

Rethinking Logics and Regimes of Geo-Economics: National Competitiveness in the Borderless Global Knowledge Economy



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Introduction

The traditional national competitiveness in mature, technologically moderate industries such as machine tools, metalworking, and automobile production had provided an engine for growth, high employment, and economic stability in the developed world for most of the post-war economic period. However, this tested formula of traditional competitive edge has been lost in the high cost economies in the recent times (David Audretsch, 2000). The loss of competitive edge in the large manufacturing sector and subsequent great industrial rush to the cheaper locations in the developing world prompted intense debate on 'de-industrialization' and 'hollowing out' of substantial industrial capacities. The reason for this economic phenomena cited 'globalization of production process' as the most crucial factor in the declining national competitiveness. Declining competitiveness was aggravated by the collapse of communism, which provided industries an opportunity to tap large labor pool in the transition economies. This change rendered national competitiveness in the traditional moderate technology industries incompatible with high wage levels of the developed world.

Nevertheless, emerging borderless global knowledge economy provided new competitive edge, largely to the developed economies, which can be compatible with the high wage level of rich nations. The fundamental reorganization in the national competitiveness moved in the two visible phases: "competitiveness lost" in the traditional industrial sectors and "competitiveness regained" in the new knowledge-based sectors. In other words, mostly labor-intensive manufacturing sector lost competitiveness whereas knowledge-based, service sector gained competitiveness in the developed world. In this context of shifting parameters of national competitiveness, the clear understanding of far-reaching

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The important question is how to maintain and upgrade national competitiveness in the face of two conflicting developments: one, emerging geo-economic borders and the other, increasingly borderless knowledge economy. In this juncture, the issue of national competitiveness cannot be separated from these fundamental realignments. The relationship between these two phenomenon hides the important clues to understand the issue of national competitiveness. In other words, how knowledge, globalization and regions are linked and interlinked with the question of national competitiveness can shed new light in the old issue of competitiveness.



impact of knowledge as the most important factor in the wealth creation mechanism must be given due recognition. Clear pronouncements such as 'Knowledge century' or 'intellectual capitalism' reflect the ever-growing role of knowledge in the wealth creation.

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Thus, it is about time to re-think logics and regimes of geo-economics such as EC, and NAFTA in the changed operating environment of knowledge; and see whether these regimes are positively contributing in the long-term national competitiveness or adversely constraining it. It is important to know that how long politically motivated geo-economic arrangements can contain the borderless and global nature of knowledge backed by technological and economic forces. In the face of increased global mobility of created intangible assets, which are playing the central role in the money making, spatial confining of knowledge may prove to be counter productive. In a politically motivated bid to increase competitiveness, the propagators of the geo-economic arrangements are ignoring the inherent weaknesses of the respective regions which can be a major stumbling bloc in their quest to re-invent competitiveness.

This study proceeds in the following way. Section 1 evaluates

the changed operating dynamics, where 'economies of scale' are increasingly getting dominated by 'ideas of scale', national competitiveness lies not on the tangible created assets but mostly on the intangible created assets, which can be sourced around the globe. It argues that policies designed to achieve long-term national competitiveness must ensure the suitable environment for attracting intangible created assets. Section II outlines the sources of national competitiveness, which are deeply rooted in the clear understanding of growing dichotomy between geo-economic regimes and the borderless global knowledge economy. It argues that traditional trade and location models, such as Heckscher-Ohlin trade models, which were primarily designed to explain the optimum patterns between countries, based on the distribution of immobile factor endowments. And, similarly location theories, which were concerned with the optimum asset-exploiting activities and explicitly acknowledged the role of transaction costs of spatially proximate activities are no longer relevant to explain the spatially dispersed global knowledge economy. It argues that the collapse in the distance related transaction cost, high mobility rate of knowledge workers within and across countries, and spread of market economies around the world has made firms not to concentrate their activities within a limited spatial area.

Section III argues that the most decisive input in the knowledge production function is new economic knowledge. Knowledge as an input in a production function is inherently different from the more traditional inputs of labor, capital and land. As knowledge is exogenous and embodied in a worker, it easily can spillover. This explains the competitiveness of the small firms, which relay on the knowledge spillovers from the universities and other research labs. Section IV provides the main argument of this study that "knowledge externalities" has substantially diminished the importance of location. Knowledge clusters lack stickiness to a location. It refutes the logic of immobility of 'tacit knowledge' by arguing that vastly increased mobility of knowledge workers across nations, and continents have proved the mobility of tacit knowledge.

Section V put analytical conclusions before empirical reality emanating from two important geo-economic regions, EC and NAFTA. Sectoral preferences in the capital markets as well as in the FDI flows indicate the true extent of knowledge economy in the regions of EC and NAFTA. Empirical facts go in favor of the knowledge economy of NAFTA which is far more competitive than the EC. The cause of this divergence lies in their differing level of focus in the geo-economic regimes. Section VI suggests vital policy implications emanating from geo-economic focus such as regional

economic blocs to gain national competitiveness, particularly in the era of borderless global knowledge economy.

Section VII concludes that the policies of spatial confining of knowledge in an inward-looking fashion may very well invite the danger of 'knowledge eclipse' or at least locking the economies in the inherent regional weaknesses. The comparative case surveys of EC and NAFTA, with differing levels of focus in the spatial concentration of knowledge economy, and quite different level of performance in the field of knowledge economy confirms the basic premises of this study that the nature and dynamics of knowledge is global not regional or national. Thus, the logics and regimes of regional geo-economic outfits need to have a rethinking.

Section I: Globalization, Knowledge Economy and the Issue of National Competitiveness

The mechanism of wealth creation has witnessed a fundamental reorganization with deep-rooted structural changes in the world economy. It has shifted from the 'natural assets', through tangible assets to intangible assets (notable land and relatively unskilled labor), through tangible created assets (notably building, machinery and equipment, and finance), to intangible created assets (notably knowledge and information of all kinds), which may be embodied in human beings, in organizations, or in physical assets (John Dunning, 2000). For example, it has been estimated that, whereas in the 1950s, 80 percent of the value added in US manufacturing industry represented primary or processed foodstuff, materials, or mineral products, and 20 percent knowledge, by 1995, these proportions had changed to 30 and 70 percent respectively (Stewart 1997). No less significant the book value of the tangible assets of corporations is becoming a decreasing component of their market value. One estimate (Handy 1990) put this at between 25 and 33 percent in the mid-1980s, while Leif Edvinson 1997) has more recently calculated that, for most organizations, the ratio of their intellectual capital to that of their physical and financial capital is between five-to-one to sixteen-to one.

Between 1975 and 1995, expenditure on all kinds of research and development in the OECD economies rose three times the rate of output in the manufacturing industry (OECD 1997). Over the same period, while the number of patents registered in the USA increased from 76,800 to 113,600, i.e. by 48 percent, those in the more knowledge intensive sectors,¹ rose from 16,827 to 47,533, i.e. by 182 per cent (US Patent and Trade Mark Office 1997). The

proportion of the age group 15-24 engaged in higher education increased from 35 per cent in 1980 to 56 percent in 1993 (World Bank 1997). Finally, capital spending on information technology, which, in 1965, was only one-third of that on production technology, now exceeds it. In all the segments of economy, created intangible assets are replacing natural or created tangible assets as the main source of wealth augmentation in industrial societies.

Seeking intangible created assets, which are increasable and mobile is very different than tangible assets. This shift requires a fundamental rethinking of the relevance of the leading traditional paradigms. The most important is the "economies of scale"² which was of primary importance in the firm's strategy to augment tangible assets. It required large economic scale to operate. But, with the advent of knowledge economy more than 'economies of scale', there is a need for the 'ideas of scale'. Asian economic crisis of 1997 proved that giant corporation such as Korean Chaebols, which benefited from the economies of scale, are no longer competitive. They are forced to reinvent new competitiveness based on the created intangible assets.

The value of ideas is obvious in today's knowledge-based economy when small start-up firms with limited resources, but with the unique knowledge or practices, fetch very high prices on the stock market. For example, in 1998, Lucent Technologies of the USA paid roughly US 1 billion dollars for a tiny company in Maryland called Yurie, specializing in ATM and IP telephone technologies. Yurie had sales of US 51 million dollars in 1997. In Sweden, a small company named Netcom Systems with only some 1,200 employees, active in fixed telephony (starting 1991) and mobile telephony (starting 1981) in the Nordic countries, is valued at around 30 billion SEK. The Swedish state-owned telecom operator Telia, active in telephone services since the late 19th century, and with some 23,000 employees, is valued at only around twice the value of Netcom Systems. In more and more industries we see a 'fresh start': they build activities for a relatively open global market, they invest in new technologies and new people without enormous sunk costs, they face deregulated markets, they can out source standardize activities on a global scale by utilizing the most efficient suppliers of services, product, design, and so forth.

1 These knowledge intensive sectors include chemicals and pharmaceuticals, machinery and electrical equipment, computers and office equipments, industrial and scientific instruments.

2 A reduction in long-run average cost as a result of an expansion in output which leads to increasing returns of scale. Returns to scale can be shown by their effect on long-run average costs (LARC). They can be increasing (output growing faster than inputs), constant (inputs and output increasing at the same rate) or decreasing (output growing at a slower rate than inputs). The returns which are most characteristic of a particular economy will determine whether it is growing, stagnating, or in decline.

Established MNCs with the 'economies of scale' are not able to compete with these start-ups with the 'ideas of scale'.

In this changed dynamics, where 'economies of scale' are increasingly getting dominated by 'ideas of scale', national competitiveness lies not on the tangible created assets but mostly on the intangible created assets, which can be better sourced out beyond geo-economic limits of nation or region. The debate between 'new economy' and the 'old economy' indicates the shifting pattern in the national competitiveness. Thus, the policies designed to achieve long-term national competitiveness must ensure the suitable environment for attracting intangible created assets. Intangible asset-seeking FDI is the most sensitive type investment, which is increasingly borderless in nature. Next section deals with the growing dichotomy between geo-economic regimes and the borderless global knowledge economy.

Section II

The Growing Dichotomy between Geo-economic Regimes and the Borderless Global Knowledge Economy

The changed fundamentals of the national competitiveness are deeply rooted in the clear understanding of growing dichotomy

The changed fundamentals of the national competitiveness are deeply rooted in the clear understanding of growing dichotomy between geo-economic regimes and the borderless global knowledge economy. Recent rise of geo-economic regimes doesn't mean that new wealth-creating activities are concentrating spatially. Our understanding about 'spatial dispersion' of knowledge economy is at best superficial



between geo-economic regimes and the borderless global knowledge economy. Recent rise of geo-economic regimes doesn't mean that new wealth-creating activities are concentrating spatially. Our understanding about 'spatial dispersion' of knowledge economy is at best superficial. Theories and models based on the old operating dynamics cannot explain this new dichotomy. Traditional trade and location models, such as Heckscher-Ohlin trade models, were primarily designed to explain the optimum patterns between countries, based on the distribution of immobile factor endowments. Similarly location

theories, which were concerned with the optimum asset-exploiting activities and explicitly acknowledged the role of transaction costs of spatially proximate activities, are no longer relevant to

explain the spatially dispersed global knowledge economy. Contemporary trade and location theories are more contextual than the traditional ones but no longer useful for this new situation. These theories are only a persuasive explanation of some kind of cross-border division of labor- particularly of natural resource intensive activities but they are less comfortable in explaining the distribution of knowledge-intensive activities.

The drastic reduction in the distance related transaction cost, high mobility rate of knowledge workers within and across countries, and spread of market economies around the world has made firms not to concentrate their activities within a limited spatial area. This spatial dispersion also increases as the firms shift their strategic perspective from a stand-alone posture to one that acknowledges that to compete effectively in their final product markets they need to cooperate with other firms in the intermediate product market. In the last three decades or so, the created assets, accumulated as the results of firm's past investments, have become increasingly knowledge-based and mobile around the globe. They now form the basis for larger part of international direct investment and cross-border strategic alliances. Larger part of FDI is of intangible asset-seeking nature. The newly found mobility has improved, in high economic regions, the terms of trade of intangible assets at the expense of those which are location bound. As a rising proportion of world economic output relies on knowledge-intensive inputs and as the knowledge-intensity of these inputs itself increases as a result of technological advances, established economic regions face adjustment costs as spatially mobile assets seek their most profitable locations elsewhere.

At the same time, the mobility of knowledge-intensive assets has potentially improved the demand for the immobile factors in low cost regions if created assets can be attracted to the region. Economic policy in high cost industrialized regions can be seen as recognizing and reacting to this shift in terms of intellectual and financial assets. The new spatial mobility of created intangible assets comes at the same time as the break down of traditional national competitiveness in the technologically moderate industries of developed countries, so that there will be geographic reallocation of resources within countries as well internationally. In other words, global knowledge economy is leading a dispersion of knowledge-intensive production between and within countries; and convergence in cross-border economic activities. Greater the degree of knowledge intensity of a particular activity, the easier it is for workers to migrate across regions and countries; and the lower the distance related cost, the easier it is for com-

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panies to spatially disperse. This trend is creating a dichotomy between geo-economic regimes such as EC and NAFTA and the emerging borderless global knowledge economy. How this spatial dispersion in economic activities and regional integration will affect the clustering of industry specific units has become an important issue. What new tools and theoretical models have been developed to understand the fundamental realignment in the spatial

distribution of knowledge-based economic activities forms the basis of next section.

Section III

The Knowledge Production Function and its Spillovers

Zvi Griliches (1979) formalized the model of production function, which is most prevalent in the literature of technological change, sets forth that firms exist exogenously and then engage in the pursuit of new economic knowledge as an input into the process of generating innovative activity. The most decisive input in the knowledge production function is new economic knowledge. Knowledge as an input in a production function is inherently different from the more traditional inputs of labor, capital and land. While the economic value of the traditional inputs is relatively certain, knowledge is intrinsically uncertain and its potential value is asymmetric across economic agents. The most important, although not the only source new knowledge, is considered to be research and development (R&D). Other key factors generating new economic knowledge include a high degree of human capital, a skilled labor force, and a high presence of scientist and engineers.

There is considerable empirical evidence supporting the model of the knowledge production function. This empirical link between knowledge inputs and innovative output apparently becomes increasingly aggregated. For example, at the unit of observation of countries; the relationship between R&D and patents is very strong. The most innovative countries, such as U.S., Japan and Germany, also tend to undertake high investments in R&D. By contrast, little patent activity is associated with the developing countries, which have very low R&D expenditures. Similarly the

links between R&D and innovative output, measured in terms of either patents or new product innovations is also very strong when the unit of observation is the industry. The most innovative industries, such as computers, instruments, and pharmaceuticals tend to be the most R&D intensive. Audertsch (1995) finds a simple correlation coefficient of 0.74 between R&D inputs and innovation output at the level of four-digit standard industrial classification (SIC) industries. However, when the knowledge production function is tested for the unit of observation of the firm, the link between knowledge inputs and innovative output becomes either tenuous and weakly positive in some studies and even non-existent or negative in others. The model of the knowledge production function becomes particularly weak when small firms are included in the sample. This is not surprising, since formal R&D is concentrated among the largest corporations, but a series of studies (Acs and Audretschi 1990) has clearly documented that small firms account for a disproportionate share of new product innovations given their low R&D expenditure.

The breakdown of the knowledge production function at the level of the firm raises the question that where do innovative firms with little or no R&D get the knowledge inputs? The question becomes particularly relevant for small and new firms that undertake little R&D themselves, yet contribute considerable innovative activities in newly emerging industries such as biotechnology and computer software (Audretschi 1995). One answer that has recently emerged in the economic literature is the third-party firms or research institutions affiliated with the universities. Economic knowledge may spillover from the highly specialized firm focused only on R&D or the research laboratory of a university (Baptista 1997). Two major channels for knowledge spillover have been identified. Both of these spillover mechanisms revolve around the issue of appropriability of new knowledge. Cohen and Levinthal (1989) suggests that firms develop the capacity to adopt new technology and ideas developed in other firms and are therefore able to appropriate some of the returns accruing to investments in new knowledge made externally.

Taking a different perspective, Audretschi (1995) proposes shifting the unit of observation away from exogenously assumed firms to individuals, such as scientist, engineers, or other knowledge workers- agents with endowments of new economic knowledge. When the focus is shifted away from the firm to individual as the relevant unit of the observation, then the question becomes how can economic agents with a given endowment of new knowledge best appropriate the returns from that knowledge? It is when the scientist and engineers can pursue the new idea within the orga-

nizational structure of the firm developing the new knowledge and appropriate roughly the expected value of that knowledge, he has no reason to leave. On the other hand, if he places a greater value on his ideas than do the decision-making bureaucracy of the incumbent firm, he may choose to start a new firm to appropriate the value of his knowledge. Thus, in this spillover, the knowledge production function is actually reversed. The knowledge is exogenous and embodied in a worker. The firm is created endogenously in the worker's effort to appropriate the value of his knowledge through innovative activity.

The reversed model of knowledge production function where knowledge is exogenous and embodied in the individual, not the company, makes the case for spatial dispersion. Exogenous nature of knowledge makes it inherently different from the more traditional inputs of labor, capital and land. Economic value of knowledge is intrinsically uncertain and its potential values vary across economic agents. Also, knowledge is embodied in the individual who's interest in the spatial dispersion can be very different from the decision of a firm. Thus, the national competitiveness lies in its capacity to attract knowledge embodied in the individuals. In other words, attracting brains becomes the new parameter in the national competitive advantage that is more global than the spatial confine. Next section discusses the diminishing importance of location in the era of slippery slope of knowledge.

Section IV

The Diminishing Importance of Location: Slippery Slope of Knowledge Economy³

Adding to the reverse model of knowledge production function, there are many other theoretical innovations to comprehend the growing dichotomy between spatial concerns and the knowledge concerns. Krugman (1991) and others have argued that knowledge externalities are so important and forceful that there is no compelling reason for geographic boundary to limit the spatial extent of the knowledge⁴. Also, the increasing mobility of firm-specific assets and the growing complementarity between different kinds of technology has fostered diversity of economic activity, often with beneficial consequences for inventory output. Castells and Henderson (1987) argue that the logic and dynamics of territorial development are increasingly place-less. The Economist proclaimed

3 Ann Markusen (1996) has referred it as the paradox of 'sticky places within slippery space'.

4 The others include, Castells and Henderson (1987) argues that the logic and dynamics of territorial development are increasingly placeless; O' Brien (1992); talked about the end of geography; and Ohmae (1995) declared the end of the nation state.

'The Death of Distance'⁵ by arguing that geographic location is important to the process linking knowledge spillovers to innovative activity in a world of e-mail, fax machines, and cyberspace may seem surprising and paradoxical.

In this context, a distinction has been suggested between knowledge and information. Information such as price of commodity or value of a currency can be easily codified and has a singular meaning and interpretation. By contrast, knowledge is vague, difficult to codify, and often only serendipitously recognized. While the marginal cost of transmitting information across geographic space has been rendered invariant by the telecommunication revolution, the marginal cost of transmitting knowledge, and especially tacit knowledge, rises with distance. Von Hippel (1994) shows that high-context, uncertain knowledge, or what he terms 'sticky knowledge', is best transmitted via face-to-face interaction. Kenneth Arrow (1962) pointed out long ago that tacit knowledge is inherently non-rival in nature.

However, it is understood that tacit knowledge needs face-to-face interaction but vastly increased mobility of researchers, engineers and scientists can provide face-to-face meeting of minds across continents. Universities and other research labs are no more national. This mobility of knowledge holders refutes the claim that even tacit knowledge can confine in the spatial area. Thus, the original Marshallian reasons⁶ for clustering doesn't hold much relevance, however, as noted by Giersch (1996) variety of 'soft locational factors and access to knowledge and learning capabilities still hold a chance⁷. In the era of highly mobile knowledge individuals, knowledge clusters doesn't have long-term sustainability

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5 'The Death of Distance', The Economist, 30 September 1995.

6 The important Marshallian reasons for clustering are: the access to a pool of flexible skilled labor, common support services and availability of non-tradable specialized inputs, the capturing of information spillovers, a more competitive and/or entrepreneurial environment, and a common set of shared values and ideologies.

7 Giersch explains that as the economic variables affecting production cost in different countries converge, so the non-economic variables affecting transaction costs become more significant determinants of locational competition. Such variables include the ethics of property and contracts, attitude to technical progress, modes of corporate and individual behavior, economic and civic morality, and cultural assets.

as they can be easily out competed by rival clusters. For example, software cluster in the South Indian city Bangalore (recently changed to Bengaluru) has many other clusters to rival. Thus, knowledge clusters lack stickiness to a location. Next section provides empirical confirmation to the fact that in the slippery slop of knowledge, recent rise in the geo-economic regimes may not improve national or say regional competitiveness.

Section V

Geo-Economics vs. Knowledge Economics: NAFTA and EC in the Comparative Perspective

The efforts to quantify linkages between geo-economic regimes and the development of knowledge economy may not deliver the intended results. However, the nature and distribution of investment capital flows, both domestic and foreign can reveal the concentration of investment in the specific sectors. Also, sectoral preferences indicated by capital markets can outline the true extent of knowledge-based economy. John Dunning (1993) points out that literature dealing with the issue of foreign investment has identified four major strategies motivating foreign direct investment (FDI): 1) market-seeking, 2) resource-seeking, 3) efficiency-seeking, and, 4) strategic asset seeking. Among these strategies our interest is with the strategic asset seeking FDI, which moves to obtain access to particular knowledge assets.

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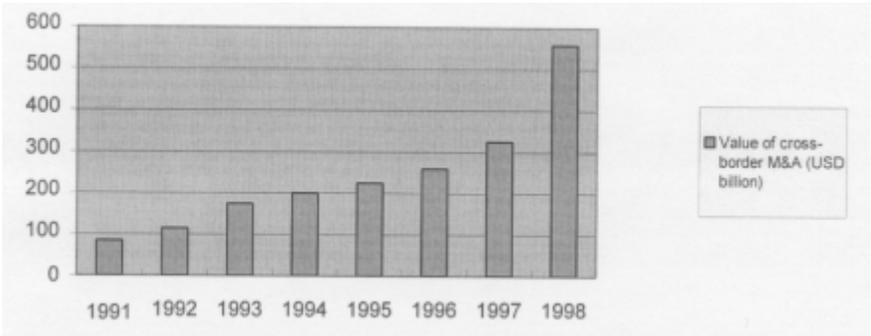


The differing level of development in the knowledge economy of EC and NAFTA can be gazed by taking note of FDI flows related to the strategic asset-seeking scheme. The flow of FDI in EC has been more towards seeking the market access due to potentially large integrated market than to enhance strategic knowledge assets in the region. The flow of FDI in NAFTA, particularly in USA suggests a strong inclination towards acquiring strategic assets to improve firm's competitiveness. Moreover, the nature of FDI has changed as well.

The 1990s have seen the shift towards mergers and acquisitions (M&As) and away from the Greenfield investments, and account for more than 85 percent of total FDI. Between 1991-1998, the value of cross border M&As in North

America grew more than six-fold, from \$ 85 billion dollars to \$558 billion dollars. Over the 1991-1998 period, North America accounted 30 per cent of global inward cross-border M&As. The top five countries in this regard are the United States (27%), the United Kingdom (14%), Germany (5%), France (5%), and Canada (4%) (OECD 2000). M&A activities show that foreign firms moved heavily in the US to acquire intangible created assets, whereas in the EC region the basic direction of FDI and M&As has been limited to the market-seeking activities. Figure: 1 shows cross-border mergers and acquisitions during the period of 1991-98.

Figure 1: Cross-border mergers and acquisitions, 1991-98



Source: Kang and Johnson (2000).

Table 1 shows that trend emerged in the 1990s continued in the 2000s, cross-border M&As in North America and European Community witness substantial increase however EC M&As suggest geoeconomic focus with Eastward expansion of regional economic bloc, whereas in North America M&A wave concentrated on acquiring intangible assets.

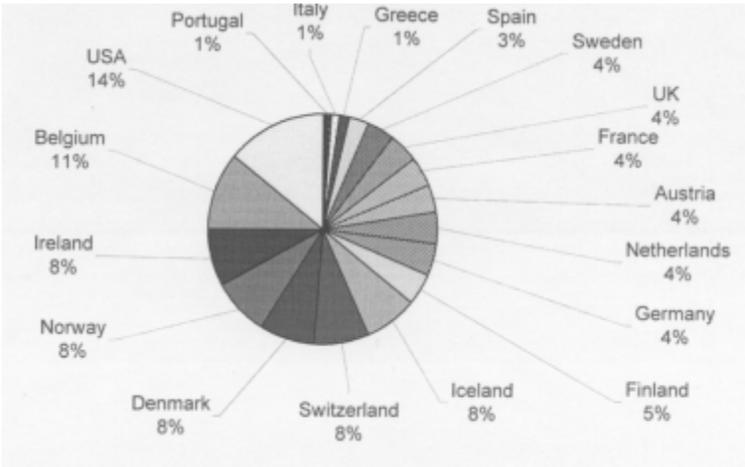
Table 1: Value of Cross-border M&As in NAFTA and European Community / (Millions of Dollars)

Regions	2001	2002	2003	2004	2005	2006	2007
European Community	381250	246501	159462	219397	477530	509018	847882
North America	191902	127214	130948	198899	201949	262265	448386

Source: UNCTAD, various years
 Note: * first-half of 2008

Capital markets and the venture funds have shown strong leaning towards knowledge-centered stocks and Initial Public Offerings (IPOs) around the world. Venture capital markets are both a driver and an outcome of the development of knowledge-based economies. However, venture capital tied to the innovative ideas in the US market was substantially larger than EC. It has fuelled the development of knowledge-based Internet and biotechnology industries in the United States. In 1999, IT related companies attracted more than two-third of total US venture capital funds. US venture capital market, estimated more than \$ 48 billion dollar in 1999, up from only \$18 billion dollars in 1998 is by far highest in the OECD area. However, venture capital markets have expanded rapidly in the United Kingdom, and to a lesser extent in some other European countries but seen in the comparative perspective US venture capital exceeds rest of the EC by a wide margin. This strong venture capital inclination towards innovative ideas comes from US willingness to attract global knowledge. Whereas in EC, much more emphasis was given to geo-economic dimensions than the global outlook in attracting the intangible created assets. Figure: 2 shows much higher share of US venture capital invested in high-technology sector than the rest of the European countries.

Figure 2: Average share of venture capital invested in high-technology sectors, 1995-98



Source: Science, Technology and Industry Outlook, OECD, 2000.

The data shown about FDI, venture capital and M&A in the regions of EC and NAFTA indicates that in all cases NAFTA's capability to attract capital seeking intangible assets exceeds EC by a wide margin. This gap between these crucial indicators confirms our basic argument of this paper that region-centric EC couldn't match its performance with the globe-centric NAFTA. This empirical confirmation leads to a rethinking about over-emphasis in the geo-economic regimes. Table: 2 shows the cross-border ownership of inventions between NAFTA countries and EC countries.

Table 2: Cross Table-Border Ownership of Inventions / Percentages

	Foreign ownership of domestic inventions [1]	Domestic ownership of foreign inventions [2]
	1993-95	1993-95
Canada	23,5	16,9
Mexico	48	10,4
United States	5	8,8
European Union	6,5	3,5

[1] Share of patent applications to the European Patent Office owned by foreign residents in total patents invented domestically.

[2] Share of patents applications to the European Patent Office invented abroad in total patents owned by country residents.

Source: OECD, based on the data from the European Patent Office

Section VI Policy Implications

Analysis in this study indicates to the vital policy lessons, particularly in the era of inward-looking, close-ended regionalization projects. The findings of the study suggests that 'spatial confinement' on national/regional basis may have positive impact in creating the 'economies of scale' in an industrial economy, however for a post-industrial economy where knowledge has acquired center stage in the wealth creating mechanism, national competitiveness increasingly lies in the 'ideas of scale'.

The policies aimed at incubating ideas require free flow of knowledge at the global scale, means fewer restrictions on the movement of knowledge carriers such as researchers, researches and research institutes. Therefore, policy aimed at deeper rethinking regarding regional economic blocs is needed as global knowledge economy knows no boundaries. Recent wave of bilateral/multilateral FTAs may prove to be counter productive and finally pose a threat to the global free trade regime

In the short/ or medium-term, nations/regions may see positive impact on their competitiveness due to increasing 'economy of scale', however in the long-term with knowledge at the center stage in wealth creation mechanism, governments can see eroded competitiveness. Based on the findings of this study, developing economies should make policies capable of moving them beyond the 'geo-economic traps', such as regional FTAs, and initiate new policies that can enhance globally-open knowledge economy regime based on free flow of information/ideas/ and knowledge. Boosting national competitiveness in the era of borderless global knowledge economy is fundamentally different than during the industrial era where 'economies of scale' mattered the most. Therefore, innovative policies promoting production, transfer and management of knowledge are required.

Section VII

Conclusion

This study confirms that the differing levels of competitiveness in the knowledge economies of EC and NAFTA are linked with the growing dichotomy between geo-economic regimes and borderless global knowledge economy. The comparative case surveys of EC and NAFTA indicate that geo-economics may bring the 'economies of scale' but in the era of intellectual capitalism 'ideas of scale' defines the basic parameters of national and regional competi-

This study confirms that the differing levels of competitiveness in the knowledge economies of EC and NAFTA are linked with the growing dichotomy between geo-economic regimes and borderless global knowl-

...*edge economy.*

...tiveness. Geography-bound approach can lock nations and firms alike in the inherent regional weaknesses. It distorts incentives for the firms and individuals to take opportunity globally.

Given the exogenous nature of knowledge, it may be counter productive to pursue policies of 'spatial confinement'. The politics of spatial confining of knowledge goes against the very nature of knowledge creation and invites the possibility of danger-

ous 'knowledge eclipse'. The recent European Commission report on the competitiveness remarks that EC has lost substantially to the US in the post war period, and its living standard is way behind US. This acknowledgment is in line with the hypothesis of this paper, which argues a rethinking of over-stressed 'region-centric' approach taken by EC. Ignoring globe in favor of nation

or region can have substantial economic costs. 'Globe-centric' approach, taken by USA and NAFTA, offers the empirical validation to the argument that knowledge economy by nature requires no boundaries, either of nation or region. 

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