



DYNREG



CITIZENS AND GOVERNANCE IN A
KNOWLEDGE-BASED SOCIETY

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DYNREG

Dynamic Regions in a Knowledge –Driven Global Economy:
Lessons and Implications for the EU”

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DYNREG



CITIZENS AND GOVERNANCE IN A
KNOWLEDGE-BASED SOCIETY

DYNAMIC REGIONS IN A KNOWLEDGE-DRIVEN GLOBAL ECONOMY: LESSONS AND IMPLICATIONS FOR THE EUROPEAN UNION-DYNREG

The overall scientific objective of this research project was to identify the factors underlying the growth performance of emerging dynamic regions and the role of these regions in a knowledge-driven world economy with the aim to draw lessons and policy implications for the European Union. In particular, this project provides: i) a comprehensive theoretical and methodological research framework on the role of knowledge and innovation in fostering growth, competitive advantages and competitiveness and the role of public policy in fostering innovation and growth; ii) a comparative analysis of the factors underlying the growth performance of dynamic regions with a special attention to the role of knowledge and innovation in fostering growth at firm, industry, region and country levels; iii) an assessment of the role of shifting comparative advantages in the new growth regions and the impact of current trends in dynamic regions on patterns of world growth and development, competitiveness, inequalities and convergence; iv) an analysis of public policies in shaping the dynamic economic performance of firms, industries, regions and countries with the aim to draw lessons and policy implications for the EU.

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TABLE OF CONTENTS

1	Factors Underlying Growth Performance at Global, National and Sub-National Levels	1
2	Globalisation, Competitiveness, and Economic Growth	6
3	The Role of Public Policies in Fostering Innovation and Growth	12

RESEARCH RESULTS

1. Factors Underlying Growth Performance at Global, National and Sub-National Levels

Human Capital and Output Growth in ICT
Industries: Empirical Evidence from OECD
Countries

Gavin Murphy and Iulia Siedschlag

DYNREG Working Paper No. 7/2007

This paper provides novel empirical evidence showing that new technology and human capital are complementary. In particular, it examines whether human capital fosters output growth in ICT industries. We use data from a sample of twenty OECD countries over the period 1980-2002 and focus on within country differences in output growth. The main finding of this paper is that in developed countries, human capital is an important factor driving the output growth in ICT industries. Specifically, on average, other things equal, in countries with an *ex-ante* high human capital stock and in countries with a high human capital accumulation, ICT industries grew relatively faster. Furthermore, human capital stock and human capital improvement had a positive and significant effect on physical capital investment. We find that human capital was an important driving factor for output growth in ICT-producing manufacturing and ICT-using services.

Determinants of ICT Adoption: Evidence
from Firm-Level Data

Stefanie Haller and Iulia Siedschlag

DYNREG Working Paper No. 29/2008

We analyse factors driving inter-firm and intra-firm diffusion of ICT using data from Irish manufacturing firms over the period 2001-2004. We find that the path of ICT diffusion has been uneven across firms, industries and space which is consistent with the theory of new technology adoption. Our research results suggest that firms which are larger, younger, fast-growing, skills-intensive, export-intensive and firms located in the capital city region have been relatively more successful in adopting and using ICT. We find positive technology spillovers from firms that have adopted ICT located in the same industry and region. To a certain extent, patterns of ICT adoption are different for domestic and foreign-owned firms, in particular with respect to the effects of exposure to foreign markets and firm size.

On the Dynamics of Economic
Performance: an Expert Survey

*Paschalis Arvanitidis, George Petrakos
and Sotiris Pavleas*

DYNREG Working Paper No. 20/2007

Drawing on various theoretical and methodological approaches, many scholars have over the years investigated the factors underlying economic performance. Yet, findings are often contradictory and inconclusive. The paper sheds light on a number of unsettled questions concerning economic potential, using primary data from an international survey of expert opinion. Issues examined include the significance attached to explanatory factors in terms of their influence to economic performance, the combination of policies expected to advance economic potential and an evaluation of the ability of key theoretical

and methodological approaches to explore growth performance. The results have serious implications for theory and policy.

Analysis of Educational Distribution in Europe: Educational Attainment and Inequality Within Regions

Andrés Rodríguez-Pose and Vassilis Tselios

DYNREG Working Paper No. 8/2007

The geography of education, especially at subnational level, is a huge black box. Basically nothing is known about the distribution of educational attainment and inequality across regions in Europe. This paper addresses this gap in the literature by mapping educational attainment and inequality in 102 regions in western Europe, using data extracted from the European Community Household Panel (ECHP) covering more than 100,000 individuals over the period 1995-2000. The results of this Exploratory Spatial Data Analysis (ESDA) reveal a strong correlation between levels of educational attainment and inequality across regions in Europe. Regions with similar educational conditions tend to cluster, often within national borders. In addition a North-South and an urban-rural dimension is evident. Northern regions and large European metropoli have not only the most educated labour force, but also the lowest levels of inequality. Educational inequality seems to be, in any case, a fundamentally within region phenomenon. 90 percent of the educational inequality in Europe takes place among individuals living in the same region.

Education and Income Inequality in the Regions of the European Union

Andrés Rodríguez-Pose and Vassilis Tselios

DYNREG Working Paper No. 9/2007

This paper provides an empirical study of the determinants of income inequality across regions of the EU. Using the European Community Household Panel dataset for 102 regions over the period 1995-2000, it analyses how microeconomic changes in human capital distribution affect income inequality for the population as a whole and for normally working people. The different static and dynamic panel data analyses conducted reveal that the relationship between income per capita and income inequality, as well as between a good human capital endowment and income inequality is positive. High levels of inequality in educational attainment are also associated with higher income inequality. The above results are robust to changes in the definition of income distribution and may be interpreted as a sign of the responsiveness of the EU labor market to differences in qualifications and skills. Other results indicate that population ageing, female participation in the labor force, urbanization, agriculture, and industry are negatively associated to income inequality, while unemployment and the presence of a strong financial sector positively affect inequality. Finally, income inequality is lower in social-democratic welfare states, in Protestant areas, and in regions with Nordic family structures.

FDI Spillovers in New EU Member States: Which Firms Create Them and Which Firms Really Benefit?

Marcella Nicolini and Laura Resmini

DYNREG Working Paper No. 11/2007

During the past decades many governments in both developing and transition countries have offered significant incentives in order to attract foreign direct investments (FDI), being motivated to do so by expectations of possible spillover benefits. Using an unbalanced panel of firm level data in Bulgaria, Poland and Romania over the 1998-2003 period, we examine the impact of foreign firms on domestic firms' productivity. In particular, we try to answer the following research questions: 1) Are there any spillover effects of FDI, and if so, are they positive or negative? 2) Are spillover effects more likely to occur within or across sectors? 3) Are the existence, the direction and the magnitude of spillovers conditioned by sector and firm-specific characteristics? Our findings show that FDI spillovers do exist both within and across complementary manufacturing sectors. The former arise when foreign firms operate in traditional labour intensive manufacturing sectors, while the latter occur when foreign firms operate in high tech manufacturing sectors. Moreover, we find that domestic firm size conditions the exploitation of FDI induced spillovers even after controlling for absorptive capacity. We also found a lot of heterogeneity across countries consistent with the technology gap hypothesis.

Productivity Spillovers, Regional Spillovers and the Role Played by Multinational Enterprises in the New EU Member States

Marcella Nicolini, Laura Resmini

DYNREG Working Paper No. 10/2007

In this paper we analyse whether and to what extent Multinational enterprises (MNEs) can generate positive externalities for the host economies by allowing for spatial dependence patterns in Total Factor Productivity (TFP) growth rates at sectoral and regional level. To this respect, we use spatial econometric techniques, which allow us to identify not only the type of spatial dependence governing this phenomenon and to estimate it consistently, but also clusters and other "anomalies" in the patterns of productivity spillovers. There has been, at least in our knowledge, no spatial econometric study on the impact of MNEs on aggregate TFP; therefore, we aim at filling this gap. We found evidence of positive spillovers from MNEs operating in the region, and negative spillovers from MNEs outside the region. The latter are however limited to specific groups of regions, such as the capital regions and regions bordering with former EU-15 countries. Therefore, we can conclude that there seems to be a regional channel for FDI spillovers.

Inventors and the Geographical Breadth of Knowledge Spillovers

Paola Giuri and Myriam Mariani

DYNREG Working Paper No. 31/2008

This paper studies the geographical breadth of knowledge spillovers. Previous research suggests that knowledge spillovers benefit from geographical proximity in technologically active and rich regions more than elsewhere. An alternative view explains the geographical breadth of knowledge spillovers as a function of the characteristics and personal networks of the individuals. We test these

two competing theories by using information provided directly by the inventors of 6,750 European patents (PatVal-EU survey). Our results confirm the importance of inventors' personal background. However, compared to previous research, we find that the level of education of the inventors is key in shaping the geographical breadth of knowledge spillovers. Highly educated inventors rely more on geographically wide research networks than their less educated peers. This holds after controlling for the mobility of the inventors and for the scientific nature of the research performed. Differently, location matters only in the very rare regions in Europe that perform the bulk of the research in the specific discipline of the inventors.

Knowledge Spillover Agents and Regional Development

Michaela Trippl and Gunther Maier

DYNREG Working Paper No. 16/2007

In the last years, there has been a growing recognition that in the globalised knowledge economy well-educated people are a key driving force for regional development, growth and innovation. The key aim of this paper is to shed some light on the relation between the mobility of talent and knowledge flows. We refer to talented individuals who transfer knowledge from one place to another by means of their mobility as "knowledge spillover agents". Although the paper deals with highly skilled mobility and migration in general, a particular attention will be paid to flows of (star) scientists. Understanding the precise character, spatiality, and temporality of this phenomenon is essential for explaining regional growth patterns and uneven development. Based on a review of different strands of literature and recent insights from regional economics, concepts about innovation and knowledge interactions, and migration studies we examine the role of highly skilled labour for

regional development, the key factors for attracting and retaining talent as well as the rise of "brain gain" policies.

Star Scientists as Drivers of the Development of Regions

Michaela Trippl, Gunther Maier and Bernhard Kurka

DYNREG Working Paper No. 17/2007

It is widely recognised that in the emerging globalized knowledge economy well-educated people play a central role in spurring the growth of cities and regions. In this paper we focus on scientific talent as a distinctive group of the highly skilled class, trying to unravel their impact on the dynamics and performance of regions. Based on a world-wide survey of 720 so called "star scientists" we examine as to what extent these top researchers are involved in regional development activities and which factors determine their level of engagement.

Regional Growth and Convergence in Europe

George Petrakos, Dimitris Kallioras and Ageliki Anagnostou

DYNREG Working Paper No. 12/2007

This paper estimates a regional convergence model at the EU level, allowing for the possibility of a non-linear relationship between growth and development levels. The results suggest that after some threshold, convergence trends vanish and regional divergence dominates. These findings provide support to the hypothesis that both convergence and divergence processes actually coexist in all levels of development, with the former dominating in earlier stages and the later dominating in more advanced stages of development. The paper also estimates a regional growth model providing evidence that the main drivers of regional growth in Europe are agglomeration economies,

geography, integration, structure and development. The results suggest that the regional dynamics in Europe are characterized by spatial selectivity and an overall unfavorable environment for lagging-behind regions. To the extent that these trends continue in the foreseeable future, they may require a reexamination of the EU policy agenda and especially the one related to regional policy.

[Calling for Innovations - Infrastructure and Sources of Growth](#)

Marc Schiffbauer

DYNREG Working Paper No. 18/2007

This paper analyzes the impact of infrastructure capital on different sources of economic growth. Starting with the contribution of Barro (1990), the literature on infrastructure and growth mainly focuses on the relation between private and public capital investments. In contrast, we demonstrate a link between (telecommunication) infrastructure capital and endogenous technological change in the context of a dynamic panel estimation applying aggregate country- as well as U.S. firm-level data. The main empirical finding is that the increase in telecommunication infrastructure during the last 30 years enhanced R&D investments but did not affect the accumulation of physical or human capital in our sample. Moreover, we provide an extended R&D growth model, which emphasizes a cost-reducing feature of infrastructure capital, to demonstrate a potential link between the level of infrastructure capital and technological change. The model reveals different policy implications than the previous literature which are based on neoclassical inference. The findings highlight the role of infrastructure investments in (the transition to) knowledge based economies which applies to most EU member countries. In addition, it emphasizes a complementarity between infrastructure investments and industrial

policies that support R&D or higher education.

[Catching up or Falling Behind? The Effect of Infrastructure Capital on Technology Adoption in Transition Economies](#)

Marc Schiffbauer

DYNREG Working Paper No. 27/2007

This paper analyzes the importance of infrastructure capital in determining the convergence path for transition economies. That is, we examine to what extent infrastructure services, e.g. telecommunication or transportation infrastructure, influence the probability that a transition economy catches up or falls behind the endogenous growth rate of the world technology leader. Therefore, we suggest a growth model which accounts for a link between infrastructure and the process of innovation either via R&D or the imitation of foreign technologies. The former is based on the assumption that infrastructure capital reduces the effective costs of specialization into more productive products while the latter feature follows the approaches of Howitt (2000) or Benhabid and Spiegel (2005) in assuming that imitation is more productive but also more costly if an economy is further away from world technology frontier. We show that the income level in transition economies may converge to or diverge from the income level in developed countries depending on the relative infrastructure capital stock and the quality of institutions. Finally, we apply country panel data to confirm the empirical link between infrastructure capital and the speed of income convergence.

Social Capital and Growth in Brazilian Municipalities

Luca Corazzini, Matteo Grazzi and Marcella Nicolini

DYNREG Working Paper No. 15/2007

According to the modern theory of social capital (Coleman (1990), Putnam (1993), Fukuyama (1995)), widespread trust would influence the economic performance of a country through a) reduction of transaction costs and legal disputes; b) higher percentage of time devoted to innovation in new products or processes; c) higher reliability of formal institutions, which implies that people can adopt more appropriate horizons in making investment decisions and choose production technologies that are optimal over the long, rather than short, run; d) stronger social cohesion due to the sharing of ethical norms which induces cooperative behaviours and organisational innovations. On the basis of these theories a large number of empirical contributions which confirm the existence of a positive relation between growth, efficiency and the level of trust has been produced. Following the seminal work by Knack et al. (1997), we try to explain growth in Brazil over the period 2000-2003 using indicators of social capital. We develop our analysis at the most detailed geographical level, considering all 5507 municipalities. This choice is motivated by the great heterogeneity across Brazilian states in terms of growth rate. In fact, while we observe homogeneity within some State, such as Sergipe, in other States, such as Sao Paulo, huge differences are present. This forces us to consider the municipalities as unit of observation; otherwise the country level would force us to lose all the heterogeneity. In order to obtain good measures of social capital, we start from a set of objective measures, and then analyse them with factor component analysis. We find a robust evidence of the

positive effect of social capital on growth rates of income per capita.

2. Globalisation, Competitiveness, and Economic Growth

Is FDI into China Crowding out the FDI in the European Union?

Laura Resmini and Iulia Siedschlag

DYNREG Working Paper No. 25/2008

We estimate an augmented gravity model to analyze the effects of FDI into China originating in OECD countries on FDI into European Union (EU) and other countries over the period 1990-2004. Our results suggest that on average, *ceteris paribus*, over the analyzed period, FDI inflows into China have been complementary to FDI inflows into other recipient countries. If we consider FDI as part of international strategies adopted by multinational enterprises, it appears that FDI inflows into China have fostered synergies with all other recipient countries. However, it appears that these complementarities have declined over the analyzed period. Furthermore, the FDI inflows into China affect differently horizontal and vertical FDI. Our results suggest that countries which attract mainly horizontal FDI, because of their high market potential, adjust better to competitive pressures from China. As far as vertical FDI is concerned, competition with China arises in the presence of low cost advantages. As cost advantages increase, complementarities become more likely. FDI inflows into China complement FDI inflows into the EU, too. However, this positive relation is less intense in the case of horizontal FDI and more intense in the case of vertical FDI in comparison to other recipient countries.

Import Penetration, Intermediate Inputs and Productivity

Carlo Altomonte, Alessandro Barattieri, and Armando Rungi

DYNREG Working Paper No. 23/2008

We test the impact of import penetration on the productivity of a sample of roughly 35,000 Italian manufacturing firms operating in the period 1996-2003, considering the impact on productivity of both import penetration in the same industry and import penetration in the up-stream industries. We find that import penetration has a positive effect on productivity, but the effects are three times as large for import penetration in up-stream industries. Trade-related variables do not account however for the bulk of variation in individual firms' Total Factor Productivity.

Changes in Comparative Advantages

Marcella Nicolini

DYNREG Working Paper No. 21/2008

This paper inspects how comparative advantages have changed in the last 30 years. Using trade data on 197 countries over the period 1976-2004, it provides evidence that comparative advantages are not static, but change over time. More interestingly, it shows the rise in relevance of insitutional comparative advantage. Finally, it shows that this results does not hold for some countries, i.e. BRIC countries, such as Brazil, Russia, India and China.

Changing Patterns of International Integration: European Union and Trade in Intermediates

Armando RUNGI

DYNREG Working Paper No. 51/2009

This paper explores how European countries have integrated themselves in world vertical production chains in the period 1995-2006. The analysis focuses on

bilateral trade of both EU-15 and New Members of the Union with world, Brazil, Cina, India and Russia and will be performed at very disaggregated sectoral level, in order to allow differences among the above mentioned countries to emerge. Measuring the verticalization of the EU-15 through an application of Hummels, Ishii and Yi (2001), I try to identify an aggregate production function to verify the importance of imported intermediates at national level. Data come essentially from the Eurostat-ComExt database.

The Sustainable Competitive Advantage and Catching-up of Nations: FDI, Clusters, and the Liability (Asset) of Smallness?

Christos Pitelis

We explore the role of foreign direct investment and (its relationship to) clusters for the competitiveness (and catching-up) of small(er) developing countries. We suggest that while size *per se* needs not matter, small(er) developing countries need to explicitly account for any liabilities of smallness when devising and implementing strategies for competitiveness and catching-up. We claim that international strategic management scholarship can add insights on this important issue, by complementing extant literature and contributions by international trade and economic development scholarship.

Some Further Results on the Impact of Migrants on Trade

Edgar Morgenroth and Martin O'Brien

DYNREG Working Paper No. 26/2008

This paper investigates the relationship between migration and trade. Specifically it adds to the existing literature by allowing for the endogeneity of migration, as predicted by theory, while also allowing for the relationship between trade and migration to be non-linear. In contrast to previous single country studies this paper

utilises a large cross section dataset for 26 countries and their trading partners. Our results confirm that migration is endogenous, which indicates that the results reported in other papers are biased and inconsistent. Overall our consistent and unbiased results indicate that immigration and trade are complements, but the degree of their complementarity is dependant upon both the size of the existing immigrant community and where these immigrants come from. Indeed, our results suggest that the USA has reached a saturation point with some immigrant communities where immigration and trade are effectively substitutes. For EU countries this point has not been reached yet, especially if one considers exports.

[Edith Penrose and a Learning-Based Perspective on the MNE and OLI](#)

Christos Pitelis

Management International Review, 47(2): 207-220, 2007

We apply insights from Edith Penrose's work to extant theory of the multinational enterprise (MNE) as enveloped by John Dunning's Ownership, Location, Internalization (*OLI*) Paradigm. We suggest that Penrose's knowledge/learning-based approach has important implications on the nature of, and the interactions between, *O*, *L* and *I*, and it helps endogenize and integrate the three elements of Dunning's triad in the context of a dynamic, and strategic perspective of the MNE. More importantly, a learning-based perspective adds a cognitive dimension to the MNE and *OLI*. This supports a forward looking, synchronic decision making view, that may lead to apparently sub-optimal decisions, taken in view of anticipated changes, alongside strategic behaviour, aiming to effect such change, once decisions have been reached. A Penrosean-inspired knowledge/learning-based perspective helps render the *OLI* more dynamic, strategic and forward looking.

[A Behavioral Resource-based View of the Firm - The Synergy of Cyert and March \(1963\) and Penrose \(1959\)](#)

Christos Pitelis

Organization Science, 18(3): 478-490, 2007

Cyert and March's (1963) seminal behavioral theory is one of the two major economics-based theories of the firm that goes inside the "black box" (the firm)—the other being the contribution of Edith Penrose. The two theories have differences, but also similarities, and substantial scope for cross-fertilization that has gone unnoticed in the literature. In this paper, we try to integrate important ideas from both books, paying particular attention to the issue of "excess resources," slack, and (intrafirm) conflict. We then build on the integrated framework by delving into the nature of intrafirm conflict and its relationship to the degree of intrafirm rivalry, as they may impact the possible use of slack by firms. We derive propositions common to the two theories and new ones of importance to our understanding of organizational growth and change.

[Twenty Years Resource-Based View \(or is it 50?\): Some \(Old and\) New Challenges and Need for Extensions](#)

Christos Pitelis

International Journal of Learning and Intellectual Capital, 4(1/2): 47-56, 2007

We focus on Edith Penrose's resource-based theory of the firm, first appeared 50 years ago in 1955–1956. We discuss progress since, at the conceptual and empirical levels, and some criticisms and 'defences' of the modern Resource-Based View (RBV), and Edith Penrose's version in particular. We then point to existing and new challenges and ways ahead. Despite serious challenges, we suggest that the RBV holds significant promise for strategic

management, economics and their interrelationship.

Stephen Hymer's Contribution to International Business Scholarship: An Assessment and Extension

Christos Pitelis and John Dunning

Journal of International Business Studies, 39:167-176, 2008

We assess Stephen Hymer's contribution to the theory of the multinational enterprise and to international business (IB) scholarship. We focus on Hymer's evolving analytical framework, and assess it in terms of its internal consistency and in the light of the shifting global landscape and scholarly thinking. We also extend Hymer's framework, revisit his predictions, and conclude by questioning his canonical status within the IB profession.

European Industrial and Competition Policy: Perspectives, trends and A New approach

Christos Pitelis

Policy Studies, 29(4): 365-381, 2007

This article discusses alternative perspectives on competition and industrial policies (IP) in theory and in practice and critically assesses recent European IP in this context. It develops a new framework for IP that emphasises the sustainability of value creation at the firm, meso and national levels, and explores its implications for IP in general and European IP in particular. It views current EU policies as a step in the right direction, but argues that they need to pay more attention to the issue of sustainability, the link between corporate and public governance, and the impact of different power structures and hierarchies of agencies on industrial policies for sustainable value creation. The limitations of self-monitoring and diversity suggest the need for an international

competition and regulatory policy organisation, along the lines of the WTO.

The Multinational Corporation and the Global Sourcing of Knowledge: Remodeling Absorptive Capacity

Christos Pitelis, C. Kottaridi, M. Papanastassiou, and D. D. Thomakos

DYNREG Working Paper No. 35/2009

We build on extant theory of the MNC, MNC subsidiaries, absorptive capacity and Penrose's concept of 'productive opportunity' to develop a framework on the MNC and absorptive capacity (AC) that allows us to explore the role of subsidiaries in the global sourcing of knowledge. We develop and test hypotheses using primary questionnaire-collected data. Our results support the idea that subsidiaries' *realized* AC can be improved by the *realized* and *potential* AC of the MNC group and the subsidiary and in turn may improve the performance of the subsidiaries and the group as a whole.

Factors Influencing the Internationalisation of Firms: Micro Foundations of Macro Determinants

Christos Pitelis and G. Argitis

DYNREG Working Paper No. 36/2009

We draw on insights from the theory of the multinational enterprise (MNE) to explain outward investment and (thus) internationalisation. We claim that micro insights from the work of Stephen Hymer, Edith Penrose and other extant theories of the MNE can serve as micro foundations of some macro determinants of internationalisation. The focus on macro determinants pursues and develops an earlier critique of the theory of the MNE by Penrose; that it fails to distinguish between intra-national and inter-national expansion of firms. We propose demand-side national business cycle considerations as a Penrose-inspired answer to the Penrosean

critique. Our evidence derives from USA and UK data, supports insights from Hymer, Vernon, Penrose and our response to the Penrosean challenge.

The Determinants of Value Creation at the Firm, Industry and National Levels: A Framework and Evidence

Christos Pitelis and Vassilis Vasilaros

DYNREG Working Paper No. 37/2009

We aim to bridge four levels of strategy theory of value capture and sustainable value creation; micro (firm), meso (industry, region), macro (national) (and also global). We propose a framework for value creation by firms and explore firm strategies for value capture and their relationship to value creation. We construct requisite variables and test our framework for 17 OECD countries using panel data. We find support for our integrative framework. We also explore the issue of sustainability and its implications for managerial practise, corporate governance, public policy and global governance that promote sustainable global value creation.

Determinants of MNE Subsidiaries Decision to set up own R&D Laboratories- Theory and Evidence

Constantina Kottaridi, Marina Papanastassiou, Christos Pitelis

DYNREG Working Paper No. 38/2009

We explore the determinants of MNE subsidiaries decisions to set-up own R&D laboratories drawing on evidence from UK regions. In this context, we also test for the interaction between firm's internal and external environments. We also integrate extant IB and strategic management literatures and incorporate recent debates in New Economic Geography (NEG) in specifying the 'external environment'. We find support for the role of firm's 'productive opportunity' and predictions of the NEG on

the basis of an analysis of primary data. We discuss implications for managerial practice and government regional policies.

Institutional Diversity, Agency and Governance for Sustainable Value

Christos Pitelis

DYNREG Working Paper No. 39/2009

Extant views of (shareholder) value, (corporate) governance, and competitiveness have a narrow view of 'agency', a poorly developed theory of value and pay little attention to sustainability. In this paper we develop a perspective on the determinants of value-wealth creation at the firm, meso-, and national levels, explore the limitations of extant theory of the firm, concerning governance and value in its context, and discuss some prerequisites of sustainability. We conclude that the pursuit of value is not antithetical to, but it derives from, the notion of sustainability, that sustainability requires both internal and external controls and that institutional diversity can help effect mutual 'stewardship' and monitoring. Moreover, for sustainable value creation, corporate governance needs to be aligned to national and global governance.

Critical Success Factors for a Knowledge-based Economy: An Empirical Study into Background Factors of Economic Dynamism

Patricia van Hemert and Peter Nijkamp

DYNREG Working Paper No. 28/2008

The past decade has shown a rising popularity of the notion of the knowledge-based economy. The relationship between knowledge and economic growth is often studied in a conceptual and empirical context by addressing correlations between these factors (on the basis of e.g. the new growth theory and endogenous growth theory). This paper, however, takes

an evolutionary and more exploratory route. In our study, a sample of 'knowledge experts' is used to identify the relative importance attached by these experts to the various factors that shape the force field of a knowledge-based economy. The study is carried out for different types of regions/ countries in the world (the Netherlands, developed regions, developing regions, and semi-developed regions). Starting from the notions of mainstream theory, our analysis finds that Dutch experts are of the opinion that economic dynamism is explained by increasing returns to scale and network effect rather than by international free trade. In particular, competitiveness is related to the location of industries and economies of agglomeration (i.e. linkages), whereby also social, cultural and institutional factors in the spatial economy are taken into account. When further analysis using statistical regression methods and multivariate factor analysis shows that Dutch experts are supportive of the notion that especially the interplay between knowledge development and institutional dynamics shape the economic landscape of a particular region, we propose a more evolutionary view instead of the new trade theory and New Economic Geography.

[Mapping Regional Personal Income Distribution in Western Europe: Income per Capita and Inequality](#)

Andrés Rodríguez-Pose and Vassilis Tselios

DYNREG Working Paper No. 33/2008

Past studies of regional economic disparities in the EU are fundamentally based on the information provided by macroeconomic variables. This paper considers regional disparities using microeconomic data aggregated at the regional level, paying attention not only to the average but also to the inequality levels of individual incomes within regions. It

maps regional personal income distribution in western Europe, using data from the European Community Household Panel (ECHP) data survey covering more than 100,000 individuals, for 102 regions, and over the period 1995-2000. The Exploratory Spatial Data Analysis on income per capita and inequality reveals a rich set of findings. (1) There is a strong U-shaped relationship between income per capita and inequality which is highly robust across inequality measurements. (2) 80 percent of the income inequality in Europe takes place among individuals living in the same region. (3) Regions with similar income conditions tend to cluster, not only within national borders, but also across nations. (4) There is a North-South and an urban-rural divide where northern regions and city-regions have the highest economic development, as well as the lowest levels of inequality.

[Inequalities in Income and Education and Regional Economic Growth in Western Europe](#)

Andrés Rodríguez-Pose and Vassilis Tselios

DYNREG Working Paper No. 34/2008

Does inequality matter for regional growth? This paper addresses this question, using aggregated microeconomic data for more than 100,000 individuals over a period of 6 years from the European Community Household Panel (ECHP) dataset, complemented with Eurostat's Regio data. The aim is to examine the relationship between income and educational distribution and regional economic growth in western Europe. Our results indicate that, given existing levels of inequality, an increase in a region's income and educational inequality has a significant positive association with subsequent economic growth. Educational achievement is positively correlated with economic growth, but the impact of initial income levels is unclear. Finally, the

results suggest that inequalities in educational attainment levels matter more for economic performance than average educational attainment. The above findings are not only robust to the definition of income distribution, but also across inequality measurements.

[From Innovation to Exporting or Vice Versa?](#)

Jože P. Damijan, Črt Kostevc and Sašo Polanec

DYNREG Working Paper No. 22/2008

Firm productivity and export decisions are closely related to innovation activity. Innovation may play a more important role in the decision to start exporting, and successful exporting may drive process innovation. This suggests that the causality between innovation and exporting may run in both directions. Using detailed microdata from innovation surveys, industrial production surveys, and trade information for Slovenian firms in 1996-2002, we investigate the bidirectional causal relationship between firm innovation and export activity. We find no evidence for the hypothesis that either product or process innovations increase the probability of becoming a first-time exporter, but we do find evidence in both the innovation survey and the industrial production survey that exporting leads to productivity improvements. These, however, are likely to be related to process rather than product innovations, and are observed only in a sample of medium and large first-time exporters.

3. The Role of Public Policies in Fostering Innovation and Growth

[What Drives the Location Choice of R&D Multinationals in the European Union?](#)

Gavin Murphy, Iain Nash, Iulia Siedschlag

DYNREG Working Paper No. 48/2009

This paper analyses the determinants of the location of R&D multinational enterprises across European Union countries. Our sample includes 445 new R&D multinational enterprises incorporated in the European Union over the period 1999-2006. The data source is the Amadeus database. Our results indicate that the probability to locate in an EU country increases with the number of existing R&D firms, flexible labour markets, high skills, efficient financial markets and low technological development. Taxation does not appear to have a significant effect on the location choice of R&D multinationals.

[What Determines the Attractiveness of EU Regions to the Location of R&D Multinationals?](#)

Iulia Siedschlag, Donal Smith, Camelia Turcu, Kevin Zhang

DYNREG Working Paper No. 46/2009

This paper examines the attractiveness of EU regions to the location of R&D multinationals. Our sample includes 446 location decisions of new R&D multinational enterprises incorporated in the European Union over the period 1999-2006. The data source is the Amadeus database. Our results suggest that on average, the probability to locate in an EU region (NUTS 2) increases with the size of demand (market potential), agglomeration economies (positive spillover effects from existing foreign R&D firms), technological development (R&D intensity), flexibility of labour markets, proximity to research excellence centres (university in the top

200 list) and physical infrastructure. The determinants of the location choice of R&D multinationals are different for regions in Western Europe (EU15) and Central and Eastern Europe. While in Western Europe, regions with higher GDP per capita are the preferred locations for R&D multinationals, in Central and Eastern Europe, regions with lower GDP per capita attract the bulk of R&D foreign investment. Unemployment rates appear negatively correlated with the probability of R&D multinationals while they do not have an effect on the location decision in CEECs.

What Determines the Attractiveness of EU Regions to the Location of Multinationals in the ICT Sector?

Iulia Siedschlag, Kevin Zhang, Donal Smith

DYNREG Working Paper No. 45/2009

This paper examines the attractiveness of EU regions to location of multinationals in the Information and Communications (ICT) sector. Our sample includes 8,543 foreign affiliates of multinational enterprises (MNEs) in the ICT sector incorporated in twenty member states of the European Union over the period 1998-2008. The firm-level data source is the Amadeus database. Our results suggest that on average, the probability to locate in an EU region (NUTS 2) increases with the size of demand (market potential), agglomeration economies (positive spillover effects from existing firms in the ICT sector), technological development (R&D expenditure), flexibility of labour markets, and information technology infrastructure. Regions with lower GDP per capita appear more attractive as location choices for ICT multinationals. The determinants of the location choice of ICT multinationals are different for regions in Western Europe (EU15) and Central and Eastern Europe. While in Western Europe, regions with higher GDP per capita are the preferred locations for both ICT multinationals in manufacturing and service sectors, in

Central and Eastern Europe, regions with lower GDP per capita attract the bulk of ICT service multinationals. A negative competition effect from domestic ICT firms is found in Western Europe for the service sectors. Unemployment rates appear negatively correlated with the probability of location in the whole EU and Western Europe, while they increase attractiveness for regions in CEECs. Some determinants are also found having heterogeneous effects on multinationals from different countries. In particular, US multinationals are not sensitive to labour costs while EU multinationals respond to this factor negatively.

Do Foreign Mergers & Acquisitions Boost Firm Productivity?

Frances Ruane, Marc Schiffbauer, Iulia Siedschlag

DYNREG Working Paper No. 47/2009

This paper examines the causal relationship between foreign acquisitions and firm productivity in the UK over the period 1999-2007. While we find little evidence for positive effects of foreign acquisitions on total factor productivity, our results uncover positive and increasing effects on labour productivity (a partial productivity measure) from the first until the fifth year of the post-acquisition period. The results are broadly similar for firms taken over by US and EU based firms. We find that the effects of foreign acquisitions vary across industries. It appears that while foreign ownership led to higher productivity in the office & electrical machinery industry, it had a negative effect on productivity in the renting of machinery & equipment industry. Firms acquired by foreign investors in computer services experience a higher productivity in the second year of the post-acquisition period.

How Efficient are Public R&D Subsidies in Promoting Firm's Innovation and Growth? Evidence from Slovenia

Jože P. Damijan and Črt Kostevc

DYNREG Working Paper No. 56/2009

Efficiency of R&D subsidies for promoting firm innovation has been found controversial in the literature. In order to study this issue in Slovenia, we use comprehensive firm-level accounting information (1996-2002), which is combined with the CIS data for a large sample of Slovenian manufacturing enterprises (1996-2002). By estimating the probit model on the whole dataset, we find that both public R&D subsidies as well as R&D subsidies received from abroad (both measured as a share of firm's total R&D subsidies) help significantly Slovenian firms to increase their ability to innovate. R&D subsidies received from abroad are shown to be twice that efficient as the public subsidies in terms of the likelihood of new innovations. These results are confirmed in an alternative estimation procedure by using the matching based on "subsidy success" (subsidized versus non-subsidized firms) in order to compare their R&D efforts and matching based on the propensity to innovate (innovator versus non-innovator) in order to explore the impact of different R&D sources on productivity growth. Received R&D subsidies are shown to enhance the probability of firms to start innovating.

Inflation, Financial Development and Long-run TFP-Growth

Marc Schiffbauer

DYNREG Working Paper No.57/2009

This paper demonstrates a negative relation between inflation and long-run productivity growth. Inflation generates long-run real effects due to a link from the short-run interplay between nominal and financial frictions to a firm's qualitative

investment portfolio. First, we employ country panel data to investigate the robustness of a negative causal effect of inflation on long-run TFP-growth. Second, we develop an endogenous growth model whose key ingredients are (i) a nominal short-run portfolio choice for households, (ii) an agency problem which gives rise to financial market incompleteness, (iii) a firm level technology choice between a return-dominated but secure and a more productive but risky project. In this framework, inflation increases the costs of corporate insurance against productive but risky projects and hence a firm's choice of technology. It follows that economies (time periods) that feature a higher level of inflation are predicted to exhibit lower TFP-growth in the long-run. That is, each level of inflation is associated with a different long-run balanced growth path as long as financial markets are incomplete. Finally, we apply U.S. industry as well as firm level dynamic panel data to examine the relevance of our specific microeconomic mechanism. We find that (i) firms insure systematically against risky R&D investments by means of corporate liquidity holdings; (ii) periods of higher inflation restrain firm-level R&D investments by reducing corporate liquidity holdings.

The Interdependence of Private and Public Interests

Joseph Mahoney, Anita McGahan and Christos Pitelis

DYNREG Working Paper No. 40/2009

The predominant focus in research on organizations is either on private or public institutions without consistent consideration of their interdependencies. The emphasis in scholarship on private or public interests has strengthened as disciplinary and professional knowledge has deepened: management scholars, for example, tend to consider the corporation as the unit of analysis, while scholars of public policy often analyze governmental, multilateral,

community and non-profit organizations. This article advocates a partial merging of these research agendas on the grounds that private and public interests cannot be fully understood if they are conceived independently. We review three major areas of activity today in which public and private interests interact in complex ways, and maintain that current theories of organization science can be deployed to understand better these interactions. We also suggest that theories of public-private interaction also require development and describe a concept called “global sustainable value creation,” which may be used to identify organizational and institutional configurations and strategies conducive to worldwide, intertemporal efficiency and value creation. We conclude that scholarship on organizations would advance if private-public interactions were evaluated by the criterion of global sustainable value creation.

[Public Subsidies, Business R&D and Innovativeness. A Qualitative Meta-Analysis](#)

Patricia van Hemert and Peter Nijkamp

DYNREG Working Paper No. 53/2009

The relationship between innovation and competitiveness is an important topic in both academic research and economic policy and has been studied extensively over the past few decades. Investments in private and public R&D are nowadays believed to make up the heart of a modern knowledge economy. In the present paper, we will adopt an evolutionary economics perspective and investigate whether, in addition to private R&D activities, also institutional arrangements and policy interventions play a role in shaping innovation patterns and their impacts on the innovativeness and competitiveness of industries. We aim to find support for the evolutionary claim that the competitiveness of industries in the international arena must be sustained by the dynamic interaction

between, national, regional and sectoral systems. Since, according to the evolutionary metaphor, the growth of an innovation system follows a complex dynamics that cannot simply be analysed within an equilibrium framework, we will here use an alternative approach based on qualitative pattern recognition analysis originating from artificial intelligence analysis. We will employ here in particular rough set analysis which has proven to be a promising tool in order to explore and identify broad underlying qualitative relations between variables used. Besides R&D expenditures, human capital expenditures are regarded as the major input in the knowledge creation process in our analytical framework. Focus of our investigation is on patterns in the competitiveness of the EU member states, using quantitative data from the European Innovation Scoreboard. In our analysis we find support for the hypothesis that there are indeed interactions between different institutional levels, and, as a result, for the importance of the broader systemic context within which the innovative process unfolds for the study of patterns and impacts of innovation for policy purposes.

[Entrepreneurship, Innovation and Regional Development: A Southern European Perspective](#)

George Petrakos, Pantoleon Skayannis, Apostolos Papadoulis and George Anastasiou

DYNREG Working Paper No. 50/2009

This paper explores the ability of peripheral European productive systems to adjust in the new knowledge-driven environment and benefit from the development policy agenda of the EU and the member states, which is dominated by the Lisbon Strategy. In this framework, the paper analyses the adjustment and prospects of the productive and innovative system of Greece, with special reference to the region of Thessaly. Part of the analysis is based on a business

survey conducted in Thessaly, inquiring into the patterns and changes in the innovative activity of industrial firms. The analysis focuses on the role of the internal and external environment, specialisation, human resources and inter-firm relations. It also focuses on the ability of firms to innovate and compete in an increasingly open and demanding environment. Our findings reveal the difficulties of applying the Lisbon Strategy in peripheral economies and as such they have important implications for regional innovation policy.

[Innovation Governance for Value Capture- The Problem and a Proposed Simple Model-based Solution.](#)

Christos Pitelis and Andreas Panagopoulos

DYNREG Working Paper No. 42/2009

We aim to model the "optimal" choice on internal versus external innovation for value capture of different-sized firms, in the context of multi-level bargaining. We find that size differentials are a major determinant for the choice in hand. We derive implications for "closed" versus "open" innovation approaches, and we discuss managerial practice, limitations and possible extensions. Our results suggest that there can exist a division of labour between large and small firms with the latter focusing on R, and with large firms focusing on D, that leverages their respective competencies. In the presence of multi-level bargaining the share of benefits is satisfactory to both sides, not least because of the possibility of litigation, but also the fact that overall value creation is higher than when each firm does both R and D. In this context, firms can use open or closed innovation (or both) depending on circumstances that allow them to benefit from such an arrangement. Our results may also help explain the paradox of going from "open" to "closed" and back to "open". Starting from the last mentioned,

innovation was originally open because there existed no (large enough) firms to "close" it. The emergence of managerial hierarchies allowed closure. "Closed" has disadvantages too. Once firms have acquired size and capabilities that allow them to "open-up", while simultaneously capturing (more) value, they will be inclined to do so allowing (or even encouraging) other firms' to R. Going "open" also allows large firms to licence their non-value capturing R in order to capture further value from this as well as the further R that the R and D of others will create through the leveraging of their original R. On the other hand, in the presence of multilevel bargaining, small firms will be able to capture value from their R. Thus they will not need to be too protective of it and/or stop doing R, thereby undermining the sustainability of the R-creation process.

[Human Resource Practices and Value Capture from Investment in Knowledge/Innovation: Evidence from a Quasi-Experiment](#)

Christos Pitelis and A. Georgiadis

DYNREG Working Paper No. 41/2009

We analyse the link between human resource (HR) practices and the ability of firms to capture value from investments in knowledge-innovation and present evidence that supports a positive relationship between the two, employing an empirical design that utilises a unique data set that is based on a quasi-experiment. Our findings suggest that an additional pound invested in R&D, increases the rate of return of businesses that receive support in the form of employees and management/entrepreneur training, as well as improved workforce retention and recruitment, by significantly more than businesses that didn't receive such support. This has important implications for managerial practice and public policy.

Value Capture from Organizational Advantages and Sustainable Value Creation

Christos Pitelis

DYNREG Working Paper No. 43/2009

The impact of firm value capture strategies on the sustainability of the value creation process as a whole has been little discussed in the literature. Despite contributions by leading scholars on issues pertaining to value capture and value creation, moreover, we still lack a systematic framework of their determinants. Our purpose in this paper is to propose a conceptual framework for value creation and value capture, explore their relationship, and discuss prerequisites for sustainable system-wide value creation. We then derive propositions and explore implications of our analysis on business strategy and public policy.

The Intelligent Organisation, a HR Solution for more Innovation to Cope with Globalisation and the Economic Crisis?

Tom Vermeylen

DYNREG Working Paper No. 54/2009

The question this article addresses is: How can we stimulate innovation and creativity in an economy, in enterprises, schools, and organizations? Aside from investment in R&D we focus here on the way organizational development can help create innovation. Many theories of HR management are old, but for some of them the implementation only now becomes urgent. Following former head of HR with Nokia, Pentti Sydänmaanlakka, the missing link in innovation policies is an adapted form of leadership and management. Hence, the working environment is, as the global environment, changing rapidly and dramatically. He states that we should be moving from a old-fashioned industrial management paradigm towards an adapted post-

industrialised paradigm. The argument is that in knowledge organisation the hierarchical management through command, control and correct is no longer the most effective strategy. As the manager is no longer capable of having expertise in all increasingly specialized discipline of its employees. The adaptation of new strategies is especially urgent in high-skilled, complex work disciplines and organisations. The so-called 'intelligent organization model' is proposed. This model emphasises on non-hierarchical, supportive, empowering and self-management. The business culture should even place dreams as their focus.

Is there Regional Convergence in Social Welfare?

Andrés Rodríguez-Pose and Vassilis Tselios

DYNREG Working Paper No. 55/2009

Economic and social cohesion at a regional level is one of the main objectives of the European Union. However, while economic cohesion, proxied by GDP per capita, has attracted significant attention with most studies finding little regional convergence since 1985, social cohesion has been virtually ignored. This paper tries to cover this gap by asking the question of whether regional convergence in social welfare, measured by Sen's index, has taken place across regions of the EU-15. Using panel data models with or without spatial interaction effects we find that the absence of convergence in GDP per capita is not matched in terms of social welfare. Welfare levels have converged significantly across European regions and this convergence has been built on a series of structural and institutional factors, among which female participation in the labour force is the most relevant.