ratios, knowledge base	technology regions, and this on the degree
	and the proportion of the	of geographical diffusion of technology and
	workforce in knowledge-	knowledge, and flows of knowledge workers.
	producing industries	The more knowledge/technology spillovers
		are localized, and the more knowledge
		workers move to leading technology regions,
		the more productivity differences between
		regions will persist or even widen.
New Economic	Spatial agglomeration/	Economic integration (trade, factor
Geography models	specialization/clustering are	flows) increases the tendency to spatial
Geography models	key sources of externalities	agglomeration and specialization of
	and increasing returns	economic activity, leading to 'core-periphery'
	(labour, knowledge	equilibria and persistent regional differences
	spillovers, specialist	in productivity
	suppliers, etc.) that give local	in productivity
	firms higher productivity	

Source: [Gardiner, Martin and Tyler 2006, p. 59].

There is a variety of determinants of labour productivity. Many of them also influence a region's employment rate. An explanation and evolution of regional productivity differences according to different theories is presented in Table 1. In the neoclassical growth theory, regional differences in productivity are explained by the differences in exogenous technical progress and capital-labour ratio. In endogenous growth models they depend on the assumptions made about the process of technical progress. According to new economic geography models, regional differences in growth result from localized increasing returns arising from the spatial agglomeration of specialised economic activity and the external economies and the endogenous effects which such localized specialization generates [Gardiner, Martin and Tyler 2006, p. 59-60]. There is also a number of other characteristics important for supporting productivity over the long-term [see the concept of sustainable competitiveness]. To these belong, inter alia, policy and physical environment, market conditions and imbalances, and worker protection [Blanke, Crotti, Drzeniek Hanouz, Fidanza, Geiger 2011, p. 57-60].

In economics, the traditionally used concept of comparative advantage based on factors of production has been complemented by a new paradigm of competitive advantage, according to which, nations can develop and improve their competitive position [Kitson, Martin and Tyler 2004, p. 992]. Porter, who applied the model of the competitive advantage of firms to the competitive advantage of regions, argues that the productivity of a region is definitively set by the productivity of its firms. A region has absolute competitive advantages when it possesses superior technological, social, infrastructural or institutional assets that are external to, but which benefit, individual firms. These assets tend to give the region's firms a higher productivity [Camagni 2002]. The essence of his argument is that "comparative advantage is created and sustained through a highly localized process" [Porter 1990, p. 19] and thus that firm's productivity depends to a large extent on the quality of the microeconomic business environment. The locality's competitive success depends on the manner in which the combination of differences in opportunity costs and the endowment in externalities are combined to generate improvements in productivity. We can identify three types of external (agglomeration) economies: localization, urbanization and complexity (activity-complex) economies (see Figure 1). The last group is composed of economies connected with the joint location of dissimilar activities which have substantial trading links with one another. In the case of manufacturing, such economies are to be found within industrial complexes, involving a structure of a vertical nature [Parr and Budd 2000, p. 603]. A more X-efficient<sup>1</sup> region is one in which total locational endowments, including agglomeration economies, are exploited by indigenous firms and industries. These three types of externalities enable the transmission of the competitive advantage at the firm's level and the comparative advantage at the economy level of a region. Localization economies are relevant at the firm's level and urbanization economies

<sup>&</sup>lt;sup>1</sup> A firm is described as X-efficient if it maximizes its outputs whilst minimizing its inputs.

at economy level, whilst activity-complex economies are relevant to both [Budd and Hirmis 2004, p. 1025].

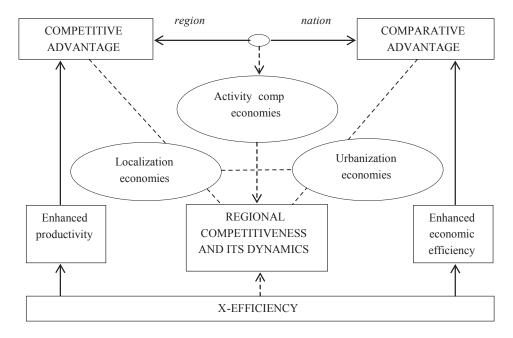


Figure 1. Framework for assessing regional competitiveness capacity

Source: [Budd and Hirmis 2004, p. 1025].

Krugman suggests that regional competitiveness has more to do with absolute advantage than with comparative advantage. If a region is more productive, it attracts labour and capital from other regions, which tends to consolidate its "absolute productivity lead". According to Krugman, the starting point of comparative regional analysis should be relative aggregated productivity measured as: GDP *per capita*, GDP per worker and labour market indicators<sup>2</sup>. The relative changes of economic

or:

<sup>&</sup>lt;sup>2</sup> GDP per capita can be used alone or in decomposition, following the formula:

 $GDP/Total\ population = GDP/Total\ hours\ worked imes\ Total\ hours\ worked/Employment imes\ Employment/Working\ age\ population imes\ Working\ age\ population/Total\ population$ 

Other ways of decomposition of the indicator GDP per capita capturing the influence of different factors are:

 $<sup>\</sup>textit{GDP/Total population} = \textit{GDP/Employment} \times \textit{Employment/Work resources} \times \textit{Work resources/Total population}$ 

 $GDP/Total\ population = GDP/Employment \times Employment/Active\ population \times Active\ population/Total\ population$ 

or, in a form summarizing the main sources of competitiveness:

 $GDP/Total\ population = GDP/Employment \times Employment/Total\ population$ 

performance should in turn reveal the dynamic competitive advantages of regions. However, it is questionable if a region is highly productive because it is competitive, or it is competitive because it is productive. In reality, regional competitiveness should be regarded as "an evolving complex self-reinforcing process, in which outputs themselves become inputs, and thus influence future outputs" [Krugman 2003, pp. 17-20].

#### 4. Conclusions

There is a heated discussion in the academic literature on issues around place, territorial or regional competitiveness and its relation to productivity. It is mostly focused on definitions of competitiveness, the basis for competition among regions and conceptual issues of regional productivity differentials. The common measure of economic performance in the form of output per head of population is a combination of workforce factors, particularly the employment rate and labour productivity, however there are still some empirical problems with measuring the latter precisely at regional level. The productivity of a region is definitively set by the productivity of its firms. To be competitive, a region has to reach a high productivity index and register a high employment rate at the same time. To achieve this it should be able to build a good economic structure based on innovation and provide externalities, thus improving firms' productivity. Both the mentioned indicators are recognized as measures of revealed competitiveness, however, they reveal little of the sources of competitive advantage of a region [Weber, Hudson, Boddy and Plumridge 2009, p. 612]. An alternative for studies analyzing regional competitiveness as the result of the cumulative action are studies focusing on the specific determinants of competitiveness.

The results of the analysis showed that there is still no consistent theoretical framework for answering the research questions unambiguously. This could confirm the fact that the concept of regional competitiveness is rather elusive and/or based on imperfect indicators. "All one can do is gauge its nature and magnitude by the shadow it casts" [Kresl and Singh 1999, p. 1018].

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#### ROZWAŻANIA NA TEMAT KONKURENCYJNOŚCI REGIONALNEJ. ROLA PRODUKCYJNOŚCI

Streszczenie: W literaturze toczy się ożywiona dyskusja na temat konkurencyjności miejsca, terytorium czy regionu oraz jej związku z produkcyjnością. Celem artykułu jest odpowiedź na trzy pytania: co dokładnie oznacza konkurencyjność regionów, w jakim sensie konkurują one ze sobą i jaki jest związek między konkurencyjnością regionalną i regionalną produkcyjnością. Wyniki analizy potwierdziły brak spójnych ram teoretycznych, umożliwiających jednoznaczną odpowiedź na postawione pytania. Wspólnym miernikiem wyników gospodarczych w postaci produkcji przypadającej na jednostkę populacji jest kombinacja stopy zatrudnienia i produkcyjności pracy. Istnieją jednak problemy z precyzyjnym pomiarem produkcyjności na poziomie regionalnym. Oba wskaźniki, uznawane za mierniki ujawnionej konkurencyjności, dostarczają niewiele informacji na temat źródeł przewagi konkurencyjnej regionu.

Słowa kluczowe: konkurencyjność regionalna, produkcyjność, analiza teoretyczna.