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#### From the Chief Editor

# THE ANTI-CRISIS PROGRAM: MISCONCEPTIONS AND EXPECTATIONS

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# UDC 330.8

# **DO INSTITUTIONS MATTER IN SPATIAL ECONOMICS?1**

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The article discusses the importance of institutions as the subject of spatial analysis, component of economic space and object of territorial strategic regulation. The author identifies methodological contradictions of the modern theory of spatial economics associated with contrast between institutional and geographical factors, ignoring polymorphism of institutions, the role of institutional configurations and the prevalence of exogenous interpretation of institutions. The author also classifies problems of measuring the quality of institutions and their integration in territorial strategies, including ignoring the interplay between institutions and other factors of spatial development, the absolutization of the role of integral indicators, the weakness of the methodological and methodical bases of formation of institutionalization strategies at regional and local levels.

*Keywords:* institutions, economic space, institutional configurations, institutionalization strategy, cognitive-institutional approach.

DOI: 10.14530/se.2015.1.014-037

<sup>&</sup>lt;sup>1</sup> This article was prepared with the support of RFH, project No. 15-12-34012.

# UDC 351+332+321

# TRANSFORMATION OF SOCIOECONOMIC SPACE: THE ROLE OF THE STATE

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Modern Russia is traditionally characterized by a special and strong public participation in solving problems of spatial development. Thus, the state has following diverse roles: 1) the creator of the modern space configuration; 2) the mastermind and main driving force of modern spatial transformations; 3) the regulator and investor of these processes; 4) the main sponsor and beneficiary of space transformation; and, finally, the hostage of its own dominance in the processes of spatial transformation. However, stereotypes are being gradually overcome and public policy in the area of spatial transformations focuses not only on «public projects» but also on self-development of regions, combined with the interests of big business which plays an increasing role in the transformation of socioeconomic space. The article reveals the meaning and content of the problem of systemic interaction between the state and space concerning the modernization of the country. The author explores the range of fundamental research and applied issues resulting from the contradictory combination of traditional (historical) stereotypes and the latest Russian circumstances. These issues determine the background, nature and consequences of state impacts on socio-economic space, as well as the composition, content and validity of the used instruments.

*Keywords:* space, state, modernization, spatial transformations, subject, objects and instruments of state policy of spatial transformations.

DOI: 10.14530/se.2015.1.038-061

UDC 519.86+332.14

# **MODELLING ENERGY – ECONOMY INTERACTIONS (THE FAR EAST EXPERIENCE)2**

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The article presents the evolution of models and model complexes used to study the relationship between economy and energy sector; the authors characterize models that describe these relationships in exogenous form (optimization and simulation models) and endogenous form (integrated econometric and input-output models and models of economic interactions (general equilibrium models)). The researchers also develop a model of economic interactions of the Far East with a detailed energy sector and propose a series of experimental calculations based on this model. The paper includes estimation of intervals sustainability of regional macro-indicators to changes in energy and fuel prices; the authors find that the dynamics of GRP and income are more sensitive to changes in hydrocarbon prices than to changes in prices of electricity and coal. It is shown that in existing technologies the reduction in the price of coal relative to natural gas leads to lower economic growth in the region. It is established that the substitution of imported oil for that produced in the region leads to the downturn in the region's economy, whereas in the case of coal it produces growth.

*Keywords:* model of economic interactions (general equilibrium model), regional economy, fuel and energy complex, structural linkages, fuel and energy balance, the Far East.

DOI: 10.14530/se.2015.1.062-090

<sup>&</sup>lt;sup>2</sup> The work was supported by the FEB RAS grant No. 15-I-8-003 «Simulation of inter-sectoral interactions in the Russian Far East with built-in mechanisms of coordination of economic agents' interests».

UDC 332.1

# ASSESSING THE EFFECTIVENESS OF PUBLIC FINANCIAL INSTITUTIONS FOR SPATIAL DEVELOPMENT: THE EXPERIENCE OF RUSSIA

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The study attempts to evaluate the presence effects of the development bank (Vnesheconombank) which co-finances projects in the Russian regions. The author tests the hypothesis of a statistically significant correlation between the presence of development projects in the regions and regional economic growth. For this purpose the researcher uses the «difference of differences» method (DD-method). Due to the fact that the author applies DD-method at the regional level, the model includes fixed effects of regional scale that can eliminate spatial (first difference) and time (second difference) heterogeneity which doesn't associate with the presence of the Bank in the region. The model's sample includes 78 regions of the Russian Federation for the period 2003–2011. On the basis of the performed calculations the author refuted the tested hypothesis.

*Keywords:* public financial institutions, development bank, projects, spatial development, economic growth, effects, the Russian Federation subjects, Russia.

DOI: 10.14530/se.2015.1.091-108

UDC 620.9:338

# ESTIMATING PRICE ELASTICITY OF DEMAND FOR MOTOR FUEL IN THE TRANSPORT SECTOR3

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Modeling of long-term forecasts of prices and demand on regional energy markets requires accounting for the future changes in the interactions between the greater economy and its energy sector, along with the possible emergence of new factors and specific regional features determining those interactions. The proposed approach allows the study of a correlation between demand and prices for motor fuel, taking into account the competition of energy carriers, the dynamics of energy prices, resource constraints, the use of new technologies and the uncertainty of input data. The main feature of the proposed approach is the combined estimation of the price elasticity of demand for motor fuel with optimization of fuel supply in the region. Thus the author determined elasticity of demand based on the comparison of economic efficiency of the use of different fuels. The study includes results of experimental calculations and forecasted price according to demand for motor fuel in freight transportation for the expected development conditions of the Far Eastern federal district.

*Keywords:* energy resources demand, regional energy markets, energy prices, fuel efficiency, fuel competitiveness, elasticity of demand, forecasting methods.

DOI: 10.14530/se.2015.1.109-122

<sup>&</sup>lt;sup>3</sup> The study was financially supported by the RFBR, project No. 13-06-00303-a.

# UDC 332.14

# STATE SUPPORT OF SMALL AND MEDIUM ENTERPRISES IN RUSSIA: SPATIAL ISSUES4

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The paper analyses the spatial asymmetry of the development level of small and medium enterprises (SMEs) and its support by the state in Russian regions. Using the integrated assessments of the development level and per capita state support for SMEs the author makes grouping of subjects of the Russian Federation by 5 taxa: «very high development», «high development», «moderate development», «low development» and «very low development». The researcher also composes two-dimensional matrices based on above indicators (SME development and its state support) for conditions of 2012 and the forecast to 2015 (under the current trend). The study shows that the asymmetry of the development level will persist over time; and maintaining the existing policy of state support for SMEs will only increase differences in the development level between the Russian territories. Moreover, the stability of matrix of the spatial asymmetry of SMEs does not presuppose stable positive changes. This suggests that the existing mechanism of state support for SMEs does not regulate the processes of spatial development.

Keywords: small and medium enterprises, state support, inter-regional asymmetry, short-term forecasting.

DOI: 10.14530/se.2015.1.123-134

<sup>&</sup>lt;sup>4</sup> The article is prepared by results of the researches executed at the expense of budgetary funds on the Government task of Financial University, 2014.

UDC 330.15:332.142.4

# NATURAL RESOURCE SYSTEMS AND THEIR IMPACT ON THE ECONOMIC DEVELOPMENT OF UKRAINE

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To assess the impact of natural resource systems (natural resources in general, land and forestry in particular) on the development of Ukraine's economy the authors calculated the separate elasticity of growth factors, which are the labor (number of employees), physical capital (value of fixed assets) and natural capital. All results are based on the Cobb – Douglas production function in logarithmic form. Depending on the influence level of the functioning effects of natural resource systems (high, medium, low) the authors divided Ukraine's regions into three groups. This impact assessment of integrated resource potential (natural resource systems) gives a more optimistic result than the results of its components (land and forestry complexes). In the first case there are 6 regions in the group with low impact, whereas in the second case – 10 and 14 regions, respectively.

*Keywords:* effects evaluation, natural resource systems, land complex, forestry complex, region, economy, Ukraine.

DOI: 10.14530/se.2015.1.135-143

#### Surveys

UDC 330

# ECONOPHYSICS: FROM FINANCE ANALYSIS TO THE FATE OF MANKIND

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This article reviews the key ideas and results of the new interdisciplinary field – econophysics. Econophysics has emerged organically from a new paradigm of inquiry – synergy. The first and most important characteristic of econophysics is its reliance on the phenomenological approach in economic research, which aims to describe a phenomenon's nature without aspiring to an exhaustive explanation of its mechanics. Econophysics, utilizing the methods of quantum and statistical physics, had predicted national and global crises (the collapse of the Soviet Union, collapses in the Chinese stock market in 2005–2009 and the global financial crisis). Nonlinear dynamic models were used to describe cyclical and complex modes of the dynamics of socio-economic systems (population, city development, trade between countries and so on). Near-term prospects of econophysics are associated with more in-depth study and simulation of the behavior of economic agents, development of the theory of nonlinear dynamics and interdisciplinary interaction. The value of econophysics is in its ability to both produce applicational results and evaluate scenarios of global development and focus on the fate of humanity.

*Keywords:* econophysics, synergy, theory of nonlinear dynamics, crisis in Economics, social analysis, new humanitarian thinking.

DOI: 10.14530/se.2015.1.144-166

# Reviews

UDC 911.37+332.13

# ST. PETERSBURG – MOSCOW: ON SOME RESULTS OF A FASCINATING PROJECT (about the Book «Journey from St. Petersburg to Moscow: 222 Years Later»)

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#### From the Chief Editor

# NEW EASTERN POLICY AND ECONOMIC REALITIES

# P.A. Minakir

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UDC 338.001.36

# THE MARKET SIZE EFFECT ON FORMATION OF BUSINESS SECTOR AND INEQUALITY LEVEL AMONG INDIVIDUALS UNDER INELASTIC PRODUCTION OF EACH FIRM5

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This paper is addressed to explanation of impact of market size on selection into entrepreneurship and inequality within two-sector economy with secluded good, populated by individuals with additively-separable preferences, defined by power specification of utility function. Individuals are differentiated by two characteristics: productivity and type of variety, which can be potentially produced by given individual if he or she chooses entrepreneurial activity instead of salaried work. Each entrepreneur can produce only one unit of givenindividual characteristics specific variety. The specific variety are produced not unique producer, but for any type of entrepreneurial ability there are individuals with given ability, who produce the same variety. Number of such producers is defined by distribution of entrepreneurial abilities. Anyone of entrepreneurs producing the given type of entrepreneurial ability whole range of varieties are produced by different entrepreneurs with given entrepreneurial ability. As far cost of production depends on entreprenurial ability, the prices charged by entrepreneurs with the same ability are equal. Such specification of market structure allows consider symmetric equilibrium in terms of prices. The main result oathe model is nontrivial impact of market size on outcome: the bigger number of population, the less share of salaried workers, the hire prices and the economy is more unequal.

*Keywords:* entrepreneurship, distribution of abilities, two-dimensional heterogeneity of individuals, inelastic production, income inequality, effect of market size.

DOI: 10.14530/se.2015.2.012-030

<sup>&</sup>lt;sup>5</sup> This study was financially supported by the RFFR project No. 13-06-00914a, the EERC grant No. 120401 and the grant of the Government of the Russian Federation No. 11.G34.31.0059.

UDC 330.35+336.7

# ACCESS TO CREDIT AND ECONOMIC GROWTH IN RUSSIAN REGIONS

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Is a well developed financial system a necessary condition for economic growth at the subnational level in terms of reducing technological and institutional barriers to capital movements and growing financial markets integration? Or is it sufficient for economic agents to have access to financial services provided by residents of other regions and countries? The authors attempt to answer these questions, using the approach of R. Rajan and L. Zingales and data on manufacturing industries of the Russian regions in 2004–2012. The results suggest that the development level of local financial intermediaries had no statistically significant impact on growth of manufacturing industries in the regions of Russia. The study can be interesting for a general discussion of the relationship between the degree of financial system development and economic dynamics; the role of financial sector in transition economies and emerging markets, i.e. countries, which are characterized by high information asymmetry, weak institutions of property rights protection and high risks, including political ones.

*Keywords:* economic growth, financial development, regional financial system, external funding, regions of Russia.

DOI: 10.14530/se.2015.2.031-046

UDC 332.1

# ASSESING THE EFFECTIVENESS OF JOINT COMPANIES IN RUSSIA: INDUSTRY-SPECIFIC FEATURES6

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The paper evaluates the effectiveness of joint and domestic companies using ROA (operational efficiency) and DEA (technical efficiency) methodologies. The technical efficiency was estimated in two ways: according to the classical scheme and taking into account spillover effects. The study was based on statements of Russian companies (23 567 joint enterprises and 14 653 companies without FDI) for the period of 2008–2012. The authors used RusLana resource to get following information: balance sheets, profit and loss statements, capital structure, number of employees and regional affiliation. The study found that joint companies usually operate more effectively than domestic ones. The authors also conclude that the crisis has not caused severe damages to the average effectiveness by industries. More than that, Russian economy has positive horizontal and vertical FDI spillover effects which increase as time goes by. In 2012 the most efficient joint companies (in terms of technical efficiency) belonged to the following industries: coke and petroleum production, chemical industry and metallurgy. The most ineffective ones included following: wholesale and retail trade, machinery and equipment production and agriculture.

*Keywords:* foreign direct investment, industry, operational efficiency, technical efficiency, data envelopment analysis, spillover effect, Russia.

DOI: 10.14530/se.2015.2.047-063

<sup>&</sup>lt;sup>6</sup> The work was supported by the RFBR project No. 15-02-00622.

UDC 332.1+332.05+330.43

# ANALYSIS OF REGIONAL UNEMPLOYMENT IN RUSSIA AND GERMANY: SPATIAL-ECONOMETRIC APPROACH7

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This paper analyzes the regional unemployment in Russia and Germany in 2005–2010 and addresses issues of choosing the right specification of spatial-econometric models. The analysis based on data of 75 Russian and 370 German regions showed that for Germany the choice of the spatial weighting matrix has a more significant influence on the parameter estimates than for Russia. Presumably this is due to stronger linkages between regional labor markets in Germany compared to Russia. The authors also proposed an algorithm for choosing between spatial matrices and demonstrated the application of this algorithm on simulated Russian data. The authors found that 1) the deviation of the results from the true ones increases when the spatial dependence between regions is higher and 2) the matrix of inverse distances is more preferable than the boundary one for the analysis of regional unemployment in Russia (because of the lower value of the mean squared error). The authors are also planning to apply the proposed algorithm for simulated data of Germany. These results allow accounting the spatial dependence more correctly when modeling regional unemployment which is very important for making proper regional policy.

*Keywords:* spatial-econometric modelling, spatial weighting matrix, regional unemployment, Russian regions, German regions.

DOI: 10.14530/se.2015.2.064-085

<sup>&</sup>lt;sup>7</sup> The study was supported by the Government of the Russian Federation, grant No.11.G34.31.0059.

UDC 330.35

# INNOVATION AS A FACTOR OF EUROPEAN ECONOMIC DYNAMICS (EMPIRICAL ANALYSIS)8

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The study considers at the macro level the problem of correlation between the dynamics of product and investment, labor productivity and capital labor ratio. The authors tested the hypothesis that economic growth is caused not only by the scale of investment, but also by their quality characteristics and impact of the innovation factor. The researchers proposed the approach to the measurement and evaluation of innovative activities, made calculations for a number of European countries for the period 1995–2007 and classified countries by development type according to the role of innovation factor. There are 3 types of countries: the 1st one is characterized by lack of innovation and creation of its background for achieving good results in later stages of development (UK); the 2nd one is boundary with technologies of base period (Denmark, France, Cyprus, Austria, Italy); and the 3rd one shows the results of innovative activity (Czech Republic, Hungary, Finland). The results related to economic development and evaluation of innovative activity of the new EU members with their relatively weak starting conditions can be of interest for Russia.

*Keywords:* innovation factor, labor productivity, investment, capital productivity, capital-labor ratio, classification, European Union.

DOI: 10.14530/se.2015.2.086-102

<sup>&</sup>lt;sup>8</sup>The study was supported by the RFBR project No. 13-06-00392/13.

UDC 332.14

# SOME APPROACHES TO MODELING THE SPATIAL DIFFUSION OF INNOVATIONS9

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The study considers the problems of modeling diffusion of innovations in economic systems. The authors show the capabilities and limitations of the use of deterministic and probabilistic cellular automata in modeling the diffusion of innovations. To overcome limitations of the model of probabilistic cellular automaton the researchers propose the model's modification. The authors constructed a cellular automaton that implements two different behavior modes according to the selection method of a plurality of neighboring cells (classic and combined) and changing the cell's state. This automaton has several modes of operation: the absence or impermeable boundaries, homogeneity or heterogeneity of the territory.

*Keywords:* diffusion of innovations, modeling, cellular automata, modification, probabilistic and combined cellular automaton.

DOI: 10.14530/se.2015.2.103-115

<sup>&</sup>lt;sup>9</sup>The study was supported by the RFBR project No. 155653032.

# UDC 336.712

# **REGIONAL BANKS IN THE RUSSIAN BANKING SYSTEM**

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Despite the lack of a uniform definition of «a regional bank», problems of their activities are widely discussed in the context of increasing regulation of the banking sector and creation of conditions for accelerated development of certain regions. The author analyses the Russian-language scientific literature in order to define «a regional bank» and systematize its key differences from other commercial banks. The researcher shows that the allocation of regional banks in a separate group should be related to specific features of the environment and not by endogenous factors associated with the selection of activities and balance sheet structure. The low level of financial market development and concentration of specific undiversified risks are the principal qualifiers differentiating between regional banks and other credit institutions in Russia. As classification criteria the author uses following: spatial representation (the bank does not have structural subdivisions in Moscow) and the ownership structure (among the bank's owners there are no national and international financial groups that have a direct impact on the operations of the bank).

*Keywords:* banking regulation, regional bank, criteria, classification, structural subdivision of the bank, banking services market, banking system of Russia.

DOI: 10.14530/se.2015.2.116-131

#### Surveys

UDC 338.1(571.6)

# **ECONOMIC SITUATION IN THE FAR EASTERN FEDERAL DISTRICT IN 2014**

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On the basis of the official statistics for 2014 the authors analyzed the main trends of socio-economic development of the Far Eastern Federal District (FEFD). The paper considers the economic situation in the FEFD in comparison with the all-Russian tendencies. The researchers also identified and analyzed the factors affecting conditions in the sphere of production of goods and services, social dynamics and external economic cooperation. The study shows that the FEFD had following economic and social problems in 2014: the continuing decline of investments, a sharp increase in inflation; slowing growth rates in wages due to lower level of indexation; the necessity of finding «soft» methods of conservation of human resources; the decline in foreign trade activity; and the decrease in volume and value of imports. The situation in the region also can be characterized with the significant growth of industrial production in comparison with other federal districts of the Russian Federation and unemployment reduction.

*Keywords:* monitoring, GRP, inflation, stagnation, recession, finance, incomes, migration, foreign trade, Far Eastern Federal District.

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#### Surveys

UDC 339

# NATIONAL AND GLOBAL INFRASTRUCTURE OF THE ARCTIC ZONE OF THE APR: NEW CHALLENGES

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The article addresses issues of formation of the national and global infrastructure in the Arctic and its Asia-Pacific zone in the context of the new challenges in the development of the region, associated mainly with the political and military deterioration of relations between Russia and the United States. The study also characterizes international experience in the area of infrastructure researches and presents strategic documents of both countries in the sphere of the study and development of the Arctic and its territories. The author concludes that research organizations need to overcome their passivity to strengthen cooperation between these structures from both sides, which is absolutely essential for the development of a global scientific and other kinds of infrastructure and for the further successful, rational and effective exploitation of the Arctic areas.

*Keywords:* Arctic zone of the Asian-Pacific region, national and global infrastructure, spatial economics, the role of research organizations, Russia, USA.

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# Reviews

UDC 330

# SPATIAL ECONOMICS AS A RESEARCH PROGRAMME (on the Book by P.A. Minakir, A.N. Demyanenko «Essays on Spatial Economics»)

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#### From the Chief Editor

#### Minakir P.A.

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UDC 330

# ECONOMIC ANALYSIS AND MEASUREMENTS: SPATIAL CASE

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The author discusses the formation features of spatial economics as a part of the general social analysis. The article considers relations of spatial economic and social research with general economic theory and studies on specific behavioral reactions at different levels of the hierarchy of social and economic systems. The paper analyzes general philosophical regularities of forming a systematic and interdisciplinary research as a tool of general social analysis and also examines practical results of realization of interdisciplinary research projects in the field of spatial studies. The author proposes a formation hypothesis of the subject area of spatial economics and its relation to the subject area of general economic theory.

*Keywords:* economic theory, crisis, general social analysis, economic space, administrative regions, economic regions, local space, programs, Russian Far East.

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UDC 332.1:330.43

# MACROECONOMETRIC SIMULATION AS A METHOD OF REGIONAL STUDIES

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The article presents the evolution of regional macroeconometric models. The authors allocate two types of models which differ in the complexity level of approximable interrelations – aggregated and integrated ones. This paper shows the advantages of integrated models over aggregated ones due to a combination of techniques of multivariate econometric and balance analysis. The algorithm of creation of integrated models includes three stages: defining a dynamic kernel, structural kernel and the technical way of their integration. The authors pay attention to the implementation results of the first stage of the algorithm – the creation of dynamic kernel of integrated model. The dynamic kernel includes equations which characterize relations between economic agents of the regional system and which are merged in the four structural units: consumption, output, employment and prices and incomes. On the basis of multivariate cointegration analysis the researchers obtain estimates of the aggregate model of economic dynamics. The authors summarize the simulation results in the form of assessments of short-term and long-term elasticity coefficients which reflect the relations between regional macroeconomic indicators.

*Keywords:* regional economy, macroeconometric model, taxonomy of macroeconometric models, economic dynamics, cointegration, vector model of residuals correction, Khabarovsky Krai.

DOI: 10.14530/se.2014.1.040-064

UDC 330+332

# **GEOGRAPHY OF ECONOMIC SCIENCE: PROBLEM SETTING**

# A.N. Demyanenko, N.A. Demyanenko

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The article is devoted to geography of economic science, which is, according to the authors, a kind of a «gray zone», where concepts and methods of science of science, economic geography and economy cross. The authors proceeded from the following methodological prerequisites: 1) the production of economic knowledge is the activity, the scope and the results of which can be measured fairly accurately; 2) the structure of economic science can be presented not only as a sectoral, thematic, institutional, but also as a spatial. As an information base of research the authors used E-library resources which are relevant to the authors that have published the results of studies in Economics and related disciplines in the scientific journals. At the initial stage of the research, the authors focused on the economists who are employees of scientific research organizations (academic institutions, universities and research institutes) that are located within the Russian Far East, as well as researchers from other regions of Russia, who have published articles in the Far Eastern scientific journals. Preliminary results of the study show following: 1) the high level of territorial concentration (85% of all publications belongs to research organizations of Khabarovsk and Vladivostok); 2) the high level of information concentration (up to 90% of all publications belongs to Far Eastern journals). Mostly this is due to the fragmentation of economic scientific community.

*Keywords:* geography of economic science, bibliometric methods, scientific communications network, structure, Russian Far East.

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# UDC 339.727.24

# SPATIAL POLICY OF EXPORTING DIRECT INVESTMENTS: FEATURES OF CHINA10

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In recent years, China has shown rapid growth in volumes of foreign direct investment (FDI), which is the consequence of implementing policy. However, the structure of FDI does not correspond to the government-supported areas. Existing theoretical and empirical studies don't reveal the causes of China's FDI. Results of the regression analysis (based on panel data for 2003–2010) prove that the most attractive for Chinese investors were countries with following features: 1) rich in mineral resources, 2) possessing advanced technologies, 3) higher than in China income levels, 4) geographic proximity to China and 5) foreign trade openness. Furthermore, features of the current institutional environment in China affect the directions of foreign direct investment. Investors from PRC direct FDI in developing countries which have low quality of institutions as well as China. Investing in these countries is primarily aimed at getting access to their mineral resources and consumer markets. As for investing in developed countries, the reason is acquisition of advanced technologies which they possess. Directions of FDI in these countries, on the contrary, are determined by the high quality of institutions.

Keywords: Foreign direct investment, developed countries, developing countries, investment reasons, factors, features, structure, China.

DOI: 10.14530/se.2014.1.079-100

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UDC 621:338

# ECONOMIC ANALYSIS OF THE STRUCTURE OF RUSSIAN ENGINEERING INDUSTRIES: THEORY AND PRACTICE ISSUES

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Despite the obvious importance, the structure and structural characteristics of the Russian mechanical engineering aren't properly described in modern studies. Methodological approaches to the assessment and meaningful interpretation of the structure of mechanical engineering production become especially important within a regional level. The paper covers the issues of economic analysis of the structure of Russian engineering industries. The author substantiates the insolvency of a standard approach to the analysis on the basis of two-digit RCEA codes. The researcher provides structural features of engineering industries on the basis of philosophic understanding of the structure. In the author's opinion, such features include following: production integration in the long technological chains; high economic, social and technological significance of repair and service; exceptional defensive significance of the industry and a high share of scientific expenses in the structure of the industry output. The study formulates the most important contradictions that define the development of mechanical engineering of Russia at the present stage.

Keywords: engineering industries, economic analysis, structure, dialectical contradictions, Russia.

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UDC 519.8:332:53 (571.621)

# DYNAMICS OF PRODUCTION FACTORS IN REGIONAL ECONOMY: ECONOPHYSICAL APPROACH

# M.Yu. Khavinson

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The article discusses possibilities of applying basic mathematical models to describe economic dynamics. Basic models are generally used in Econophysics (scientific direction which was formed at the intersection of Economics and Physics) for the analysis of macroeconomic dynamics. The author proposes to extend the list of basic Econophysics models with the help of exponential model. Now this list consists of a logistic model, a model of conventional information struggle, a hidden bankruptcy model and a model of phase transitions. The exponential model, which expresses the empirical regularities of cooling (heating) of a body in the homogeneous environment and radioactive decay and also describes the evolution in time of biological populations and the world population, is conceptually ideal for simulation of the medium-term regional dynamics. The author illustrates application of the exponential model to the description of regional economic dynamics with the help of the model of production factors dynamics (the number of employees and the value of capital assets). The researcher verifies the model on the basis of statistical data of the Jewish Autonomous region. The results show that the region's overall number of employees and the number by type of economic activity reaches stationary values in a similar way with dynamics of temperature of a heated body in a homogeneous environment. The value of capital assets of the region sometimes varies according to the law of radioactive decay.

*Keywords:* basic model, Econophysics, phenomenological approach, exponential model, equation of heat transfer, law of radioactive decay, production factors, Jewish Autonomous Region.

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UDC 339.743

# BALANCE OF PAYMENTS OF EAST ASIAN COUNTRIES: IMPACT OF THE COORDINATED MONETARY POLICY

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The paper examines the equilibrium state of balance of payments of East Asian countries by means of the monetary policy instruments. For this purpose the author determines the value of the equilibrium exchange rate of AMU (Asian Monetary Unit) against the U.S. dollar. The equilibrium exchange rate is the one that smoothes values of net merchandise exports and net capital exports. The author employs panel data regression analysis (using statistics of trade and capital (foreign direct investment) flows between East Asian countries and the United States) to obtain quantitative estimation of trade and investment effects of the coordinated monetary policy. The paper shows that transition of East Asian region (China, Japan, Republic of Korea, Indonesia, Malaysia, Vietnam, the Philippines and Thailand) to the single currency (AMU) will have a negative effect on the balance of payments of the studied countries: this will increase the mismatch between commodity and capital flows.

*Keywords:* balance of payments, equilibrium exchange rate, monetary integration, AMU, Mundell-Fleming concept, ASEAN+3, East Asia.

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#### Surveys

UDC 338.47

# TRANSPORT COMPLEX OF THE REGION UNDER RUSSIAS ACCESSION TO THE WTO: THE RUSSIAN FAR EAST

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The author considers main obligations in the field of transport which were adopted by the WTO members. At that the researcher puts emphasis on the obligations of Russia. The study provides different indicators of the key types of transport under WTO rules at the national (Russia) and regional (Far East Federal District) levels. The author analyzes the following matters: 1) directions and volumes of flows of railway, sea and motor transport; 2) the unification process of railway freight rates and its impact on the functioning of transport complex; 3) the cargo structure; and 4) conditions of international motor transportation. The article shows that the state of the regional transport complex in 2013 corresponds to the prevailing trends and there is no basis for their changes. The author suggests that potential positive effects in the transport complex can be realized by transfer of the WTO legal mechanisms (de jure) into practice (de facto). This, in turn, implies that Russia has a clear development strategy of the transport complex and understands its positions in the international transportation system.

Keywords: transport complex, infrastructure, tariffs, Russian Far East, WTO.

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# Reviews

UDC 339.924

# FORMATION OF THE AREAS OF ACTIVE INTERSTATE COOPERATION IN THE POST-SOVIET SPACE: CHALLENGES AND PROSPECTS (on the book «The cross-border cooperation of the regions of Russia, Belarus and Ukraine»)

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UDC 338.001.36

# ENTREPRENEURIAL ABILITIES: STRUCTURE OF LABOR MARKET AND INCOME INEQUALITY

#### **D.A.** Pokrovsky

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This paper is addressed to explanation of differentiation of economics in structure of labor market and income distribution. In order to this aim the author develops a model of endogenous formation of entrepreneurship in economics with heterogeneous agents. The nature of heterogeneity is non-trivial distribution of entrepreneurial abilities across individuals. The impact of form and support of distribution of abilities as well as structure of preferences are studied. The key result is impact of an elasticity of substitution and an elasticity of distribution function on share of entrepreneurs and income inequality in opposite way. This effect must be taken into account when arbitrary economic policy is developed. Also author consider two transformation of support of distribution of entrepreneurial abilities: 1) tension and compression, 2) shift. Economies which are equivalence in sense of first type of support transformation have the same share of entrepreneurs in population and the same level of income inequality. In the second case economy with less able individuals in average has bigger share of entrepreneurs in population and it is more differentiated in income.

*Keywords:* distribution of entrepreneurial abilities, monopolistic competition, structure of labor market, income inequality, consumers preferences.

DOI: 10.14530/se.2014.2.009-039

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#### UDC 339.96

#### JAPAN – ASEAN: EVOLUTION OF OFFICIAL DEVELOPMENT ASSISTANCE

#### E.B. Kovrigin

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The Japanese official development assistance (ODA) is a phenomenon of contemporary economic history. According to official data, 189 sovereign countries and dependent territories at one time or another were among the beneficiaries of Japan's low-interest loans and grants since the country's accession to the pool of donor states in 1954. For a long time ASEAN has been the biggest recipient of Japan's ODA.

The article considers the main trends in Japan's ODA, motivation of ODA, formation of the Japanese model and evolution of payments. The author discusses the ODA assessment problems connected with the peculiarities of statistical accounting of ODA in Japan. The study shows Japan's role as the leading donor of ODA for Southeast Asia countries. The article also considers the problem of balancing the national and global interests, contradictions of developmentalism and the concept of "human security". The paper reveals the structure of ODA by type of assistance, objectives and recipients. The author concludes that in the near future the majority of ODA will be directed toward levelling out the economic differences between "old" and "new" members of ASEAN and probably Southeast Asia as a region will be among key recipients of Japan's ODA in order to withstand the growing competition from China.

*Keywords:* official development assistance, evolution, economic cooperation, yen loans, gratis aid (grants), developmentalism, motivation, China, Japan, ASEAN, South-East Asia.

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#### UDC 338.242

#### **REGIONS' COMPETITION FOR INVESTMENT PROJECTS IN FOREST DEVELOPMENT12**

#### V.F. Lapo

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The author considers the problem of competition between regions for investments. It is hypothesized that the presence of legislative stimulating benefits in a particular region, ceteris paribus, promotes investment flows in forest projects from other regions and is an instrument of inter-regional competition. To test the hypotheses the researcher uses a modified model with spatial weighted exogenous variables in order to assess the spatial effects. The obtained estimates indicate the presence of spatial effects, both negative (an inter-regional competition for investment) and positive (agglomeration effects). The author argues that the process of inter-regional competition for investment in projects on forest development is caused by benefits under taxes and payments into the regional budget, regulation of pricing (including actions by natural and local monopolies) and depreciation policy and solutions to put some forest projects in the list of priority ones. Along with this, the paper identifies agglomeration effects induced by a number of benefits: direct dealings in investment by financing or property contribution, subsidies, state guarantees, credit security and partial payment of interest.

*Keywords:* priority investment projects, forestry complex, legislative benefits, spatial econometrics, spatial effects, competition for investment, agglomeration effects, region.

DOI: 10.14530/se.2014.2.075-092

<sup>&</sup>lt;sup>12</sup> This work was supported by the Russian humanitarian scientific fund and the Krasnoyarsk regional support fund of scientific and scientifictechnical activity (project 13-12-24002 "Development of forestry complex of the Krasnoyarsk region: research of efficiency of state support methods").

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# THE COMPARATIVE EFFECTIVENESS OF VARIANTS OF CONSTRUCTION OF ELECTRICITY EXPORT PROJECTS

#### A.V. Lagerev, K.S. Smirnov

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The study describes a methodological approach that evaluates the comparative efficiency of construction of export-oriented power plants and transmission lines taking into account the development of power industry in the region and uncertainty (ambiguity) of initial information. At the first stage the authors determine socio-economic effects of each project of construction of export-oriented power plants. With the help of optimization models they choose options that can guarantee the balanced and cost-effective development of the regional electric power system. Then using a simulation model the researchers assess commercial viability of previously selected projects. The article applies this approach for selecting the preferred option of electricity export from Eastern Siberia to China. This study shows that the project of CPP based on Kovykta natural gas with electricity transmission line to Chinese border (near Zabaikalsk) is more preferable one in comparison with other projects (CPP based on Kansk-Achinsk coal in Krasnoyarsky krai; CPP based on coal in the Republic of Buryatia and Zabaikalsky krai (Olon-Shibirskaya CPP; New Kharanorskaya CPP); CPP based on Mugunsky coal in Irkutskaya oblast).

*Keywords:* efficiency, methodical approach, uncertainty, game theory criteria, electricity export, Eastern Siberia, China.

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UDC 338.1(571.6)

#### **ECONOMIC SITUATION IN THE FAR EASTERN FEDERAL DISTRICT IN 2013**

#### O.M. Prokapalo, A.G. Isaev, D.V. Suslov, M.G. Mazitova

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On the basis of the official statistics for 2013 the authors analyzed and evaluated the tendencies of socioeconomic development of the Far Eastern Federal District (FEFD). The paper considers the economic situation in the FEFD in comparison with the all-Russian trends: conditions in the sphere of production of goods and services, social sphere and the sphere of external economic cooperation.

The study shows that the FEFD had an economic slowdown in 2013 (including comparison with the Russian-average trends). It also can be characterized with the continuing decline of investments, significant decrease of foreign investments, slowing growth rates in wages, unemployment reduction against the slowdown and increasing volume of exports of extractive industries.

*Keywords:* GRP, monitoring, stagnation, migration, inflation, finance, income of population, foreign investment, foreign trade, Far Eastern Federal District.

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UDC 001.83

#### INTERNATIONAL SCIENTIFIC COOPERATION IN THE FIELD OF SPATIAL STUDIES

#### P.A. Minakir, B. Kh. Krasnopolsky

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The paper discusses the existing structure of international cooperation of scientific organizations in the field of regional studies in different parts of the world. The authors define current major organizations that coordinate the work of scientific subdivisions in the field of regional studies in the whole world and also in Europe, North and South America and the Asia-Pacific region. The researchers offer the new term – 'public-scientific partnership' (PSP) – and discuss PSP mechanisms and its implementation ways that may strengthen regional scientific research in Russia. The authors also debate the idea of creation of the Russian Association of Regional Science.

*Keywords:* regional Science Association International, European Regional Science Association, North American Regional Science Council, Pacific Regional Science Conference Organization, Russian Association of Regional Science, public-scientific partnership.

DOI: 10.14530/se.2014.2.141-148

UDC 339.9

## PROGRAM OF REGIONAL COLLABORATION BETWEEN EASTERN PART OF RUSSIA AND NORTHEAST CHINA: PRESENT AND FUTURE13

#### **D.A.** Izotov

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The author uses Russian and Chinese sources of information to analyze the current status and evaluate realization prospects of investment projects within the Cooperation Program between eastern regions of Russia and northeast China. State budget financed construction of transport and border infrastructure is being implemented as planned both in Russia and China. Sectoral distribution of key Program projects is found to be unbalanced: Russian regions specialize in mining and primary processing of natural resources while Chinese ones – in products with high share of added value. The study reveals that among 104 scheduled key Russian projects (at the cost of 47,9 billion USD) only 24 projects are under implementation (11,77 billion USD), 8 of which are carried out with the help of Chinese investments (1,77 billion USD). Joint ventures are connected with mining operations, primary processing of wood, construction of houses, manufacturing of building materials, assembly production and trade. Among 111 scheduled Program Chinese projects (at the cost of 9,87 billion USD) only 42 projects are under implementation (6,1 billion USD); they are associated with engineering products. There is only one Russian-Chinese joint venture on the territory of China (at the cost of 0,63 billion USD). The author suggests that in the near future 20 additional Program projects can be implemented in Russia (at the cost of more than 20 billion USD) and 6 projects (about 0,5 billion USD) – in China.

*Keywords:* program of collaboration, investment, project, region, Russian Far East, Eastern Siberia, Notheast China.

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#### Reviews

UDC 330.8

# **REFLECTION OF THE ECONOMIC SPACE THROUGH THE TERRITORIAL ECONOMICS (on the book by Courlet C. and Pecqueur B. «L'économie territoriale»)**

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#### SANCTIONS: POLITICAL RHETORIC AND ECONOMIC SHOCKS

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UDC: 339.133.017, 339.5.012.42

#### MONOPOLISTIC COMPETITION IN TWO-SECTOR ECONOMY UNDER DEMAND UNCERTAINTY14

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The article deals with the theory of monopolistic competition under demand uncertainty. The authors consider the economy with labor immobility consisting of the high-tech sector with monopolistic competition and the standard sector with perfect competition. Preferences between sectors are specified by the Cobb – Douglas production function. It is assumed that companies make output decisions under preferences uncertainty and consumers' distribution by sectors will be known by the time of realization. It means that firms are informed about consumer demand with accuracy up to a multiplicative uncertainty which is generated by random parameters in the Cobb – Douglas production function. The paper shows that demand uncertainty leads to consistent growth of prices and wages in high-tech sector in relation to salaries in the second sector. The impact of uncertainty on welfare is ambiguous. In particular, under the known expected value of uncertainty customers derive benefit from exaggerated companies' expectations about clients' desire to consume high-tech goods.

Keywords: monopolistic competition, backward induction, demand uncertainty.

DOI: 10.14530/se.2014.3.12-25

<sup>&</sup>lt;sup>14</sup> Work is performed within EERC grant No. 12-5281, RFBR grant No. 14-01-00773 and at the expense of budgetary funds on the State task of Financial university of 2014.

UDC 332.12:330.34

# SPATIAL DISTRIBUTION OF INVESTMENT IN RUSSIA: IMPACT ON INTER-REGIONAL INEQUALITY

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Using the official data on the subjects of the Russian Federation the author assesses the impact of variations of the spatial distribution of investment in 2012 on the dynamics of regional disparities in 2011–2012 by per capita GRP and the overall indicator – the level of economic development. This general index can be evaluated on the basis of combination of two target indicators – economic dynamics and the region's welfare. To study the spatial distribution of investment as a factor of inter-regional inequality the researcher employs panel data regression analysis of regional investment, individual indicators that make up the overall index of economic development and two-factor Cobb – Douglas production function. The author identifies 4 groups of the subjects of the Russian Federation by the level of economic development: highly developed, developed, middle-developed and least developed ones. The study shows that a high value of investments per region in the group of high-developed ones boosts the national economy and reduces regional inequalities on both counts. However, an equal spatial distribution of investments decreases Russia's GDP and regional disparities in total.

*Keywords:* spatial distribution of investments, inter-regional inequality, integral index, level of economic development, grouping of regions, subject of the Russian Federation.

DOI: 10.14530/se.2014.3.26-43

UDC 330.34:332.1

#### DYNAMICS AND DETERMINANTS OF INTRA AND INTER-REGIONAL INCOME DIFFERENTIATION OF THE POPULATION OF THE RUSSIAN FEDERATION

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The article examines the dynamics and factors of intra- and inter-regional per capita income differentiation and convergence among the subjects of the Russian Federation in 2004–2012. The analysis is based on converting nominal GRP to real GRP using the cumulative index-deflator and nominal income to real income using the index of relative cost of living in the region. The author reveals the fact that in the majority of Russian regions the reduction in inter-regional differences in per capita income was accompanied by growth of intra-regional inequality in its distribution. The paper also shows that the gap in income and its differentiation between «bottom» and «top» regions is gradually filling up. Using the constructed index of «social well-being of the region» that takes into account both mentioned phenomena the author considers the b type of inter-regional convergence although this process has a more subtle form and noticeably slowed down after the crisis.

Converting the statistical concentration indices (Gini and variation coefficients, Herfindahl-Hirschman and Theil indices) to the uneven distribution ones, the author estimates the reduction degree of inter-regional disparities in per capita rates of nominal GRP and nominal and real income during 9 years. The comparison of mentioned indices allowed us to identify that the state redistributive policy has a significant and increasing impact on the reduction of inter-regional income differentiation and the variance of cost of living in the regions has less significant but stable influence.

*Keywords:* region, income, GRP, differentiation, index of «social well-being of the regions», Gini coefficient, Herfindahl-Hirschman index, Theil index.

DOI: 10.14530/se.2014.3.44-66

UDC 339.562.4:316.334.2

#### CONFIGURATION AND FUNCTIONING OF SOCIAL NETWORKS IN THE BORDER REGION

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Using the methodology of actor-network analysis the author identifies configuration and dynamics of informal social networks in the border region. The study is based on the example of mechanisms and practices of importing fruits and vegetables from Heihe to Blagoveshchensk and relationships methods in the «Chinese» market in Blagoveshchensk. It is shown that the mechanism of fruit and vegetables' import to Blagoveshchensk is an informal social network with «Russian» and «Chinese» firms as actors. However, there are other actors involving in goods' exchange and money flows: «Tajik», «Uzbek», «Azerbaijan» and «Armenian» companies. The analysis is performed for two periods of legislative regulation of foreign trade, each of which differs in the nature of links, number of actors and their positions. The study reveals the fact that social networks of import belong to networks of a higher order and they provide not only the city with fruit and vegetables, but also other regions (in particular, Yakutia). The paper shows that «Chinese» firms control flows of goods and money so they occupy the central position within identified social networks. These networks and control mechanisms keep up the stability of informal trade of migrants and failures of formal regulation.

*Keywords:* social networks, actor-network analysis, informal economy, «Chinese» market, import of fruit and vegetables, Blagoveshchensk, Heihe.

DOI: 10.14530/se.2014.3.67-94

UDC 332

# SPATIAL INTERACTIONS: EVALUATION WITH THE HELP OF GLOBAL AND LOCAL MORAN'S INDEX

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In the present work, the authors demonstrate the possibility of using Moran's index and its components on the example of Samara region. As area units the study employs 37 municipalities of the 1st level – 10 urban districts and 27 municipal townships. Using the global Moran's index the researchers construct a spatial scatter plot and reveal four territorial clusters: kernels, the satellite-counterbalance, the periphery and areas outside the influence of kernels and the satellite-counterbalance. Next, using the local Moran's index the authors determine six sub clusters: kernels, the satellite-counterbalance, the area of profound effect of kernels and the satellite-counterbalance, the area of kernels and the satellite-counterbalance, the satellite-counterbalance, the kernels' counterbalance, the area of low impact of kernels and the satellite-counterbalance. The local Moran's index decomposition helps to identify areas of influence of both the Samara city kernel and the integrated system of Samara and Tolyatti.

Keywords: spatial autocorrelation, global Moran's index, local Moran's index, cluster, Samara region.

DOI: 10.14530/se.2014.3.95-110

#### UDC 332.1:330.43

#### STRUCTURAL CORE OF THE REGION'S ECONOMIC SYSTEM: ASSESSMENT METHODS

#### N.G. Zakharchenko

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The article deals with methods of determining the structural core of the region's economic system and assesses the possibilities of their integration or synthesis. The author discusses the calculation base issue and provides some solutions under testing the simultaneous stability of cost coefficients (Leontief model) and coefficients of resource needs (Ghosh model). There are two types of methods index type methods (Rasmussen and Hirschman models) and hypothetical allocation methods (Cella, Clements, Dietzenbacher and Van der Linden, Miller and Lahr). Structural estimates of the economic system's sector differ from its real scale, so the distinction of methods lies in coordination mechanism between evaluations and actual data. The author employs above-mentioned methods to analyze measures of sector's structural relations that describe it both as a source of impulses and a supplier of resources. The paper also estimates the structural core of the economic system of the Khabarovsk Territory and concludes about complementarity of the two types of above-mentioned methods.

*Keywords:* structural core, economic system, region, «input-output» tables, structural relations, multiplier, structural landscape, hypothetical allocation, Khabarovsk Territory.

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UDC 330.36.01

#### EMPIRICAL MODELS OF GENERAL ECONOMIC EQUILIBRIUM

#### **D.A. Izotov**

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The article considers possibilities and limitations of empirical models of general economic equilibrium and gives their classification. The author divides computable models of general economic equilibrium into two groups: the first one is based on a model of equilibrium prices (G. Scarf's approach) and the second one – on a multisectorial model of economic growth (L. Johansen's approach). The researcher also divides models of dynamic stochastic general equilibrium into two groups: the first one is based on a model of the real business cycle (F. Kydland and E. Prescott's approach) and the second one – on a model of firms under monopolistic competition (J. Rotemberg and M. Woodford's approach). Within each group the study demarcates empirical models with the help of following criteria: an economy's scale and its openness; application to current and future assessments; analyzed socio-economic phenomenon.

*Keywords:* classification, general economic equilibrium, applied model of general equilibrium, computable model of general equilibrium, model of dynamic stochastic general equilibrium, Bayesian approach, external shock.

DOI: 10.14530/se.2014.3.138-167

#### Reviews

UDC 330:332

## INTERDISCIPLINARY RESEARCH OF THE RUSSIAN SPACE (about the book «Fundamental Problems of Spatial Development of the Russian Federation: an Interdisciplinary Synthesis»)

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#### From the Chief Editor

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DOI: 10.14530/se.2014.4.007-008

#### UDC 332.021

#### **INFORMATION ASYMMETRY IN FEDERATIONS15**

#### A.M. Libman

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The paper investigates the problems of information transmission between levels of government in a federal state. The central government in a federation typically faces serious difficulties while collecting information on economic and political situation in the regions. There are two types of problems: lack of incentives for the regions to accurately collect information and strategic manipulation of information, which are discussed in the paper along with possible solutions. In particular, overcoming information asymmetry would require the development of national parties or informal coalitions of bureaucrats and politicians of the center and of the regions, creating incentives for regional politicians to back the successful functioning of the federal level. Furthermore, the paper discusses the issue of «informal decentralization», which emerges as a result of information asymmetry, and its consequences for the functioning of a federal state, including both advantages and disadvantages. We conclude that under information asymmetry the organization of the federation will inevitably turn into an issue of permanent negotiations and bargaining between the center and the regions, which functions as the information acquisition tool for optimal allocation of authorities in a federation.

*Keywords:* federation, center and regions interaction, information asymmetry, power, centralization, decentralization.

DOI: 10.14530/se.2014.4.009-025

<sup>&</sup>lt;sup>15</sup>The study was conducted with the support program of Ministry of Education of China «MOE Project of Key Research Institute of Humanities and Social Sciences in Universities of China», project No. 11JJDGJW001.

#### UDC 332

#### **RESOURCE AREAS IN THE NEW INSTITUTIONAL ENVIRONMENT**

#### V.A. Kryukov

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The article demonstrates that today the dynamics of development and production of mineral resources in resource specializing regions may differ significantly from the canonical scheme – i.e. there is no gradual and steady depletion of natural resources within mentioned territories. The combination of several factors may again move resource regions that used to be «hopeless» to the stage of growing production. These factors are: a modern knowledge economy, an adequate resource mode (norms, rules and procedures that «master» the process of development of natural resources) and developed and available infrastructure of mineral resources extraction. As an example the author considers the USA oil-producing states (Texas, Louisiana and North Dakota) which showed rapid growth in production of natural gas and oil in the last few years. The author sees the accumulation of a «critical level» of economic activity (infrastructure, the number and diversity of companies in the oil and gas sector and the availability and quality of human capital) as the main cause for the development of heavy oil deposits in Tatarstan, bringing into development the deposits of the Bazhenov formation in Tyumen Oblast and the future oil extraction from bituminous minerals in Yakutia will occur under the same laws (with some Russian specificity, however).

*Keywords:* resource area, institutional conditions, level of economic activity, stages of mineral resources development, resource mode, subsoil use.

DOI: 10.14530/se.2014.4.026-060

<sup>&</sup>lt;sup>16</sup>The article was prepared within the project of the Russian Science Foundation No. 14-18-02345 «Development of scientific basis of policy-making for long-term socio-economic development of resource regions».

#### UDC 332.1

#### COMPARATIVE ANALYSIS OF INNOVATIVE SYSTEMS IN THE RUSSIAN REGIONS17

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Despite the abundance of literature on innovation in the regions, there is no frame of reference about the patterns and mechanisms of formation of regional innovation systems (RIS). So it's next to impossible to differentiate approaches to stimulation of innovations in the regions taking into account their specific characters. Therefore, the author attempts to formalize the definition of RIS and to provide not only qualitative but also quantitative evaluation of different types of regional innovation systems. This paper is trying to find a set of models of RIS development in Russian regions with specific characters. These regional peculiarities play a key role in a process of selecting methods for further RIS development, including methods of state support of innovation, which are adequate to the characteristics of the regional innovation systems; 2) proposition of RIS structure that includes 5 blocks (creation of innovations; production and realization of innovative goods and services in the region; innovative infrastructure of the region; demand for innovations and innovative policy) and 3) development of the system of statistical indicators that characterize RIS. On the basis of formal and substantive analysis of these indicators the researcher defined 6 models of regional innovative systems prevailing in the Russian circumstances.

*Keywords:* innovations, regional innovative system, innovation data, typology of regional innovative systems, innovative policy, the subjects of the Russian Federation.

DOI: 10.14530/se.2014.4.061-081

<sup>&</sup>lt;sup>17</sup> This article was conducted with the financial support of the Program of fundamental studies of the Presidium of the Russian Academy of Sciences No. 31, «The Role of Space in the Modernization of Russia: Natural and Socio-Economic Potential» (project 7.2 «Tools of Regional Policy and the Effectiveness of Their Use»)

#### UDC 332.12

#### SPATIAL CONCENTRATION OF ECONOMIC ACTIVITY IN RUSSIA

#### E.A. Kolomak

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The author studies the dynamics and factors of spatial concentration of economic activity in Russia and with the help of empirical methods tests the hypothesis of agglomeration economy. The analysis shows that Russia has growing inequality in distribution of resources and production and the growth rate of this process is quite high. Determinants of inter-regional divergence in Russia include the following: population density, the size and accessibility of markets, and economic structure; i.e. all these determinants have a market basis and they are key ones in agglomeration economy. The results show no effectiveness of interregional transfers and public investment in reducing differences across Russian territories. Agglomeration economy presupposes that effective conditions that stimulate centrifugal spatial trends correlate with reduction of inter-regional communication barriers which can have both physical and institutional nature.

*Keywords:* economic activity, spatial concentration, agglomeration economy, empirical analysis, regional policy.

DOI: 10.14530/se.2014.4.082-099

#### UDC 332.05

#### **REGIONAL CONVERGENCE OF INCOME: SPATIAL ANALYSIS 18**

#### V.I. Ivanova

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Russia has a huge territory and a strong interregional heterogeneity, so we can assume that geographical factors have a significant impact on the pace of economic growth in Russian regions. Therefore the article is focused on the following issues: 1) correlation between comparative advantages of geographical location and differences in growth rates; 2) impact of more developed regions on their neighbors and 3) correlation between economic growth of regions and their spatial interaction. The article is devoted to the empirical analysis of regional per capita incomes from 1996 to 2012 and explores the dynamics of the spatial autocorrelation of regional development indicator. It is shown that there is a problem of measuring the intensity of spatial dependence: factor value of Moran's index varies greatly depending on the choice of the matrix of distances. In addition, with the help of spatial econometrics the author tests the following hypotheses: 1) there is convergence between regions for a specified period; 2) the process of beta convergence is explained by the spatial arrangement of regions and 3) there is positive impact of market size on regional growth. The author empirically confirmed all three hypotheses.

*Keywords:* russian regions, per capita income, economic growth, convergence, spatial autocorrelation, spatial econometrics.

DOI: 10.14530/se.2014.4.100-119

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UDC 330+001

#### ABOUT THE GEOGRAPHIC DISTRIBUTION OF ECONOMIC SCIENCE IN ASIAN RUSSIA

#### A.N. Demyanenko, N.A. Demyanenko

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The article presents the results of empirical studies of modern geographic distribution of economic science in Asian Russia (i. e. three macro-regions of Russia: Far East, Siberia and the Urals Region). The study is based on an original database of articles on Economics and related disciplines which arearranged within the Elibrary platformfor 2005–2013. These articles arewritten by fellows of research organizations that are located in the Asian part of Russia. Statistical analysis of the main indicators of publication activity shows that there are significant differences in the scope, dynamics, and quality of the results of this activity among the research organizations of various types. The authors focused on the territorial structure of the study of the economy defined as a set of scientific centers of varying scale and type, as well as networks of scientific communication. It is revealed that publication activity of economic research institutions in Asian Russia has a high level of spatial concentration and the system of scientific communication, formed by the scientific journals of the region, has a high level of fragmentation.

*Keywords:* economic science, scientific article, geography, research organizations, bibliometric methods, networks of scientific communication, territorial structure, European Russia, Asian Russia, Far East, Siberia, the Urals Region.

DOI: 10.14530/se.2014.4.120-147

UDC 303+304+330

#### INSTITUTIONS' RESEARCH: AN INTERDISCIPLINARY APPROACH

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The paper brings together study by economists and anthropologists and aims at a critical investigation of the competing theoretical explanation of the role of violence and beliefs in economic, social and political development. By reconstructing discussion in neo-institutional economic theory over the role of history and culture in current economic performance of under-developed countries, the paper claims that scholars must today pay attention on violence and beliefs. Although economists recently confirmed that these two factors played crucial role in the different development of nations, when some of them accumulate power and wealth, while others fail, the paper argues that more complicated approach is needed. In particular, economists use too simplistic conception of power and violence and refuse to pay attention on beliefs of ordinary people. Social anthropology could suggest both sophisticated approaches to violence and precise attention to ordinary people beliefs. That the reason why anthropological knowledge should be incorporated in neo-institutional economic theory.

*Keywords:* interdisciplinary economic research, social anthropology, institutions, culture, violence, beliefs, elite, «ordinary people».

DOI: 10.14530/se.2014.4.148-169

#### Reviews

UDC 330+332+339

#### ПРИГРАНИЧНАЯ ТОРГОВЛЯ И ИНТЕГРАЦИЯ МЕЖДУ РОССИЕЙ И КИТАЕМ: МЕЖДИСЦИПЛИНАРНАЯ ПЕРСПЕКТИВА (рецензия на книгу Н. Рыжовой «Экономическая интеграция приграничных регионов»)

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#### From the Chief Editor

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UDC 338.24(571.62)

#### STRUCTURAL FACTORS OF REGIONAL DYNAMICS: MEASURING AND ASSESSMENT<sup>19</sup>

#### N.N. Mikheeva

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Methods of assessment of contribution of structural factors as level of production and employment diversification in the economic growth of regions are considered. On the basis of shift-share analysis dynamics and structural transformations of employment, gross regional product and industrial production in Russian regions is carried out. It is shown that dynamics of regional production was defined mainly by national trends, the positive contribution of structural shifts to growth of gross regional product and industrial product and industrial production was low. Change in diversification of production in regions for 2000-2011 is quantitatively estimated. It is shown that in most cases diversification is a factor of stable growth, but the highest rates provide regions with high level of specialization.

*Keywords:* structure of economy of the region, modernization, diversification, specialization, shift-share analysis, diversification coefficients, employment, gross regional product, economic growth.

DOI: 10.14530/se.2013.1.011-032

<sup>&</sup>lt;sup>19</sup> Article is prepared with the financial support of basic researches program of Presidium RAS No. 31 «A space role in the modernization of Russia: natural and social and economic potential" (project 3.1 "Justification of system changes in spatial development of economy»).

UDC 332.053+330.44

### THE ROLE OF THE ENERGY SECTOR IN REGIONAL ECONOMY: ESTIMATING MULTIPLICATIVE EFFECTS<sup>20</sup>

#### N.G. Zakharchenko, O.V. Dyomina

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This paper concludes the fuel and energy complex as an output and income growth generating element of the regional economic system. The authors develop the social accounting matrix (SAM) for 2010 which includes a symmetric input-output table, to analyze interactions between the fuel and energy complex and the economy of Khabarovsky Krai. The authors use the matrix to estimate multipliers of linkages between the fuel and energy complex and region's economy. The article also uses the social accounting matrix to estimate the shares of intersectional and final demand effects in the structure of multipliers. The SAM also enables the authors to identify key intermediaries which define the regional economy's reaction to changes in development strategies of the fuel and energy complex.

*Keywords:* Multiplier, social accounting matrix, intersectional effects, final demand effects, key intermediaries, linkages structure, fuel and energy complex, Khabarovsk Territory.

DOI: 10.14530/se.2013.1.033-054

<sup>&</sup>lt;sup>20</sup> Work is performed with the assistance of FEB RAS grant No. 13-III-B-10-004, RGNF grant No. 13-12-27005.

UDC 332.142.4

### INNOVATIVE DEVELOPMENT OF REGIONS: THE ROLE OF DECENTRALIZATION OF POWER

#### E.M. Buchvald

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The article focuses on economic, legal and other preconditions of innovative development of the Russian economy. As one of the ways the author suggests the strengthening of sub-federal public governance level. The paper emphasizes that initiatives in the sphere of public governance decentralization should be supported with more precise legal specification of public policies on innovation, expansion of regional and local budgets, and stimulating inter-budgetary relations.

*Keywords:* Russian economy, innovations, regional and municipal governing, powers, federalism, interbudgetary relations, decentralization.

DOI: 10.14530/se.2013.1.055-071

UDC 330+339

#### THE ROLE OF INSTITUTIONS IN INTERNATIONAL ECONOMIC INTEGRATION $^{21}$

#### N.P. Ryzhova

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The article reviews the studies on the subject of international economic integration, based on new institutional economic theory methodology. It is shown that formal agreements on international economic integration are aimed at transaction costs reduction via trade barriers cut; however, national governments can't adjust informal barriers such as linguistic, religious, cultural differences and various kinds of predatory behavior. The author focuses on the types of international economic integration, which arise from coherent, parallel and conflict relationships between formal and informal institutions, constituting the process of economic integration. The article emphasizes the studies discussing not just the effects of the correlation between formal and informal institutions on the process of international economic integration, but also the positive externalities in the form of quality improvements of institutions, arising from the process of international economic integration.

*Keywords:* international economic integration, cross-border economic exchanges, new institutional economic theory, formal and informal institutions, transaction costs, trade barriers.

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<sup>&</sup>lt;sup>21</sup> Work is performed with the financial support of RFFI grant No. 12-06-00134-a.

#### Essays

UDC 330.8

### VLADIMIR PAVLOVICH BEZOBRAZOV (1828–1889): THE FORERUNNER OF THE RUSSIAN REGIONAL ECONOMY<sup>22</sup>

#### A.N. Demyanenko

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The paper analyzes the part of Bezobrazov's scientific heritage which is directly relevant to the research of economic problems of regions with different taxonomic level. Although most of Bezobrazov's studies are strictly applied the author considers V.P. Bezobrazov as one of the founders of the Russian school of Spatial Economics due to scientific ideas and hypotheses as well as analytical tools which are contained in his works.

*Keywords:* V.P. Bezobrazov, spatial economics, regional economy, methods of regional economic analysis, field studies of region's economy, The Nizhniy Novgorod Fair.

DOI: 10.14530/se.2013.1.089-102

<sup>&</sup>lt;sup>22</sup> Work is performed with the assistance of RGNF grant.No. 13-02-00011a.

#### Messages

UDC 332+338

### THE RUSSIAN FEDERATION STATE PROGRAM «SOCIO-ECONOMIC DEVELOPMENT OF THE FAR EAST AND THE BAIKAL REGION» $^{23}$

#### P.A. Minakir, O.M. Prokapalo

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The article assesses draft versions of two program documents of socio-economic development of the Far East and the Baikal Region which were prepared by the Ministry of Regional Development of the Russian Federation and the Ministry of the Russian Federation for Development of the Far East. It is shown that the above documents are not programs in the classic sense because they don't include the centralized and precisely targeted mechanisms of project financing, aimed at maximizing systemic effects. The authors find the programs objectives fuzzy and overly broad. As a way of increasing the practical implementability of the program the study suggests simplifying the initial system, ensuring the formalizability of goals and clarifying linkages. This can be done on the basis of the principle of diversity reduction to the minimum required size.

*Keywords:* state program, goals guideline, prospects, projects, the Russian Federation subjects, macro-region, the Russian Far East, the Baikal Region.

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<sup>&</sup>lt;sup>23</sup> Article is prepared with the financial support of FEB RAS projects No. 12-I-P31-02, No. 12-I-P31-03.

### Messages

UDC 332+711

### ST. PETERSBURG AND LENINGRAD REGION: INTERACTION, PROBLEMS, COORDINATION OF THE METROPOLITAN AREA DEVELOPMENT

### L.E. Limonov, A.R. Batchaev

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The article deals with the mutual influence and cooperation between St. Petersburg and Leningrad region. The content is a comparison of values of key indicators of socio-economic development of the two regions. A characteristic of the most complex problems of relations between St. Petersburg and Leningrad region is given. Key areas of the city and the region mutual interests are identified, including the metropolitan area development, the labor market, investment, energy and transport infrastructures, and some others. The article defines the conditions for further cooperation between the city and the region. In the final part of the article recommendations are made for enhancing cooperation and strengthening of integration processes between St. Petersburg and Leningrad region.

*Keywords:* St. Petersburg, Leningrad region, interaction, cooperation, integration, metropolitan area, territory, investment, resources.

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#### Messages

UDC 339.7(5-012)

## ESTIMATING TRADE EFFECTS OF THE COMPETITIVE DEVALUATION POLICY IN EAST ASIA'S COUNTRIES<sup>24</sup>

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The paper examines the competitive devaluation policy effects on the East Asia's trade for the period of 2000–2011. The author obtained quantitative estimation of the currency policy trade effects with the help of panel data regression analysis (using export and import data of the following countries: China, Japan, Indonesia, Malaysia, Vietnam, Thailand, the Philippines and the Republic of Korea). The article includes investigation of the following foreign trade flows: total, intra-regional and out-of-regional exports and imports of merchandise. The study reflects the fact that the competitive devaluation policy of ASEAN+3 countries negatively affects the out-of-regional exports and imports, as well as the total imports. Simultaneously such exchange rate policy measures have no effect on intra-regional trade.

*Keywords:* competitive devaluation policy, trade effects, export, import, exchange rate, ASEAN+3, East Asia.

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 $<sup>^{\</sup>rm 24}$  Work is performed with the assistance of FEB RAS  $\,$  project No. 12-I-OGPMO-01.

#### Reviews

UDC 330

### MESOECONOMICS... IS NOW ABOUT DEVELOPMENT (Notes on the Margins of the Book «Mesoeconomics of Development»)<sup>25</sup>

### A.N. Demyanenko

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### 2013, No. 2

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UDC 339.9

# THE DEVELOPMENT OF RUSSIAN FAR EAST AND EASTERN SIBERIA AND THE FUTURE OF NORTHEAST ASIA

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The purpose of this short paper is to introduce a new concept and way of thinking about the future of Northeast Asia in conjunction with the development of Russian Far East and Eastern Siberia. The basic arguments of this paper are: first, the specialists should shed the conventional definition of geographical boundaries, especially in defining Northeast Asia; second, Russia's Far Eastern development can make a significant contribution to the regional community building depending on how creatively and imaginatively the development proceeds; lastly, it is high time to start preparation for the future of Northeast Asia before it gets too late. In this regard, at the end of this paper the authors introduce their initial effort to establish a consortium, the purpose of which is to lay groundwork for the establishment of an institute for Northeast Asian community building.

Keywords: northeast Asia, Russian Far East, Eastern Siberia, Nationalism, Six Party Talks, Political and Economic Integration, International Consortium.

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UDC: [622.691.4+31.13+339.137.22] (510)

### GAS INDUSTRY IN CHINA: A NEW RESOURCE FOR DEVELOPMENT

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Development of the gas industry in China since 1986 is considered by regions, by various consumer groups, gaseous fuels consumption pattern change with the development of gas transportation transmission and distribution systems. Current production of gaseous fuels, import infrastructure and natural gas prices in China are summarized. Implications on gas consumption growth in terms of customers and their geographical origin are provided. Competitive price stimations of the Russian natural gas for Chinese and other major gas importers in Eastern Asia are presented. Conclusion is made about Chinese monopsony on export gas pipelines from Siberia. The measures for elimination and/or reduction of such monopsony at the Asia-Pacific regional markets are offered.

Keywords: China's region, natural gas, gas supply chain, competitiveness, Russian gas export.

DOI: 10.14530/se.2013.2.022-048

UDC 336.221.264

### THE TAX BURDEN AND ECONOMIC GROWTH IN THE FAR EASTERN REGIONS

### M.O. Kakaulina

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The paper deals with the problem of evaluating the tax burden's adequacy in relation to economic growth at the regional level. The author assesses the tax burden on the basis of the Laffer's concept through the use of the static three-factor model of E.V. Balatsky. Estimates show that the tax burden in all regions of the Russian Far East held back economic growth in 2011. Forecast results of the Khabarovsky Krai's fiscal indicators which were obtained by the tools of the SPT Statgraphics (taking into account changes of income tax for large enterprises) demonstrate that the tax burden's reduction in the region by 2020 will not lead to economic growth's stimulation.

*Keywords:* tax burden, economic growth, the Laffer's concept, fiscal analysis, fiscal indicators, fiscal tolerance, fiscal climate, profit tax, the Russian Far East.

DOI: 10.14530/se.2013.2.049-064

UDC 330.8

### MARKETING APPROACH TO MANAGEMENT OF SPATIAL DEVELOPMENT<sup>26</sup>

### **D.P. Frolov**

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Marketing of territories is a modern mechanism of management of spatial entities> development (cities, regions, etc.), which is based on the principles of regulated self-organization and cultivation of self-generating trends. In this paper territories are considered as socially responsible multistakeholder quasi-corporations that produce specific goods and promote their own brands. But it is not clear yet what marketing of territories is – the function or ideology of regional administration? How do regional marketing and branding correlate? What is «the product of the territory» and who are its> consumers? Why are instituting territorial goods so important? How do the traditional socio-economic development strategy and marketing strategy of the region relate? What is the action mechanism of the regional marketing? The article presents the author>s answers to these and other issues of theory and practice of regional marketing in the context of new methodological approaches.

*Keywords:* regional marketing, marketing strategy, the product of the territory, constituent goods, stakeholders, regional marketing mechanism.

DOI: 10.14530/se.2013.2.065-086

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UDC 332

# ABOUT THE CREATING OF THE INNOVATIVE-INVESTMENT RATING OF RUSSIAN REGIONS $^{\rm 27}$

### B.L. Lavrovsky, R.S. Luzin

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The authors represent the new approach to compare countries and regions by the level of technological development. This approach integrates the existing methods of ratings' calculation and allows solving a more general problem than in terms of investment and innovative rating separately. At the same time technological progress is viewed primarily through the prism of the «quality» of investments. The main idea of the approach is that the region, providing a minimum investment per unit of effect, associated with the growth of labour productivity becomes a leader of the innovative-investment rating. The authors suggest that the smaller investment costs are; the more sophisticated technologies are (that embodied in the investments), the greater their advantage is and the higher the innovative-investment score is. The smaller the investment is to achieve the ranking equal with other regions; the higher the technological development level of the region is.

Keywords: investment, innovation, rating, region, innovative-investment rating, division.

DOI: 10.14530/se.2013.2.087-102

 $<sup>^{\</sup>rm 27}$  Article is prepared with the assistance of RFBR grant No. 13-06-00392.

UDC 338.242:001

# **BASIC PROPERTIES AND PROBLEM FIELDS OF SCIENTIFIC-INNOVATION SPACE OF THE REGION**

### A.A. Rumyantsev

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Increasing scale of the scientific-innovative activity in administrative-territorial units, complicating structure of the regional scientific-innovative complexes and development of inter-regional horizontal and vertical ties expand the space of the scientific and innovation activity research of which primarily involves the development of theoretical and methodological provisions. Basing on the philosophical category «space», the paper describes main properties of the scientific-innovative space of the region and the factors causing them. The author identified problem fields as the direction of possible transformation of scientific-innovative space of the region. The analysis allowed defining some features of the scientific and innovation space and problems of development. The obtained results show the feasibility of study of the scientific-innovative activity in the spatial dimension.

Keywords: region, research-innovative space, properties, problem fields.

DOI: 10.14530/se.2013.2.103-118

#### Surveys

UDC 338.1(571.6)

### ECONOMIC SITUATION IN THE FAR EASTERN FEDERAL DISTRICT IN 2012<sup>28</sup>

#### O.M. Prokapalo, A.G. Isaev, D.V. Suslov, M.G. Mazitova

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On the basis of the official statistics for 2012 the authors analyzed and evaluated the tendencies of socioeconomic development of the Far Eastern Federal District (FEFD). The paper considers the economic situation in the FEFD in comparison with national trends, current development conditions in the sphere of production of goods and services, social sphere and the sphere of external economic cooperation. We can state the following basic trends: the economic slowdown; significant reduction of investments along with its negative growth pace; accelerated growth of wages in budget and commercial sectors of the economy; unemployment reduction against the background of economic slowdown; exports reduction; significant growth of foreign investments.

*Keywords:* GRP, industry, inflation, finance, income of population, labour market, foreign investment, foreign trade, Far Eastern Federal District.

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### Essays

UDC 330.8

## VLADIMIR PAVLOVICH BEZOBRAZOV (1828–1889): THE FORERUNNER OF THE RUSSIAN REGIONAL ECONOMY<sup>29</sup>

### A.N. Demyanenko

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The paper analyzes the part of Bezobrazov's scientific heritage which is directly relevant to the research of economic problems of regions with different taxonomic level. Although most of Bezobrazov's studies are strictly applied the author considers V.P. Bezobrazov as one of the founders of the Russian school of Spatial Economics due to scientific ideas and hypotheses as well as analytical tools which are contained in his works.

*Keywords:* V.P. Bezobrazov, spatial economics, regional economy, methods of regional economic analysis, field studies of region's economy, The Nizhniy Novgorod Fair.

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<sup>&</sup>lt;sup>29</sup> Work is performed with the assistance of RFN grant No. 13-02-00011a.

### Reviews

UDC 332

### ANALYSIS OF THE OPTIMIZATION PROCESS OF BUDGETARY RELATIONS IN THE RUSSIAN FEDERATION (on the book of Belov A.V. «Is Centralism Effective?»)

S.N. Leonov

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### FACTOR STRUCTURE AND MARKET INTEGRATION UNDER TWO-FACTOR MONOPOLISTIC COMPETITION MODEL<sup>30</sup>

### E.V. Zhelobodko, S.I. Kichko, P.A. Ushchev

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The authors study the impact of trade liberalization on the market of a differentiated good and consumers' welfare. The economy involves two factors of production: labor and capital. The researchers find that consumers always gain from trade liberalization. The article also establishes that the behavior of equilibrium price is independent of factor endowments' structure in the countries involved into trade. The equilibrium price decreases (increases, remains unchanged) under trade liberalization if and only if the inverse demand elasticity is increasing (decreasing, constant) with respect to the individual consumption level. Furthermore, firms' size which are measured as output increases (decreases) when autarky changes to free trade if and only if the country is relatively richer (poorer) in capital than its trading partner, regardless of the demand-side properties of the economy. Finally, the behavior of capital price (which equals firms' profits in equilibrium) is more complicated in the general case, but can be fully characterized for two limiting cases: (i) when the structure of factor endowments in both countries is the same, and (ii) when the Foreign country is a periphery country, i.e. it has zero endowment of capital.

Keywords: monopolistic competition, international trade, markets integration, trade gain.

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### DETERMINANTS OF THE SPATIAL DISTRIBUTION OF ABANDONED AGRICULTURAL LANDS IN THE EUROPEAN PART OF RUSSIA<sup>31</sup>

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The breakdown of socialism caused massive socio-economic and institutional changes that led to substantial agricultural land abandonment. The goal of our study was to identify the determinants of agricultural land abandonment in post-Soviet Russia during the first decade of transition from a state-controlled economy to a market-driven economy (1990-2000). We analyzed the determinants of agricultural land abandonment for approximately 150 550 km<sup>2</sup> of land area in the provinces (oblasts) of Kaluga, Rjazan, Smolensk, Tula and Vladimir in European Russia. Based on the economic assumptions of profit maximization, we integrated maps of abandoned agricultural land from five 185 km × 185 km Landsat TM/ETM+ footprints with socio-economic, environmental and geographic variables, and we estimated logistic regressions at the pixel level to identify the determinants of agricultural land abandonment. Our results showed that a higher likelihood of agricultural land abandonment was significantly associated with lower average grain yields in the late 1980s and with higher distances from the nearest settlements, municipality centers, and settlements with more than 500 citizens. Hierarchical partitioning showed that the average grain yields in the late 1980s had the greatest power to explain agricultural land abandon-ment in our models, followed by the locational attributes of the agricultural land. We hypothesize that the termination of 90% of state subsidies for agriculture from 1990 to 2000 was an important underlying cause for the decrease of cultivation in economically and environmentally marginal agriculture areas. Thus, whereas the spatial patterns corresponded to the land rent theory of von Thünen, it was primarily the macroscale driving forces that fostered agricultural abandonment. Our study highlighted the value of spatially explicit statistical models for studying the determinants of land-use and land-cover change in large areas.

*Keywords:* agricultural land abandonment, Institutional change, Land use change, Spatial analysis, Logistic regression, Remote sensing, Russia.

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*Prishchepov A.V., Müller D., Dubinin M., Baumann M., Radeloff V.C.* Determinants of agricultural land abandonment in post-Soviet European Russia // Land Use Policy. Vol. 30. Issue 1. January. 2013. Pp. 873–884. Http://dx.doi.org/10.1016/j.landusepol.2012.06.011.

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UDC 330.15+338.27

## FORMATION OF STATE SUPPORT MECHANISMS FOR THE INTEGRATED USE OF HYDROCARBONS

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The article offers an approach to the formation of state support mechanisms for investment projects of the Development Plan of gas and petrochemicals in Russia for the period till 2030, raw materials sources of which are hydrocarbons of Eastern Siberia and the Sakha Republic (Yakutia). The authors analyze state coordination problems for projects of gas and petrochemical clusters and commodity companies to ensure the comprehensive use of raw materials in the framework of resource mega project 'East Siberian oil and gas complex' (ESOGC). As a toolkit the study proposes to use the network model of the mega project investment program and simulation models for its effectiveness assessment. Analyzing financial flows of ESOGC investment projects the authors define directions to motivate the integration of financial resources of mining companies for projects realization in gas and petrochemical cluster and prove the necessity of interrelated target state preferences for mining and processing companies in different development scenarios of the ESOGC mega project.

*Keywords:* mega project, East Siberian oil and gas complex, gas and petrochemical cluster, scenarios, resource-calendar analysis, performance indicators, network model, simulation model, coordination of investment decisions, integration of financial resources, Eastern Siberia, the Republic of Sakha (Yakutia).

DOI: 10.14530/se.2013.3.063-088

UDC 338+332

### NATURE MANAGEMENT IN THE RUSSIAN FAR EAST: THE MODERN STAGE (SHEYNGAUZ'S RECITATION) $^{\rm 32}$

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The authors studied new developments and trends (typical for the period 2005–2012) in the system of nature management of the Russian Far East. The article reflects significant changes in nature management in terms of technological (the introduction of new technologies of extraction and processing of mineral and raw materials, growth of the technological availability of mineral resources, technological structure changes of the forestry complex), institutional (amendment of the rules of forest management and customs regulation of wood export, mechanisms of mineral centers for economic development) and organizational aspects (activation of the concentration and integration processes in the resource industries) and the international component of the natural resource sector in the region (export component changing in the production of the complex, markets transformation of these products, the share growth of foreign investments for the resource sector development. The authors investigated situation with the reproduction of raw materials base of resource sectors and made assumptions about the raw materials base «compression» (forest and fishery complexes, land resources for agriculture) or its excessive development (mineral resources) in the period under review.

*Keywords:* The nature management system, technological availability, institutional changes, international cooperation, resources reproduction, mineral resources, forest complex, the Russian Far East.

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 $<sup>^{32}</sup>$  At the heart of article – the report of scientific and practical conference «Nature management in the Far East: the present stage», devoted to the 80 anniversary since the birth of professor, Doctor of Agricultural Sciences – A.S. Sheyngauz (1933–2007) which took place on 15<sup>th</sup> of March , 2013 at Economic Research Institute FEB RAS (Khabarovsk, Russia)

UDC: 620.4.009.01(517.3+470)"312"."313"

## ENERGY COOPERATION BETWEEN MONGOLIA AND RUSSIA: CURRENT STATE AND STRATEGIC DIRECTIONS $^{\rm 33}$

### N.I. Voropai, B.G. Saneev, S. Batkhuyag, Kh. Enkhjargal

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Although Russia occupies the second rank among trading partners of Mongolia, energy cooperation between the two countries is currently limited by the power transmission and delivery of oil products and liquefied natural gas. There are however economic prerequisites for the expansion of bilateral cooperation in this field. One of its strategic directions is the development of gas distribution network in the Baikal region and Mongolia in the case of construction of the gas pipeline «Russia-China» through the Mongolian territory. Siberian oil can be used as a feedstock for the oil refinery project in Mongolia. An important issue of the energy cooperation between the two countries is participation in the development of the Tavan Tolgoi coking coal deposit, in particular, supply of mining equipment and a railway construction to ensure coal export to the NEA market through the Far Eastern ports. Regarding cooperation in the electric power industry, the authors note collaborative construction of new generating capacities and power grid facilities that provide both parallel operation of border energy systems and the creation of interstate electric power system.

Keywords: interstate projects, electric power industry, gas transmission infrastructure, gasification, joint ventures.

DOI: 10.14530/se.2013.3.108-122

<sup>&</sup>lt;sup>33</sup> Research isperformed with the financial support of the joint project No. 5 of the Siberian branch of the Russian Academy of Sciences, Academy of Sciences of Mongolia and the Ministry of Education, science and culture of Mongolia.

#### Surveys

UDC 330

### NEW ECONOMIC GEOGRAPHY: THE POSSIBILITIES AND RESTRICTIONS<sup>34</sup>

### **D.A. Izotov**

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The article analyzes scientific publications on the new economic geography (NEG) relevance. On the basis of the publications array the author determined characteristic features of the simulation and the central idea of this research direction. Analysis showed that modeling in the terms of NEG is based on the approach of general equilibrium under monopolistic competition, endogenous factors and homogeneous space. The NEG central idea can be presented as follows: the increasing economy of scale is the main force for factors migration in homogeneous space. The theoretical studies analysis revealed that the development of NEG models is carried out by consideration of different options for the migration behavior of the agglomeration subjects and inclusion of theoretical constructs from adjacent areas, in particular, new economic growth theory and urban economics models. The article shows that empirical papers mainly test the NEG provisions in the terms of the model "core-periphery". The extremely rare cases of testing other NEG models are apparently due to the absence of statistical data; the difficulty of obtaining reliable estimates of the elasticity of substitution of goods by different countries, regions and cities. Systematization of the scientific community criticism has allowed identifying the main problems of NEG: identification in the system of socio-economic researches, spatial characteristics ignoring, research object limitations, simplicity of the backgrounds, problems with empirical evidence. Further NEG development, according to experts, depends on obtaining of its specific place in the system of socio-economic researches or NEG may remain as one of the modeling approaches in the general equilibrium framework.

*Keywords:* new economic geography, increasing economy of scale, monopolistic competition, factors of production, general equilibrium, transport costs, agglomeration, substitution elasticity, migration behavior, criticism of the new economic geography, theoretical and empirical researches.

DOI: 10.14530/se.2013.3.123-160

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### Essays

UDC 303

# ERNAND BRAUDEL AND FORMATION OF GEOHISTORICAL METHOD IN THE STUDY OF ECONOMIC SPACE

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The essay analyzes the part of the scientific extensive heritage of F. Braudel which is devoted to formation of geohistorical method as a methodological platform that allows realization of the idea of interdisciplinary synthesis in the study of economic space. The very name of the method contains a direct reference to the synthesis of geographical and historical approaches to the study of society and economy. For its part, the introduction of geographical approaches in the framework of interdisciplinary synthesis involves not only the introduction of space in the analysis of economic phenomena, but also the inclusion of geographical economic systems because temporal rhythms are usually ignored by economists in view of their duration. At the same time, neglect or time constraints hindered and keep hindering the development of economic thought. The authors paid special attention to analysis of the matter of the monograph «The Mediterranean and the Mediterranean World in the Age of Philip II» which is a landmark work both for historical and economic sciences as it pioneered the substantiation of the geohistorical method.

*Keywords:* F. Braudel, geohistory, geohistorical method, economic space, spatial economics, interdisciplinary synthesis, Mediterranean.

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### Reviews

UDC 339

### NEW WORLD ORDER AND STRATEGIC INNOVATION (on article of Yong-Chool Ha, Beom-Shik Shin «The Development of Russian Far East and Eastern Siberia and the Future of Northeast Asia»)

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UDC 330.356.7

### **TECHNOLOGIC PARAMETERS OF REGIONAL ECONOMIC SYSTEM<sup>35</sup>**

### A.G. Isaev

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Under deficit of labor supply, simple capital accumulation is limited as a driver of regional product growth, due to the law of falling marginal productivity of variable factors and absence of technological progress. A modified CES production function allows us to estimate key technological parameters of an economic system such as elasticity of substitution, returns to scale and labor intensity. These parameters were estimated for the specific economy of Khabarovsky krai. Data on capital are estimated using the «capital lifecycle» model. The constructed production function is used to estimate the rate of labor-saving technical progress necessary for achieving the higher levels of Khabarovsky krai's GRP based on long-term GRP projections and accounting for labor supply limitations. Increasing Khabarovskyi krai's GRP by a factor of 3.3 from 2010 to 2025 will require not only an increase of gross investment by 3.5 times in the same period, but also annual growth of unit productivity of capital of 1.4%. Otherwise, the mentioned capital increase accounts for only 1.8 times GRP growth. An alternative to technology-augmented capital productivity growth is an 1.6 times increase in the region's employment compared to 2010. Thus, the model determines the influence of labor limitations on capital productivity and eventually on the GRP.

*Keywords:* CES production function, technical progress, capital, labor, GRP, resources limitation, regional economic system, Khabarovsky Krai.

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# PECULIARITIES OF THE SPATIAL DISTRIBUTION OF PRODUCTIVE FORCES IN THE OLD-INDUSTRIAL AREA<sup>36</sup>

### A.I. Tatarkin, I.V. Makarova, A.P. Petrov, L.M. Averina

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On the example of Sverdlovsk region the authors analyze the distribution of the most important objects of modernization and new construction in the old-industrial area. Considered complexes have three stages of adaptation to changing business circumstances. For each identified phase the authors define the main trends of accommodation and key factors. The study characterizes the metallurgy industry in the following way: the first stage needs point modernization to improve product quality and acquisition of assets of other enterprises in the framework of a unified technological chain for the strengthening of the mineral resources base; the second stage involves the implementation of technical re-equipment programs and production modernization, new construction on reclaimed areas and production diversification; the third stage includes the development of holding companies. For engineering complex the authors consider following: the 1<sup>st</sup> phase involves the establishment of new manufactures to equip financially viable sectors of the economy and creation of innovative production at defense enterprises within the framework of conversion programs; the 2<sup>nd</sup> phase needs the restructuring of large machine-building companies; the enhancing of interaction between large and small enterprises of the complex; the formation of engineering companies; the development of integration processes in the defense industry; the establishment of specialized regional technological centers; creation and development of industrial parks; development of new sectors in mechanical engineering; and the 3<sup>rd</sup> phase includes the development of cluster forms of organization and functioning of industrial enterprises.

*Keywords:* Old industrial region, metallurgical complex, machine-building complex, objects of modernization and new construction, feature of placement, Sverdlovsk region.

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### THE EVOLUTION OF URBANIZATION PROCESSES IN THE RUSSIAN FAR EAST<sup>37</sup>

### E.O. Kolbina, S.N. Nayden

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The article examines the urbanization processes occurring as a result of migration between cities of various rank. Theoretical background of the work includes the classical theory of accommodation, approaches of New Economic Geography, theory of step and differential urbanization, as well as principles of settlement in a planned economy. Authors show that formation and evolution of cities can be defined not only by the market and infrastructural factors, causing the concentration of population in one place, but also by the spatial characteristics of already established settlement system, which elements' configuration relative to each other and economic objects can significantly reject the development direction of cities from expected trends and time intervals of the existing theories. As an example, this paper considers the settlement system of the Russian Far East with a more detailed analysis of the cities' evolution of one of its regions -Khabarovsky Krai. Analysis employs the terms of differential urbanization theory which requires a certain sequence of domination stages of cities of various ranks as a result of changes in direction and the volume of migration. The article shows that despite the long history and repeated changes of political and economic courses of development of the macro-region as well as polycentric settlement system (including urban centers of different size, functions and socio-economic orientation) formed in the period of planned economy, urbanization processes in the Russian Far East, which is characterized by significant spatial differentiation and heterogeneity of population distribution, continue to unfold during the stage of large cities' domination.

*Keywords:* urbanization, evolution, cities, migration, population distribution, settlement system, urbanization theories, the Russian Far East, Khabarovsky Krai.

DOI: 10.14530/se.2013.4.044-069

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### UDC 339.5

### **RAW MATERIALS MARKET OF CHINA<sup>38</sup>**

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Deficit of raw materials is becoming an important concern for the Chinese economy as it continues to grow. This deficit is amended with imports, which – in their own turn – are limited by the high level of global prices. The build-up issue of raw materials imports is going to solve by the measures of monetary policy (RMB's revaluation against the USD). Analysis of China's market of raw materials reveals that the largest increase in the physical volume of imports is concentrated in crude oil, LNG, iron ore and coal. As for Russia, its supplies and share in total Chinese imports of raw materials tend to increase. Author employs regression equations based on international statistics data to show that RMB's revaluation, ceteris paribus, increases physical volumes of raw materials imports. However, the main factor of coal and LNG imports growth is energy consumption by Chinese heavy industry; imports of oil products – producers' prices; meanwhile imports of steel products tend to decrease with the growth of steel exports. RMB's revaluation increases physical volumes of low value added raw materials from Russia (coal, crude oil, iron ore).

Keywords: import, RMB's revaluation, price, crude oil, oil products, LNG, coal, iron ore, steel, China, Russia.

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### METHODICAL APPROACH TO ESTIMATION OF ENERGY EFFICIENCY PARAMETERS OF THE ECONOMY UNDER THE STRUCTURAL CHANGES IN THE FUEL AND ENERGY BALANCE (ON THE EXAMPLE OF BAIKAL REGION)<sup>39</sup>

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The authors consider a methodical approach which allows estimating energy efficiency parameters of the region's economy using a fuel and energy balance (FEB). This approach was tested on the specific case of Baikal region. During the testing process the authors have developed ex ante and ex post FEBs and estimated energy efficiency parameters such as energy-, electro- and heat capacity of GRP, coefficients of useful utilization of fuel and energy resources and a monetary version of FEB. Forecast estimations are based on assumptions and limitations of technologically-intensive development scenario of the region. Authors show that the main factor of structural changes in the fuel and energy balance will be the large-scale development of hydrocarbon resources in Baikal region. It will cause structural changes in the composition of both the debit and credit of FEB (namely the structure of export and final consumption of fuel and energy resources). Authors assume that the forecast structural changes of the region's FEB will significantly improve energy efficiency parameters of the economy: energy capacity of GRP will decrease by 1,5 times in 2010–2030, electro and heat capacity – 1,9 times; coefficients of useful utilization of fuel and energy resources will increase by 3–5 p.p. This will save about 20 million tons of fuel equivalent (about 210 billion rubles in 2011 the prices) until 2030.

*Keywords:* Methodical approach, energy efficiency, economy, power consumption, fuel and energy complex, fuel and energy balance, Baikal region.

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### SPATIAL DEFORMATION OF THE PUBLIC HEALTH SYSTEM EFFECTIVENESS<sup>40</sup>

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Using official statistics the authors assess the performance of the public health system in the context of federal districts of the Russian Federation. The study shows that despite the highest level of funding among all federal districts, effectiveness of the public health system in the Far Eastern district remains the lowest in the country, both in absolute terms and measured by rates of their changes. Low efficiency rate can be explained when various constraints are taken into account: demographic, socio-economic and spatial. Among the demographic constraints the authors point towards high mortality rate of working-age males in the region that is highest among all districts, especially in preventable diseases. Under the socio-economic limitations the authors understand low affordability of medical services for the population of almost all subjects of FEFD. Spatial constraints include low population, settlements and road network densities due to historical patterns of settlement. The analysis suggests that, firstly, ignoring the restrictions forms a distorted view of the actual situation in this sector; and secondly, the use of a single healthcare model for all regions reduces affordability and spatial accessibility of medical services for the population, prevents achievement of public health targets and efficient use of public funds.

*Keywords:* The public health system effectiveness, life expectancy, infant mortality, mortality of able-bodied men, restrictions' system, affordability, spatial accessibility.

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#### Surveys

UDC 330.8

### MULTILEVEL HIERARCHY OF ECONOMIC SPACE: FORMATION OF EVOLUTIONARY TAXONOMY $^{41}$

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The article considers methodological problems of hierarchical structuring of economic space. The evolution survey of multilevel analysis concepts reveals a dominant role of two-level (micro-macro) neoclassical models because of the path dependence effect. In institutional and evolutionary theories the application of mesoanalysis and three-level models gradually becomes more active, but conventions in the field of taxonomy are extremely inert. The main methodological problems of a hierarchical taksonomization of economic space include the problem of taxonomical «rupture» of a subject and a method of Economics, the problem of an identification of the level (rank) and scale of economic phenomena, the problem of an identification of subjects and business location, the problem of terminological unification. The authorys hierarchical model of economic space is developed in a context of the generalized evolutionary theory on the basis of multilevel population thinking. The model offers differentiation of industrial and territorial (spatial) division and cooperation of labour and, more widely, economic activity. Branches and generation are treated as objects of the industrial analysis, population and ecocenosis – objects of the spatial analysis that allows reintegration of spatial formations in the system of economic analysis. The study of mesolevels and interlevel relations is particularly important. Institutionalism can be considered as metanarrative, i.e. one of universal languages of Economics. Scales and ranks of the functions assigned to subjects and objects of transactions define level differentiation of institutions' forms in economic space.

*Keywords:* economic space, «micro-macro» dichotomy, taxonomy, mesoeconomics, nanoeconomics, evolutionary theory, spatial Economics.

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### Essays

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## ON THE ECONOMIC AND ADMINISTRATIVE STRUCTURE OF UNINHABITED TERRITORIES OF SIBERIAN NORTH

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In the context of Russia's economic problems of that time, the author considers the issues of economic zoning of Siberia for the purpose of its development and preservation and protection of indigenous population. Taking into account Siberia's far Northern region's natural tendency towards the state of an isolated special economic zone with peculiar historical, climatic and geographical conditions, special forms of economic relations, and an almost completely virgin state of development, the author discusses a possibility of separating the region from the more densely populated and better developed South into a new administrative territory, which could be managed on different legal and economic grounds from the territories planned for partition in the South. The possible uses of the Northern Sea Route are also considered. The following directions of the North's development are proposed: 1) economic development and consequent population growth of the numerous indigenous populations; 2) formation of trade and industrial centers, participating in intra- and extraregional economic exchanges; 3) gradual assimilation of the North by the rapidly developing South of Siberia. The author expects the first two directions to dominate at the initial stages of development, since the South at the time of the article's writing still had vast wooded territories of its own to develop in the presence of severe resource constraints.

*Keywords:* Economic zoning, unexplored territories, *special zone*, naturalistic conditions, physical-geographical characteristics, particular administrative-economic area, state legal grounds, Siberian North.

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### Reviews

UDC 339.138

### **BRANDING OF PLACES: FOREIGN EXPERIENCE AND MUTATION WITHIN RUSSIAN CIRCUMSTANCES**

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