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ENTREPRENEURIAL CATCH UP AND NEW INDUSTRIAL COMPETENCE BLOC FORMATION IN THE BALTIC SEA REGION¹

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Abstract

Historically, the Baltic Sea Region (BSR) has been an institutionally homogeneous economy, integrated economically and culturally through the sea lanes of the Baltic. After WWII the BSR was broken up into a dual economy, consisting of a poor Soviet block of centrally planned economies, on the one hand, and the industrially advanced BSR economies Finland, Denmark, Germany and Sweden, on the other.

1990 saw the break up of the soviet political system. The liberated, but poor formerly planned economies were left to restore their institutions on their own to that of a market organization. 60 years of Soviet isolation had left the formerly planned BSR economies in an industrially backward state. Critical market functions did not exist, and corrupt institutions made normal business life impossible. *Catch up with Western industrial economies therefore became a policy priority.*

During the 1970s also Western economies introduced elements of central planning in their industrial policy repertoires on the belief that it would improve economic performance. Policies to support “plans” by definition meant restrictions on entrepreneurial activity. By the Soviet break up, however, stagnation had also brought the need for entrepreneurship onto the policy agenda of Western nations. Obstacles to economic progress were gradually being dismantled.

These shifts in policy attention in turn relate to the current discussion about globally increasing inequality. Are the economies of the world economy converging onto the same national standards of living, as was believed not long ago, or diverging. The industrial dynamics of the BSR pits those two hypotheses against each other.

Will the previously centrally planned soviet economies of the BSR catch up with the living standards of the more market governed Western economies, or lag further behind? Perhaps some “mixed” Western economies with large and rigid public production of welfare services have got stuck with problems similar to those of the formerly planned economies? Do some formerly planned economies that have taken on a strong pro market policy agenda exhibit a

superior catch up record to those that have not? The contrasting policy experiences among the BSR economies allow us to compare the catch up records in terms of policies chosen.

The formerly planned Baltic economies, excepting Russia, were institutionally and industrially roughly on par with Denmark, Finland and Sweden before the Soviet occupation. The industrial backwardness of the formerly planned economies at the time they were liberated was therefore due to constraints on entrepreneurial initiatives, once imposed by the Soviet Union. So by definition there is a policy task of some magnitude to undo that heritage.

More precisely asked, central planning in the formerly planned economies stifled entrepreneurial activities. Can the obstacles to catch-up in the transition economies through an entrepreneurially moved reallocation of resources then be overcome through centrally directed policy? If not, which is a key question of this paper, how can the diverse information and knowledge embodied in the agents of markets be mobilized for that task? Who knows best, the central policy maker, supported by his economic advisors, or the collective knowledge of all economic actors as intermediated through dynamically competitive product and factor markets.

The historic developments in the BSR have therefore accidentally staged a unique *economic policy experiment that allows us to distinguish between the relative roles in economic progress of improvements in local entrepreneurial environments (a policy task) and of individual entrepreneurial action.*

In carrying out that analysis we draw on the detailed statistical analysis in Braunerhjelm & Eliasson (2011). The Swedish evolutionary micro firm to macro model has provided a theoretical structure, both to support our reasoning on the catch-up dynamics, and to provide quantitative evidence for the empirical evaluation.

Empirical research suggests that growth through entrepreneurial new firm formation is a slow process that may however suddenly and unexpectedly gain momentum. The import of new technology is the fast way to catch up. Both forms of innovation and entrepreneurship, however, benefit from the same positive entrepreneurial climate.

On this we found that successful catch up among the formerly planned BSR economies still has a long way to go, and that political impatience in waiting for the dividends of economic liberalization to become available may have been destructive. *Policy focus should therefore be set on the local entrepreneurial environments* which are in great need of continued improvements to support both new firm formation for long run development, and to induce immediate FDI for the short term. More flexible labor markets will be required to support continued reallocation of resources from inefficient “soviet” installations to productive businesses of western quality. Significant remaining obstacles to trade and ownership transactions across BSR internal borders will have to be removed, so *success in catch up should be expected to differ significantly among the BSR countries.*

We therefore propose a *policy competition* among those countries *in improving their entrepreneurial environments* to beat each other in catch-up performance. This policy competition is best enacted individually, without any delaying cooperation among the competing economies and, if individually enacted in a competitive spirit, will benefit both the winners and the entire BSR economy.

Keywords: Central planning, Commercialization competence, Competence bloc, Dual economy, Entrepreneurship, Experimentally Organized Economy (EOE), Foreign Direct Investment (FDI), Policy experiments

JEL: L16,L52,M13, N2,N4, O5, P21, P51

1. Catch-up with wealthy neighbors through entrepreneurship

The role of entrepreneurs in closing the still significant gaps in per capita incomes between the rich industrialized, and the poor and formerly planned Soviet economies in the Baltic Sea Region (BSR) is the main theme of this analysis.

To catch up on what was lost in economic performance and economic wellbeing during 50 years of Soviet isolation and central planning, some form of entrepreneurship is needed by definition. Catch up, however, is not a matter of more investment and more labor input of the same as before. *Catch up by definition has to take place through innovative entrepreneurial action that takes business firms up their value chains.*

This problem in turn relates to the current discussion about globally increasing inequality. Are the economies of the world economy converging onto the same national standards of living, as was believed not long ago (Dollar & Wolf 1988), or diverging (Pritchett 1997, Eliasson 2007, Braunerhjelm 2008, Ballot & Taymaz 2012). The industrial dynamics of the BSR pits those two hypotheses against each other.

Catch up to western industrial performance standards of the formerly planned economies is one thing, but it will be a tougher race for those economies if their industrially wealthy neighbors have also been moving ahead on an entrepreneurial wave of their own. And how should innovative entrepreneurship occur in economic environments that lacked both the requisite technical, management, marketing and other commercial competences, and the critical supporting institutions (Eliasson 1993a, Eliasson, Rybczynski & Wihlborg 1994). To understand that we have to distinguish between change in the environment in which the entrepreneurs operate, on the one hand, and the entrepreneurial capabilities of the individuals, on the other. The twenty year period that has now passed between the collapse of the Soviet Union around 1990 and now should be sufficient to exhibit, if there are any, differences in entrepreneurial capabilities between the economies of the

larger BSR economy, if not in the form of hard statistical data, at least through softer verbal evidence.

Economic growth has to be based on particular kinds of industrial knowhow, and takes place in entrepreneurial environments rich in supporting infrastructure, both in scarce supply, or not existing, in the formerly planned economies. *Lack of statistically significant catch up, notably in recent years, might therefore be interpreted as failure on the entrepreneurial agenda.*

The formerly planned BSR states have tried different approaches, and experienced different difficulties of unloading their Soviet heritage. Some, for instance Estonia, have reduced corruption from the extreme state prevailing in the Soviet Union at the time of break up, to the extent that they now rank almost on par with the modern Western economies, while Russia remains where it was in 1990 according to the Transparency International corruption perception index. Similarly, during the same period, the advanced BSR economies have more or less unloaded the socialistic elements of their welfare experiments. Hence, the BSR setting offers *a unique opportunity to study the macroeconomic outcomes of several comparable national economic policy experiments*. To that end we distinguish between four forms of entrepreneurship:

1. New business establishment,
2. Improved entrepreneurial environments through policy,
3. Recombination of incumbent actors over private equity markets, and
4. FDI contributions and lay offs to restore entrepreneurial life in old Soviet business colossuses

On FDI based catch up we distinguish between:

- a) local companies that buy into western firms to complement or upgrade their technology portfolios, and
- b) western firms that invest in catch up countries, either through greenfield investments, or through the acquisition of incumbent firms.

We expect b) to be typical of FDI directed to the formerly planned economies, notably to exploit their low wages, while a) is a common feature of the exchange of FDI between the industrialized western economies.

We compare policies in the different countries of the BSR economies and relate them to levels of catch up. Special attention is paid to the role of environmental improvement and FDI.

Since the current industrial backwaters of the formerly planned economies are altogether the result of almost five decades of Soviet policies, there is finally the ambition to say something on what can be done to improve the situation through policy. We therefore conclude with proposing an environmental improvement policy competition between the BSR economies.

2. Large income gaps define both opportunities and social problems

The BSR economies, as we define them, have about 90 million inhabitants and cover an area roughly the size of 3.5 million square kilometers, or somewhat more than one third of the area of the US. If the Baltic Sea could be regarded as an inland sea that ties the Baltic states together, which has some economic and historic merits to it, the geographical area becomes enormous. The BSR includes, on the one hand, the formerly planned economies of Estonia, Lithuania, Latvia and Poland, the coastal region of St Petersburg and Kaliningrad (formerly Königsberg) with together some 60 million inhabitants, with very low per capita incomes. On the other side we find the wealthy industrial economies of Finland, Northern Germany, Denmark, Norway and Sweden, together with a population of some 30 million, and significantly higher per capita incomes. Such differences define a great industrial potential should the economies be opened up for spontaneous market directed specialization, provided the associated reallocation of resources can be institutionally and politically accommodated. (These potentially important economic benefits so far seem to remain relatively unexploited, despite a global trend towards more vertical specialization).

(From the point of view of our analysis, the interesting region to study would also include a significant part of the upstream river economies of Russia and (above all) Germany, which could today, as in the past, be integrated through trade across the Baltic, i.e. if the needed physical infrastructure (for instance harbor facilities) could be mobilized through governmental initiatives and entrepreneurship).

Some studies (eg Eliasson 2000a, Partanen 1998) also see a trade potential in the wider “Northern Dimension” that includes also North West Russia, a political concept introduced in the late 1990s by the Finnish Government.

We will find access to a common and growing BSR market for specialized subcontractor services to be especially important for long run growth in the entire BSR, and for the catch up of the formerly planned economies in particular. The corresponding reallocation potential would however only be realized if the still remaining significant obstacles to across border trade in the formerly planned Baltic economies be first removed.

3. Theory and Hypothesis Formulation²

Entrepreneurship is key to successful catch-up, but an elusive phenomenon that has been difficult to integrate in economic theory and econometric analysis. By definition the entrepreneur cannot be determined *ex ante*, but (as argued in the Supplement), the entrepreneurial output can be *measured ex post*. So entrepreneurial catch up will have to be experimental in nature, both as such, and as a consequence of policy. Thus mistakes will occur both at the micro business and the macro policy levels. To understand the reasons for observed varied rates of success in catch up among the formerly planned BSR economies *the analysis has to be taken down to the micro market level*. This will also take us out of the neoclassical model into an Austrian/Schumpeterian economic world, or as we prefer to call it, into an *experimentally organized*

² This is a methodologically oriented paper. The empirical material supporting our conclusions is found in Braunerhjelm & Eliasson (2011)

economy (EOE), the dynamics of which is moved by the elusive entrepreneurs (Eliasson 1991a,2009a).

We make a special point of departing from the mainstream linear Schumpeterian, or national innovation systems approach, and, as well from the neoclassical macro model, in favor of a non linear Schumpeterian/Austrian growth theory embodied in a micro based EOE in which commercialization agents intermediate the transformation of new technologies into growth. *Lacking this resource demanding commercialization competencies the growth outcome of new technology may fail to materialize altogether* (Eliasson 2003a).

The neglected entrepreneur of economic theory

The phenomenon of the entrepreneur was neglected by economists throughout most of the post WWII period, until the crisis years of the 1970s forced an awareness on a reluctant economics profession, that entrepreneurs and new firms might be needed to sustain economic growth. A renaissance of Joseph Schumpeter's ideas followed. But this took well into the 1980s³.

The impossibility of integrating a meaningfully defined entrepreneur in the received static general equilibrium model probably explains the disinterest of the mainstream teaching profession. A discussion of the reasons would, however, be quite technical and direct attention away from the main theme of this paper. It is sufficient to note that this problem still remains⁴.

The theory of the EOE, that we propose as an alternative, features endogenous growth through two dynamic modules; Schumpeterian (1942) creative destruction through the four stylized investment mechanisms of Table 1, that moves the economy through innovative entry and competitive selection, and the competence bloc of Table 2, which defines the technical, commercial and

³ Day & Eliasson (1986) is a collection of papers from a conference in Stockholm 1983 aimed at reviving interest in Schumpeterian economics. An earlier conference in 1979 published in Swedish, Dahmen & Eliasson (1980) had the same ambition

⁴ On this, see Supplement and Eliasson (2009a).

institutional environment supporting the entrepreneurial functions that govern market behavior and determine the dynamic efficiency of that selection and, hence, also macro economic growth.

Catch-up for a national economy requires some form of entrepreneurship, either by incumbent actors or through entrepreneurial competence imports (FDI). To begin with we therefore have to recognize three analytical categories needed to address entrepreneurship in this macro economic context (Eliasson 2005a:37):

1. The entrepreneurial *behavior* of individuals and businesses
2. The *environment* in which these entrepreneurs operate, and its supporting institutions, and
3. Growth or welfare outcomes (the result)

Institutions regulate incentives and competition in markets. For each individual actor these institutions, and all other actors together define its business or commercial environment. Entrepreneurship per se carries little interest if not related to some “welfare” outcomes. So we make catch up a politically desired policy objective.

Growth through Schumpeterian creative destruction- How to go from micro cases to macro across markets

The model of Schumpeterian Creative Destruction stylized in Table 1 endogenizes growth through entrepreneurial entry. Entry puts competitive pressure on incumbent actors and forces them to reorganize, rationalize or out. Experimental selection of actors occurs. This is the principal endogenous growth mechanism of the empirically implemented evolutionary micro to macro growth model of the Swedish economy that we will refer for quantitative support in our final conclusions. Competitive destruction may be faster and more forceful than new business creation, because of, for instance, weak commercializing conditions (Eliasson 2009a).

Table 1 features entrepreneurial entry, business reorganization and rationalization of incumbent production organizations, and exit (death) of

failing businesses as the four micro categories of change in the EOE. Each category is represented by at least one module that interacts through markets with all other modules in the Swedish micro (firm) to macro model. This model is a complete micro (firm) based evolutionary macro model featuring endogenous GNP growth through endogenous entrepreneurial based competition and structural change. The model has all the characteristics of the static so called new growth models of for instance Aghion & Howitt 1992 and Pakes & Ericsson 1998, except that its highly non linear structure prevents an external equilibrium from being established. The ongoing dynamics never ceases⁵. This model has been implemented on a Swedish firm based national accounts database and calibrated on Swedish data. Simulation experiments on this model will be referred to in support of the analysis to follow.

The entrepreneurship which drives the transformation process occurs at two principally different levels; through *new firm formation* (Item 1) and through the *innovative reorganization* of incumbent firms (Item 2). Each form requires different entrepreneurial capabilities and supporting environments, most of which are not available in the formerly planned economies. Available evidence also suggests that new firm formation takes a very long time to show statistically at the macro level (Braunerhjelm 2008, 2011), a conclusion that is supported by simulation experiments on the micro to macro model referred to above. After some time, however, new entry may have developed critically needed diversity and mass and the growth process gains cumulative momentum (Eliasson & Taymaz 2000, Eliasson, Johansson & Taymaz 2005). In the long run, furthermore, aggregate growth is dominated by a small number of successful and fast growing firms. Jagren (1988) calculated that it took on average 25 years for those Swedish firms that succeeded in growing big ("the

⁵ Table 1 presents the taxonomy of endogenous growth in the Swedish micro to macro model. Endogenous entry sets the model economy in growth motion through competition, by forcing less productive incumbent firms to raise performance through reorganization or rationalization, or, if unsuccessful, to die (exit). Since entrepreneurial entry is endogenous (Eliasson 1991b, Eliasson, Johansson & Taymaz 2005: 333ff, Taymaz 1991), this means that loading the model with the casedata that we discuss, the macro economic growth consequences for the model economy can be calculated, conditional on the empirical micro macro structure of Swedish industry, and calibrated coefficients governing the market dynamics of endogenous growth processes (Eliasson 1977, 1978, 1991a, Eliasson, Johansson & Taymaz 2004, 2005, Eliasson & Taymaz 2000).

winners”) to reach the size of one thousand employees. Both new entry and innovative reorganization of incumbent firms exert competitive pressure on other incumbent firms, forcing them to *rationalize* their ways (Item 3) and push some towards *exit* (Item 4).⁶

Reorganization under Item 2 has to be broadly defined. It occurs both spontaneously within incumbent firms as an endogenous intrapreneurial phenomenon, through the development and launching of new products, through reorganization internally, or over the markets for M&As, and as an enforced consequence of new firm competitive entry. Reorganization cannot occur in a vacuum, but requires the presence of markets for specialized subcontractors and financial services that were entirely absent in the formerly planned economies. A large firm finding itself under new competitive pressure may need to add new competences to its knowledge portfolio through strategic acquisitions in the market for mergers and acquisitions (Eliasson & Eliasson 2005) and be prepared to divest itself of non core activities (Norbäck & Persson 2009).

Firms unable to improve their ways may survive at least temporarily through cost *rationalization* (Item 3), which is the last stage before failure and *exit* (Death, Item 4). The final death process is critical for successfully transforming an economy that has piled up structures of inefficient production facilities, compared to what is currently standard just across a nearby border⁷.

Exit is the destructive part of creative destruction and releases resources for superior and growing actors. Business death is therefore as important a part of the growth process as the other three items in the table. Holding back exit for

⁶ Also see Andersson et al 2011 who show that entry still affects productivity among incumbents after several years, the delayed productivity effect, a dynamical systems effect that was “theoretically” demonstrated to exist, and be significant, in early simulation experiments on the Swedish micro to macro model (Eliasson 1978:52ff).

⁷ For illustration, simulation experiments on the referred to micro macro model estimated the opportunity cost to society of shutting down a failed investment in a large manufacturing plant to be negligible compared to continuing production in the inefficient and misallocated plant. Shutting down the plant and reallocating labor on more efficient jobs, on the other hand, was the by far most economical policy for society (Eliasson & Lindberg 1981).

social reasons, or preventing overstaffed firms from shedding labor are safe ways to reduce growth.

Competence Bloc Analysis and the (Commercial) Entrepreneurial Environment

A competence bloc lists the minimum number of different actors functionally defined⁸ with complementary competencies (Table 2) needed to create, identify, support, finance and take winning projects on to industrial scale production and distribution, either by way of new firm entry (Item 1 in Table 1) or through firm reorganization (Item 2), both being acts of innovation and entrepreneurship.

The customer plays a prominent role in competence bloc analysis. *In the long run no better products will be developed and put on the market than there are customers sufficiently competent to appreciate their qualities and willing to pay for them.* The customer is often directly involved in the product innovations process, and notably so in advanced military procurement. In general *customer competence enters as a characteristic of technology supply* (Eliasson 2011). Burenstam-Linder (1961) even made the advanced customers a comparative advantage of the rich industrial economies.

A competence bloc has to be *vertically complete* to be capable of creating, identifying and supporting winners all the way to industrial scale production and distribution. It is typical of an economy with incomplete commercialization competence (See Table 2) but with proficient technical innovators that foreign investors pick up the value potential of winning technologies cheaply (Eliasson 2003b, 2011). A particularly serious deficiency is the absence of industrially competent venture capitalists (Eliasson 2003b, 2005b), and that deficiency for obvious reasons was, and still is, a major problem in the formerly planned economies. But complete downstream commercialization support is needed for the technology potential to be indigenously exploited. Even so, being vertically complete is not sufficient. The competence bloc also has to be *horizontally*

⁸ The reader should observe that the competence bloc features stylized actors that are functionally defined. In reality, however, actors may integrate two or more functions. Innovation and entrepreneurship, for instance, may be integrated within one actor.

sufficiently varied to make the right matching of technology and commercialization competencies possible. Then *critical mass* has been reached, and the competence bloc has become an *attractor* of new business entrants. New entrants then face a highly competitive market environment and soon exit, if not up to competition. This defines a *spillover generator*, and endogenous growth has been achieved. Actors will be subjected to a maximum of competent and varied evaluation that minimizes the risk of losing winners, and losers are more effectively competed out of business. A conceivable winner can therefore confidently continue its search for resources. Ex ante all entrepreneurs of course will have to consider themselves winners. Why should they otherwise try? If an ex post winner, resources will be provided and the loss of winners (business mistakes) will be minimized. A competence bloc that has reached critical mass so defined will function as an endogenously developing *regional attractor* (Eliasson 2003a).

Allocations occur within hierarchies, or over markets. The latter requires the existence of efficient property rights protection to make trade in intangible technology assets possible, or the allocation process will come to a halt (Eliasson & Wihlborg 2003). In the competence bloc of Table 2 these transactions take place in the venture capital and private equity markets (Items 4 and 5). Competence bloc theory thus also provides a theory for determining the outer limits of the firm where market allocation becomes *dynamically* more efficient than internal hierarchical allocation by management (Eliasson & Eliasson 2005, 2009). Functioning markets for trade in intangible assets are not well developed in most of the industrial economies, and have a long way to go to be established in the formerly planned economies.

The explicit role of institutions in the EOE

Institutions may facilitate, ease or block market processes. Institutions regulate both the creative destruction process of Table 1, and the allocation dynamics of the competence bloc in Table 2. Incentives to enter the market, rules for leaving the market, and for firing people during a business reorganization are all part of the legal, cultural and contractual (read institutional) framework of an economy.

Inconsistent laws, corrupt practices and red tape makes business life unpredictable and risky and hinder entrepreneurship, as do labor market laws that slow reorganization of failing businesses. Institutions define, limit and influence the freedom to act in markets (Nyström 2008,2010). Particularly *important for comparing the formerly planned economies with the regulated welfare economies of the BSR is the degree of centralism imposed on the economy*. The functions of the competence bloc can be more or less internalized within one hierarchy, and the hierarchy can be extended to include an entire economy. *The degree of internalization of functions of the competence bloc within one national hierarchy therefore also determines the degree of centralization of the economy*. Furthermore, the market functions linking actors vertically and horizontally in the competence bloc can be more or less regulated. In simulation experiments on the Swedish micro to macro model Antonov & Trofinov (1983) imposed two forms of centralism on the actors of the model economy (Keynesian demand and neoclassical central planning directives) and compared with a completely free decisions process where firms could concoct any perception of its future based on its past experiences. In the long run the free market scenario came out on top in terms of macroeconomic growth because unhindered exploration of perceived opportunities meant that some firms came upon opportunities that had gone undiscovered in the policy constrained scenarios. Improved macro performance, however, came at the cost of a higher business failure rate. This is also the theoretical bottom-line of the Experimentally Organized Economy that the Swedish micro to macro model approximates (Eliasson 2009a).

So institutions certainly impact on the categories of both the creative destruction process, and the resource allocations across the competence bloc *by orienting incentives, directing competition and reducing (or raising) uncertainty and allowing an explicit role for the policy maker to influence the economy* (See further Eliasson 2005a:38,44ff,74ff). In our empirical analysis we can therefore link institutional characteristics of each BSR economy to the various functions of the EOE as represented in Tables 1 and 2, and so be able to say something on the consequences for macro behavior.

The balance between creation and destruction is hard to govern by policy

Achieving the right balance between creation and destruction also defines the optimal reallocation of resources that maximizes economic growth. This requires significant trade over markets in intangible assets that depends on well designed property rights protection and developed financial markets.

Theoretically we therefore conclude that a dynamically efficient and socially responsible catch-up policy among the formerly planned economies should be based on a systemic understanding of complex micro-macro processes, and an explicit recognition of the unavoidable worsening of the economic situation (“the crunch”), before statistically visible improvement sets in. A balanced combination of improvements of the entrepreneurial environment that will speed up new firm formation, SME growth and the rate of FDI inflows on the one hand side, and flexible labor market policies that make business absorb released labor, on the other, will both stabilize and raise economic growth. The complexity of the total restructuring of entire economies will, however, make it impossible to fine tune that machinery on a balanced growth path through policy. National economies socially capable of taking the immediate crunch in the labor market will probably exhibit optimal catch up performance.

The elusive entrepreneur only becomes visible ex-post, and after a long time

The entrepreneurship needed to move catch-up is an elusive phenomenon. It occurs at all levels, within firms and in markets. Entrepreneurship is by definition unpredictable ex-ante and therefore not plannable, and in principle therefore also beyond analytical understanding. Joseph Schumpeter (1911) used to talk about a “*Deus ex machina*”, or the “God in the machine” that unexpectedly emerged on the stage of the Greek dramas and disturbed the action there.

If this unexpected disturber is a winner (“Steve Jobs and his Iphone”), his/her success can be explained ex-post, and in principle ex-ante, if you know all the complex circumstances involved in the entrepreneurial decision. So, even if in principle predictable, there was only one player, the successful entrepreneur, who got it right, and dared to act. To observe this entrepreneur directly ex ante is impossible. Incumbent and disturbed players will have to wait until they have learned what the entrepreneur has done. Then they will all be scrambling to

their feet to imitate the success, dramatically reorganizing their businesses. The winners of the past may not be among the surviving winners.

We will therefore not attempt to identify the entrepreneurs in BSR catch-up by way of ex-ante indicators, but rather look for the visible economic consequences of entrepreneurial action that cannot be related to any measured factor input (See Supplement). We will also have something to say on the environment where such entrepreneurs thrive and operate.

This is, however, not without its problems. The production process is replete with intangible inputs that are not easily observed, but that may be, if sufficient effort is expended. Knowledge can be systematically accumulated through R&D, and R&D investment can be measured. Measured R&D in firms, however, is largely devoted to access (globally) available technology and integrate it with their own portfolios of technology assets (Eliasson 1991c). The R&D based innovation functions that are currently the basis for a whole branch of new growth theory models are therefore to some extent misspecified, since they imply the causality that new innovative technology is created by firm R&D (Braunerhjelm et al 2010, Eliasson 2000b,2003a,2009a). Even so, the fact that econometric analyses demonstrate very large “effects” from R&D based spillovers does not diminish the significance of such analysis. To draw conclusions on policy, however, it is necessary to know which way the causality runs. The magnitudes involved, however, seem to be large. This is made overwhelmingly clear in the more sophisticated versions of new growth theory, as distinct from the results of the previous empirical productivity literature (Eliasson 1989,1996:86ff,2010, Jones & Williams 1998,1999, Braunerhjelm 2008,2012, Braunerhjelm et al, 2010).

Our empirical method will now be implemented in four stages. What has occurred in the form of catch-up is *first* documented in the next Section 4, and the extent to which entrepreneurship has been involved in that catch-up, and of what kind, are established in section 5 (*second*) in terms of the theoretical categories of the EOE (Schumpeterian Creative Destruction in Table 1), using the ex-post neoclassical method explained further in the Supplement. In section 6 an explanation of the extent of entrepreneurial inputs in each BSR economy is (*third*) related to the environmental and commercializing categories

of the competence bloc in Table 2. Observed differences in the entrepreneurial environments of the different BSR economies are there related to the ex-post determined entrepreneurial inputs. Using the structure, and the estimated quantitative relationships of the “micro-macro model of the EOE” we then (*fourth*) conclude in section 7 by summarizing the results and proposing a policy agenda. So let us therefore take a look at the records.

4. Entrepreneurial catch-up takes time – The records

Contraction, and falling further behind occurred during the immediate post liberalization years after 1990, and the following recovery was slow. Even during the last five years, through 2008, a rapid catch up in per capita (PPP corrected) income levels, notably by Estonia, Latvia and Lithuania (See Figure 1), was followed by a particularly deep recession in the Baltic transition economies 2008/09, which ended in a further falling behind for most formerly planned economies for the whole period. When manufacturing productivity levels are compared not much seems to have been achieved (Cf Table 3). This, by definition, suggests that there has been something missing on the entrepreneurial side. In fact, the relative difference in average per capita income (adjusted for purchasing power) between the formerly planned economies and the rest of the Baltic economy has not diminished appreciably during the last decade. And during that period entrepreneurial inputs should have had the time to become statistically visible at the macro level.

True, the wealthy Baltic neighboring economies have outgrown both the EU and OECD economies as a whole, and significantly caught up with North America. This makes the catch-up comparison of the formerly planned economies a bit unfair but, on the other hand, the faster growing neighbors should have exercised an extra export demand pull on the formerly planned Baltic economies.

Growth in the more advanced Baltic economies, already integrated in the global economy through large export shares and successful large multinationals, was further accentuated by a strong business cycle that- with the exception of a few years after the millennium- lasted between the mid

1990s and 2008. That development coincided with an entrepreneurial wave, particularly in the Scandinavian countries. Even though the formerly planned Baltic countries more or less matched their wealthy neighbors in terms of new firms, they were much less integrated in the global economy.

We conclude that not much of macro economic catch up occurred during the first ten years of freedom of the formerly planned economies in the BSR. But neither did a significant closing of the income gap between the formerly planned economies and the other Baltic economies occur during the following ten years. It may in fact not have occurred at all during the twenty years of liberation that have passed so far⁹. However, and drawing on available evidence and simulation analogies, we have to recognize the possibility that twenty years may still be too short a period to allow for a cumulative build up from a broad based entrepreneurial activity at the micro level, that still remains statistically invisible.

5. What kind of entrepreneurship has moved the catch up dynamics of the formerly planned BSR economies?

The four different kinds of entrepreneurship listed above can now be related to the categories of the Schumpeterian Creative Destruction growth process in Table 1.

FDIs have supported growth in some BSR economies

Reorganization and upgrading of incumbent firms to Western *standards* of competition is one important instance of entrepreneurship that has so far not been possible without technical and management support from industrially more competent BSR neighbors. The upgrading of incumbent firms, through the massive shedding of redundant labor, and a dramatic exit of now inferior producers, furthermore, have not been a politically favored solution in all formerly planned economies. Without outside FDI support destruction rather

⁹ This is a brief statement of results from the more comprehensive empirical analysis in Braunerhjelm & Eliasson(2011).

than industrial creation would have followed from a sudden exposure to global competition, to paraphrase Joseph Schumpeter (1942). Significant net FDI has also arrived in some formerly planned BSR economies (Figure 2), even though the typical pattern seems to be a mutual exchange of FDI among the industrially advanced BSR economies. (Among the formerly planned economies, however, Estonia seems to have been favored by its closeness to Finland, and Poland to Germany.)

Entrepreneurial new entry

Growth through new firm establishment (Item 1 in Table 1) is the conventional manifestation of entrepreneurship. It is however a growth process of much longer duration than is the case when large firms are reorganized (Item 2) to compete in new environments on the basis of new technology and competence brought in, for instance through FDI. While the same entrepreneurial environments are conducive to both, the two require very different entrepreneurial and management competencies, that were all lacking in the formerly planned economies to begin with, and still more or less is.

Statistics do not indicate much of differences among the formerly planned BSR countries (Figure 3 A). Subcontracting arrangements, as we expected, however, seem to have mattered more for SME growth in the old than in the new EU member economies (Figure 3B).

Germany, however, sticks out by having considerably more self-employed, and with the highest educational level for both men and women. This tallies with Blanchflower's (2004) observation that the more educated one is, the more likely one also is to benefit from self-employment, and the more satisfied with one's professional role one is. For Germany and Sweden, Blanchflower(2004) notes, this satisfaction is, however, maximized with self-employment without employees. Poland has fewer self-employed with higher education compared to all other BSR economies, but is well represented in the middle education category. (Somewhat surprisingly, Finland and Iceland have the highest share in the least educated category among male self-employed, considerably more than Latvia and Lithuania.)

The advanced industrial economies of the BSR have their own problems, notably manifesting themselves in a limited capacity to accommodate structural change over the labor market. The New emerging Economy of the increasingly globalized world combine great new opportunities for entrepreneurship with competitive challenges. New industrial technology is however increasingly demanding of salaried employees to take entrepreneurial initiatives on the job. This is in contrast with the past when employees worked for a wage with job specifications laid down by the organisation they were working in, and the equipment they were operating (Eliasson 2006a). Today's software expert, on the other hand, working in a small consulting firm, or the R&D engineer on the staff of a large manufacturing firm, both have to largely define their own job, and are expected to take innovative initiatives. This was not a normal demand of a worker some 20 years ago. With a growing share of labor working in small companies, and/or in sophisticated service production, or on their own, education and an entrepreneurially friendly work environment will matter significantly for economic growth. On this Heckman (2002) singles out Germany as a particularly bad case because of the low incentives there to invest in the general human capital that promotes initiatives and flexibility on the job. This will make it difficult for the formerly high performing industries in Germany to graduate into the high performing industries of the future, he argues.¹⁰

6.Environmental differences among the BSR economies

In the formerly planned economies individual innovation and entrepreneurship were effectively suppressed in the interest of a politically orderly Soviet State. Revival of spontaneous entrepreneurial activity therefore not only required that lacking economic competence capital be supplied.

Growth through recombination and reorganization of firms through acquisitions, divestments and close downs for fast upgrading also required a permissive legal environment that did not exist in the formerly planned Baltic economies, and significant trade in technology assets over sophisticated

¹⁰ Eliasson (2009b) argues that a system of private citizen's accounts would help overcoming this underinvestment in human capital.

private equity markets, the latter being still entirely missing. The commercializing competences and other environmental prerequisites for that to occur were not in place.

The prime motives for establishing in the Baltic economy (through FDI, and acquisitions by firms, from other countries) unfortunately have been the capturing of a local market, and/or the exploitation of low wages¹¹, when the preferred action should have been an entrepreneurial build up of foreign and locally owned and operated businesses capable of catching up in technology and management prowess with Western competitors. The reasons have to be looked for in the entrepreneurial environments of the formerly planned economies, deficiencies that keep planning horizons short and promote exploitation of low wages. Here we can observe differences that relate to differences in catch-up.

Even though reliable privatization measures to safeguard investors' property were clearly missing during the first decade of liberalization, the formerly planned economies, excepting Russia, have now been significantly upgraded in that respect. Corruption has been significantly reduced in all formerly planned economies, except Russia. Estonia in particular, but also Latvia and Lithuania, now rank far ahead of distinguished EU members such as Greece and Italy (See Figures 4A, B). However, when it comes to ease of doing business, red tape and similar negative commercial circumstances, the formerly planned economies still rank low compared to their wealthy neighbors in the BSR (Table 4). We identify this as important negative circumstances in the entrepreneurial environments of these countries, and reasons for both the slow catch-up, and myopic compositions of investments. The elimination of such obstacles should therefore be a prime focus of political attention. Policy and institutions in the formerly planned economies have not been entirely welcoming neither to

¹¹ Of course, trade in technology assets and FDI cannot be clearly distinguished from one another, since FDI often also involves exchange of assets over markets. FDI, however, often takes the form of direct investments of one firm in another country within its own organization, often to exploit some comparative advantage in that country, such as low wages. Trade in technology assets in specialized markets, for instance strategic acquisitions, on the other hand, is a phenomenon that is primarily, and increasingly found in the wealthy industrial economies to complement an existing technology portfolio of the firm (Eliasson & Eliasson 2005).

foreign, nor to local entrepreneurship and investment, and especially so in Russia. Russia, however, has been able to thrive on its own, at least for the time being, because of large capital gains from oil and gas that have helped its economy from slipping further behind. But raw material capital gains are no entrepreneurial inputs, and no sustainable solution to long term growth and catch-up, and may also explain why Russia has done so little to clean up its market institutions. If the Russian people is interested in economic progress, and wants to see something done about it, it should be very concerned about its arbitrary legislation, bureaucratic red tape, corruptive practices and suspect political leadership.

Another related factor is the political reluctance in the formerly planned economies to manage the immediate negative social consequences of a massive shedding of redundant labor and business exits, all being needed for fast catch-up. All of the formerly planned economies make it difficult to close down businesses, and to lay off people. This is a social residue from the Soviet regime, where inferior economic performance and bankruptcy were unrecognized phenomena. Political impatience for immediate positive results, in addition, have disposed policy makers towards ineffective short-term measures. Here, however, important differences can be observed between the different Baltic economies, and the rapid and drastic measures enacted in Estonia to improve its entrepreneurial environment seem to have helped the country to receive an unproportionally large inflow of FDI.

Having gone over the evidence we are not surprised, neither to find little evidence of significant catch-up, nor reasons that there should be. Rather, it is good enough that several formerly planned economies have kept pace with their wealthy neighbors.

The high performers in catch up have been Estonia and Poland. Despite its protectionist institutions, compared to Estonia, Latvia and Lithuania, Poland has done well. We believe Poland's proximity to Germany, large inflows of German FDIs and a large home market, help explain that, but these are not sustainable growth circumstances until the growth containing institutions have been eliminated.

Catch-up through entrepreneurship means that the entrepreneurial output is becoming statistically visible at the macro level. It is observed that catch up through new business formation therefore is a long winding process taking decades to materialize, rather than years. The modest catch up that we have observed in the statistics across the Baltic Sea region, therefore, has occurred primarily in the form of entrepreneurship through FDI, and through oil rents. Catch up varies across the economies according to the attractiveness of the local (national) entrepreneurial environment, which indicates an opportunity for policy based entrepreneurial environment improvement. In that perspective Estonia comes out favorably. The closer to a large and prospering economy with large contractor firms the better for catch-up. The Poland/Germany constellation illustrates.

In the longer (than up to now) run indigenous entrepreneurship through spontaneous new firm formation and market directed resource allocation will have to take over for significant catch-up to become visible. And if our theoretical case for a slow, but eventually rapid entrepreneurially based cumulative growth process is a credible working hypothesis, Estonia would be a long term winner. This also points forward to a constructive future policy focus.

7. Policy propositions

Modern macroeconomic literature emphasizes innovative technology supply as the engine of growth. This is the linear Schumpeter hypothesis underlining innovation systems policies, that we consider falsely conceived. We have emphasized the critical support of commercialization competences as necessary intermediary inputs to activate technology supply economically and promote entrepreneurship, new firm formation and small business growth in catch-up. This is the non linear Schumpeter proposition that we prefer, that requires a micro based macro analysis to be meaningful, and a strong policy focus on the commercializing environment to be effective.

The eastern European economies are still burdened by their communist non-market past of more than 60 years. Some of them have adopted radically new

and market friendly institutions, while others still suffer from inept institutions, unreliable property rights and unpredictable applications of the law, Russia being the outstanding example. There are, thus, huge differences as regards the institutional set-ups, norms and traditions among the economies in the BSR governing market dynamics that are likely to slow cooperation between the countries to improve their entrepreneurial environments.

The non-transition Baltic economies, on their side, belong to the mixed economy welfare states with open markets, but also large public sectors financed through heavy taxes and reined in through sometimes far reaching regulation. The latter is particularly the case with the labor markets. The public sectors of the welfare economies have been operated as centrally planned economies with all the accompanying problems, notably when it comes to discouraging innovation and entrepreneurship. Hence, obstructions to entrepreneurship still remain across the entire BSR, albeit more or less depending on country. As a consequence we point to three critical areas for policy action of the *facilitating kind*:

1. *Industrial knowledge transfer* within the region on a much larger scale than has occurred so far is needed both to speed up growth of the entire BSR-economy, and for faster catch up. It is particularly important that potential winners obtain the commercializing competence support to grow big. Since the knowledge needed primarily resides outside the transition economies, the creation of attractive environments for local investment by external investors comes before other policy action. This will require *trade in intangible assets* over local equity markets that do not yet exist in the formerly planned economies, but possibly in the wider context of the entire BSR economy. To facilitate the local development of more advanced markets for venture capital and private equity services should therefore be a prime policy objective.

2. The development of broad based markets for *specialist subcontractors* is particularly important as a platform for the evolution of large manufacturing firms from a base in SMEs (Braunerhjelm 1991). When new and small firms can develop in symbiosis with large firms, the large firms will also contribute user knowledge as competent customers (Eliasson 2010). So *eliminating the many remaining national barriers to the establishment of a cross national integrated*

market for specialized subcontractor services available to the entire region, and exploiting the BSR “internal” sea transport advantage, should be another policy priority.

3. Finally, the *quality of the general entrepreneurial environment*, and its institutions, is what decides the long-run. Eliminating red tape and corruption in the formerly planned economies to facilitate entrepreneurially driven resource allocations must be the overriding long-run policy focus. Here each country should find itself on its own. There is no need for policy cooperation. Rather the opposite. The more radically, and the faster, a formerly planned economy improves its market institutions, the more FDI and talent it will attract, and the more of entrepreneurship it will create compared to its neighbors. A perfect platform for *policy competition through institutional improvement* between the BSR economies could be established and the outcomes in the form of national catch-up compared. And no cumbersome political negotiations have to precede and delay policy action. Each country gains from acting on its own and in its own best interests, as will the entire BSR.

If such a competition could be incited also in, and forced on the wealthy Baltic welfare economies that have long suffered from stagnating entrepreneurship and ailing big firms, a *positive sum growth game in the BSR of extraordinary dimensions might have been politically established*.

Supplement

Baumol (1968) observed that it would probably be impossible to integrate the entrepreneur in economic theory. By that statement he probably meant a meaningfully defined entrepreneur in the received static neoclassical model. And to follow up on our theoretical discussion above he was right. In a footnote in the same article Baumol referred to recently published Jorgenson & Griliches (1967) as not contradicting his statement on this probable impossibility.

In standard general equilibrium theory total costs have to exhaust total output value in equilibrium. The fact that this is not the case has puzzled many economists. Knight (1944) meant that increasing returns were the reason,

which are incompatible with the Walrasian model. Marshall (1919) had already tried to endogenize those through his industrial district, or in modern terminology “networking externalities,” to remove the inconsistency of the Walrasian model. McKenzie (1959) added unmeasured capital inputs to the discussion. Both show up as TFP change, or the mystic time dependent technical residual in traditional production function econometrics and therefore corresponds to unexplained value added creation. Here the result of entrepreneurial inputs also appears (Eliasson 1992). J&G (1967) managed to eliminate almost all of total factor productivity (TFP) change (“the exogenous technical residual”) by correcting factor inputs for quality change, for instance human capital embodied in labor, or technology embodied in hard ware capital, using the duality property of the neoclassical model in static equilibrium, which was assumed to prevail¹². That elimination also, by definition, included entrepreneurial inputs as unmeasured (intangible) capital inputs. So called “new growth theory” (Romer 1986, etc) attempted the same by denominating the aggregate of all capital inputs as a generally available knowledge that improved the productivity of other factors. General knowledge, however, could only be increased at decreasing returns. Their models could therefore be solved for an external equilibrium. Jones (1995) and Jones & Williams (1998) found these macro models disturbingly counterfactual, and when carefully looked at not really endogenizing growth. So they suggested a modification that made new ideas, or new knowledge creation, increasing in the level of knowledge already attained. Whether this was the case or not was an empirical hypothesis, that they however found consistent with empirical evidence. One way of interpreting such increasing returns in ideas production is that the more knowledge that already resides in an economy the more effectively the cloud of technology spillovers surrounding new technology development is captured and commercialized (Eliasson 2010). This puts the industrially developed world at an advantage over the underdeveloped or developing economies because of the large amount of general infrastructure knowledge accumulated there, and directly available. But all these models are

¹² Under that assumption observed factor and output prices could also be assumed to be equilibrium prices and be used to correct factor inputs for quality change.

still static with external equilibria that the models with a now slightly larger effort than before can be solved for. They represent relationships between ex post outcomes of both factor inputs and outputs and are therefore subjected to Baumol's (1968) criticism. Marshall's (1919) industrial district, on the other hand, is micro based and more innovative. In the dynamic setting of the Swedish micro macro model both "networking externalities", "organization" (in the form of structural change) and simultaneous price and quantity determination are allowed to enter growth analysis (Eliasson 1989, 2009a).

In the pure, before Jorgenson & Griliches (1967) and new growth theory, neoclassical production model quality inputs were not recorded, while their ex post consequences on value added were. Hence value added was created seemingly for free, and the mystic TFP technical residual was recorded as an externality in standard production function econometrics. Somehow, and not explained, the extra value added creation (an externality) benefitted some in the form of higher profits, capital gains and higher wages. It can therefore be demonstrated that TFP change in the early production function analysis under the duality premises of neoclassical production theory is directly related to relative price change and realized capital gains (Eliasson 1976:296ff, 1992 and 1996:84ff,114).

Such capital gains originate in invisible (not recorded) entrepreneurial inputs, but also in, for instance, raw material rents. So, if these different sources of capital gains can be sorted out ex post the value added contribution of the ex ante invisible entrepreneur can also be observed ex post. This is what we have done.

(J&G (1967) imputed the ex post equilibrium values created back to factor inputs and so reduced TFP change by assuming that observed prices were equilibrium prices. New growth theory adds little to that beyond redefining J&Gs (1967) factor quality corrections as related to general and specific knowledge inputs in their still static equilibrium models. The only viable alternative is to follow Marshall and go micro. Neoclassical new growth models are almost always macro or sectoral models. The growth and catch up analysis we have attempted begins at the micro level of behaving agents and proceeds through aggregation of cases over dynamic markets up to macro. The only way

to capture that market dynamic, which is needed to explicitly recognize the entrepreneur, is to give up on modifying the assumptions of the model such that ex ante plans exactly equal to ex post outcomes, or at least in expectation, to be able to solve for an external equilibrium (Eliasson 1992). Then the complexities of dynamic aggregation are also removed by assumption and one obtains the simplified static equilibrium model which is devoid of explanatory power when it comes to macro economic growth¹³.

In the Swedish micro to macro model, that we refer to as the “theoretical” device through which non linear aggregation should be performed, that approximates an experimentally organized economy, better, but analytically indeterminate allocations of resources, than the existing one, always exist (Eliasson 1992, 2005a, 2009a)).

This also means that the neoclassical production model is useless in explaining how the elusive entrepreneur generates economic growth, something Baumol (1968) probably meant. For that you need the model of the EOE and of competence blocs (Tables 1 and 2). But the neoclassical model is still quite useful as an econometric measurement device to quantify the ex post growth contribution of the entrepreneur.

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¹³ For more on the role of complexity and infinite regressions in non linear models, and why you should not avoid these problems by a priori assumptions, see Eliasson 2009.

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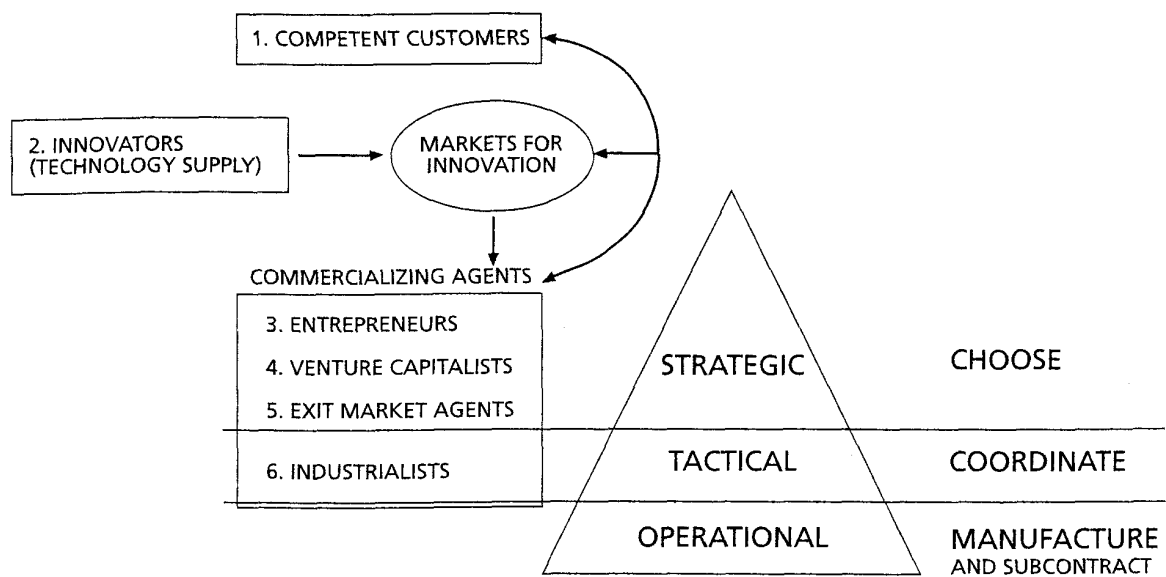
Table 1.

The four mechanisms of Schumpeterian Creative Destruction and economic growth - going from micro to macro

1. Innovative entry
enforces (through competition)
2. Reorganization
3. Rationalization
or
4. Exit (shut down and business death)

Source: "Företagens, institutionernas och marknadernas roll i Sverige", Appendix 6 in A. Lindbeck (ed.), *Nya villkor för ekonomi och politik* (SOU 1993:16) and G. Eliasson (1996). *Firm Objectives, Controls and Organization – the use of information and the transfer of knowledge within the firm*. Boston/Dordrecht/London: Kluwer Academic Publishers, p. 45.

Table 2. Decision Makers and Markets of the Competence Bloc.



Source: Eliasson& Eliasson (1996) and Eliasson (2005a:255)

Table 3: **Labor productivity in manufacturing 2004 in market prices**

Finland	Sweden	Germany	Poland	Estonia	Lithuania	Latvia
46	40	39	10	10	6	5

Note: labor productivity is expressed in value added in Euros per hour worked.

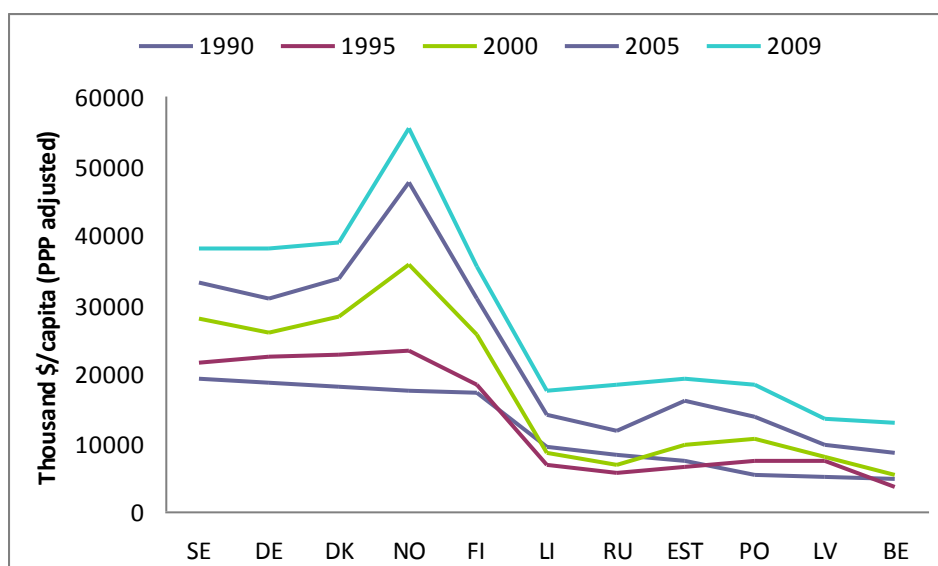
Source: Nevalainen (2008)

Table 4. **Ease of (EO) doing business. Ranking 2011**

	EO Doing Business (Aggregate)	Starting a business	Getting a credit investment	Protecting an investment	Trading across borders	Enforcing a contract	Closing a Business
Singapore	1	?	?	?	1	?	?

Denmark	6	27	15	26	5	30	5
Norway	8	33	46	20	9	4	4
Finland	13	32	32	59	6	11	6
Estonia	17	37	32	59	4	50	70
Lithuania	23	53	46	93	31	17	39
Latvia	24	87	6	59	16	14	80
Poland	70	113	15	44	49	77	81

**Figure 1. Per capita income levels of the Baltic economies (PPP adjusted)
1990, 2000, 2005 and 2009**



Note: The economies are ordered by decreasing per capita income in 1990 from left to right. The countries are in that order : Sweden (SE), Germany (DE), Denmark (DK), Norway (NO), Finland (FI), Lithuania (LI). Russia (RU), Estonia (EST), Poland (PO), Latvia (LV) and Belarus (BE).

Source: The World Bank

Figure 2. **FDI investments**

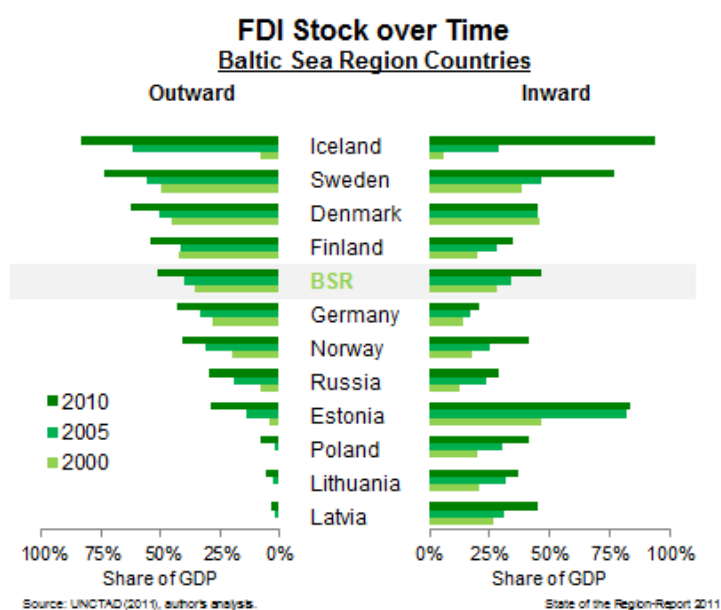
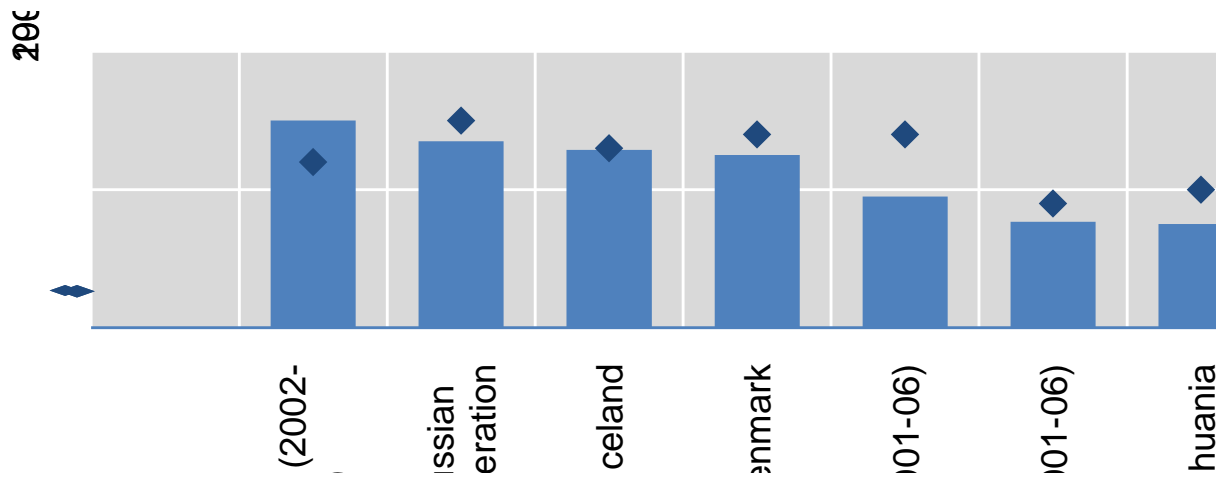


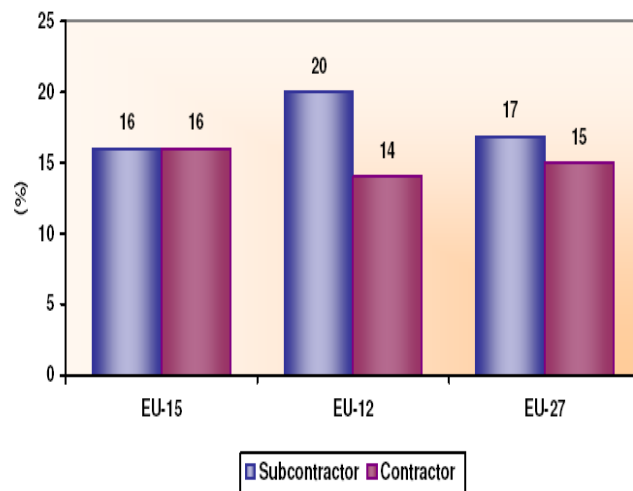
Figure 3A. **Number of newly registered companies as percentage of stock, averages for 2000-2007**



Source: OECD 2010

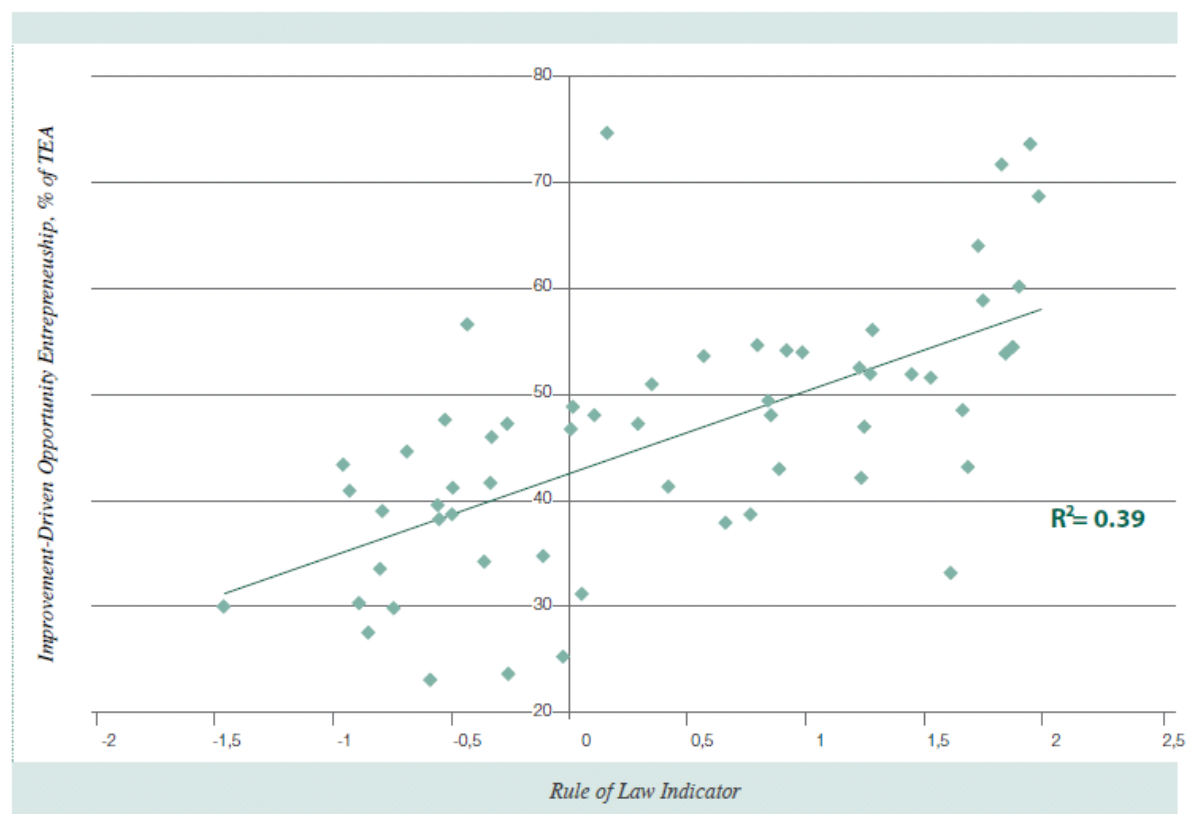
Note: Diamond stands for 2007 figures

Figure 3B. **Share of subcontractors among SMEs in EU's old and new member states, 2009**



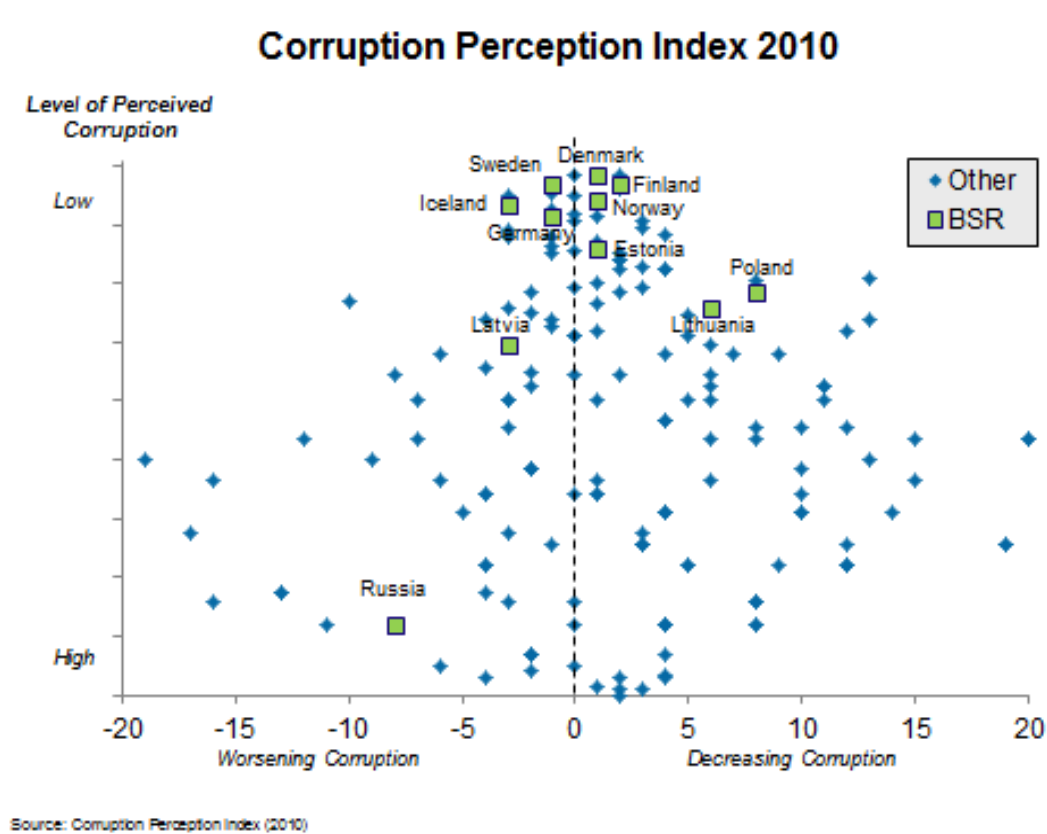
Source: EIM 2009

Figure 4A. Correlation between Rule of Law and degree of improved driving opportunity motivation for early stage entrepreneurial activity



Source: Global Entrepreneurship Monitor 2010 and World Bank Governance Indicators 2002–2006

Figure 4B. **Corruption Perception Index 2010**



Source: Transparency International Corruption Perception Index

