

DYNREG

Dynamic Regions in a Knowledge-
Driven Global Economy
Lessons and Policy Implications for the EU

WORKING PAPERS

Theoretical and Methodological Study on Comparative Advantages in Dynamic Growth Regions, Convergence and Inequalities Patterns

Laura Resmini

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**Dynamic Regions in a Knowledge – Driven Global Economy:
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Workpackage No. 1

Comprehensive theoretical and methodological framework

**Theoretical and methodological study on comparative
advantages in dynamic growth regions, convergence and
inequalities patterns**

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Consortium Partners:

ESRI	Economic and Social Research Institute (Co-ordinator)
UNIBONN	University of Bonn, Center for European Integration Studies
UTH	University of Thessaly
UB	University Luigi Bocconi, Milan
CIBAM	Center for International Business and Management, Cambridge
WUW	University of Economics and Business Administration Vienna
VUA	Free University Amsterdam
VUB	Free University Brussels
LSE	London School of Economics
ULEF	University of Ljubljana

1. Introduction

This document presents the theoretical and methodological framework for work package 3 (WP3) on “Consequences of dynamic growth” of the DYNREG project. WP3 aims at understanding the consequences of dynamic growth on world patterns of trade, growth, development, competitiveness, inequalities and convergence. Particular emphasis will be given to assessing the impact of these effects on the EU competitiveness and growth prospects.

In particular, WP3 aims to:

- Analyse the trends in comparative advantages in emerging regions and their determinants;
- Predict possible risks for EU competitiveness and its international positions as trading partner and source/recipient of FDI;
- Explore the relationship between openness and competitiveness;
- Determine whether and to what extent the emergence of dynamic regions has affected patterns of (in)equality and convergence both across emerging and developed countries and within the latter, with special emphasis on what might have been happened within the EU.
- Address socio-economic aspects of economic and technological tendencies, in order to understand whether and to what extent dynamic regions can be considered as *learning regions*;

This paper sets out the methodological framework necessary for achieving these research objectives. The next section provides some stylized facts on the emergence of new competitors on the world scene, while section 3 provides an overview of theoretical and empirical approaches useful to structure the different operational phases of the research project and understand the ultimate results. Section 4 discusses the specific research questions that will be tackled by WP3. Section 5 describes the methodology that will be used in developing the project, and section 6 concludes with expected results and policy implications.

2. Some stylized facts

The past decade has been characterized by the emergence of new players in the world economy and global policymaking, affecting world trade, capital markets and investment decisions. This has raised the issue of whether this could cause a major redistribution of competitiveness gains and losses across developed and less developed countries, resulting in

current account and welfare adjustments between old and new emerging economies, which find their leaders in Brazil, Russia, India and China (BRIC), not to mention Central and Eastern European countries which, with their dynamism, have sustained the EU growth in the recent years, allowing the Union to maintaining its international competitiveness.

The BRIC countries' growing impact on the global economy has been felt on a wide range of issues over the past few years: Tables 1 to 3 provide evidence of these facts, by comparing the performance of the old leading world economies , i.e. the United States of America, the EU and Japan with that of the above mentioned emerging countries.

(insert table 1 about here)

With average annual growth rates always larger than 7 per cent since the late 1980s, China can be considered as the most dynamic among the BRIC group. It is followed by India and Central and Eastern European countries (CEECs), which have caught up and pass over Brazil since 1995. In the 2000 Russia also shows a sustained growth rate, very close to India's one. Among old economies, only the USA experienced growth rates comparable with those of the BRIC and CEE countries, though they are more close to those of Brazil, the bad performer of the group in terms of growth, rather than those of China.

The high growth rates have increased the BRIC and CEE countries importance in the global economy. Over the past 25 years, China has doubled its share in the global economy, which has increased from about 5% in the late 1980s to 12 % in the early 2000. Also India and the CEE countries show increasing shares in the global economy, but the improvements are less impressive than the Chinese case. Despite several slowdown episodes, Brazil can maintain its importance in the world economy, while Russia is still recovering the positions lost during the transition recession. It is worth noticing that the importance to global economy of mature economies has reduced over the considered period.

The BRIC and CEE countries growth has led to a considerable increase in prosperity, too. From 1985 to 2004, GDP per capita PPP (in constant prices) has increased almost everywhere, with the exception of Russia. Needless to say, the largest increase has been recorded by China, followed by India, CEE and Brazil.¹

The increasing importance of the BRIC and CEE countries to the global economy is reflected in their rapidly growing role in international trade and capital flows, as shown in table 2. While mature economies still dominate world trade, accounting for about 50% of world exports, over the past 25 years BRIC and CEE countries have gained importance, while old

¹ These performances have been affected by demographic trends too, more dynamic in Brazil than in China (Jensen and Larsen, 2004)

economies have seen a reduction in their shares of world exports. As indicated by the dynamic RCA index, this redistribution of world exports between the two groups of countries has been determined by the great dynamism of BRIC and CEE country exports, which have been growing faster than world exports since 1985.

Another interesting fact concerning the BRIC and CEE countries is the change in export composition. All the considered countries show increasing indexes for manufacturing exports and high tech exports. In the early 2000s, China's shares of manufacturing exports and high tech exports were above the world average, as for the mature economies, whose indexes, however, show a downward trend. Brazil, India, Russia and the CEECs are still below the world average for both indexes. However, all these dynamic regions show an increase in the share of high tech exports, while the share of manufacturing exports decrease in Brazil and Russia, whose exports are still dominated by oil and gas production and mineral extraction. The greater integration into the world economy of BRIC and CEE countries is also witnessed by the increasing inflows of foreign capital gathered by these countries over the considered period. As indicated by the inward FDI performance index, Brazil, China and CEECs have attracted a considerable amount of FDI, larger than the amount suggested by the size of the respective economies, while in India and Russia there is still room for further FDI, despite the progress made over the past 25 years.²

(insert table 2 about here)

This greater openness has brought more prosperity in all the considered areas, as it is shown in graph 1. All regions have followed similar patterns, though it is evident that the transition phase recession has limited growth opportunities for Russia and CEE countries, at least at the beginning of the 1990s. Especially China has undergone significant development both in terms of openness – measured by exports over GDP – and prosperity. During the last 15 years, the degree of openness has increased approximately from 9 per cent to 39 percent, while GDP per capita has increased by more than 600 per cent.³ As far as mature economies are concerned, openness has increased for the USA only, while Japan has regained the degree of openness it had at the beginning of the period. Quite surprisingly, the EU shows a reduction in openness over the period, only slightly mitigated by the East enlargement.

(insert figures 1 and 2 about here)

² This index is given by the ratio of the country share in world inward FDI to its share in world GDP (Unctad, 1992)

³ CEE's improvements on both openness and prosperity side appear more impressive than the Chinese ones, when one considers as starting point 1990, i.e. the beginning of the transition phase, rather than 1985.

The characteristics of emerging economies of BRIC and CEE countries are also apparent from the indexes reported in table 3, which further illustrate the development patterns followed by this group of countries. The striking facts are, first of all, the increase in the share of Machinery and Transport equipment in the manufacturing value added in both Brazil and China; secondly, the increasing role played by Brazil, China and India in the world energy use; thirdly, an upgrading of the human capital and an increase in the patent applications particularly marked for India and CEE countries. Patent applications are almost everywhere in favour of non-resident, with the exception of the USA and Japan. This index clearly indicates on the one hand which countries are the source of technological innovations and which ones the users; on the other hand, the impressive technological upgrading of the emerging economies. Needless to say, the most important vehicles for technological diffusion have been international trade and foreign direct investment.

(insert table 3 about here)

3. The state-of-the-art

3.1. The theoretical background

The emergence of new players in the international arena has raised concerns on policy perspectives and stimulated the interest of several scholars – economists, political and development scientists – who have been asked to provide answers on the determinants and possible economic and political consequences at global level and in the mature economies of such a rapid growth.

Economic consequences concern patterns of trade and FDI, and growth prospects at both national and international level. Needless to say, the impact on prosperity is a direct consequence of the adjustments in trade and FDI patterns generated by the emergence of dynamic regions.

According to conventional trade theory, free trade, generated either by the unilateral reduction in trade barriers or the entry of a new player in the regional or global economic systems, can only have positive effects (Gandolfo, 1998). The opening up of trade will allow specialization on the basis of comparative advantages. How far different partners will benefit depend on their trade and industrial structure and how far these are complementary with those of the new player. If price and wages adjust flexibly to demand and supply factors, conventional trade theories do not see any concerns in the emergence of new players at international level. New specializations may emerge, provided that factors of production can freely move across

sectors but within countries. In such a world, either patterns of specialization or the size of the new player and the growth rate of its exports do not play any role: all activities are equally beneficial, all factors yield to equal returns at the margin, and adjustments are instantaneous and costless (Lall and Weiss, 2004).

These predictions, however, are strongly related to the unrealistic hypotheses the conventional international trade models rely on. They include perfect competition and information, efficient markets, resources fully mobile within countries, exogenous technical change, no scale economies, and so on. If these assumptions are relaxed, the results can be quite different. Specialisation still generates benefits and trade remains a non-zero sum game. However, the distribution of such benefits depends on the ability of each country to create or attract competitive capabilities and to move into activities that offer the best opportunities for growth (Krugman and Venables, 1993).

In this dynamic framework, increasing returns to scale, differentiated products and externalities play an important role (Krugman, 1980). First mover advantages can be important, too: if an industry is established in a country, its comparative advantage and competitive strength will grow relative to late-comers. Hence, both history and geography, by determining where economic activities initially concentrate, affect long run trade patterns (Krugman and Venables, 1990; Krugman, 1991). This cumulative gain process which make large markets even more large at the expense of the poor periphery, may come to an end and reverse if trade costs, broadly defined, substantially decrease and/or costs (i.e. wages, prices for houses and other congestion costs) in the core substantially increase. Regardless of where economic activity will eventually concentrate, these models predict an unequal distribution of economic activity over time and space (Puga and Venables, 1996).

In conclusion, economies that lack the flexibility to move quickly from declining to expanding activity centres in response to changes in comparative advantage, may find that once producers in rival economies are well established, the process of catching-up may be lengthy and difficult and trade competition dangerous. In this respect, two opposite forces have to be evaluated. On the one hand, there is a *demand effect* and a *specialization effect*. Growing fast economies usually import more and its trade partners may benefit from these new market opportunities. The latter may arise in both consumer and intermediates markets. In particular, if a country is well endowed in raw materials or specialized in the production of intermediates which the emerging player needs for its own productions, it can take an advantage by further strengthening these specializations. On the other hand, rapidly growing countries may create difficulties to trade partners, by *eroding their market shares* – both

domestically and in third countries. A negative *terms of trade effect* may also arise when emerging economy's demand for natural resources or intermediate inputs is strong enough to raise world prices, thus increasing the import prices trading partners have to pay for.

In conclusion, the entry of a large competitor (or a group of efficient competitors) into world export markets can lead to significant adjustment costs and welfare losses, when changes in comparative advantage are not rapidly attained.

The final outcome depends on at least three factors (Lall and Weiss, 2004): *i) the degree of similarity in export structures* of trading countries, with higher similarity leading to greater adjustments for the already established producers; *ii) the speed, cost, nature and extent* of these adjustments in each country; *iii) the size of the emerging economy and its export growth rates*.

A large and rapidly growing economy may also attract *consistent capital inflows*, particularly FDI, at the expense of other similar, but not necessarily neighbouring countries. Domestic firms may learn from foreign companies about new products, production techniques and organization skills, thus increasing their performance.⁴ This transfer of benefits may occur either voluntarily, through input - output linkages between domestic and foreign firms, or involuntarily through competition, imitation and training (Blomstrom et al. 2001). In both cases domestic firms become more productive and efficient, thus fostering local industrial development as suggested by several economists from Hirschman (1958) and Helpman, (1984), to Rodriguez-Clare (1996) and Markusen and Venables (1999).⁵

In pursuit of such benefits, governments have not only reduced barriers to FDI, but have also offered special incentives to attract foreign firms and foster relationships between multinationals and local firms. However, the effect of an upsurge of FDI into dynamic economies on other recipient countries is ambiguous (Weiss, 2004). If FDI flowing into developing countries are limited, then increasing receipts by a country will occur at the expense of other countries, and competition to attract foreign firms will become a zero-sum game with the success of one country at the expense of the others. However, if multinational corporations drive global production networks, with genuine specialization and international division of labour, FDI to one country may be complementary not competitive with FDI to other countries.

⁴ Needless to say, foreign firms may also generate negative effects for domestic firms, such as tougher competition in the final markets as well as in the source - i.e. labour - ones. A common belief, however, is that positive effects outweigh negative ones (UNCTAD, 2001).

⁵ See Glass et al. (2000) for an in-depth survey of these and other theoretical literature concerning spillovers between domestic and foreign firms.

The issue of income convergence or divergence is not new. Initially, the debate seemed to be confined to exogenous growth models – such as those *à la* Solow (1956) – which predict convergence, vs. endogenous growth models *à la* Lucas (1988) and Romer (1986) in which divergence is a possible outcome. In these models, international trade amplifies the differences in factor endowments and technical progress between rich and poor countries, thus generating diverging income patterns (Baldwin et al., 2001). However, very recently it has been demonstrated that also in an endogenous growth framework convergence may arise because of either international trade (Walz, 1998) or the interaction between human capital and technological progress (Eicher, 1999).

This inconclusiveness might be due to the fact that socio-cultural parameters have not been accounted for appropriately. Some scholars (Hodgson, 1988; Samuels, 1995 and Stanfield, 1995) have recently shifted emphasis to socio-cultural characteristics of a locality (Healey, 1997; Amin, 1999) looking at the socio-economy as a complex, dynamic and open-ended system. Here, economic success is related to advancement of institutional characteristics that generate consensus on the kind of collective game to play and the way to play it (Healey, 1998: 1542). Amin and Thrift (1994, 1995) use the term ‘institutional thickness’ to describe these qualities, whereas Healey (1998) develops the concept of ‘institutional capital’ which maintains an analytical distinction between intellectual capital (this is knowledge resources), social capital (trust, reciprocity, cooperative spirit and other social relations), and political capital (capacity of collective action).

The institutional-cultural environment, however, plays a multiple and complex role in the process of economic development. This is because it does not only constrain agency behavior, but also provides a cognitive framework through which raw information is interpreted and transformed into meaningful knowledge (Hodgson, 1988). On these grounds, regional economic growth is perceived as essentially a cognitive, learning and knowledge-building process (Hodgson, 1996, 2000; Knight, 1995).

3.2. The empirical evidence

Assessing the validity of the above mentioned theoretical statements requires detailed empirical analyses. The existing empirical evidence, however, is rather incomplete and fragmented. It focuses almost exclusively on the most important emerging economy, i.e. China, and possible impacts on its neighbouring Asian countries.

In order to organize the discussion, I focus on trade effects, FDI and prosperity impact separately, although in principle they may be related and isolating their impact may be difficult.

Trade effects have been evaluated by the existing literature by using the traditional concepts of *trade creation* and *trade diversion*. The former occurs when trade flows are created by the emergence of a new trader at both regional and international level because its sustained internal growth increases imports (demand effect); the latter instead indicates that some countries may lose market shares because of the emergence of a new player. As suggested by the theory, the more similar are the economies, the more likely is trade diversion.

According to the existing empirical evidence, the impact of rapidly growing Chinese exports on its Asian trading partners is ambiguous.

By computing and comparing export shares of China and other Asia countries – i.e. Singapore, Malaysia, Thailand, The Philippines and Taipei – Weiss (2004 and 2005) argues that trade creation is likely to overcome trade diversion for all Asian countries.⁶ The upsurge of Chinese exports has reduced their export shares in third markets (i.e. Japan and the USA); however, this negative effect has been compensated by an increase of export shares in the Chinese markets, due to the vertical specialization that seems to characterize the Asian region. Developing countries outside Asia and, in particular, Latin American and Caribbean (LAC) countries should be even less affected by the Chinese exports, since their economies are geographically distant and more complementary than similar to China's economic system (Lall and Weiss, 2004). Looking at export share trends over time the authors argue that there has been room for some trade creation, as indicated by the increase of LAC countries' shares in Chinese imports of primary and resource based product. As a matter of fact, Chinese market is on average of minor importance for LAC countries. Mexico and Costa Rica seem to be an exception, though they have suffered from Chinese competition in high tech sectors only. These latter, however, still represent a very small share of total exports in each of the three countries.

OECD countries as well, seem to be negatively affected by the emergence of new traders at world level. A study by OECD (1998), in fact, shows that while China and other emerging Asian countries have gained export shares at world level and in the most important third country markets (i.e. Japan, the USA and Europe), the OECD countries have lost.

⁶ According to the authors, there is a competitive threat if China gains export market share and the other country loses. The intensity of the competition depends on the relative change.

Overall, these results indicate that emerging economies have become more important at the world level, while mature economies have lost export shares. However, these do not necessarily mean that the two phenomena are statistically correlated.

In order to prove the existence of a causal relationship between the upsurge of China exports and the reduction of other countries' export shares more sophisticated techniques have to be applied. By using a gravity approach, Eichengreen et al. (2004) demonstrate that China has crowded out exports of several Asian countries on third markets. This effect, however, is felt mainly in markets for consumer goods and, hence, by less developed Asian countries which export these goods. China has also increased imports from its Asian neighbours, but this direct effect is mainly felt in capital goods markets and thus by more advanced Asian countries. This analysis suggests that China's emergence may affect less and more developed countries differently. Always by using econometric techniques, Cerra et al. (2005) show that reductions in tariff rates on U.S. imports from China have negatively affected imports from India, whose general welfare is likely to decrease because of China's WTO entry.

Several other scholars tried to evaluate the overall welfare changes generated by the integration of China within the WTO trade system (Ianchovichina and Martin, 2004; Ianchovichina et al., 2000; Adhikari and Yang, 2002; Hertel and Walmsley, 2002). All these studies share the same methodology, since they applied different version of the Global Trade Analysis Project (GTAP) and its related databases. It is a general equilibrium model widely used in international trade policy analysis. These studies found that some Asian Countries, such as Indonesia, Malaysia, Philippines, together with LAC countries and Mexico will experience welfare losses, while China, Europe and the USA are among regions which will enjoy welfare gains from the China WTO accession. The intensity of these gains/loses vary across studies, according to the trade liberalization measures that have been included in the model, the time span and the version of the program used. This methodology, however, shares the same theoretical framework as traditional trade theory. Therefore, it predicts the gains from trade reforms in a world in which competitive threats are not a problem, because transitional difficulties are not accounted for. Therefore, it is likely that GTAP models over estimate possible consequences of China's WTO entry.

Even fewer studies have considered how China's emergence as a favourite place for manufacturing FDI may affect FDI flows in other countries. By using a gravity approach to bilateral FDI flows in 14 Asian countries and China during the period 1984-2002, Mercereau (2005) found that FDI flows into two countries only (i.e. Singapore and Myanmar) have been negatively affected by China's FDI inflows. Chantasawat et al. (2004) confirm the lack of

FDI diversion in a similar study on FDI flows in China and other eight Asian countries. Eichengreen et al (2005) found a similar result, suggesting that it is due to the fact that in the Asian region foreign producers are likely to belong to a common supply chain. Evidence for FDI diversion, instead, has been found by Eichengreen et al. (2005) in the case of OECD countries. The authors argue that this is due to MNEs will to stay closer to the Chinese market. Japanese firms appear to be the leaders of both the above mentioned trends. Mixed empirical evidence also characterises the relationship between trade and income convergence/divergence. Sachs and Warner (1995), Ben-David (1996) and Rassekh (1992) find that international trade leads to income convergence, mainly among countries that are major trade partners. However, Slaughter (2001) finds no significant links between trade and convergence.

When exploring this relationship at sub-national level, divergence patterns may emerge. Jin (2004) found that inland Chinese provinces which have been isolated from international trade for decades had their GDP growth negatively affected by increased openness. This study suggests that the interplay between international trade and growth may have severe spatial consequences; therefore patterns of adjustment within different nations can not be neglected for a comprehensive understanding of the impact of dynamic growth regions on trading partners.

4. The research questions

WP3 can contribute to the existing debate on the consequences of dynamic growth in emerging regions by providing answers to a number of questions which have been neglected by the literature up to now. Most of these questions concern the impact of dynamic growth in emerging regions on the EU and its member states.

In particular, WP3 will try to provide an answer to the following research questions:

- 1) *What is competitiveness? Which are the determinants of changing competitiveness in emerging regions? How do they compare with factors at the basis of EU's competitiveness?*

While changes in competitiveness have been largely documented by the existing empirical evidence, its definition and, mainly, its determinants, have barely been considered, at least as far as emerging markets are concerned. Recent advances in international trade theory indicate that focusing solely on factor accumulation, as suggested by traditional growth theory is not sufficient because such models can not explain why some countries utilize

their resources more effectively than others. In this respect, three factors seem promising (Rassekh, 2004): 1) integration into the world economy (Frankel and Romer, 1999); 2) geography (Landes, 1998; Sachs, 2003) and 3) political and economic institutions (North, 1990; Acemoglu et al., 2001).⁷

- 2) *Which is the impact of these changes in competitiveness on other countries, and mainly, on mature economies as the EU?*

Mature economies have not been properly considered in the analysis of the consequences of dynamic growth regions. The existing literature suggests that, generally speaking, the EU is likely to gain from the emergence of new players at world level. Whether this result may hold in the long run, we still do not know anything about short run adjustment costs, which may become important in a world characterized by product differentiation, externalities, factor immobility, prices and wages rigidities, as suggested by the literature previously discussed. Therefore, in order to completely understand possible consequences of dynamic growth regions on the EU, a partial equilibrium approach is necessary. As suggested by the literature, it has to consider both trade and investment flows, at both aggregate and sectoral level. The distribution of gains and losses across member states is also important, at least from a policy perspective.

- 3) *Are openness and competitiveness two sides of the same coin?*

Another interesting issue not completely explained by the existing literature is the relationship between openness and competitiveness. In recent years, dynamic regions have been characterized by high level of openness and sustained growth rates. The EU has always adopted an open attitude towards trade partners: it is member of the WTO, and has signed a lot of PFTAs with less developed countries and privileged partners, i.e. other developed European countries. Last but not least, the number of member states has increased from 6 to 25 in the last 50 years and the enlargement process is not finished, yet. Despite this strong attitude towards openness, its economic performance has been quite poor. Has openness towards dynamic regions affected EU's growth performance at firm, sector and regional level?

- 4) *What is the impact of changes in trade and FDI flows on patterns of inequalities, convergence and divergence at world level and, mainly, within the EU?*

⁷ The role played by economic integration – both in terms of trade and FDI – and institutional qualities has been also stressed by some studies discussing the reasons of China's success (Adams et al., 2006; Jensen and Larsen, 2004; Lai, 2004; and Liu and Shu, 2004).

The final issue concerns the effects of the above mentioned changes on trade and FDI flows on patterns of inequalities, convergence and divergence at world level, and, mainly within the EU. In this respect, several questions are still unexplored. In particular, which factors affecting competitiveness are able to reduce inequalities within and across countries? Do patterns of (in)equality and convergence within the EU change because of the effects generated by dynamic growth regions? In which directions? Which socio-cultural processes characterize dynamic regions growth patterns? Do they generate patterns of convergence or divergence within dynamic regions and between dynamic and mature economies?

5. Methodology

WP3 aims at empirically exploring the above mentioned questions using appropriate statistics and econometric techniques. In order to explore as much issues as possible, the WP3 will be organized through several complementary research papers. Co-operation and cross-fertilization across research teams will take the risk of inefficiencies and overlapping of tasks at the minimum.

Since each contribution will explore a single issue, country coverage, time span and the level of disaggregation of the analysis at both geographical and sectoral level may change according to the research objectives and the availability of data.

5.1 Sources of data

Analyses within WP3 will be based on secondary source data on trade, FDI, factors of production and other socio-economic characteristics of both emerging and mature economies. Useful data on import and export flows can be found in UN-COMTRADE, IMF-DOT and COMEXT databases. The latter focuses on EU only, while the other two cover all countries in the world. Trade flows are recorded bilaterally and according to several level of sectoral disaggregation. Time span is quite long in each database, but it may vary country by country. Statistics on trade flows at sub-national level are usually under the responsibility of nations and therefore are more difficult to find within the EU and, mainly, in the emerging regions. Data on FDI at country level are provided by UNCTAD, World Bank (WDI) and OECD. The former provides statistics for FDI flows and stocks as well as several indexes of FDI penetration. Data at sub-national level can be collected through several national sources. The AMADEUS database collects information at firm level (ownership included) for several

European countries. ISLA-Bocconi disposes of a firm level database on foreign investment in several Central and Eastern European countries.

Several publicly available databases (WDI, Penn World Tables, IMF financial statistics, OECD, etc.) can be exploited in order to get measures for socio-economic characteristics at country level. National statistics Offices may be contacted in order to get the same measures at sub-national level.

5.2 Research papers, responsibilities and deliverables

WP3 is expected to answer the above mentioned research questions through the delivery of the following research output by February 2008:

1. *Trends in comparative advantages of emerging regions and their determinants*
 - 1.1 Institutional quality and comparative advantages: an empirical investigation (UNIBOC)
 - 1.2 Determinants of competitiveness and shifting comparative advantages in the world economy (ESRI)
 - 1.3 Export performance: does destination matter? The case of Ireland (ESRI)
 - 1.4 Export performance: does innovation matter? (IER)

2. *The impact of dynamic growth in emerging regions on trade, income, convergence patterns in the world economy*
 - 2.1 The impact of emerging regions on EU export flows: a gravity approach (UNIBOC)
 - 2.2 Is FDI to China crowding out FDI flows to the EU? (ESRI)
 - 2.3 The dynamics of an emerging middle class and middle class entrepreneurship in dynamic growth regions (VUB)

3. *Dynamic growth, inequality and social cohesion*
 - 3.1 The role of entrepreneurship, institutions and knowledge infrastructure on regional disparities (VUA)
 - 3.2 The impact of human capital inequality on regional income inequalities in the EU (LSE)

6. Conclusions

WP3 aims at obtaining empirical evidence on the consequences of dynamic growth in emerging regions, such as Brazil, Russia, India China and new EU member states of Central and Eastern Europe on world patterns of trade, FDI, and growth. Changes in international competitiveness of mature and emerging regions will be carefully evaluated and their

consequences on patterns of (in)equality and convergence will be the subject of in –depth analyses carried out by a comparative and multidisciplinary perspective.

Once identified these stylised facts, we will be able to evaluate the contribution of trade, relative to other factors, on growth patterns of emerging regions and possible consequences for growth patterns at world level, in terms of convergence and divergence between developed and developing regions.

The position of the EU at the international level and the spatial implications of changes in its competitiveness will be carefully evaluated in order to draw lessons and policy implications for the Lisbon agenda as well as for policies in the areas of enterprise, innovation, trade, and regional development.

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Table 1 – GDP performance indicators

	1985-90	1990-95	1995-00	2000-04
Brazil				
GDP per capita, PPP (constant 2000 international \$)	6792	6561	7120	7419
share of world GDP, PPP (constant 2000 international \$, bill.)	0.03	0.03	0.03	0.03
GDP growth rate	1.44	2.90	2.54	2.30
GDP growth rate/world GDP growth rate	0.39	1.14	0.71	0.79
China				
GDP per capita, PPP (constant 2000 international \$)	1422	2098	3255	4420
share of world GDP, PPP (constant 2000 international \$, bill.)	0.05	0.07	0.10	0.12
GDP growth rate	7.87	12.43	8.19	8.12
GDP growth rate/world GDP growth rate	2.10	4.82	2.25	2.28
India				
GDP per capita, PPP (constant 2000 international \$)	1529	1802	2213	2616
share of world GDP, PPP (constant 2000 international \$, bill.)	0.04	0.05	0.05	0.06
GDP growth rate	6.40	5.16	5.71	6.11
GDP growth rate/world GDP growth rate	1.71	2.00	1.57	1.72
CEE				
GDP per capita, PPP (constant 2000 international \$)	9573	8624	9635	11660
share of world GDP, PPP (constant 2000 international \$, bill.)	0.01	0.01	0.02	0.02
GDP growth rate	...	2.70	3.08	4.10
GDP growth rate/world GDP growth rate	1.15	1.06	0.86	1.13
EU-15				
GDP per capita, PPP/world GDP per capita, PPP (constant 2000 international \$)	19732	21920	24853	28477
share of world GDP, PPP (constant 2000 international \$, bill.)	0.23	0.23	0.21	0.20
GDP growth rate	3.32	1.59	2.68	1.51
GDP growth rate/world GDP growth rate	0.89	0.62	0.74	0.42
USA				
GDP per capita, PPP/world GDP per capita, PPP (constant 2000 international \$)	26889	29078	32147	34862
share of world GDP, PPP (constant 2000 international \$, bill.)	0.22	0.21	0.21	0.21
GDP growth rate	3.42	2.55	3.60	2.92
GDP growth rate/world GDP growth rate	0.91	0.99	0.99	0.82
Japan				
GDP per capita, PPP/world GDP per capita, PPP (constant 2000 international \$)	20949	24244	25600	26479
share of world GDP, PPP (constant 2000 international \$, bill.)	0.08	0.09	0.08	0.07
GDP per capita growth rate/world GDP per capita growth rates	2.15	1.11	0.47	0.45
GDP growth rate	4.74	1.49	1.30	1.24
GDP growth rate/world GDP growth rate	1.27	0.58	0.36	0.35
Russia				
GDP per capita, PPP (constant 2000 international \$)	2648	2067	1614	2019
share of world GDP, PPP (constant 2000 international \$, bill.)	1.29	0.87	0.58	0.61
GDP growth rate	...	-9.08	1.62	6.08
GDP growth rate/world GDP growth rate	...	-3.53	0.44	1.71

Source: own elaboration from WDI data.

Table 2 – Trade performance indexes

	1985-90	1990-95	1995-00	2000-04
Brazil				
Share of world exports of goods and services	0.988	0.847	0.815	0.888
Dynamic RCA	0.36	1.03	0.95	1.57
HT exports (% of manufactured exports)/HT world exports	0.38	0.30	0.48	0.79
Manufactures exports/world manufactures exports	0.71	0.74	0.72	0.71
Inward FDI performance index	0.49	0.52	1.24	1.46
China				
Exports of goods and services (% of total world)	1.266	1.799	2.909	4.582
Dynamic RCA	1.14	2.55	3.10	2.58
HT exports (% of manufactured exports)/HT world exports	...	0.43	0.69	1.06
Manufactures exports/world manufactures exports	0.93	1.06	1.14	1.17
Inward FDI performance index	1.04	4.76	1.81	1.36
India				
Exports of goods and services (% of total world)	0.53	0.56	0.67	0.83
Dynamic RCA	0.92	1.31	2.16	1.26
HT exports (% of manufactured exports)/HT world exports	0.14	0.16	0.22	0.24
Manufactures exports/world manufactures exports	0.95	0.99	0.99	0.99
Inward FDI performance index	0.08	0.27	0.26	0.25
Russian Federation				
Exports of goods and services (% of total world)	...	1.44	1.39	1.58
Dynamic RCA	...	...	0.97	1.74
HT exports (% of manufactured exports)/HT world exports	...	...	0.57	0.71
Manufactures exports/world manufactures exports	...	...	0.33	0.28
Inward FDI performance index	...	0.11	0.39	0.42
CEE				
Exports of goods and services (% of total world)	1.501	1.396	2.121	2.696
Dynamic RCA	0.00	2.93	1.40	2.18
HT exports (% of manufactured exports)/HT world exports	...	0.21	0.29	0.30
Manufactures exports/world manufactures exports	0.89	0.91	0.94	0.97
Inward FDI performance index	0.08	2.08	1.67	1.25
EU-15				
Exports of goods and services (% of total world)	41.90	40.86	38.42	33.52
Dynamic RCA	1.22	0.78	0.50	0.02
HT exports (% of manufactured exports)/HT world exports	0.78	0.82	0.86	0.87
Manufactures exports/world manufactures exports	1.04	1.02	1.02	1.03
Inward FDI performance index	1.38	1.34	1.55	1.64
USA				
Exports of goods and services (% of total world)	12.36	12.86	13.20	11.84
Dynamic RCA	0.98	1.01	1.40	0.19
HT exports (% of manufactured exports)/HT world exports	1.86	1.81	1.58	1.53
Manufactures exports/world manufactures exports	1.00	1.03	1.06	1.07
Inward FDI performance index	1.21	0.72	0.83	0.52
Japan				
Exports of goods and services (% of total world)	8.30	7.98	6.83	5.90
Dynamic RCA	0.78	1.09	0.31	0.53
HT exports (% of manufactured exports)/HT world exports	1.35	1.37	1.28	1.22
Manufactures exports/world manufactures exports	1.36	1.29	1.24	1.22
Inward FDI performance index	0.02	0.03	0.04	0.07

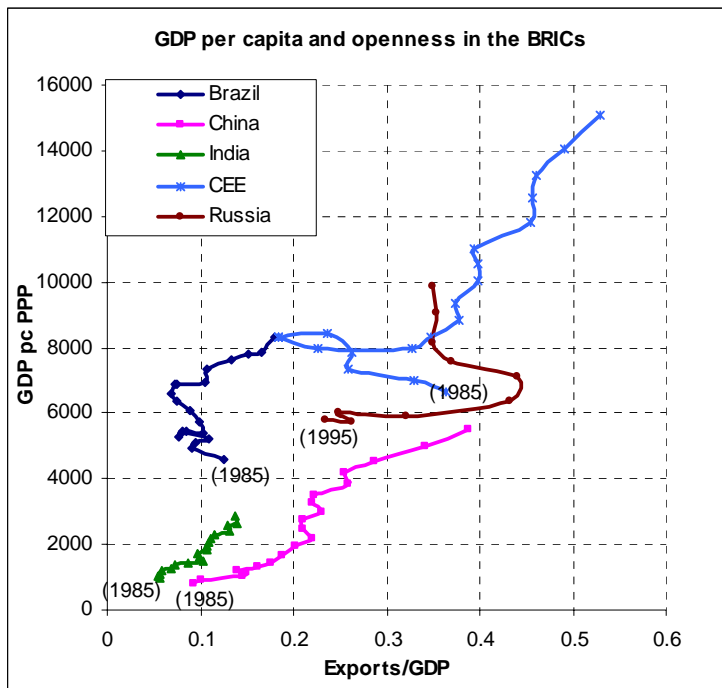
Source: own elaboration from WDI data.

Table 3 – Industry performance indicators

	1985-90	1990-95	1995-00	2000-04
Brazil				
Employment in industry (% of total employment)	23.30	20.85	19.78	20.00
Machinery and transport equipment (% of value added in manufacturing)	24.79	26.09	27.19	...
Manufacturing, value added (% of GDP)	31.83	24.44	19.50	13.04
Patent applications, nonresidents/residents	...	8.36	24.82	18.63
School enrollment, tertiary (% gross)	11.34	11.34	15.00	18.43
Energy use (kt of oil equivalent)/World energy use	0.016	0.016	0.018	0.019
China				
Employment in industry (% of total employment)	21.30	20.02	19.27	17.50
Machinery and transport equipment (% of value added in manufacturing)	25.29	24.89	27.42	31.05
Manufacturing, value added (% of GDP)	34.52	33.72	34.37	37.64
Patent applications, nonresidents/residents	...	3.15	4.56	3.70
School enrollment, tertiary (% gross)	2.94	2.94	7.80	12.76
Energy use (kt of oil equivalent)/World energy use	0.096	0.107	0.117	0.117
India				
Employment in industry (% of total employment)	13.60	13.17	12.90	...
Machinery and transport equipment (% of value added in manufacturing)	25.16	24.70	22.24	18.55
Manufacturing, value added (% of GDP)	16.65	16.75	16.54	15.52
Patent applications, nonresidents/residents	...	...	8.11	424.35
School enrollment, tertiary (% gross)	6.21	6.21	10.72	11.41
Energy use (kt of oil equivalent)/World energy use	0.040	0.045	0.050	0.052
Russia				
Employment in industry (% of total employment)	40.20	37.78	30.70	...
Machinery and transport equipment (% of value added in manufacturing)	...	22.92	20.45	21.18
Manufacturing, value added (% of GDP)	...	...	2.31	3.36
Patent applications, nonresidents/residents	...	...	2.31	3.36
School enrollment, tertiary (% gross)	...	53.32	...	69.60
Energy use (kt of oil equivalent)/World energy use	...	0.08	0.06	0.06
CEE				
Employment in industry (% of total employment)	43.11	37.27	33.57	...
Machinery and transport equipment (% of value added in manufacturing)	29.90	20.22	17.68	20.76
Manufacturing, value added (% of GDP)	37.40	27.94	22.03	20.61
Patent applications, nonresidents/residents	...	50.38	72.67	172.16
School enrollment, tertiary (% gross)	30.31	32.66	36.60	...
Energy use (kt of oil equivalent)/World energy use	0.039	0.031	0.028	0.025
EU-15				
Employment in industry (% of total employment)	31.00	29.69	27.96	27.51
Machinery and transport equipment (% of value added in manufacturing)	24.10	24.22	27.84	24.29
Manufacturing, value added (% of GDP)	22.96	21.41	20.40	18.56
Patent applications, nonresidents/residents	...	5.17	11.51	16.81
School enrollment, tertiary (% gross)	34.76	34.76	52.70	57.08
Energy use (kt of oil equivalent)/World energy use	0.16	0.15	0.15	0.15
USA				
Employment in industry (% of total employment)	27.10	24.68	23.55	22.65
Machinery and transport equipment (% of value added in manufacturing)	33.01	31.50	32.41	29.76
Manufacturing, value added (% of GDP)	20.12	18.83	17.79	15.92
Patent applications, nonresidents/residents	...	...	0.90	0.93
School enrollment, tertiary (% gross)	72.37	72.37	71.25	78.40
Energy use (kt of oil equivalent)/World energy use	0.23	0.23	0.23	0.23
Japan				
Employment in industry (% of total employment)	34.27	34.17	32.48	30.85
Machinery and transport equipment (% of value added in manufacturing)	38.44	38.16	38.26	35.43
Manufacturing, value added (% of GDP)	27.18	24.89	22.48	21.08
Patent applications, nonresidents/residents	...	...	0.21	0.28
School enrollment, tertiary (% gross)	0.19	0.21	0.97	3.26
Energy use (kt of oil equivalent)/World energy use	0.05	0.05	0.05	0.05

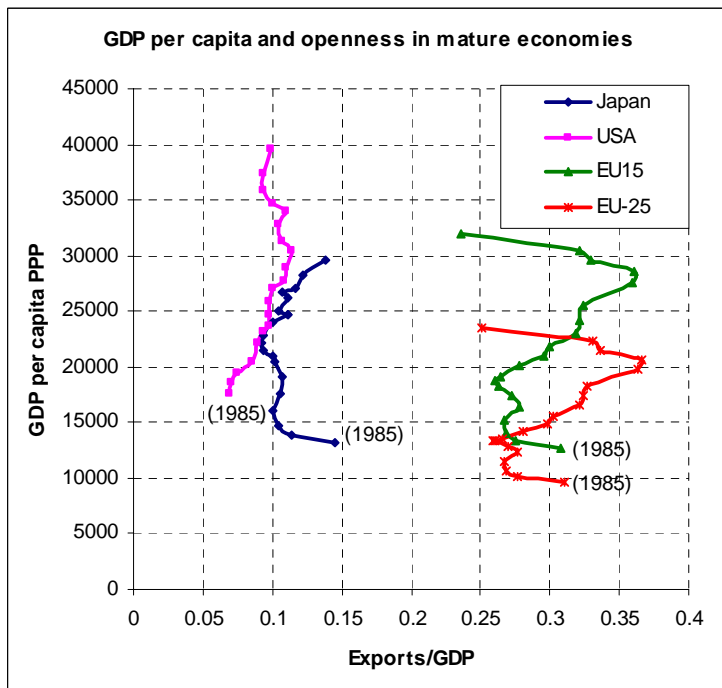
Source: own elaboration from WDI data.

Figure 1 – Openness and prosperity in emerging economies



Source: Own elaboration from WDI data

Figure 1 – Openness and prosperity in mature economies



Source: Own elaboration from WDI data