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# Municipalities and Regions in Locational Competition – New Economic Considerations

**Locational competition has intensified in recent years in the wake of globalisation as well as the general development towards a knowledge- and service-based economy. In this context, newer economic analyses point to a shifting of the locational factors considered relevant for success in local and regional competition. With respect to these fundamental changes, it is becoming increasingly relevant to ask how local and regional development processes must be constructed in order for municipalities and regions in modern industrial countries to maintain the positions they have already achieved.**

The continued advance of globalisation and structural adjustment, accompanied by an intensification of the international division of labour as well as changes to the global sourcing of goods, materials, services and finance, has plunged developed nations into an increasingly complex, uncertain and competitive world. Regions are forced to find their own place in the European and global division of labour[1], while the notion of competitiveness has essentially become something of an omnipresent given in terms of economic development theory and policy. In addition, new technologies have set the world on a path towards becoming an information economy of knowledge-based industries, with specific requirements for new types of highly mobile, highly skilled and flexible labour and management.[2] These fundamental changes lead to a situation in which municipalities and regions face increased exposure (both domestically and internationally) to heightened competition in attracting production and service providing businesses, as well as a complementary labour force.

The increasing intensity of local and regional locational competition goes hand in hand with the increased mobility and flexibility of businesses and highly skilled labour, which in turn impacts the importance of local and regional factors of location. Economic studies based on surveys of companies in European countries arrive at the conclusion that more than 25% of the interviewed businesses in Western Europe have made locationally relevant decisions, moving production to foreign countries in the two years prior to the survey. Austria is one of the countries with the highest business mobility rates, with some 47.7% of all businesses having relocated production to foreign sites in the years 2007 and 2008.[3] This points to a significant location dynamic in modern industrial countries, especially when considering all locationally relevant processes. In addition to the business relocations and new business startups typically considered in this context, there are also a multitude of "hidden" locationally relevant processes such as the expansion or shrinkage of existing locations (relative to other locations), the founding and dissolving of local branches, or the decisions of companies to remain at a certain location (provided they are confronted with the alternative of a possible relocation).

Current economic tendencies, such as the internationalisation of added value chains, the shortening of product cycles in the production and service sector, or the increasing importance of company internal real-estate management, result in an even more significantly growing dynamic concerning the anticipation of future locationally relevant business decisions. As regards the locational competition of municipalities and regions, it is vital that the reasons for business-based location decisions are

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1 Cf. M. Keating: Rethinking the region: Culture, Institutions and Economic Development in Catalonia and Galicia, in: European Urban and Regional Studies, Vol. 8, 2001, pp. 217 ff.
2 Cf. R.J. Stimson, R. Stough, B.H. Brian: Regional Economic Development, New York et al. 2006; D. Läpple: City and Region in an Age of Globalisation and Digitization, in: German Journal of Urban Studies, Vol. 40, 2001, pp. 177 ff.
3 Cf. for example S. Kinkel, B. Dachs, B. Ebersberger: Produktionsverlagerungen und Rückverlagerungen im europäischen Vergleich, in: Industrie Management, Vol. 23, 2007, pp. 47 ff.

primarily of a local and regional nature and are thus location dependent.[4] This means that the specific advantages and disadvantages of the respective locations – in cities, municipalities, districts or regions – are, in the majority of cases, decisive for locational movement.

Against this background, an array of relevant questions concerning the appropriate behaviour of municipalities and regions in locational competition can be formulated. It is therefore interesting to consider how local and regional development processes in modern industrial countries must be constructed in order for municipalities to maintain the position they have already attained and enhance this position in the future. It is also necessary to ask the question as to which locational factors are currently important for the successful economic development of municipalities and regions and which will be important in the future. Finally, the political recommendations that can be derived from newer theoretical analyses and empirical studies on the relevance of locational factors are also of interest.

## The Traditional View: Industrial Location Theory

Traditional economic approaches to the analysis of locational competition have focused on the locational advantage or disadvantage in terms of the cost effectiveness of a locality or region. Explicitly spatial models of the processes by which firms choose where to locate their activities have been developed within (industrial) location theory. This theory addresses the question of why economic activities are unevenly distributed across space and also makes reference to the factors that firms consider in selecting a geographic location.[5] Location theory has proposed that firms locate so as to minimise costs and seek locations that maximise their opportunities to reach markets, thus maximising their profits. Much of the emphasis has been put on transport costs, labour costs, other productions costs, scale of operation and agglomeration economics.[6]

The considerations embodied in location theory have contributed to the proposition that the sites on which businesses settled were determined on the basis of spatially influenced production and distribution costs, which in turn influenced the prices of their products and ultimately their competitiveness. This explained to some extent the difference between urban and rural regions, as cost differences have resulted in strongly concentrated and lightly dispersed areas. In this context, the most important spatially relevant cost factors were considered to be acquisition and procurement costs, costs of distribution (marketing, selling, etc.) and costs of production. While procurement and distribution costs were thought to be dependent on distance, production costs were seen as dependent on distance as well as on the degree of concentration of businesses (agglomeration benefits). The spatial distribution of economic activities can itself be subject to agglomeration effects because agglomeration benefits – mainly in the form of growing sales and procurement markets, which go hand in hand with cost reducing scale effects – can become greater with each increase in concentration. A lot of the work on agglomeration economies stems from the concept of the industrial district, postulating that agglomerated factors constitute a theoretical link between the spatial structure of an economy and its growth dynamic.[7] Similarly, and in line with the traditional insights of location theory, new economic geography indicates that agglomeration effects combined with transportation costs play an important role in local and regional development.[8]

In view of the behaviour of a locality or region within a competitive setting, the implicit message of these traditional economic approaches is that municipalities and regional authorities can be successful when they offer a local environment for businesses that leads to a reduction of costs. Here, affordable access to raw materials, quick accessibility to sales markets, low property prices or an agglomeration of businesses are considered conducive to lower costs. The focus of these approaches clearly centres on what are often referred to as hard locational factors like transportation infrastructure, local rate of taxes and duties, municipal real estate management and office availability, locationally relevant production conditions, or even the extent of subsidies provided. Accordingly, the following political recommendations for successful and competition-oriented organisation of local and regional economic development can be deduced: municipalities and regions can maintain or even improve

4 Cf. L. Blume: Local Economic Policies as Determinants of the Local Business Climate, in: Regional Studies, Vol. 40, 2006, pp. 312 ff.

5 For classical texts on location theory, cf. E.M. Hoover: The location of economic activity, New York 1948; M.L. Greenhunt: Plant location in theory and practice – the economics of space, Chapel Hill 1956; M. Beckmann: Location theory, New York 1968; D.M. Smith: Industrial Location: an economic geographical analysis, New York 1971.

6 For a summary, cf. R.J. Stimson, R. Stough, B.H. Brian, op. cit.; E. Edwards: Regional and Urban Economics and Economic Development – Theory and Methods, New York 2007.

7 The concept was proposed originally by A. Marshall: Principles of Economics, London 1920; for an overview, cf. G. Maier: History, spatial structure, and regional growth: lessons for policy making, in: B. Johansson et al. (eds.): Theories of endogenous regional growth, Heidelberg et al. 2001, pp. 111 ff.; E.J. Feser: Agglomeration, enterprise size and productivity. In: B. Johansson et al., op. cit., pp. 231 ff.

8 Cf. P. Krugman: Geography and Trade, Cambridge (MA) 1991; G. Ottaviano, J.-F. Thisse: Agglomeration and Economic Geography, CEPR Discussion Paper No. 3838, London 2003.

their position in terms of locational competition by binding businesses to their locations via low municipal taxes and duties, the provision of subsidies, investments in local transportation infrastructure, and through successful industrial real estate management.

## Modern Economic Approaches

Classic location theory and the related political recommendations promising success for local and regional actors within locational competition has been called into question in recent years. On the one hand, mere experience has contributed to a conclusion quite contrary to what was postulated by location theory. The agglomeration of businesses in space and the associated economic growth at local and regional levels were at their highest where the cost of living and office costs were high, industrial real estate reserves were low, subsidies were either minimal or not offered at all, and the burden of local taxes and duties was comparatively high. This experience can be explained by the fact that modern economies are increasingly developing into service and knowledge economies, in which factors formerly considered relevant – like raw materials or the sales market orientation of businesses – are becoming less and less important.[9]

On the other hand, insights from new economic growth and modern regional economic approaches have led to a change in the economic assessment of locational competition and relevant locational factors. From a growth theory perspective, being adequately equipped and provided with (cheap) capital and labour is not considered ultimately decisive for the successful development of a locality or region, especially within industrial countries. A significant economic growth rate, one which is enduring and innovation-based, is attributed to the production factors "technology" and "knowledge" (in the latter case, for example, in the form of the accumulation of human capital). New growth theory models developed by several theorists[10] allow for technological progress to be considered as an endogenous effect within the process of economic development. Furthermore, other economists[11] have postulated that technology, innovation and knowledge are the primary drivers in local and regional economic development.

Against this background, the concept of innovative milieus was formulated in an effort to explain the emergence of a new technology generation: connecting the importance of agglomeration and localisation economies, thus leading to the development of new industrial spaces.[12] Furthermore, some authors[13] have suggested, that in addition to economic factors, value and cultural factors (including social capital and trust) are also important in the rise of knowledge-based agglomerations. Furthermore, collaboration among small and medium-sized enterprises through cooperative networks is believed to forge a powerful entrepreneurial business climate.

More specifically, these insights into a technology and knowledge-based explanation of local economic development become the doctrine of agglomeration benefits through a regional economic reinterpretation. Agglomeration of businesses in space is first and foremost a factor that increases productivity.

In contrast to what was emphasised in location theory, it is less the direct production and distribution costs that play a decisive role, but rather the positive scale effects brought about by mutual learning and technology spillovers. Learning and innovation, the ability of businesses to create new products, new production procedures, and new forms of organisation on the basis of knowledge and spatial knowledge spillovers, become critical success factors for local and regional economic development.

9 Cf. various articles in M. Moldaschl and N. Stehr (eds.): Knowledge Economy, Marburg 2009; P. Cooke and A. Piccaluga (eds.): Regional development in the knowledge economy, London 2006.

10 Cf. P.R. Romer: Growth based on increasing returns due to specialization, in: American Economic Review, Vol. 77, 1987, pp. 56 ff.; R.J. Barro: Government spending in a simple model of endogenous growth, in: Journal of Political Economy, Vol. 98, 1990, pp. 103 ff.; S. Rebelo: Long run policy analysis and long run growth, in: Journal of Political Economy, Vol. 98, 1991, pp. 71 ff.; G.M. Grossman and E. Helpman: Innovation and growth in the global economy, Cambridge (MA) 1991; W.B. Arthur: Increasing returns and path dependency in the economy, Ann Arbor 1994.

11 Cf. M.D. Thomas: Growth pole theory, technological change and regional economic growth, in: Papers of the Regional Science Association, Vol. 34, 1975, pp. 3 ff.; J. Rees: State technology programs and industry experience in the USA, in: Review of Urban and Regional Development Studies, Vol. 3, 1979, pp. 39 ff.; R.A. Erickson: Technology, industrial restructuring and regional development, in: Growth and Change, Vol. 25, 1994, pp. 353 ff.

12 For more details, cf. A.J. Scott: New industrial space: flexible production organization and regional development in North America and Western Europe, London 1988; M.E. Porter: The Competitive Advantage of Nations. London 1990; R. Camagni: Local 'milieu', uncertainty and innovation networks: towards a new dynamic theory of economic space, in: R. Camagni (ed.): Innovation Networks: Spatial Perspectives, London 1991, pp. 121 ff.; M.E. Porter: Location, Competition, and Economic Development: Local Clusters in a Global Economy, in: Economic Development Quarterly, Vol. 14, 2000, pp. 15 ff.

13 Cf. F. Fukuyama: Trust – the social virtues and creation of prosperity, New York 1995; L. Blume and D. Sack: Patterns of Social Capital in West German Regions, in: European Urban and Regional Studies, Vol. 15, 2008, pp. 229 ff.

## Hard and Soft Locational Factors

With respect to the locational competition of municipalities and regions, this leads to two conclusions. Firstly, cost leadership is no longer (solely) decisive in competition processes; achieving knowledge-based local and regional development is of increased importance and requires an ability to cope with ubiquitous change by means of enhancing company innovativeness. This goes hand in hand with an important shift away from the "hard" locational factors that are considered rather static (transportation infrastructure, local taxes and duties, etc.) towards factors characterised as dynamic, such as the improvement of knowledge transfer between companies and institutions of higher education or research institutions of a region, the creation of innovative milieus and cooperative networks, or the accrual of highly qualified and creative personnel.[14]

An ever greater role is now accorded to so-called "soft" locational factors, which are important among other things for the service capacity of companies with knowledge-oriented jobs.[15] Soft locational factors are viewed as determinants of the quality of a locality and as such influence where businesses choose to settle and where qualified and creative personnel decide to offer their services. Soft locational factors are on the one hand company-based factors like the effectiveness and efficiency of the local administration, the image of a city and region, or the economic climate of the location. On the other hand, they include quality of life related factors like living environment, local and regional environmental quality, the recreational value and allure of the city and region, and the quantity and quality of cultural activities and social institutions. From this perspective, new opportunities as well as new challenges result. Thus the traditional political instruments used within the context of local and regional economic development promotion lose their effectiveness under the altered conditions. At the same time, as a result of the increasing plurality of locational factors, there is also a rise in the number of competition parameters that municipalities and regions use to present themselves as attractive to businesses and highly qualified labour in competition with other locations.

## Selected Results from Empirical Research

The previous considerations were largely of a theoretical nature and thus leave unanswered the question of empirical evidence linked to the thesis of altered locational competition under the conditions of globalisation and a knowledge society. Likewise, the related shift in the classical ranking of locational factors considered meaningful for the economic development of localities and regions must also be empirically examined. The following discussion aims to examine the interrelationship between empirical evidence and theoretical considerations. With this in mind, studies addressing the relevance of knowledge, the spatial distribution of knowledge (knowledge spillovers) as well as cooperative (innovation-oriented) networks for the economic development of municipalities and regions will initially be at the centre of this investigation. Subsequently, reference will also be made to those studies examining the empirical significance of both hard and soft locational factors.

Newer empirical studies dealing with the question of businesses' location choices suggest that hard factors remain decisive in the decision-making process. This is the case, for example, in a study which examines whether hard infrastructure in the form of more highways and railroads or soft infrastructure in the form of more transparent institutions and deeper reforms lead to more foreign direct investment by using data for FDI from the United States, Japan, Hong Kong, Taiwan and Korea into various regions of China from 1990 to 2002.[16] This is also the case with respect to another empirical study which uses FDI data from all OECD countries (except Luxembourg, Canada, Switzerland and Turkey) and an additional 20 non-OECD countries from eastern Europe and Asia from 1995 to 2004 to explore the relevance of hard and soft determinants of businesses'

14 Cf. D. Doloreux, S. Parto: Regional innovation systems: Current discourse and unresolved issues, in: Technology in Society, Vol. 27, 2005, pp. 133 ff.; C. Benner: Leraning communities in a learning region: the soft infrastructure of cross-firm learning in Silicon Valey, in: Environment and Planning, Vol. 35, 2003, pp. 1809 ff.; cf. also as a pioneer study in this field R. Camagni: Inter-firm industrial networks: the costs and benefits of cooperative behaviour, in: Journal of Industry Studies, Vol. 1, 1993, pp. 1 ff.

15 Cf. A. Eickelpasch, A. Peipras, A. Stephan: Hard and soft locational factors, innovativeness and firm performance, German Institute for Economic Research Discussion Papers, No. 723, Berlin 2007; cf. also the various contributions in H. Pechlaner, D. Abfalter, S. Lange (eds.): Culture and Creativity as Location Factors – looking beyond Metropolitan Areas, Innsbruck 2009; cf. for early studies dealing with this issue J.R. Logan, T. Swanstrom: Urban restructuring – a critical review, in: J.R. Logan, T. Swanstrom (eds.): Beyond the City Limits: Urban Policy and Economic Restructuring in Comparative Perspective, Philadelphia 1990, pp. 3 ff.; R.W. Smilor, M. Wakelin: Smart infrastructure and economic development: the role of technology and global networks, in: G. Kosmetsky, R.W. Smilor (eds.), The technopolis phenomenon, Austin (TX) 1990, pp. 53 ff.

16 Cf. K.C. Fung, A. Garcia-Herrero, H. Iizaka, A. Siu: Hard or Soft? Institutional Reforms and Infrastructure Spending as Determinants of Foreign Direct Investments in China, University of California SCCIE paper No. 05-06, Santa Cruz 2006.

location choices.[17] These studies confirm the results of older empirical research. In this context, a survey of 174 businesses in Colorado (USA) deserves mention.[18] The survey was carried out among businesses from different branches that had made location decisions (including expanding or relocating their operations) in the five years prior to the survey. It involved asking key decision-makers to evaluate 50 specific elements regarding their level of importance within the decision-making process. Traditional factors such as "cost of office or plant", "business operating costs" and "access to transportation" reached the highest scores of 3.8, 3.7 and 3.6 on a 5-point scale. Despite evidence that the influence of hard factors is diminishing in relative importance[19], the empirical data show that hard factors remained most important in the decision-making process.[20]

## Hard Determinants of Location Decisions

A number of empirical studies carried out in both the USA and Europe point to the fact that hard locational factors are considered "musts", and soft factors play a role only when an adequate supply of hard determinants are available. Businesses in western European industrialised countries, for example, display striking consensus with regard to the importance of (labour) cost-driven motives for the location choices of their production outsourcing: the percentage of cost-motivated outsourcing activities lies somewhere between 80% and 90%. The other relevant hard factors, in order of importance, are market development, proximity to major customers or distribution possibilities and flexibility of the location.[21] This would seem to indicate that locational factors such as taxes or subsidies and determinants such as leisure value, climate or network clusters have little or no impact.

The case of knowledge-intensive production and service-oriented businesses, however, paints a different picture. Here the knowledge factor becomes indispensable, while physical or mechanical input factors lose their relative importance. Access to qualified personnel becomes a significant driving factor in locational decisions for these sectors.[22]

## Knowledge and Knowledge Spillovers

The relevance of knowledge-based local and regional development highlighted by new growth theory approaches and modern regional economics has led to an array of empirical studies in conjunction with knowledge, the spatial diffusion of knowledge (knowledge spillovers) and economic development, as well as the innovation performance of businesses at individual locations.[23] These studies have demonstrated that the geographical agglomeration of businesses that produce knowledge strongly contributes to positive economic growth rates and higher per-capita value creation, especially in metropolitan areas.[24] These businesses are the ones that utilise innovative technologies to create new markets as well as to generate new value creation chains and employment opportunities. Here it has been found that the availability of highly qualified employees plays an essential role. It is, therefore, not surprising that the dynamic of economic development is empirically higher at those locations considered classic technological locations, with universities and scientific research institutions in close proximity.

17 M. Berlemann, M. Göthel: Determinanten der internationalen Standortwahl von Unternehmen – eine empirische Analyse, in: ifo Dresden berichtet, No. 4/2008, pp. 33 ff.

18 Cf. L.L. Love, J.L Crompton: The Role of Quality of Life in Business (Re)Location Decisions, in: Journal of Business Research, Vol. 44, 1999, pp. 211 ff.

19 Cf. R.H. Funck: Hard and Soft Determinants of Interregional Competition, in: P.W.J. Batey, and P. Friedrich (eds.): Regional Competition, Berlin-Heidelberg 2000, pp. 66 ff.

20 For a survey of existing theoretical papers as well as empirical studies dealing with the importance of hard infrastructure within processes of international locational competition cf. U. van Suntum et al.: Bedeutung der Infrastrukturen im internationalen Standortwettbewerb und ihre Lage in Deutschland, Münster 2008.

21 Cf. S. Kinkel, B. Dachs and B. Ebersberger, op. cit.; A. Breinbauer, F. Haslehner, T. Wala: Internationale Produktionsverlagerungen österreichischer Industrieunternehmen, Vienna 2008; M. Berlemann, J. Tilgner: Determinanten der innerdeutschen Standortwahl – Ergebnisse einer empirischen Analyse, in: ifo Dresden berichtet, No. 3/2007, pp. 14 ff.; M. Berlemann, J. Tilgner: Determinanten der Standortwahl von Unternehmen – ein Literaturüberblick, in: ifo Dresden berichtet, No. 6/2006, pp. 14 ff.

22 Cf. for example Duke University and Archstone Consulting: 1st Biannual Offshore Survey Results, Durham 2005; S. Kinkel and S. Maloca: Produktionsverlagerungen rückläufig, Ausmaß und Motive von Produktionsverlagerungen und Rückverlagerungen im deutschen Verarbeitenden Gewerbe, Frauenhofer Institut System- und Innovationsforschung, No. 45, Karlsruhe 2008; J. Doh, K. Bunyaratavej, E. Hahn: Separable but not equal: The location determinants of discrete services offshoring activities, in: Journal of International Business Studies, Vol. 40, 2009, pp. 926 ff.; A. Lewin, S. Massini, C. Peeters: Why are companies offshoring innovation? – The emerging global race for talent, in: Journal of International Business Studies, Vol. 40, 2009, pp. 901 ff.

23 Cf. among others J. Bitzer: Measuring Knowledge Stocks: A Process of Creative Destruction, in: Kyklos, Vol. 58, 2005, pp. 379 ff.; D.A. Higón: The impact of R&D spillovers on UK manufacturing TFP, in: Research Policy, Vol. 36, 2007, pp. 964 ff.; J. Park: International and Intersectoral R&D Spillovers in the OECD and East Asian Economics, in: Economic Inquiry, Vol. 42, 2004, pp. 739 ff.; cf. also as a pioneer study in this field Z. Griliches: The Search for R&D Spillovers, in: Scandinavian Journal of Economics, Vol. 94, 1992, pp. 29 ff.

24 Cf. T. Döring, J. Schnellenbach: What Do We Know About Geographical Knowledge Spillovers and Regional Growth? – A Survey of the Literature, in: Regional Studies, Vol. 40, 2006, pp. 375 ff.

The finding that the economic use to which newly created knowledge is put and subsequently that the extent of so-called knowledge externalities are, as a rule, spatially restricted must be regarded as of particular importance for local and regional economic policy. This is supported by empirical studies from the last two decades concerning the innovation performance of businesses in regions with major cities in the USA[25], by cross-country studies for selected regions in the European Union[26] as well as by studies for German labour market districts.[27] For municipalities and regions alike this means that investments in knowledge-based local and regional development appear to be profitable insofar as the possible profits of an economic promotion policy factoring in these elements primarily benefit the actors at the location.

In the context of a local economic policy as outlined above, empirical studies provide evidence of a positive correlation between how a region is equipped with universities and academic research institutions and the innovation activity of local businesses in knowledge-intensive producing branches. In early studies, a significantly positive correlation between academic research and the registration of patents as well as R&D expenditures of companies in 29 US states was traced.[28] Empirical studies conducted afterwards confirmed this for both the USA and Germany.[29] In connection with the production factor knowledge, direct evidence of the importance of innovative milieus and cooperative networks for the positive economic development of municipalities and regions was demonstrated in a pioneering study[30] that empirically identified the networking of local companies as playing a key role in the economic success of industrial clusters in Italy. Despite the fact that a multitude of institutional and organisational aspects of industrial clusters were examined, the factor "local and regional networking" was unanimously considered to be central to the success characterising all the industrial districts examined. A number of regional case studies concerning growth in prominent industrial clusters in other countries have obtained the same result.[31] Irrespective of structural differences between the individual regions, the various studies suggest that when it comes to growth regions, regional networking is a key factor.

It can be concluded that networks of regionally clustered businesses and public institutions offer two broad opportunities: formal exchanges of knowledge through market relationships, where proximity allows the establishment of closer ties, and the informal exchange of knowledge among social networks of individuals. A community's social life is seen to act as a knowledge multiplier, while the interconnection between social and economic networks within a community also contributes to a knowledge spillover.[32] These considerations are consistent with empirical findings that cities endowed

25 Cf. among others S.E. Ibrahim, M.H. Fallah, R.R. Reilly: Localized sources of knowledge and the effects of knowledge spillovers – an empirical study of inventors in the telecommunication industry, in: Journal of Economic Geography, Vol. 9, 2009, pp. 405 ff.; J.V. Henderson: Understanding Knowledge Spillovers, in: Regional Sciences and Urban Economics, Vol. 37, 2007, pp. 497 ff.; D.B. Audretsch, M.P. Feldman: Knowledge Spillovers and the Geography of Innovation, in: D.B. Audretsch (ed.): Entrepreneurship, innovation, and economic growth, Cheltenham 2006, pp. 138 ff.; cf. also R. Baptista, K.P. Swann: Do firms in cluster innovate more?, in: J. Cantwell (ed.): Globalization and the Location of Firms, Cheltenham 2004, pp. 245 ff.; the results of all these studies are in line with former empirical examinations done by L. Anselin, A. Varga, Z.J. Acs: Local Geographic Spillovers between University Research and High Technology Innovations, in: Journal of Urban Economics, Vol. 24, 1997, pp. 422 ff.; A. Varga: Local Academic Knowledge Spillovers and the Concentration of Economic Activity, Regional Research Institute, West Virginia University, Research Paper No. 9803, Morgantown 1998.

26 Cf. L. Bottazzi, G. Peri: Innovation and Spillovers in Regions – Evidence from European Patent Data, in: European Economic Review, Vol. 47, 2003, pp. 687 ff.

27 Cf. F. Huber: Social Networks and Knowledge Spillovers – Networked Knowledge Workers and Localized Knowledge Spillovers, Frankfurt am Main 2006; H.-F. Eckey, R. Kosfeld, M. Türck: Regionale Entwicklung mit und ohne räumliche Spillovers, Universität Kassel, Volkswirtschaftliche Diskussionsbeiträge, No. 70-05, Kassel 2005; M. Funke, A. Niebuhr: Spatial R&D Spillovers and Economic Growth – Evidence from West Germany, HWWA Discussion Paper No. 98, Hamburg 2000; G. Franke: Regionale Wissens-Spillover und Innovationserfolge industrieller Unternehmen, Frankfurt am Main 2002.

28 The study conducted by A.B. Jaffe: Real Effects of Academic Research, in: American Economic Review, Vol. 79, 1989, pp. 984 ff., can be mentioned here as exemplary.

29 Cf. Z.J. Acs, F.R. FitzRoy, I. Smith: High Technology Employment, Wages and University R&D Spillovers – Evidence from US Cities, in: Economics of Innovation and New Technology, Vol. 8, 1999, pp. 57 ff.; cf. J. Edler, U. Schmoch: Wissens- und Technologietransfer in öffentlichen Forschungseinrichtungen, in: ifo Schnelldienst, No. 4, 2001, pp. 18 ff.; L. Blume, O. Fromm: Wissenstransfers zwischen Universitäten und regionaler Wirtschaft – Eine empirische Untersuchung am Beispiel der Universität Gesamthochschule Kassel, in: Vierteljahreshefte zur Wirtschaftsforschung, Vol. 69, 2000, pp. 109 ff.

30 Cf. M.J. Piore, C.F. Sabel: The Second Industrial Divide: Possibilities for Prosperity, New York 1984. An extensive number of studies on Italian industrial districts was later conducted and confirmed this finding. Cf. among others M. Lazerson: A new phoenix? – Modern putting-out in the Modena knitwear industry, in: Administrative Science Quarterly, Vol. 40, 1995, pp. 34 ff.; G. Gottardi: Technology Strategies, Innovation without R&D and the Creation of Knowledge Within Industrial Districts, in: Journal of Industry Studies, Vol. 3, 1996, pp. 119 ff.

31 Cf. among others V. Schutjens, E. Stam: The Evolution and Nature of Young Firm Networks – a longitudinal Perspective, in: Small Business Economics, Vol. 21, 2003, pp. 115 ff.; K. Yi Ling, L. Shu-Jong, H. Woan-Chiau: The high-tech milieu and innovation-oriented development, in: Technovation, Vol. 25, 2005, pp. 145 ff.; J. Revilla: Innovative networks in manufacturing – some empirical evidence from the metropolitan area of Barcelona, in: Technovation, Vol. 20, 2000, pp. 139 ff.

32 Cf. O. Falck, S. Heblich: Modern Location Factors in Dynamic Regions, in: European Planning Studies, Vol. 16, 2008, pp. 1385 ff.

with greater human capital have higher sustained growth rates. Municipalities or regions with skilled labour and high levels of specialised human capital are more likely to attract innovative networks than less endowed areas. This is confirmed by a survey of 84 businesses in the northeastern USA which found that the availability of skilled labour is the most important factor in influencing business site selection decisions.[33] Empirical explorations of social capital data for German regions show that regions demonstrating high performance with regard to social capital, which provides the necessary basis for regional networking and knowledge exchange, are characterised by comparatively high income per capita values and economic growth rates.[34]

### The Importance of Soft Locational Factors

There has been little empirical testing of the theoretically developed thesis that soft locational factors have become increasingly important within the framework of a transition towards a service and knowledge-based society. However, a few studies have pursued this, guided by the assumption that even though modern industries and businesses are increasingly becoming geographically independent in the age of globalisation, questions of location take on greater importance in a new sense.[35] Accordingly, growth and vitality can be found where the highly qualified and creative establish themselves and consequently complementary businesses settle ("the power of place"). Against this background, the question as to which locational factors attract highly qualified top performers was examined in a survey involving data from 67 metropolitan regions in the USA.

Without claiming completeness or offering a systematic analysis, the results of the survey can be summarised as follows: the better the quality of life in individual locations, the greater the likelihood of encountering industries with a large percentage of highly qualified employees. Locations with a well above average quality of life, signified by a high living and recreational value, a positive social climate, an attractive inner city, a citizen-friendly administration, an adequate provision of social institutions, and similar factors, provide for a distinct binding effect. By contrast, locations that do not exhibit any direct binding force upon enterprises or highly qualified employees do not carry the same attraction.

These findings were confirmed in a study based on data from 61 urban regions in the USA[36] which examined the correlation between highly qualified employees and economic growth. Resultantly, those localities and regions competing for "creative minds" which increasingly emphasised the natural, social as well as cultural quality of life of a location and as a result focused more strongly on the implementation of soft locational factors proved to be especially successful.

Looking specifically at the question of culture, one study carried out in Karlsruhe (Germany) analysed the impact of cultural institutions on the competitiveness of enterprises located in this urban region. The study demonstrated that some 60% of the participating firms were of the opinion that cultural institutions have a favourable impact on the competitiveness of their economic activity.[37] It is perhaps interesting to note here that the region has included cultural activities in its urban development concept and regional growth promotion since the mid-1980s.

Another empirical study did not fundamentally challenge these findings, but relativised them in parts.[38] By means of a survey of companies in 105 eastern German cities, Blume examined the influence of differently designed local economic policies on the local business climate as an indicator for the attractive-

33 Cf. F. Karakaya, C. Canel: Underlying dimensions of business location decisions, in: Industrial Management & Data Systems, Vol. 98, 1998, pp. 321 ff.; for newer empirical studies which support these findings by examining the relationship between better educated workers, localised human-capital externalities and long-run industry growth cf. G.H. Hanson: Scale economies and the geographic concentration of industry, in: Journal of Economic Geography, Vol. 1, 2001, pp. 225 ff.; cf. also the study of Z.J. Acs, C. Armington: Employment Growth and Entrepreneurial Activity in Cities, Max Planck Institute for Research into Economic Systems, Discussion Papers on Entrepreneurship, Growth and Public Policy, No. 1304, Jena 2004, which shows that – beside differences in levels of entrepreneurial activity and existing diversity among geographically proximate industries – the extent of human capital is positively associated with variation in (regional) growth rate.

34 Cf. L. Blume, D. Sack, op. cit.; cf. also L. Blume: Regionale Institutionen und Wachstum, Marburg 2009.

35 R. Florida: The Flight of the Creative Class – The new global competition for talent, New York 2005; R. Florida: The Rise of the Creative Class, New York 2002; R. Florida: Competing in the Age of Talent – Quality of Place and the New Economy, Pittsburgh 2000.

36 K. Stolarick: The "Soft" Factors of Regional Growth: Technology, Talent and Tolerance, in: F. Thießen et al. (eds.): Weiche Standortfaktoren – Erfolgsfaktoren regionaler Wirtschaftsentwicklung. Berlin 2005, pp. 73 ff.

37 Cf. J. Dziembowska-Kowalska, R.H. Funck: Cultural Activities as a Location Factor in European Competition between the Regions – Concepts and some evidence, in: Annals of Regional Science, Vol. 34, 2000, pp. 1 ff; cf. additionally with respect to Germany the explanations and presented empirical results in S. Cortrie: Weiche Standortfaktoren als Angelegenheit der kommunalen Wirtschaftsförderung, Hamburg 2009, pp. 29 ff.

38 Cf. L. Blume: Kommunen im Standortwettbewerb, Baden-Baden 2003.

ness of a municipality in locational competition. All municipalities exhibiting a positive business climate were found to have an efficient as well as speedy and flexible administration, modern governance structures (for example, new public management, city marketing, public-private partnership) and a well-functioning regional networking system (cooperation with Chambers of Commerce, regional academic research institutions, political decision-makers at regional and federal levels, etc.). By contrast, extensive subsidisation of businesses, comparatively high per capita expenditures for cultural and social activities as well as shortfalls in the industrial real estate management of a municipality proved to have a negative influence on the local economic climate. Beyond this, there was evidence that neither the strategy of (extensive) privatisation of public services nor a policy aimed at attracting new businesses targeted at (existing) industrial clusters positively affect the business climate of municipalities.

It is interesting here to return to one of the studies mentioned earlier, which dealt with the importance of hard locational factors.[39] While this survey clearly highlighted the relevance of these factors for location decisions, it also afforded some relevance to soft locational factors: of the 50 elements considered of importance within the location decision process, half of the 21 elements reaching scores above or equal to 3.0 on the 5-point scale related to soft locational factors such as "environmental quality", "local government cooperation", "state government support/cooperation", "natural environment of the region", "crime rate" or "ambiance of the region" – to mention but a few. An earlier survey of the largest 500+ companies in the European Union also showed that some 10 per cent included quality of life factors amongst the three most important elements in their location decisions.[40]

The former findings suggest that the success of municipalities or regions in locational competition does not depend on hard or soft locational factors *per se*. Rather, companies seem to ask for business conditions that are partly in keeping with the theoretically formulated necessity of knowledge-based local and regional development (for example, the setting up of cooperative networks, citizen-friendly administrational departments) while simultaneously utilising the instruments of a traditionally oriented economic promotion policy (infrastructure policy or industrial real estate management). Hard and soft location factors can thus be considered as crucially intertwined, with dynamic regions typically characterised by the existence of several location factors.

Bearing the above theoretical and empirical analyses in mind, it is possible to derive conclusions regarding how best to structure economic policy for municipalities and regions. It is possible to distinguish between recommendations for the economic policies of municipalities and regions and those recommendations aimed at superordinate governmental levels (EU level, federal level) and their economic policies for municipalities and regions. For both dimensions, improving knowledge-based local and regional economic development in order to increase the endogenous innovation of businesses both already locally based as well as those new companies yet to be attracted to the area is at the core of the following recommendations.

## Implications for Local Economic Policy

The starting point for a practical structuring of local and regional economic policy has previously been outlined: in the age of globalisation and a shift towards a knowledge-based society, the critical competitive advantage that companies must have when competing with others no longer consists solely of cost advantages, but rather also includes the ability to settle in those locations where there are sufficient numbers of qualified personnel. This is necessary in order to successfully manage innovation and the changes which are required to meet the demands of new economic challenges. With regard to competition between municipalities and regions, locations endued with a high potential for knowledge-based development on the one hand and displaying characteristics that are interesting for highly qualified and creative employees on the other possess a competitive advantage in terms of their appeal for businesses and their ability to bind them to the location.

As a consequence, it can be argued that conditions linked to a successfully structured local and regional economic policy are constituted by the promotion of knowledge transfer and the improvement of the local

39 Cf. L.L. Love, J.L. Crompton, op. cit.

40 R.J. Robertson: Quality of Life and City Competitiveness, in: Urban Studies, Vol. 36, 1999, pp. 969 ff.; for newer empirical evidence concerning this issue cf. J.M. Shapiro: Smart Cities – Quality of Life, Productivity, and the Growth Effects of Human Capital, in: Review of Economics and Statistics, Vol. 88, 2006, pp. 324 ff.; D. Salvesen, H. Rensky: The importance of quality of life in the location decisions of new economy firms, Center for Urban and Regional Studies, A Scientific Report, Chapel Hill 2003; C. Wong: The Relationship Between Quality of Life and Local Economic Development – An Empirical Study of Local Authority Areas in England, in: Cities, Vol. 18, 2001, pp. 25 ff.

and regional qualifications structure.[41] Without a doubt, all those municipalities and regions exhibiting spatial proximity to academic or educational institutions (mostly public or university-based), which on the basis of their research activities can be considered as knowledge providers for company-based innovation and can thus be classified as conducive to knowledge transfer, are at an advantage here. Hence, both the organisational and financial participation of a city or region in so-called knowledge transfer centres, which already exist at many universities and academic research institutions, as well as involvement in the promotion of new academic-based companies ("spin-offs") constitute a special form of knowledge transfer. For this, depending on the size and characteristics of locations (metropolises, regions, medium-sized and small cities or municipalities), diverse strategies are needed to integrate individual municipalities into supra-regional networks based on their natural and socio-economic characteristics.

The sufficient availability of qualified labour at a particular location is one of the preconditions for the success of knowledge-based local and regional development. Beyond mere faith in the "right" education and mobility performance of the private actors, a task of local and regional economic policy is the identification, analysis and (where possible) the elimination of deficits in the local and regional qualification structure. The education and training offered by continuing and advanced educational institutions available in a particular locality is also of importance here. In this context, local and regional decision-makers should gear their continuing education policies towards the existing locally relevant qualification demands via routine observations of the needs of the regional market.

A further condition for a successful knowledge-based local/regional economic policy is the promotion of local and regional innovation networks. Indeed, the general character of regional networks and innovative milieu structures has already been repeatedly analysed in economic studies.[42] However, the manifold local and regional forms of such networks analysed by these studies complicates rather than promotes their local use and predictability. A task of local/regional economic policy should thus be to create a platform for the formation of innovative networks and milieu structures. Experience would seem to indicate that a local or regional economic policy constructed as a "networking policy" requires both patience and staying power and can hardly anticipate success in the short term. Therefore, it makes sense to incorporate the promotion of cooperative networks into a comprehensively constructed regional management strategy, which should also take into account locational marketing by public and private actors. This would convey the existing local and regional specialisation pattern outwardly in a credible manner, which would contribute inwardly to the creation of an intensified "location and regional awareness" with which the actors in a particular location can sufficiently identify. This sense of identification would ideally manifest itself in a common sense of belonging to a specific locality or region, thus sharing the aims and strategies of local marketing and regional management. This would in turn lead to a collective desire to enhance internal cooperation while at the same time improving the external competitiveness of the location.

Lastly, a further condition for a successful local/regional economic policy is seen in the use and awareness of soft locational factors in addition to a policy geared towards hard locational factors. This becomes increasingly significant as municipalities and regions in competition with each other can no longer generate enough of a competitive advantage simply through recourse to traditional instruments of economic promotion. A policy more strongly directed towards soft locational factors should be underpinned by a systematic examination of the existing necessity for the promotion of hard locational factors (i.e. investments in the physical infrastructure, availability and obtainment of industrial and office real estate) in order to subsequently free the necessary (financial) resources for the development and fostering of soft locational factors. As such, cities and towns should naturally concentrate on those soft factors which can most easily be shaped and designed at local and regional levels (i.e. local administration, living environment, environmental quality). The fostering and enhancing of soft locational factors is less important in terms of economic externalities than it is for developing intensive business communication with enterprises already present in the locality. Measures implemented to bring about improvements in this area should thus be evaluated first and foremost according to the extent to which they strengthen the competitiveness of the location, in order to encourage identification and mobilisation effects for the local companies and employees.

41 Cf. T. Döring: Räumliche Wissens-Spillovers und regionales Wirtschaftswachstum, in: Schmollers Jahrbuch, Vol. 124, 2004, pp. 120 ff.; T. Döring: Neue Herausforderungen im kommunalen Standortwettbewerb und ihre Konsequenzen für die lokale Wirtschaftspolitik, in: P. Biwald et al. (eds.), Innovation im öffentlichen Sektor, Vienna 2008, pp. 69 ff.

42 Cf. F. Andersson, O. Persson: Networking Scientists, in: Annals of Regional Science, Vol. 27, 1993, pp. 11 ff.; M. Castells, P. Hall: Technopoles of the world – The making of the 21st century industrial complexes, London 1994; M. Fritsch: Measuring the quality of regional innovation systems – A knowledge production function approach, in: International Regional Science Review, Vol. 25, 2002, pp. 86 ff.; R.W. Helsey, W.C. Strange: Innovation and input sharing, in: Journal of Urban Economics, Vol. 51, 2002, pp. 25 ff.

### Consequences for European Regional Policy

While in recent years regional development policy has tended to be more decentralised – to either the regional or the local level – where the ability to facilitate horizontal integration is highest and the knowledge of problems is greatest, there is still some indication of the need to examine the policies for local and regional government directed by the superordinate authority levels. Clear signs of a reorientation in the regional and local promotion of economic development are found at the European level. In its guidelines for European regional policy, the European Commission criticised the current concentration on measures to reduce regional developmental shortcomings in areas like energy or transportation infrastructure as no longer being in keeping with the times.[43] The Commission states in reference to the "transition to a knowledge-based economy" that an adequate institutional framework must be created in order to promote the primarily regionally bound process of creating and diffusing new knowledge as the basis of company-based innovation and economic growth.

Against this background, the European Union has revised the aims of its regional policy for the new promotion period 2007-2013. Instead of the former nine programme aims, there are now only three aims at the centre of its promotion policy. Firstly, there is the convergence aim, concerning financial promotion of those European regions that lag furthest behind in economic development. The second aim is the strengthening of the competitiveness and employment potential of regions. Thirdly, European regional policy continues to turn attention to the improvement of transnational and interregional cooperative relationships and networks.[44] However, even more notable than the reformulation of the promotion aims is the fact that nearly two-thirds of the available financial resources are earmarked for those measures exhibiting a relationship to knowledge-based local and regional development.[45] The four renewed pillars of the Lisbon Strategy are also significant in this context: a more attractive place to invest and work; knowledge and innovation for growth; creating more and better jobs; and a sustainable economic basis.[46] The importance of local and regional actors as regards meeting these strategies is taken as a given.

Next to political measures at the European level, there is also the question of a reorientation of economic policy at the national level. Here, first of all, it is considered to be a matter of principle that governmental measures concerning the promotion of knowledge-based local and regional development should be largely limited to supportive and stimulating tasks. Without discussing each measure in detail here, the general supposition is that the national political level should limit itself to providing an impulse in terms of the creation of an appropriate general framework for such developments. This can occur when national programmes and financial appropriations provide incentives for local and regional actors to direct the attention of instruments of local and regional economic development to those measures which are of importance for a knowledge-based development strategy.

It must be said, however, that a national policy for municipalities and regions that accommodates the demands of a knowledge-based society should go hand in hand with a spatial concentration of appropriations. Thus a political interpretation of the new economic growth theory and modern regional economic approaches seems to lead to the conclusion that strengthening existing agglomeration benefits and the knowledge and innovation potentials connected with them, rather than working towards an equal distribution of such potentials in a spatial sense, is conducive to economy-wide growth. This is further supported by the fact that – according to the empirical findings – the intensity of the utilisation of new knowledge, especially in agglomeration and metropolitan areas, is especially high. Accordingly, national appropriations concerning economic growth should be deployed where they generate the highest "return on investment" for the entire economy. Going against traditional economic approaches, the latter applies neither to production-oriented, non-knowledge-intensive old industrial regions nor to peripheral areas distant from central agglomerations. Instead of a regional equalisation policy, preferential treatment is suggested for those regions and locations that can be classified as growth centres due to a spatial concentration of knowledge and knowledge-spillovers.

43 Cf. European Commission: Communication from the Commission, "The regions and the new economy", Guidelines for innovative actions under the ERDF in 2000-2006, Brussels, COM (2001) 60.

44 Cf. European Commission: Cohesion policy 2007-13, Commentaries and official texts, Luxembourg 2001.

45 Cf. European Commission: Proposal of 14 July for a Council Regulation laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund, Brussels, COM (2004) 492 final.

46 Cf. A. Heichlinger, S. Määttä: Good Governance in Delivering Sustainable Growth: Regions and Municipalities as Promoters of the Lisbon Strategy, Background paper for High Level Group and Meeting on Governance and the EU, Turku 2006.