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Research Projects

CONTENTS

An empirical investigation of the impact of schooling and non-schooling determinants of individual and social welfare in Nigeria

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Research Problem

For a start, my PhD thesis is only directly concerned with formal schooling and migrant segregation, while other forms of human capital are entered into the econometric models as control variables. Much of my ongoing researches with colleagues is making more direct attempt at investigating the role of schooling, migrants segregation, ethnic/religious networks and democracy on individual and group welfare in Nigeria. The motivation for present PhD thesis is to investigate the claim that political opportunism in Nigeria has rendered schooling investment unprofitable, both for individuals and society. Beyond that, it is examining the possibility that there are other critical factors impacting on general welfare. If ethnic identity, migrant segregation, religious affiliation and political party membership matter more for welfare than productive investment in schooling, then persistent conflicts will be the stable equilibrium in that kind of society. Effort intensity in acquiring schooling capital will be a lot less for those who belong to the right ethnic, religious and political networks relative to those who do not. That of course portends danger for growth and development, and makes conflict equilibrium self-sustaining.

Literature

Survey papers by Psacharoupoulos (1985), Psacharoupoulos and Patrinos (2004) find considerably high rates of return to investments in education in developing countries. Except for Oyelere (2010), a number of studies deriving estimates of private returns to schooling in Nigeria has reported reasonably high for all or specific categories of school type (Bowles, 1965 and 1967; Akangbou, 1977; Okuwa, 2004; Aromolaran, 2004 and 2006). However, most of these studies raise a number of econometric issues, prompting the need to re-investigate the issue.

A number of theories[1] have asserted that schooling as a form of human capital will generate large and positive externalities. In the thinking of Rajan and Zingales (2006), the initial distribution of educational opportunities across groups in society could accelerate or inhibit economic development. In Nigeria, not enough studies have been done on private returns to schooling. The availability of richer and more recent data implies that we could throw more light on this kind of study.

Migrant segregation, which has implications for individual and social welfare (Cutler and Glaeser, 1997), is a pervasive feature of the Nigerian state. While some have argued that ethnic segregation does not necessarily lead to poor outcomes (Glazer and Moynihan, 1963; Wilson 1987; Fryer, 2006), most empirical studies have shown that it produces adverse impacts on schooling attainment, labour market performance and other disadvantages (Kain, 1968; Cutler, Elmendorf, and Zeckhauser, 1993; Cutler and Glaeser, 1997;

Identity matters a lot (Akerlof and Kranton, 2002 & 2006), but ethnic identity, for good or for bad, has important consequences for individual and group welfare. Basu (2006) model and empirical study illustrates how community identity maps identical individuals ex ante into different outcomes ex post. For most empirical studies, both across and within countries, the universal

[1] Schultz (1967) and Nelson and Philips (1966) assert that a labour force with high level of human capital will adopt new and more productive technologies, Lucas (1988) says human capital enhances worker's productivity and Romer (1990) says countries with high level of human capital will generate more ideas and accelerate economic growth.

consensus is that ethnic diversity has adverse impact on individual and social welfare though there is less agreement on the impact of ethnic identity on individual welfare.

Sander (1992) study shows that the correlation between ethnicity and educational attainment in the US can be partly explained by differentials in parental schooling and father's occupation. Collier and Garg (1999) found evidence of ethnic discrimination in the Ghanaian public sector though the same cannot be said of the private sector.

Generally, ethnic diversity leads to lower than optimal public goods production (Alesina, Baqir and Easterly, 1999; Alesina and LaFerrara, 2000; Vigdor, 2004 and Miguel and Guberty, 2005). Pratt (2002) team theory and Ottaviano and Peri (2003) also consider circumstances that make diversity produce positive outcomes. To the best of our knowledge, Oyelere (2006) is the only study in Nigeria that has attempted to estimate the impact of ethnic identity on earnings

There have been a large number of studies investigating the relationship between democracy and economic growth. A large number of these studies (Boone 1996; Bueno de Mesquita et al. 2003; Dasgupta 1993; Franco, Alvarez-Dardet, and Ruiz 2004; Lake and Baum 2001; McGuire 2001; Moon and Dixon 1985; Przeworski et al. 2000; Sen 1981, 1999; Siegle, Weinstein, and Halperin 2004; Zweifel and Navia 2000) have attempted to determine the causal impact of democracy on growth and an equally large number of studies have tried to measure the causal impact of growth on democracy (Londregan and Poole 1996; Przeworski and Limongi 1997; Barro 1997; Przeworski et al. 2000; and Papaioannou and Siourounis, 2006). In both cases, there is no universal consensus as which is the causal factor.

Research Question

The main objective of this study is to determine whether individual and social welfare is determined by the investment in productive schooling, competitive multi-party democracy and migrant segregation or is attributable to fixed indices of ethnic or religious identity and political networks. However, this broad objective could be subdivided into six specific objectives. These include

1. Estimate the education at all levels of education
2. Determine external returns to education at all schooling levels.
3. Estimating the impact of migrant segregation on individual welfare.
4. Estimating the impact of ethnic identity and ethnic diversity on individual earnings.
5. Estimating the impact of religion identity and ethnic diversity on individual earnings.
6. Estimating the impact of democracy on individual well-being or welfare of party members.

Hypotheses

Six hypotheses will be tested in this study. They include the following

Hypothesis 1: Schooling does not have significant impact on labor earnings

Hypothesis 2: Schooling does not have significant external benefits

Hypothesis 3: Migrant segregation does not have significant impact on labor earnings

Hypothesis 4: Ethnic identity and frationalisation do not have significant impact on labor earnings

Hypothesis 5: Religious identity and frationalisation does not have significant impact on labor earnings

Hypothesis 6(a): Democracy does not have significant impact on individual and social well-being.

Hypothesis 6(b): Democracy does not have significant impact on party members.

Methodology and Results

1. Descriptive Statistics

This analytical technique will use important measures of central tendency such as mean, median and mode as well as measures of dispersion such as variance and standard deviation to study the initial statistical properties of both the key and control variables used in our analysis.

The trend of key variables such as income, schooling attainments for individuals and groups can be presented in tabular form across geopolitical zones, gender, age cohorts, rural and urban sectors, public and private employment and paid and self-employed persons. Other important variables such as religious identity, ethnic identity and ethnic fractionalization, migrant segregation and democracy will be treated the same way. Descriptive analysis of relevant control variables like school quality, natural ability, school interruption, family background, union membership, health status and migration will reveal vital statistical properties of measures of central tendency and dispersion. The trend of statistical properties of these variables will reveal the degree of heterogeneity among individuals in the sampled population.

The problems of explanatory endogenous, measurement error and omitted variable bias plague a number of key variables (Schooling, religion, migrant segregation and democracy) in this study, we are using Instrumental Variable technique to complement other traditional methods of econometric analysis. Descriptive statistics help to split our variables along the lines suggested by the chosen instruments. This will help reveal the statistical patterns between those affected by the instrument (treated group) and those not affected (the control group). For all the objectives outlined in this study, descriptive statistics will be applied to all of the variables used in the six separate but inter-related analyses.

2. Econometric Analysis: Estimation Strategies

(a) Ordinary Least Squares: This is the best technique used in estimating most causal relationships between dependent variable and independent variable(s). In a class of many estimators, OLS is chosen because it is the best linear unbiased estimator (BLUE). For a given equation such as $y = B_o + B_1 x + u_i$ (1) its BLUE property under the following conditions (i) The linearity of the equation 1 (ii) The sample obtained from the population for the purpose of estimation was through random sampling. (iii) there is zero conditional mean; which implies that for a random sample the expected value of the error term (u_i) is zero for any given value of x_i. This assumption allows us to limit the relationship between u_i and x_i. This assumption extends to the treatment of x_i as fixed in repeated samples. With x_i fixed in repeated samples, it implies there is no relationship between u_i and x_i. (iv) Variation in the sample of independent variables. (v) Homoskedasticity assumption; variance of the unobservable, u_i, conditional on x_i is constant. Unlike the four assumptions that are related to the biasedness of variables, this condition is related to the efficiency of the variables.

Except for assumption iv, other assumptions are frequently violated in most empirical studies. Since our study is not an exception, we adopt two approaches in tackling the violations which bring bias and inefficiency into our estimates. First, we would attempt to re-specify a number of our econometric models to tackle violation of linearity assumption and in the more general situation, we make estimations for specific subsets of the sampled population in order to care of heterogeneity. This kind of treatment will remove to some extent the inherent bias in the estimates of our variables. Second, we will use alternative econometric strategies liked Ordered Probit and Tobit techniques and instrumental variable technique when dependent variables do not assume continuous array of values, independent variables are endogenous and are measured with error and there is omission of key variables from the model specified. However, the OLS is still attractive because appropriate model specification can attenuate the possible bias in their estimates because of the violations of the Gauss-Markov assumptions. This is more so because some of the violations could offset each other, so that alternative estimation techniques will not yield estimates significantly different from the OLS estimates. The OLS technique will still be a useful complementary estimation technique when dependent variable is an ordered response of limited outcomes. It is so because the limited set of ordered outcomes may still approximate the implicit assumption of equality of distance between continuous values which quantitative variable assumes.

Therefore, we will employ the OLS technique for the purpose of comparison. OLS will be applied to all six hypotheses stated above.

(b) Instrumental Variable Technique: The IV technique is very useful in estimating causal relationships when measurement error, omitted variable bias and endogeneity would not permit the establishment of the direction of causality in economic relationships. When we can get appropriate instruments that correlate with the endogenous variable (which in this case is years of schooling) but uncorrelated with omitted variable and affects earnings only through years of schooling, the causal impact of the instruments on earnings is proportional to the causal effect of schooling on earnings. The idea of IV technique is to approximate what happens in randomized experimental studies, where objects of study are randomly sorted into treated and untreated groups, making it possible to establish causal relationship between variables. Though the assumption of independence between pre-treatment characteristics and treatment group assignment important for the establishment of causality is hard to fulfill in non-experimental studies (Schneider et al, 2005), the IV technique overcomes this problem. The IV approach eliminates the endogenous component of schooling variable, permitting us to estimate the causal effect of exogenous variable on earnings. Relevant statistical tests of instrument relevance and instrument exogeneity will be carried out to determine the appropriateness of the IV technique. It will be applied to test hypotheses 1, 2, 3, 4 and 6.

(c) **Ordered Probit and Tobit techniques:** dataset used in some aspects of our study has income of individuals presented categorical fashion and ranked in an ordinal manner, the conventional OLS technique will no longer be suitable. OLS technique is unsuitable for estimation because the dependent variable, takes on a limited number of nonnegative discrete observations. The dependent variable, therefore, cannot be taken as a set of continuous variable and cannot have a normal distribution. In addition, a significant fraction of the sampled population may report zero observation, implying a corner solution for optimizing economic agents (Wooldridge, 2000). It is also an ordered response, because value assigned to each outcome is no longer arbitrary. Higher values imply better economic status. For instance, the value 10 is for those earning over N50000 per month while the value of 0 is for those with no income. The ***ordered Probit and Tobit models*** *are* the appropriate estimation techniques. They are also useful when the dependent variable has quantitative meaning, as in our case, but is nevertheless presented as a discrete, ordered response variable (Wooldridge, 2002). These methods will be used to test hypotheses 5 & 6.

References

1. Achebe Ch. (1983). The Trouble with Nigeria, Fourth Dimension Publishers, Enugu.
2. Afrobarometer (2003). Afrobarometer Survey 2003. Round Three.
3. Afrobarometer (2007). Afrobarometer Survey 2007. Round Five
4. Agrawal A., Knoeber Ch. (2001). Do Some Outside Directors Play a Political Role? Journal of Law and Economics, 44: 179–198.
5. Akangbou S. D. (1977). The Allocation and Utilization of Resources in Education: A Case Study of Mid-Western Nigeria, Unpublished PhD thesis, University of York, cited in Odusola (1998).
6. Akerlof G. Kranton R. (2002). Identity and Schooling: Some Lessons for the Economics of Education, Journal of Economic Literature, XL: 1167-1201.
7. Akerlof G., Kranton R. (2006). Identity and the Economics of Organizations, Journal of Economic Perspectives, 19(1): 9-32.
8. Alesina A., Baqir R. Easterly W. (1999). Public Goods and Ethnic Divisions, Quarterly Journal of Economics, 114(4): 1243-1284.
9. Alesina A., La Ferrara S. E. (2000). Participation in Heterogeneous Communities. Quarterly Journal of Economics, 115(3): 847–904.
10. Hong L., Page S. E. (1998). Diversity and Optimality, Santa Fe Institute Working Paper 98-08-077.

11. Barr A. Oduro A. (2001). Ethnic Fractionalization in an African Labour Market, Journal of Development Economics, 68: 355-379.
12. Aromolaran, A. (2004). Wage Returns to Schooling in Nigeria, African Development Review, 16(3): 433- 455.
13. Aromolaran A. (2006) Estimate of Mincerian Returns to Schooling in Nigeria, Oxford Development Studies, 34(2): 265-292.
14. Barro R. (1997). Determinants of Economic Growth: A Cross-Country Empirical Study. Cambridge, MA: MIT University Press.
15. Basu K. (2006). Participatory Equity, Identity, and Productivity: Policy Implications for Promoting Development, Bureau for Research in Economic Analysis of Development Working Paper No. 119.
16. Baum, M. A., Lake D. A. (2003). The Political Economy of Growth: Democracy and Human Capital. American Journal of Political Science, 47(2): 333–47.
17. Boone P (1996). Politics and the Effectiveness of Foreign Aid. European Economic Review 40: 289–329.
18. Bowles S. (1967) The Efficient Allocation of Resources in Education. Quarterly Journal of Economics, 81 (2): 189-219.
19. Bowles S. (1969) The Efficient Allocation of Resources in Education. A Planning Model with Application to Northern Nigerian, Unpublished PhD thesis, Harvard University.
20. Bueno de Mesquita B., Smith A., Siverson R. M., Morrow J. D. (2003). The Logic of Political Survival. Cambridge: MIT Press.
21. Claessens S., Feijen E., Laeven L. (2008). Political Connections and Preferential Access to Finance: The Role of Campaign Contributions, Journal of Financial Economics, 88: 554–580.
22. Collier P., Garg A. (1999). On Kin Groups and Wages in the Ghanaian Labour Market. Oxford Bulletin of Economics and Statistics, 61: 133–151.
23. Cutler D., Glaeser E (1997) Are Ghettos Good or Bad? Quarterly Journal of Economics, 112(3): 827-872.
24. Cutler D., Elmendorf D., Zeckhauser R. (1993). Demographic Characteristics and the Public Bundle, in B. Wolfe, ed., On the Role of Budgetary Policy during Demographic Changes Paris, France: International Institute of Public Finance.
25. Dasgupta P. (1993). An Inquiry into Well-Being and Destitution. New York: Oxford University Press.
26. Das Gupta M., Gauri V., Khemani S. (2004). Decentralized Delivery of Primary Health Services in Nigeria: A Survey Evidence from the States of Lagos and Kogi, Africa Region Human Development Working Paper 70.
27. Faccio, M. (2006). Politically Connected Firms. American Economic Review 96 (1), 369–386.
28. Fisman, R. (2001). Estimating the Value of Political Connections. American Economic Review, 91: 1095–1102.
29. Franco A., Alvarez-Dardet C., Ruiz M. T. (2004). Effect of Democracy on Health: Ecological Study. British Medical Journal, 329: 1421–1423.
30. Johnson S., Mitton T. (2003). Cronyism and capital controls: evidence from Malaysia. Journal of Financial Economics, 67: 351–382.
31. Khwaja A., Mian A. (2005). Do lenders favor politically connected firms? Rent provision in an emerging financial market. Quarterly Journal of Economics, 120 (4), 1371–1411.
32. Fryer R. G. (2007) A Model of Social Interactions and Endogenous Poverty Traps, Rationality and Society, 19(3): 335–366.
33. Glaeser E., Giacomo A., Ponzetto M., Shleifer A. (2007) Why Does Democracy Need Education? Journal of Economic Growth, 12: 77-99.
34. Glazer N., Moynihan D. (1963). Beyond the Melting Pot, Cambridge, MA: MIT Press.
35. Jahn J. A., Schmid C. F., Schrag C. (1947) The Measurement of Ecological Segregation, American Sociological Review, CIII: 293–303.

36. Kain J. (1968). Housing Segregation, Negro Employment, and Metropolitan Decentralization, Quarterly Journal of Economics, LXXXII: 175–197.
37. Lake D.A., Baum M. (2001). The Invisible Hand of Democracy: Political Control and the Provision of Public Services. Comparative Political Studies, 34(6): 587–621.
38. Lam D. Levison D. (1992). Declining Inequality in Schooling in Brazil and Its Effects on Earnings, Journal of Development Economics, 37: 199-225.
39. Lazear, E.P. (1999a). Globalisation and the Market for Team-Mates. Economic Journal, 109(454): 15–40.
40. Lazear E. P. (1999b). Culture and Language. Journal of Political Economy, 107(6): 95–126.
41. Liu H., Liu P.H., Zhang J., Ma N. (2006). Economic Returns to Communist Party Membership: Evidence from Urban Chinese Twins, IZA DP No. 2118.
42. Londregan J. B., Poole K. T. (1996). Does High Income Promote Democracy? World Politics, 49(1): 1–30.
43. Mamdani M. (2005). Identity and National Governance, in Wisner, Ben, Toulmin, Camilla, & Chitiga, Rutendo, eds., Towards a new Map of Africa, Earthscan, London.
44. McGuire J.W. (2001). "Social Policy and Mortality Decline in East Asia and Latin America." World Development, 29(10):1673–1697.
45. Miguel E. Guberty M. K. (2005). Ethnic Diversity, Social sanctions, and Public Goods in Kenya, Journal of Public Economics, 89: 2325–2368.
46. Moon, B. E., Dixon W. J. (1985). "Politics, the State, and Basic Human Needs: A Cross-National Study." American Journal of Political Science, 29(4): 661–694.
47. Murduch, J. Sicular T. (2000). Politics, Growth, and Inequality in Rural China: Does it Pay to join the Party? Journal of Public Economics, 77: 331–356.
48. Mustapha, A. R. (2007). Institutionalizing Ethnic Representation: How Effective is the Federal Character Commission in Nigeria? Centre for Research on Inequality, Human Security and Ethnicity (CRISE) Working Paper No. 43.
49. Mulligan, C. B., Gil R., Sala-i-Martin X. (2004). Do Democracies Have Different Public Policies Than Non-democracies? Journal of Economic Perspectives, 18(1): 51–74.
50. National Bureau of Statistics (2004). National Living Standard Survey, NLSS 2004.
51. Nee V. (1989). A Theory of Market Transition-From Redistribution to Markets in State Socialism, American Sociological Review, 54(1): 663-681.
52. Nee V. (1991). Social Inequalities in Reforming State Socialism. Between Redistribution and Markets in China, American Sociological Review, 54(3): 267-282.
53. Nee V. (1996). The Emergence of A Market Strategy: Changing Mechanisms of Stratification in China, American Journal of Sociology, 101(4): 739-758.
54. Okuwa O.B (2004). Private Returns to Higher Education in Nigeria, African Economic Research Consortium, Research paper 139, Nairobi, Kenya.
55. Ottaviano G., Peri G. (2003). "The Economic Value of Cultural Diversity: Evidence from US Cities." University of California, Davis. Unpublished.
56. Oyelere R., (2007). Disparities in Labor Market Outcomes Across Geopolitical Regions in Nigeria. Fact or Fantasy? IZA Discussion Paper No. 3082
57. Oyelere R., (2010). Africa's Education Enigma: The Nigerian Story, Updated Version, Georgia Institute of Technology, in the Journal of Development Economics.
58. Oyovbaire, S. E. (1983). Structural Change and Political Processes in Nigeria, Journal of African Affairs, Vol. 82(326): 3-28.
59. Prat, A. (2002). Should a Team Be Homogeneous? European Economic Review, 46(7): 1187–1207.
60. Przeworski A., Limongi F. (1997). Modernization: Theory and Facts. World Politics, 49(2): 155–183.
61. Przeworski A., Alvarez M., Cheibub J. A., Limongi F. (2000). Democracy and Development: Political Institutions and Material Well-being in the World, 1950–1990. New York: Cambridge University Press.

62. Papaioannou E., Siourounis G. (2006). Economic and Social Factors Driving the Third Wave of Democratization. Unpublished mimeo.
63. Psacharoupoulos, G (1985). Returns to Education: A Further International Update and Implications, Journal of Human Resources, 20: 583-604.
64. Psacharopoulalos G., Patrinos H. A. (2004). Returns to investment in Education: A further Update, Education Economics, 12(2): 111-134.
65. Ronas-Tas A. (1994). The First Shall Be Last? Entrepreneurship and Communist Cadre in the Transition from Socialism, American Journal of Sociology, 100: 40-61.
66. Rajan R. G., Zingales L. (2006).The Persistence of the Underdevelopment: Institutions, Human Capital or Constituencies. NIBER WP 12093 (March)
67. Sander W. (1992). The Effects of Ethnicity and Religion on Educational Attainment, Economics of Education Review, 11(2): 119-135.
68. Schneider R., Carnoy M., Kilpatrick J., Schmidt W. H., Shavelson R. J. (2005). Estimating the Causal Effects of Using Experimental and Observational Designs. A Think Tank White Paper. The Governing Board of the American of Educational Research Association Grants Program.
69. Sen, A. (1981). Poverty and Famines: An Essay on Entitlement and Deprivation. New York: Oxford University Press.
70. Sen, A. (1999). Development as Freedom. New York: Alfred A. Knopf.
71. Siegle, J. T.,Weinstein M.W., Halperin M. H. (2004). Why Democracies Excel, Foreign Affairs 83(5): 57–71.
72. Szelenyi, S. (1987). Social Inequality and Party Membership: Patterns of Recruitment into the Hungarian Socialist Workers' Party, American Sociological Review, 52: 559-73.
73. Vigdor, J. (2004). Community Composition and Collective Action: Analyzing Initial Mail Response to the 2000 Census. Review of Economics and Statistics, 86 (1), 303– 312.
74. Walder, (1996). Markets and Inequality in Transition Economies: Toward Testable Theories, American Journal of Sociology, Vol. 101: 1060-1073
75. Wooldridge J. (2000). Introductory Econometrics: A Modern Approach, South-Western College Publishing.
76. Wooldridge J. (2002). Econometric Analysis of Cross Section and Panel Data, The MIT Press Cambridge, Massachusetts London, England.
77. Xie Y., Hannum E. (1996). Regional Variation in Earnings Inequality in Reform-Era Urban China, American Journal of Sociology, 101(4): 950-992.
78. Zweifel T. D., Navia, P. (2000). Democracy, Dictatorship, and Infant Mortality, Journal of Democracy 11(2): 99–114.

Analysis of the relationship between education and economic growth

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Research Problem

Nowadays in Russia enough attention at the state level is given to the formation of an innovative economy, which will serve as the basis for long-term and invariably high economic growth. "A necessary condition for the formation of an innovative economy is the modernization of the educational system, which becomes an essential prerequisite for dynamic economic growth and social development of society, a condition for prosperity and state security.[2]" The relationship between education and economic growth deserves attention for many reasons and at the state level practical recommendations for educational policy arising from theoretical considerations are of particular importance.

Literature

Aghion and Howitt in their book "The Economics of Growth" single out two types of models describing the relationship between education and economic growth. Models of the first type consider the accumulation of human capital as a source of economic growth. The basic model within the neoclassical school belongs to Mankiw, Romer and Weil (1992). This paper, which is an expanded version of the Solow model, considers human capital as another production factor.

Among the AK models special attention should be devoted to Lucas's paper (1988) whose ideas are rooted in the human capital theory of Becker (1964). In the paper human capital is accumulated at a rate proportional to existing capital supplies, and leads to positive growth in the long run. The disadvantage of the model was a premise that individual return to education remains unchanged throughout the whole life. Azariadis and Drazen (1990) reformulate the theory using the model of overlapping generations in which individuals inherit the human capital accumulated by their parents.

Rebelo (1991) added physical capital in the equation of human capital accumulation and then examined the effects of different tax policies on the growth rate in the steady state.

Glomm and Ravikumar (1992) noted the problem of different access to human capital among individuals of the same generation and assessed the impact of this fact on the dynamics of inequality and economic growth, which depends on the chosen system of education (private or public). Benabou (1996) also considers this issue.

D'Autume and Michel (1994) analyze the various versions of the Lucas's model with overlapping generations.

Models of the second type link economic growth with the stock of human capital. One of the earliest papers in this field is the paper of Nelson and Phelps (1966), which binds country's innovation ability with the stock of human capital. Benhabib and Spiegel (1994) noted the property of human capital not only to facilitate adaptation to other countries new technologies, but also to facilitate the implementation of technological innovation on the border.

The link between education and growth is also considered in a number of empirical works.

Romer (1990) found evidence that the initial level of literacy (not a change in this level) is associated with the future rate of economic growth. Barro and Sala-i-Martin (1995) use empirical data (large sample of countries between 1965 and 1985) to indicate a link between education and growth.

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[2] Conception of the long run socio-economic development RF/ Ministry of economic development/ Project 12.03.2008.

Vandenbussche, Aghion, and Meghir (2006) and Aghion, Boustan et al. (2005) argue that human capital does not equally affect the innovation process and adaptation to outside innovations: primary and secondary education brings imitators, while university education brings innovators. The former paper examines this assumption with the use of the cross-country panel data for OECD countries, the latter – with the use of the panel data for USA. The paper of Kruger and Lindahl (2001) contains a more complete overview of this topic.

Project Aims

The purpose of the study is estimation of equilibrium and optimal number of schooling years in accordance with the estimated educational production function and development of practical recommendations for educational policy.

Hypotheses

Special features of education that distinguish it from all other types of goods include externalities caused by it as a public good. Therefore the equilibrium level of education independently chosen by individuals should differ from the social optimum significantly because in equilibrium the relationship between the education level and economic growth is not taken into account. Thus, we can assume the existence of a number of possible educational policies, which can stimulate individuals to increase the number of schooling years up to the optimum level.

Methodology

The study is based on the part of the paper of Robert Lucas «Ideas and Growth», in which he considers a decision on the number of schooling years. In this part he formulates two problems: the first is the problem of an individual, who takes γ as given, the second is the problem of planning authorities, which choose among the equilibria on the balanced growth path and take r as given.

The individual problem:

$$\max_{S} \alpha(S)^{\theta} \int_{S}^{\infty} e^{-(r-\theta\gamma)s} (1-\Pi(s))\left(1-e^{-\gamma(s-S)}\right)^{\theta} ds$$

where

$\alpha = \alpha(S)$ is a function which describes the individual rate of ideas production depending on the number of schooling years S,

θ is a parameter reflecting the depth of inequality,

γ is the growth rate calculated while solving the optimum problem,

$\Pi(s)$ is the population distribution function depending on age s.

The social planner problem:

$$\max_{S,\gamma} \alpha(S)^{\theta} \int_{S}^{\infty} e^{-(r-\theta\gamma)s} (1-\Pi(s))\left(1-e^{-\gamma(s-S)}\right)^{\theta} ds$$

subject to

$$\gamma = \alpha(S)\int_{S}^{\infty} \pi(s)\left(1-e^{-\gamma(s-S)}\right)ds$$

where

$\pi(s)$ is the density function of population distribution by age.

The problems formulated by Lucas are insoluble in the general form. Therefore we try to solve them with the use of MATLAB 7.6.0. For this purpose functions $\pi(s)$ и $\alpha(S)$ were specified. The function $\pi(s) = \delta e^{-\delta s}$ was proposed by Lucas in the second part of his paper.

The function $\alpha(S)$ was evaluated using data from World Bank (GDP per capita, Gini index and education duration) for 106 countries for the period 2000-2008.

We suggested the following form of the function $\alpha(S) = aS^{-b}$. To evaluate parameters "a" and "b" we needed values of α and «S». The values of "S" were taken from World Bank. To evaluate α we used the relation proposed by Lucas:

$$\alpha = \frac{g}{\theta - \delta},$$

where

δ is a parameter describing the probability to leave the labor market,

g is the growth rate of GDP per capita.

If we assume that the average period spent by an individual on the labor market equals 40 years, then δ is approximately 0.02. Note that changes in the value of δ have little influence on the value of α. Values of g were evaluated using data from World Bank.

To find value of θ we solved the following system of equations using numerical methods:

$$\begin{cases} \lambda = \left(\dfrac{y}{\gamma(1-\theta)} \right)^{\frac{1}{\theta}} \\ K_G = 2\displaystyle\int_0^1 \left(q - \int_0^{\left(-\frac{\lambda}{\log q}\right)^{\theta}} \frac{\lambda}{\theta} x^{-\frac{1}{\theta}} e^{-\lambda x^{-\frac{1}{\theta}}} dx \right) dq \end{cases}$$

where

λ is a parameter reflects the quality of the environment in terms of ideas diffusion speed,

K_G is the value of Gini index.

The first equation is also taken from Lucas's paper while the second – from a formula which is used to calculate Gini index in probability theory[3].

The equations were solved values of λ and θ were found and then we evaluated values of α for different countries. We used OLS to asses parameters of the function $\alpha(S) = aS^{-b}$ to do this we took logarithms of both sides of the equation.

Then we carried out programs to solve the individual and the social planner problems and to graph comparative statics of the model. We also made a program evaluating a subsidy paid during the schooling process which stimulates individuals to study for optimal number of years.

Results

The study is not finished yet. But some practical results are already obtained namely: the education production function is evaluated and programs to assess the optimal and equilibrium level of education are made. The program assessing the value of the subsidy is also carried out.
In a month the study will be finished. To do this we need to calibrate parameters in compliance with data.

References

1. Aghion P., L. Boustan, C. Hoxby, Vanderbussche J. (2005). Exploiting States' Mistakes to Identify the Causal Effect of Higher Education on Growth. Mimeo, Harvard University.
2. Aghion P., Howitt P. (2009). The Economics of Growth. Cambridge, MA: MIT Press.
3. Barro R. J., Sala-i-Martin X. (1995). Economic Growth. New York: McGraw-Hill.
4. Becker G. (1964). Human Capital. New-York: Columbia University Press.

[3] NES, 2009/2010, Probability theory, lectures.

5. Benabou R. (1996). Inequality and Growth. In B.S. Bernanke and J. Rotemberg (Eds.). NBER Macroeconomics Annual 11. Cambridge, MA: MIT Press.
6. Benhabib J., Spiegel M. M. (1994). The Role of Human Capital in Economic Development: Evidence from Aggregate Cross-Country Data, Journal of Monetary Economics, 34: 143-173.
7. d'Autume A., Michel P. (1994). Education et Croissance. Revue d.Économie Politique, 104: 457-499.
8. Glomm G., Ravikumar B. (1992). Public versus Private Investment in Human Capital Endogenous Growth and Income Inequality. Journal of Political Economy, 100: 813-834.
9. Krueger A., Lindahl M. (2001). Education for Growth: Why and for Whom?, Journal of Economic Literature, 39, 1101-1136.
10. Lucas R. E., Jr. (1988). On the Mechanics of Economic Development, Journal of Monetary Economics, 22, 3-42.
11. Lucas R. E., Jr. (2008). Ideas and Growth. NBER Working Paper Series. Cambridge, MA: MIT Press.
12. Mankiw N. G., Romer P., Weil D. N. (1992). A Contribution to the Empirics of Economic Growth, Quarterly Journal of Economics, 107: 407-437.
13. Nelson R., Phelps E. (1966). "Investment in Humans, Technological Diffusion, and Economic Growth, American Economic Review, 61: 69-75.
14. Rebelo S. (1991). Long-Run Policy Analysis and Long-Run Growth, Journal of Political Economy, 99: 500-521.
15. Romer P. (1990). Endogenous Technological Change, Journal of Political Economy, 98: 71-102.
16. Vanderbussche, J., Aghion P., Meghir C. (2006). Growth, Distance to Frontier and Composition of Human Capital, Journal of Economic Growth, 11: 97-127.
17. NES, 2009/2010, Probability theory, lectures.
18. Conception of the long run socio-economic development RF/ Ministry of economic development/ Project 12.03.2008.

Deposit insurance system as the guarantor of stability of the banking sector during the crisis: cross-country comparison

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Research Problem

In January 2004 the Deposit Insurance System under the leadership of the state corporation «Deposit Insurance Agency» was created in Russian Federation. Two basic functions (insurance of deposits and liquidation of insolvent banks) are seeking to form the integrated centre of responsibility to depositors of insolvent banks that will promote the increase of confidence to the banking system and government institutes[4]. That means the promotion of the stabilization of the banking sector as a whole.

It is necessary to notice that the deposit insurance has been implemented in various countries and the Global Financial Crisis is a chance to check up the adequacy of its popularity and its effectiveness: to analyze whether the system actually allows to avoid bank runs and to keep the situation stable.

Literature

First of all, the research will be based on following works, in which the interrelation of the deposit insurance with level of the liability to the crisis is considered:

1. Demirguc-Kunt A., Detragiache E. The determinants of banking crises in developing and developed countries. // IMF Staff Papers, 1998. – № 45[5].
2. Kam H. C. (2003) Deposit insurance and banking crises in the short and long run, Cato Journal. 23(2). [6]
3. Demirgüç-Kunt A., Detragiache E., (2002) "Does Deposit Insurance Increase Banking System Stability? An Empirical Investigation" Journal of Monetary Economics, 49, 1373-1406.
4. Chari V.V., "Banking Without Deposit Insurance or Bank Panics: Lessons from a Model of the U.S. National Banking System"[7].
5. Skugarevsky D., "Is Deposit Insurance System necessary?"[8]

The work will correspond to the generalization of already existing researches, but with changed methodologies and usage of the up-to-date data for 2007-2010 years.

Project Aims

The purpose of the future research is the estimation of justice of the statement that the Deposit Insurance System has a positive influence on the banking system of the country and diminishes the consequences of a financial crisis on an example of present Financial Crisis of 2008-2010. The research gives the opportunity to receive the comparative characteristic of the work of systems of deposit insurance different countries. This will determine the necessity of Russian Deposit Insurance System in the state that it exists now or required amendments. Such results will be useful for the scientific community as a whole being a high-grade analysis, and also for our government and directly to the Deposit Insurance Agency.

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[4] http://www.asv.org.ru/agency/
[5] http://www.imf.org/external/pubs/ft/staffp/1998/03-98/pdf/demirguc.pdf
[6] http://www.cato.org/pubs/journal/cj23n2/cj23n2-8.pdf
[7] http://minneapolisfed.org/Research/qr/qr1331.pdf
[8] http://www.inliberty.ru/information/summer/contest09/essays/Skougarevsky

Methodology

The construction of a regression model is supposed in the work. Its parameters will be explained further. One of the crisis indicators has been identified as a situation, when «the panic of investors and mass withdrawal of deposits or have been taken extraordinary measures, such, as freezing of deposits (imposing of restrictions on their payments) or introduction of the general guarantees of deposits by the government in reply to the crisis»[9]. Therefore as an explained variable the percent of the deposits withdrawn during crisis or percentage change of the withdrawn deposits in comparison with the pre-crisis period will be considered.

The information about the valid decrease in deposits of physical persons in commercial banks in 2008 became an occasion for consideration of the problem from such point of view: «In September deposits of physical persons in banks were reduced by 1,5%, in October - 6%, in November - 0,2%. During a half-year period almost all banks undergoing the procedure of sanitation have lost in whole from 25% to 50% of private deposits which remain the important part of their funding»[10]. Also it is necessary to estimate, whether this tendency remains and what indicators influence it.

First of all, the dummy-variable reflecting the presence of the system of deposit insurance in the country will be included in explaining variables, it should be somehow adjusted on the years of existence of the system in the country (this results from the fact that in the countries with young system of insurance its efficiency is expected much lower because of the necessity of adaptation of the banking sector). Separately by means of a dummy-variable it is necessary to allocate the Russian Federation for revealing the features of our country. Also some indicator dividing chosen countries according to the degree of the development of economy (on developed and developing) and an indicator of the degree of susceptibility to the current crisis (as a correcting indicator percentage change of gross national product can be used) should be generated. As indicators of the system efficiency following should be considered: the structure of licenses given and taken away during the period, the sums paid as insurance compensation. And also it is necessary to consider features of the system in every country, such as, for instance, the sum of an insurance covering, spheres of insurance, types of bank products getting under insurance. The importance of these or those indicators will give an opportunity to define advantages and disadvantages of each system and, what is more important, ways of improvement.

Quarterly panel data should be eventually considered for modeling a regression interdependency, that will determine the dependence of an explained variable on explaining factors, on the one hand, and structural shifts during the period on the other hand. The data for research can be received from the official sites of various agencies of deposit insurance, and also from the official site of the International Association of Deposit Insurers (IADI).

Hypotheses

It is supposed that in the countries with a greater degree of the susceptibility to the current crisis or/and the system of deposit insurance which exists no more than 10 years, withdrawal of deposits will be large-scale. It is not obviously necessary to predict in advance the direction of the interdependency and its scales because the determination of them is the main object of the research.

Results (expected)

The research will help to define, what systems do not carry out the obligations assigned to them and need updating. It is necessary to reveal average indicators for developed and developing countries for finding out to what type Russian Federation concerns in the given aspect and to understand whether Russian Deposit Insurance System is competitive in relation to other countries.

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[9] http://www.imf.org/external/pubs/ft/staffp/1998/03-98/pdf/demirguc.pdf

[10] http://www.raexpert.ru/ratings/bank/2008/

References

1. Chari V.V. (1989) Banking Without Deposit Insurance or Bank Panics: Lessons from a Model of the U.S. National Banking System, http://minneapolisfed.org/Research/qr/qr1331.pdf
2. Kam H. C. (2003) Deposit insurance and banking crises in the short and long run, Cato Journal. 23(2) http://www.cato.org/pubs/journal/cj23n2/cj23n2-8.pdf.
3. Demirguc-Kunt A., Detragiache E. (1998) The determinants of banking crises in developing and developed countries, IMF Staff Paper № 45.
6. Skugarevsky D., Is Deposit Insurance System necessary? http://www.inliberty.ru/information/summer/contest09/essays/Skougarevsky
4. http://www.asv.org.ru/agency/ - The official site of «Deposit Insurance Agency».
5. http://www.raexpert.ru/ratings/bank/2008/ - The ranking of Russian banks on RSA following the results of 2008.

Competitiveness in Russian dairy breeding

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Research Problem

The studied problem topicality comes out of the trying situation in Russian dairy breeding. Today milk production is only 56 per cent against milk production in pre-critical 1990. In 2002-2008 milk cost price of 100 kg increased from 394 rubles to 893 rubles. The production profitability is low. Cattle stock is decreasing. In prospect there will be intensification of the struggle as result of Tariff Union conclusion between Russia, Belorussia and Kazakstan, free trade areas introduction and possible Russia membership in WTO.

Under the circumstances higher competitiveness in Russian dairy breeding problem has the extra significance (Белялетдинова, 2010).

Literature

The market of agricultural goods as many economists believe is the striking example of the market with pure competition (Серова, 1999; Коваленко, 1998).

Indeed, it's difficult, almost impossible, for one agricultural enterprise to work up a whole market of one or another agricultural product.

Exceptions to the rule might be agricultural enterprises where unique goods are produced. For example, they are ostrich farms because ostrich meat is dainty. Another example is ZAO agrokombinat "Moskovsky" where premium and exclusive vegetables are grew.

The rest agricultural products, and milk, are essential commodities and produced in large quantities by many agricultural enterprises. That is why the agricultural enterprises cannot influence pricing of their products (Белялетдинова, 2008).

In comparison with many sectors of the national economy agriculture is less competitive because it is unattractive for investors. Disparity between agricultural and industrial products (Белялетдинова, 2008), longer payback period of investment projects, high instability of the sector result in uncompetitiveness of agriculture.

Food processing enterprises dictate their will to pricing. This fact worsens Russian agriculture condition because they level purchasing price which are lower than production costs. As a result agricultural enterprises became insolvent.

Besides, Russian agriculture is less competitive than agriculture in other countries. In mane countries of the world agriculture is subsidized whereas in Russia most agricultural enterprises bear financial and other burden by themselves. Dominance of foreign food producers threatens Russian food security and independence.

For example, in July of 2009 Federal Antimonopoly Service of Moscow region filed a suit against Wimm Bill Dann Foods, Ermann, Danone and Campina because they broke The Law of Competitiveness Protection (part 1 article 10 and part 1 article 11). They impose low price for milk and acted in monopole collusion.

Project Aims

The objective of the research is assessment of development prospects for specialized large-sized dairy farms by their competitiveness on agricultural market.

To maintain the objective we should:

1. Assess Russian dairy breeding competitiveness;
2. Assess development prospects for dairy farms in Moscow region by studying sectoral shifts;
3. Draw a conclusion about actual dairy farms development and about prospects for specialized large-sized dairy farms;

4. Reveal pros and cons of specialized large-sized dairy farms;
5. Suggest measures to improve current Russian dairy industry conditions.

Hypotheses

We put forward the following hypotheses:

1. Russian dairy breeding is up a gum tree.
2. Dairy farms become smaller.
3. Specialized large-sized dairy farms have chances to increase competitiveness of Russian dairy breeding.
4. Specialized large-sized dairy farms might have a number of advantages due to economy of scale.

Methodology

In this research the statistical data from Federal State Statistics Service, statistical registers of agricultural enterprises in Moscow region is used.

We applied statistical methods of data processing and data analysis such as cross classification, Gatev's coefficients, and index method. We suggest two-stage technical approach to study sectoral shifts in dairy breeding and give proofs of some competitive advantages which have seven leading specialized large-sized dairy farms in Moscow region (the diagram of their disposition and time series data analysis).

Results

In recent years the role of Russia in the world milk production has been weakening. In 1990 Russia ranked the second after the USA by the total milk amount produced, but in 2006 Russia downgraded to the fourth position after the USA, India and China. The intensity of Russian Dairy industry is low – milk yields are lower than in the USA, Germany and France.

The cross classification of dairy farms is made according to their size and specialization. Their analysis shows that for 14 years in Moscow dairy breeding have happened appreciable sectoral shifts. Most of dairy farms have chosen dairy herd of 300-1000 as optimal size.

To study the effectiveness of specialized large-sized dairy farms against smaller ones we chose 7 "base" dairy farms of Moscow region and compared their efficiency with efficiency of the rest dairy farms.

Diagram of dairy farm disposition proves that 5 from 7 "base" dairy farms have more advantageous disposition relative to dairy factories.

We analyze time series of milk yields, milk selling prices, milk production costs, milk production profitability and their contribution to dairy industry in Moscow region and make a conclusion that these "base" dairy farms strengthen their milk market power.

Thus, our research demonstrates that in the first place we should develop and support specialized large-sized dairy farms to recover Russian dairy breeding. Support of middle-sized and small-sized dairy farms should be provided just to save employment in rural areas and to develop rural areas.

References

1. Белялетдинова М.М. Анализ конкурентоспособности сельскохозяйственных организаций молочного направления: развитие, проблемы и возможности (to be published in 2010).
2. Белялетдинова М.М. (2008) Конъюнктура агропродовольсвенного рынка РФ // Актуальные проблемы экономики и управления: теория и практика: тезисы докладов I Международной студенческой научно-практической конференции, Voronezh, Vol III., 195.
3. Белялетдинова М.М. (2008) Особенности формирования спроса и предложения на агропродовольсвенном рынке (на примере РФ) in Сборник студенческих научных работ, Moscow, Vol. 14, 390-392

4. Коваленко Н. Я. (1998) Экономика сельского хозяйства. С основами аграрных рынков. Курс лекций, Ассоциация авторов и издателей, ТАНДЕМ: ЭКМОС.
5. Результаты мониторинга цен на рынках муки, хлеба, молока и подсолнечного масла за август 2009 года, Федеральная антимонопольная служба России. – http://www.fas.gov.ru/analisys/apk/a_26950.shtml
6. Россия и страны мира. 2002. (2002) Госкомстат России.
7. Россия и страны мира. 2008. (2008) Росстат
8. Серова Е. В. (1999) Аграрная экономика, Высшая школа экономики, Moscow.
9. Статистические регистры сельскохозяйственных организаций Московской области за 1995…2008 гг.

Tariffs and imports mis-invoicing under oligopoly

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Research Problem

Many developing countries impose high import tariff barriers to protect their domestic industries and precious foreign exchange reserves by restricting imports to the domestic economy. This induces importers in developing countries to underreport or 'under-invoice' their imports in order to evade tariffs. Governments in these countries respond by putting in place monitoring mechanisms to detect and penalize such importers. This paper examines the consequence of attempts to control import under-invoicing in a market where domestic producers and importers are engaged in Cournot competition. The optimal tariffs as well as the optimal intensity of monitoring and penalties are also investigated.

The technique of detecting faked invoicing through the cross-checking of domestic trade data with respect to the one obtained from the partner country statistics was initiated by Morgenstern (1963). He first tried to prove that there existed corrupt activities among the international traders and went on to measure the extent of misreporting using the partner country statistics. Naya and Morgan (1969) applied the technique of partner country data comparisons to Asian countries. In his paper on the invoicing of Turkish import, Bhagwati (1964) explicitly linked up the discrepancies between the import data of Turkey and the export data of her partner countries to the economic rationale that import duties higher than the black market premium on foreign exchange provided a systematic reason to under-invoice the import carrying those high duties. Possible techniques for detecting smuggling were also found in the paper on Indonesia by Simkin (1970) where the difficulties of accessing unrecorded trade were discussed. Cooper (1974) analyzed the smuggling phenomena by setting the market prices of imported goods against the tariff-inclusive prices. If the later price exceeded the former, it was presumed that the goods were being smuggled and tariffs evaded.

Recently, it has been shown in the context of a simple export under-invoicing model that under-invoicing in India fell significantly as a result of devaluation (Marjit et al). Biswas and Marjit (2005), shows, by comparing Indian official trade statistics with corresponding developed country figures, that India's export and import figures have always been underreported during 1960-98, barring a few exceptional years. They show in the context of a trade mis-invoicing model that that the exporter will under (over) invoice exports if the gain from selling the unreported export at the market exchange rate outweighs (falls short of) the loss in export subsidy. Similarly, an importer will under (over)invoice imports if the benefits of escaping high tariffs outweighs (falls short of) the loss from buying the foreign currency at the market exchange rate. The paper also considers a punishment function that is increasing and convex in the size of misreporting.

Other works in this area (Zdanowich et al, 1995, Patnaik and Vasudevan, 2000 and Loungani and Mauro, 2000) have tried to relate trade mis-invoicing with illegal movements of foreign exchange termed 'capital flight'. In a three country preferential – non preferential trade model Biswas and Marjit (2006) show that the low tariff preferential trade channel induces capital flight while the high tariff non preferential trade channel is conducive to illegal foreign exchange transactions in the domestic market.

It is important to observe that over the past couple of decades many developing countries have shifted to a system of flexible exchange rate where the exchange rate is market determined with very little intervention by the Central Bank. An obvious consequence of this system has been the gradual loss in significance of the so called 'black market premium' (BMP) for foreign exchange. However, protectionist tariffs as well as export subsidies, although lowered substantially

as a result of WTO commitments, remain significantly high, providing developing country traders with motivation to mis-invoice.

It may therefore be important to understand the consequences of government policies – both regular tariffs and monitoring and penalty levels chosen by the government to control mis-invoicing - on the level of trade as well as mis-invoicing in a flexible exchange rate regime.

In this paper, we propose a simple model of Cournot competition between m domestic producers and n importers of a homogeneous good, where the importers have a propensity to under-invoice imports to avoid high tariffs. The government, in response, monitors imports through a system that detects under-invoicing with a probability depending on the level monitoring intensity (or expenditure). It also imposes a penalty that is increasing in the amount of under-invoicing.

We find that the rate of import under-invoicing is increasing in the tariff rate and decreasing in the monitoring intensity and severity of penalty. In our simple linear Cournot structure, the output produced in the domestic firms is increasing and the amount marketed by the importers is decreasing in the level of the import tariff. However, in our simple linear Cournot structure neither is affected by the level of monitoring intensity or the severity of the penalty. Further, while monitoring intensity and the rate of penalty negatively affect the importers' profits, it fails to influence the profitability of the domestic producers. More interestingly, while a higher tariff will raise the profits of domestic producers, it does not necessarily hurt the importers particularly if the number of domestic producers is small relative to importers. Finally, as the welfare initially rises and subsequently falls as a result of rising tariffs or monitoring intensity, it implies optimal tariff and monitoring intensity levels exist. But the welfare is monotonically increasing in the severity of penalty. Consequently, unless considerations other than optimality are introduced, it would be possible to make penalties increasingly severe which can completely wipe out the under-invoicing phenomenon.

The paper is organized as follows. Section II introduces the model. Section III studies the implications of Cournot competition on the rate of under-invoicing, prices, quantities and profits given the government policy variables like tariffs, monitoring intensity and the penalty function. Section IV introduces welfare considerations and investigates the optimal levels of the policy variables. Finally, section V concludes.

Methodology

Model

There is a single homogeneous product q that may either be produced at home or imported from abroad. The domestic industry is assumed to have a constant unit cost of production is

$$c(q_d) = cq_d \tag{1}$$

while the international price is $\bar{p}$. We assume that the exchange rate is perfectly flexible with no difference between the official and the market exchange rate. The government can set an import tariff at the rate t. Then the domestic cost of obtaining q_f of the product for the importer, who does not under-invoice imports, becomes

$$c(q_f) = (1+t)\bar{p}q_f \tag{2}$$

We assume that there are m producers of the domestic good. If the number of importers is n and the firms compete in quantities, the (inverse) demand functions for the product can be written as

$$p = a - mq_d - nq_f \tag{3}$$

where p is the domestic price of the homogeneous domestic and foreign products.

The rate of under-invoicing αj, is assumed to be the same, α, for all importers as they are identical in all respects. Thus if qf and $\tilde{q}_f$ are the true and reported level of import (or output) by an importer, we have

$$\tilde{q}_f = (1-\alpha)q_f \tag{4}$$

The government, on its part, has a monitoring effort that allows it to choose the probability, φ, with which it can detect any arbitrary instance of under-invoicing of imports. φ is a function of the monitoring expenditure, r, and does not depend upon the amount of under-invoicing. Specifically, we assume that,

$$\varphi = \varphi(r) = \frac{r}{r+K}, \quad K > 0 \tag{5}$$

where K is an arbitrary constant. Note that the function φ(r) has the following properties:

$$\varphi(0) = 0, \qquad \varphi(\infty) \to 1, \qquad \varphi' > 0, \qquad \varphi'' < 0 \tag{6}$$

as shown in figure 1.

The penalty for under-invoicing, if detected is assumed to be increasing and convex in the amount of evasion. In particular, it is assumed that the punishment cost, S, is

$$S = s.(\alpha.q_f)^2 \tag{7}$$

where s is a policy variable chosen by the government.

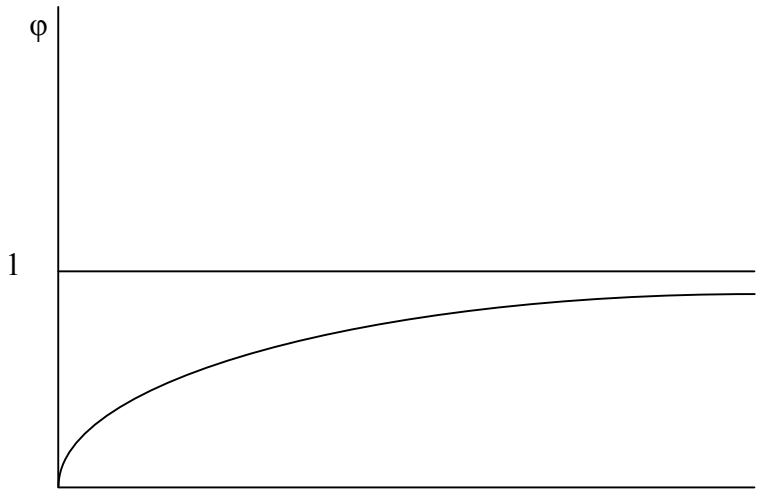

Figure 1: Probability of detection as a function of monitoring expenditure

Note that the above structure implies that (i) if there are several small evasions that add up to the size of one large evasion, there is a much larger probability of being detected, and (ii) the penalty for the large evasion, if detected, is larger than the probabilities of the small evasions.

Initially, the government sets the tariff rate, t, the monitoring expenditure, r and the penalty variable, s to maximize welfare. The domestic firm chooses its output, qd, while the importers simultaneously choose q_j and $\tilde{q}_j$, the amount of actual and reported imports (if there is quantity competition).

Import under-invoicing, outputs and profits

In this section, we analyze the market outcomes – i.e., prices, quantities and profits – as well as the amount of under-invoicing following the assumptions of given market structure (price or quantity competition, number of importers etc) and values of policy variables, t, s and r. This is in keeping with the familiar method of solving a multistage game by a process of backward induction.

We initially assume that the m domestic firms and the n importers of the foreign product compete in quantities. Given values of the policy variables, t, m and r, they choose qd, q_f and α to maximize;

$$\Pi^d = q_d(a - mq_d - nq_f) - cq_d \tag{8}$$

$$\Pi^f = q_f(a - mq_d - nq_f) - [(1-\alpha)(1+t) + \alpha]\bar{p}q_f - \varphi(r)s(\alpha.q_f)^2 \tag{9}$$

The first order conditions of the problem are:

$$a-(m+1)q_d-nq_f-c=0 \tag{10}$$

$$a-mq_d-(n+1)q_f-\left[1+t-t\alpha\right]\overline{p}-2\varphi(r)s\alpha^2.q_f=0 \tag{11}$$

$$t.\overline{p}q_f-2\varphi(r)s\alpha.q_f^2=0 \tag{12}$$

From (12) we readily obtain

$$\alpha^*=\frac{t\overline{p}}{2\varphi(r)sq_f} \tag{13}$$

resulting in the following:

$$q_d^*=\frac{a-(n+1)c+n(1+t)\overline{p}}{m+n+1} \tag{14}$$

$$q_f^*=\frac{a-(m+1)(1+t)\overline{p}+mc}{m+n+1} \tag{15}$$

And from (14) and (15), we ultimately obtain

$$\alpha^*=\frac{t.\overline{p}(m+n+1)}{2\varphi(r)s\{a-(m+1)(1+t)\overline{p}+mc\}} \tag{16}$$

This immediately leads our first proposition.

Proposition 1: An increase in import tariff causes
(a) rise in production of each domestic firm;
(b) fall in import made by each importer and
(c) rise in the rate of under-invoicing of imports, i.e.,

$$\frac{dq_d}{dt}>0,\frac{dq_f}{dt}<0 \qquad and \qquad \frac{d\alpha}{dt}>0 \tag{17a}$$

An increase in monitoring intensity (or expenditure) and stiff penalties have no effects on either domestic output or actual imports. However, it lowers the rate of under-invoicing.

$$\frac{dq_d}{ds}=\frac{dq_f}{ds}=\frac{dq_d}{dr}=\frac{dq_f}{dr}=0 \tag{17b}$$

$$\frac{d\alpha}{ds}<0,\ \frac{d\alpha}{dr}<0 \tag{17c}$$

It is easy to see that a higher price of the importable as well as a higher tariff rate raises the cost of imports and hence lowers imports along with raising domestic production (by shifting their reaction functions outward). It is also evident that (with no change in monitoring efforts or penalties) raising the tariff rate induces the importers to increase the rate of under-invoicing as the benefits increase by more than costs. For the same reason (given the same tariff rate) increase in monitoring intensity and penalties reduces under-invoicing.

What is interesting, however, is that the neither the quantity of output produced by domestic firms nor the quantity imported and marketed by importers is affected by a change in the monitoring intensity or the stiffness of penalty. This indicates that the entire impact of the rise in penalties or monitoring intensity is absorbed by the importers through lowering the rate of under-invoicing, α, without any change in the level of imports. Consequently, there is no change in their reaction functions and the equilibrium outputs of both parties remain unaltered. This is also clear from the first order condition of equation (12). We can write this as

$$t.\overline{p}=2\varphi(r)s\alpha.q_f. \tag{12a}$$

If r or s changes, it does not affect the LHS. In the RHS, α must change in the opposite direction to respond any change in r or s. This is required to keep marginal benefit equal to marginal cost in (12a).

Intuitively, as qf is the actual quantity of imports, it should not be affected by the monitoring intensities or the severity of punishment. These two government policy instruments are required to monitor and subsequently punish the dishonest importers, if caught. The probability of getting caught will depend upon the rate and amount of under-invoicing and not on actual value of imports. Hence, if r or s increases, α would fall, keeping qf unchanged as it can only be affected by the tariff rate't'.

Next, substituting (14), (15) and (16) into (8) and (9) we obtain:

$$\Pi_d = (q_d^*)^2 \tag{18}$$

$$\Pi_f = (q_f^*)^2 + \frac{(tp)^2}{4\varphi(r)s} \tag{19}$$

This leads to our second proposition.

Proposition 2: Profit of the domestic firm varies directly with the rate of import tariff; however, it does not depend either on the monitoring intensity or the stiff penalty cost,

$$\frac{d\Pi_d}{dt} > 0, \frac{d\Pi_d}{ds} = \frac{d\Pi_d}{dr} = 0 \tag{20a}$$

Profit of importers varies inversely with the monitoring intensity and stiffness of the penalty; however it may increase or decrease with import tariff depending upon α.

$$\frac{d\Pi_f}{ds} < 0, \frac{d\Pi_f}{dr} < 0 \; ; \; \frac{d\Pi_f}{dt} \gtrless 0 \; according \; as \quad \alpha \gtrless \frac{2(m+1)}{m+n+1} \tag{20b}$$

Intuitively, from Proposition 1, changes in the monitoring intensity or stiffness of penalties do not affect the output marketed by either the importers or the domestic producers. Hence it is easy to see that the profits of the domestic firms are not affected by the intensity of monitoring or stiffness of penalties. An increase in the tariff rate, of course lowers imports and benefits domestic producers whose costs go up.

Again, Proposition 2 shows that the importers would lower the rate of under-invoicing without any change in the quantity of imports given any increase in monitoring intensity or stiffness of penalties. It is then easy to justify that this situation leads to a lower profit for them.

What is most remarkable in this model is that an increase in the tariffs does not necessarily hurt the importers. An increase in tariffs lowers imports for each importer while at the same time the rate of under-invoicing increases. If the number of domestic producers (m) is low relative to the number of importers (n), the domestic output rises much less than the contraction in the amount of imports. As a result the domestic price of the commodity would experience a greater hike than the anticipated one following a tariff escalation. The importers then may benefit more from higher price as well as higher under-invoicing compared to the loss due to lower quantity imported.

Welfare and Public Policy

Welfare of a country under the setup of our model will depend upon the following variables: consumer surplus, profit of the domestic firms, earning from the tariff revenue, cost of monitoring for tariff evasion by the importers and earning from penalty drawn on the under-invoicing importers. The following equation captures the welfare function:

$$W = CS + m\Pi_d + pt(1-\alpha)nq_f - r + s\phi(r)(\alpha q_f)^2 \tag{21}$$

Differentiating (21) with respect to s, r and t we have,

$$\frac{dW}{ds} = \varphi(r)(2q_f)^2 n \tag{22}.$$

$$\frac{dW}{dr} = s\varphi'(r)(\alpha.q_f)^2 n - 1 \tag{23}.$$

$$\frac{dW}{dt} = \frac{n\bar{p}}{m+n+1}(mq_d - nq_f) + \bar{p}(1-\alpha)q_f + n\bar{p}(1-\alpha q_f) - \frac{nt\bar{p}^2}{q_f(m+n+1)}(q_f - 1) \qquad (24).$$

This leads to our next proposition.

Proposition 3. Welfare is increasing in the severity of the penalty, s. However, increasing monitoring intensity, r, or the tariff rate, t, increases welfare only up to a point, beyond which any increase in r or t reduces welfare.

Equation (22) indicates $\frac{dW}{ds} > 0$ as all terms in the right hand side are positive. Raising the stiffness of penalties does not affect domestic producers. It only negatively affects importers profits without lowering their actual output. The government as a result benefits by collecting higher penalties. Since welfare in our structure includes government revenues but not importers' profits, a rise in the penalty rate clearly raises welfare.

But this also means that unlike many models of pecuniary punishment there is no optimal severity of penalty in this structure. In fact, from (7) and (16), it is easy to see that making s infinitely large would reduce the rate of under-invoicing, α to zero, which is clearly the optimal solution. This is shown in Figure 2. The reason, we cannot impose such extremely high penalties in practice, is that the legal system places more emphasis on the "fairness" than on the "optimality" of the punishment – i.e. it attempts to ensure that "the punishment fits the crime". In other words there is usually an external constraint on the punishment that would be "justified" for any given amount of under-invoicing.

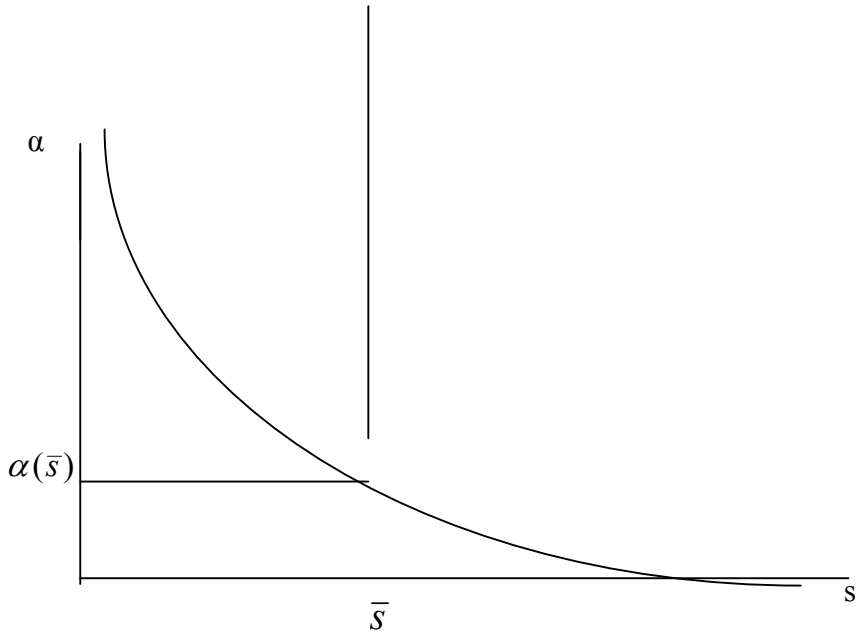

Figure 2: The maximum severity of penalty considered "fair"

By contrast, equations (23) and (24) have ambiguous signs. Following (23), it comes out that $\frac{dW}{dr} \gtrless 0$ as $\frac{nt^2p^2}{4\{\phi(r)\}^2 s} \gtrless 1$. It implies that unlike s, W is not monotonically increasing in r. A rise in monitoring intensity hurts only the importers at the cost of government revenue – much in the same fashion as the penalty rate. However, unlike the case of the penalty rate, raising monitoring intensity is costly for the government. A rise in r (i) lowers the rate of under-invoicing, α (ii) raises the probability of detection, φ(r) as well as (iii) the cost of monitoring. It is easy to check that, since from (5) and (13) that $\varphi'(r)$ and α are positive and very high for r = 0, we have from (23) that

$$\frac{dW}{dr}(r=0) > 0$$

while at the same time

$$\frac{d^2W}{dr^2} = nsq_f{}^2\ \alpha^2\varphi''(r) - n.\alpha.t.pq_f\varphi'(r)\frac{\varphi'(r)}{\varphi^2(r)} \quad < 0$$

This means that although welfare is increasing in monitoring intensity when monitoring intensity is low, there is an optimum value for r beyond which any increase in r would cause domestic welfare to fall as shown in the following figure.

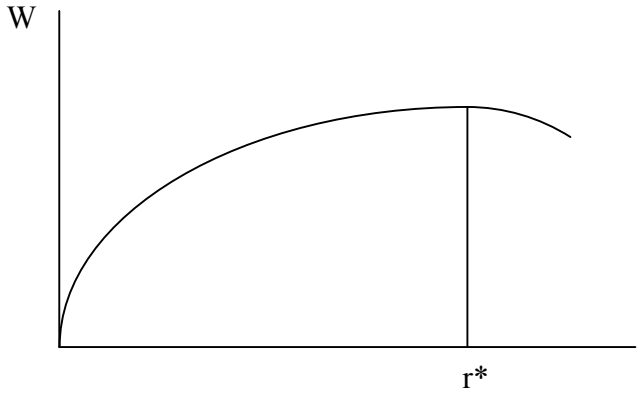

Figure 3: Relationship between monitoring expenditure and welfare.

Similar argument can be put forward for equation (24) as well. It is easy to verify that as usual welfare is initially increasing and subsequently declining in tariff so that it is possible to work out the 'optimal' tariff level.

Results

We study the implications of government policies to control import under-invoicing in a simple linear Cournot model that leads to some interesting results. Among these are the results that (a) raising the tariff levels do not always hurt the importers and (b) in the absence of any exogenous or "social' bounds on the severity of penalty for under-invoicing it would be possible to raise penalties to wipe out under-invoicing altogether. However, more general models would be needed to confirm the robustness of these results.

References

1. Biswas A K., Marjit, S. (2005) Mis-invoicing and Trade Policy, The Journal of Policy Reform, 8(3): 189–205.
2. Biswas A K., Marjit, S. (2006) Preferential Trade and Mis-invoicing: Some Analytical Implications, forthcoming in International Review of Economics & Finance.
3. Bhagwati J. N. (Ed.) (1974), Illegal Transaction in International Trade, Studies in International Economics, Vol. 1 (Amsterdam: North Holland).
4. Cooper R. N. (1974) Tariffs and smuggling in Indonesia, in: J. N. Bhagwati (Ed.) Illegal Transaction in International Trade, Studies in International Economics, Vol. 1: 183–192 (Amsterdam: North Holland Publishing Company).
5. Loungani P., Mauro P. (2000), Capital Flight from Russia, IMF Policy Discussion Paper, International Monetary Fund, June.
6. Marjit S., Dasgupta, B. Mitra, S. (2000), Currency Devaluation and Exports: Separating Actual from Statistical, Economic and Political Weekly, XXXV (18): 1553-1558.
7. Morgenstern O. (1963), On the Accuracy of Economic Observations: Foreign Trade Statistics, Chapter IX, The Accuracy of Economic Observations, reprinted in Bhagwati (1974), 87–122.

8. Naya S. Morgan, T. (1969), The accuracy of international trade data: the case of South East Asian countries, Journal of American Statistical Association, June, reprinted in Bhagwati (1974), 123– 137.
9. Patnaik I. Vasudevan D. (2000), Trade mis-invoicing and capital flight from India, Journal of International Economic Studies, 14: 99–108.
10. Simkin C.G. F. (1970) Indonesia's Unrecorded Trade, Bulletin of Indonesian Economic Studies, March, reprinted in Bhagwati (Ed.), 157-171.
11. Zdanowich J. Welch W. W., Pak S. J. (1995) Capital Flight from India to the US Through Abnormal Pricing in International Trade, Finance India, 9: 609-627.

The system-oriented management of efficiency of a mass communication in the retail seller

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Research Problem

The mass communication in modern economic conditions is a strategic resource. Decision making in the field of management of mass communication allows reaching increments of cost of intangible assets of firm (Aaker, 1989).

The retail seller increases density of information influence at the expense of increase in channels of communications. In result the potential buyers fall under information pressure. Growth of information influence is connected not only with raising intensity of a consumer informing, but also with effect of a synergy as a result of overlapping of channels of communications.

Everything indicates that, studying of process of a mass communication is important. Retail sellers - initiators of communications needs methodology allowing effectively to operate advertising of the goods for involving in consumption.

Literature

Studying of range of problems has revealed following borders of approaches:

1. Optimization models (Stigler 1961; Lambin, 1966; Stegeman, 1991; Bagwell, 1994, 2002).
2. Models with using the theory of games (Doraszelski, 2003; Becker, 1993) including:
2.1. Dynamic games (Erickson, 1995; Dockner, 2000; Roberts 1998; Gasmi, 1992).
2.2. Games taking into account risk, passive models, models of a competition and models describing reactions of consumers (Feichtinger, 1994; Chintagunta, 1996; Sorger, 1989) and many others.
3. Modeling of dynamics of social and economic systems (Гаврилец, 1997; Терпугов, 2001; Чернавский, 2005; Давыденко, 2005; Parsons, 1937).
4. The dynamic theory of the information (Чернавский, 2004; Wilson, 1970).

Project Aims

The research purpose consists in disclosing of laws of change of a consumer demand under the influence of a mass communication.

It is necessary for goal attainment:

1. To make structure of interaction of participants of communications in the form of the closed dynamic control system of relations of participants of communication. To study variants of interaction of participants of communication with a various number of elements in interaction structure:
    1.1. Many firms competing in one market;
    1.2. One firm with one channel of communication;
    1.3. One firm with several channels of communication.
2. To describe the mathematical laws and to make the analysis for two-parametrical dependences of a supply and demand (from the price of the goods and advertising expenses).
3. To create mathematical models on the basis of the quantitative parameters describing features of interaction of participants of communications, including:
    3.1. System of two homogeneous differential equations («Potential consumers» - «The Retail seller»);
    3.2. System of three homogeneous differential equations («Potential consumers» - «The Retail seller» - «Information»);

3.3. Model of optimum behavior of firm with acceptance in attention of reaction of a consumer demand to advertising.

4. To create the software.

5. To open dependences of change of a supply and demand in case of change of advertising expenses, and also changes of psychological installation of the buyer in case of change of frequency of advertising of influences.

Hypotheses

The hypothesis consists in the assumption that the market, being sphere of relations of the buyer and the seller in modern conditions includes as the active participant of theirs interactions on the market the source of information on the goods. Interaction of the specified participants of market relations can be structured in the consent with the law of a consumer demand and the law of the commodity offer. Feature of interaction - utility of purchase and sale of the commercial information is expressed by increase in consumption of the goods.

Methodology

Statistical and analytical researches of the social and economic phenomena of the market, systems theory, mathematical modeling, econometrics, information theory, ordinary differential equations theory and numerical computation.

Results

The history of researches is formed of the results specified further.

1. Structural variants of a social and economic control system of advertising communications of firm for macro level and micro level on market.

2. Structural variants of formation of a control system of mass communications of firm for micro level and their typology:

2.1. One firm with empty set of advertising channels (Бородина, 2004 b);

2.2. One firm with one advertising channel (Бородина, 2003 a, 2004 b);

2.3. One firm with set of channels of communications (Бородина, 2007, 2008, 2009 a).

3. Mathematical models on the basis of the quantitative parameters describing features of interaction of participants of communications for three cases of developed typology are created (in point 2.) (Бородина, 2004 b, 2009 b; Мирская, 2004, 2005).

4. Econometric models of supply and demand taking into account influence of change of the price and change of expenses on advertising (Бородин, a 2003 b, 2004 a, b).

5. The description of structure of expenses of the advertising campaign and a method of cost calculation (Бородина, 2003 b, 2004 a).

The sphere of commercial activity of sellers is directed on a mutually advantageous exchange of utility between sellers and buyers. The purpose of functioning of the market of consumer goods this is creation of set of inquiries of the goods and the prices. Behavioral reactions in a chain of communication events change under the influence of the advertising information. Market relations are defined as economic and social laws of behavior of participants of process. By means of a mass communication from the seller the information on the goods is transferred to potential buyers. The result of management of communications is effective, if the behavior of buyers is aimed at acquisition of the goods (Бородина, 2007, 2008, 2009 a). Commercial communications are defined as a social and economic category, which characterizes degree not randomnesses (negentropy) of the information and a set of potential transactions.

The advertising publication in mass media by means of several channels of communications creates effect of a synergy, which deepens information influence, with some probability.

Such interpretation of market processes, gives the chance to speak about the following: the analyzed phenomenon represents system of communications of the retail seller; interactions of elements of system is an exchange of utility and the information between the seller and buyers; demand for the goods and the prices is a result of management of firm communications. Change of

all conditions of a control system by mass communications is interpreted as time change. The quantity of the moments of own time of system corresponds to quantity of all its events.

«Mass communication» here is defined as a version of social communications. Essence of an element «Information» - advertising material in mass media and the commodity offer in sale places. Hypothetical representation of potential consumers as «generalized person» with quasi-needs is the addressee of the information (an element «Potential consumers»).

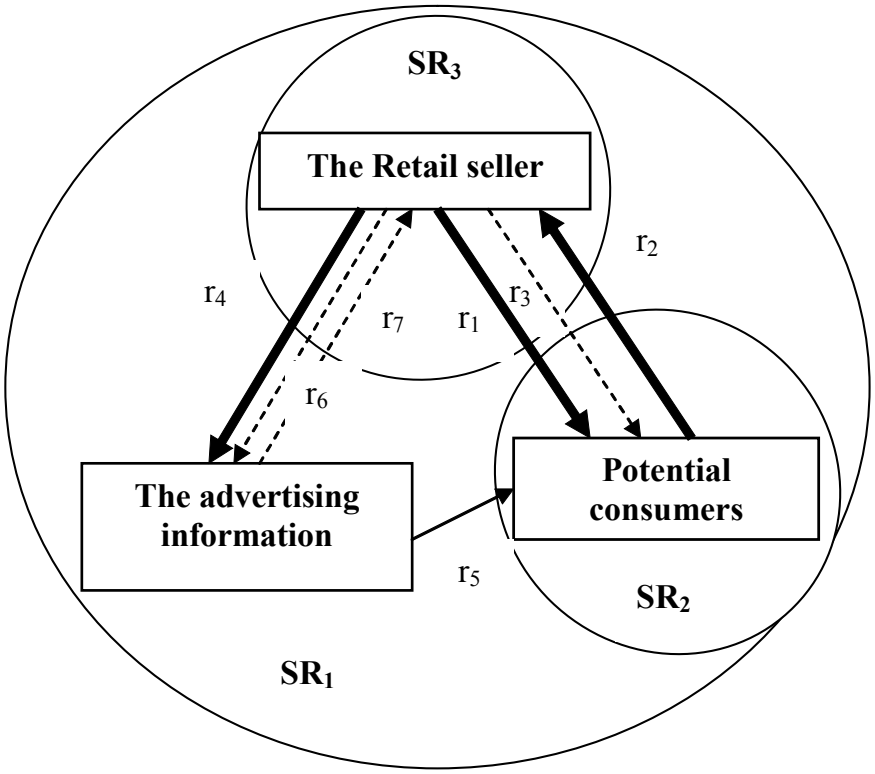

Figure 1. Structure of interactions between participants of a mass communication, where SR1, SR2, SR3 – social and economic environments of system; r1, r2, r3, r4, r5, r6, r7 – relations between participants of interaction.

Management of a mass communication of the retail seller is represented in the system of structure of interactions on fig. 1 (Бородина, 2008). The structure of interactions is a basis for mathematical model in the kind of system of the homogeneous differential equations.

The natural chain of events at realizations of a mass communication organized interactions structure gives an opportunity to formulate the equations describing a stable condition of system. Modeling variables are the parameters characterizing the economic and social nature of elements (the commodity offer, a consumer demand, information). The vector of free members of the equations describes the system environment (Бородина, 2009 b).

$$\begin{cases} \dfrac{dS}{dt} = -\left(1+\sum\limits_{i=1}^{m}\dfrac{\chi_i}{Z_i^{\gamma}}\right)S + \left(1+\sum\limits_{i=1}^{m}\beta_i Z_i^{\alpha}\right)D \\ \dfrac{dE}{dt} = \sum\limits_{i=1}^{m}\dfrac{\chi_i}{Z_i^{\gamma}}S - \sum\limits_{i=1}^{m}(\ln(N_i))E + \sum\limits_{i=1}^{m}\left((-q_{i-1}\ln(q_{i-1}))b_{i-1}{N_{i-1}}^{a} + b_i {N_i}^{a}\right) \\ \dfrac{dD}{dt} = S + \sum\limits_{i=1}^{m}(q_i\ln(q_i))E - \left(1+\sum\limits_{i=1}^{m}\beta_i Z_i^{\alpha}\right)D - \sum\limits_{i=1}^{m}\left(b_i {N_i}^{a}\right) + \underline{S} \end{cases}$$

With entry conditions: t=0, SP (0) = SP0, DP (0) =DP0, E (0) = E0 for i=1,2 … m. The description of parameters of mathematical model is presented in the appendix 1.

Within the limits of the specified hypothesis problems will be studied: Evolution of consumer behavior as a result a synergy of mass communication; Dynamic modeling of consumer behavior (Becker 1997); Analysis of structure of mass communication of the retail trade network with potential consumers.

References

1. Aaker D. A. (1989) Managing Assets and Skills: The Key to a Sustainable Competitive Advantage. California Management Review 31(2).
2. Bagwell K. (2002) The economic analysis of advertising. Working paper. Columbia University. N. Y.
3. Bagwell K., Ramey G. (1994) Coordination economies, advertising, and search behavior in retail markets, American Economic Review 84(3).
4. Becker G.S., Murphy K.M. (1993) A Simple Theory of Advertising as a Good or Bad, Quarterly Journal of Economics, 108 (4).
5. Becker B., Paethau M. (1997) Hrsg. Virtualisierung des Sozialen. Die Informationsgesellschaft zwischen Fragmentierung und Globalisierung. Fr. a.M. NY.
6. Chintagunta P. K., Rao V. R. (1996) Pricing Strategies in a Dynamic Duopoly: A Differential Game Model. Management Science, 42(11).
7. Dockner E., Jorgensen S., Van Long N., Sorger G. (2000) Differential games in economics and management science. Cambridge University Press. Cambridge.
8. Doraszelski U., Markovich S. (2003) Advertising Dynamics and Competitive Advantage, http://repec.org/sce2004/up.29297.1076875287.pdf
9. Erickson G. (1995) Differential game models of advertising competition. European Journal of Operations Research, 83.
10. Feichtinger G., Hartl R., Sethi S. (1994) Dynamic optimal control models in advertising: Recent developments . Management Science, 40 (2).
11. Gasmi F., Laffont J. J., Vuong Q. H. (1992) An Econometric Analysis of Collusive Behavior in a Soft-Drink Market, Journal of Economics and Management Strategy, 1(2).
12. Lambin J.J. (1966) Measuring the Profitability of Advertising: An Empirical Study. Journal of Industrials Economics, 17.
13. Roberts M. J., Samuelson L. (1988) An Empirical Analysis of Dynamic. Non-Price Competition in an Oligopolistic Industry, Rand Journal of Economics, 19 (2).
14. Stigler G. (1961) The economics of information. Quarterly Journal of Economics, 69 (3).
15. Stegeman M. (1991) Advertising in Competitive Markets. American Economic Review, 81.
16. Sorger G. (1989) Competitive Dynamic Advertising: A Modification of the Case Game. Journal of Economic Dynamics and Control, 13, 1989.
17. Wilson A.G. (1970) Entropy and regional modeling. Pion Limited: London.
18. Гаврилец Ю.Н. Изменение предпочтений индивидов в социальной среде/ Гаврилец Ю.Н., Ефимов Б.А. //Экономика и математические методы 1997,т.33,№2.
19. Терпугов А. Ф. Математическая модель влияния рекламы на продажу однородных товаров. / Терпугов А. Ф., Щирова Н. П. // Статистическая обработка данных и управление в сложных системах. Вып.3. Томск: Изв-во Том. ун-та, 2001.
20. Чернавский Д.С. Синергетика и информация: Динамическая теория информации. 2-е изд. М.: УРСС. 2004.
21. Чернавский Д.С. Борьба условных информаций // История и синергетика: Математическое моделирование социальной динамики. / Ред. Малков С.Ю., Коротаев А.В. М.: КомКнига/УРСС, 2005.
22. Давыденко В. А. Моделирование социальных сетей./ Давыденко В. А., Ромашкина Г. Ф., Чуканов С. Н. // Вестник Тюменского государственного университета (1), 2005.
23. Parsons T. The Structure of Social Action. - New York: Free Press, 1937

24. Мирская С.Ю. Оценка влияния рекламы на формирование потребительского спроса. / Мирская С.Ю., Сидельников В.И., Бородина И.П.// Изв. вузов. Сев. – Кавк. регион. Естественные науки, 2004.- Приложение № 6.
25. Мирская С.Ю. Коммуникационная и экономическая составляющие в оценке эффекта рекламы/ Мирская С.Ю., Бородина И.П.// Экономический вестник РГУ, №4/1, 2005.
26. Бородина И.П. Анализ влияния рекламы на рыночное поведение потребителей Системный анализ в проектировании и управлении: Труды VII международной науч.-практ. конф. СПб.: Изд-во: СПбГПУ, 2003.
27. Бородина И.П. Математика – муза рекламы.// Экономический вестник РГУ, т.1, №3 2003.
28. Бородина И.П., Жак С.В.Модель оптимального поведения фирмы с учетом влияния рекламы/ Бородина И.П., Жак С.В.//Экономическая наука современной России. № 3, 2004.
29. Бородина И.П. Системы управления рекламными коммуникациями фирмы. Ростов-на-Дону: Изд-во РБПХЛ СП РФ, 2004.
30. Бородина И.П. Анализ системы управления массовыми коммуникациями фирмы с позиций экономической теории информации. //Экономический вестник РГУ. 2007, т.5 №4/3.
31. Бородина И.П. Массовые коммуникации ритейлеров: законы и события. Системный анализ в проектировании и управлении: Труды XII международной науч.-практ. конф. Ч.1. СПб.: Изд-во: Политехн. ун-та, 2008.
32. Бородина И.П. Синергизм маркетинговых коммуникаций как стратегический опцион. Системный анализ в проектировании и управлении: Труды XIII международной науч.-практ. конф. Ч.1. СПб.: Изд-во: Политехн. ун-та, 2009.
33. Бородина И.П. Формализация системы управления массовой коммуникацией розничного продавца на потребительском рынке// Механізм регулювання економіки 2009, т.2 , №4.

Appendix 1

Parameters of mathematical model	The description of parameters of mathematical model
$\frac{dE}{dt}$	Change of knowledge of potential consumers about the goods as a result of a mass communication.
$\frac{dS}{dt}$	Change of the goods offering in the consumer market as a result of the publication of the advertising information.
$\frac{dD}{dt}$	Change of demand for the goods under the influence of the advertising information.
$1+\sum_{i=1}^{m}\frac{\chi_i}{Z_i^{\gamma}}$	The dimensionless parameter characterizing a consumer demand, depending on the price of the goods and expenses on informing.
$1+\sum_{i=1}^{m}\beta_i Z_i^{\alpha}$	The dimensionless parameter characterizing the product offering, depending on the price of the goods and expenses on informing.
$-\sum_{i=1}^{m}\ln(N_i)$	The information measure which reproduces equiprobability of contacts of potential consumers with advertising, where $N_i \geq 2$ in unit of time.
$(-\sum_i p_i \ln p_i)$	Estimation of the information irrespective of its sense, where *i=1,2…m* - number of channels of communications, p_i – probability (or relative frequency) contact of potential consumers with $\sum_i p_i = 1$.
$\sum_{i=1}^{m}\left((-q_{i-1}\ln(q_{i-1}))b_{i-1}N_{i-1}^{\ a}+b_i N_i^{a}\right)$	The parameters of environment indicate increase of negentropy of system and exist in the market in shape mimetic of potential consumers.
$\underline{S}$	The parameter of environment reflecting «the yesterday's offer of the goods» on «cob-web model».
Z_i	Expenses on the publication of advertisements on *i* channel of communications.
N_i	Frequency of the publication of advertisements on *i* channel of communications.

A game theoretic analysis of China's ongoing land institutional change

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Research Problem

The existing land expropriation policy is the heritage of a high speed, low cost industrialization period led by central government. By constraining rural residence's property right on land, it proved to be efficient before but also brought up a widening increase of inequality between urban and rural residence. Specially, ubiquitous local-level land institutional innovations have been observed during recent years.

This paper first tries to investigate the consequence of such institutional arrangement. Then basing on this, we also explore the possible outcomes of the ongoing institutional change by considering competing forces, which are important in shaping the equilibrium of such institutional innovation. Especially, a smooth path of gradual revolution (by selecting experiments rather than widely implement the innovations) is discussed.

Literature

This research is relevant with two literatures, one is the tradeoff between government intervention and market failure, the other is authoritarian development transition.

A classic work analyzing government failure is Acemoglu and Verdier, 2000. In their paper, they emphasized the point that government failure was present as a tradeoff with market failure. By applying a principal-agent model, they successfully proved that corruption will be present if bureaucrats are introduced to correct market failure.

In the literature of authoritarian development transition, often strategies of authoritarian government are pointed out, their feature and consequence analyzed. What was lacking is they failed to uncover conditions under which each strategy would be adopted, and more specifically, conditions under which a smooth transition toward democracy would be fulfilled.

Project Aims

There are two goals of this paper.

I first would like to prove that, since inequality is harder to observe than GDP, the incentive contract between central and local government is suboptimal, compared with first best when both inequality and GDP can be perfectly observed[11].

Secondly, by establishing a modified signaling game model, this paper then tries to prove that in institutional changes with incomplete information on the consequences of such a change, a more eclectic central government would reduce the welfare loss resulted from government that sticks to yes or no response.

Hypotheses

Part 1 (Model A).

This model proves that inequality will be larger when local government is introduced into economy under suboptimal incentive contract designed by central government.

There are two players in this game: Central government and local government.

[11] Besides, central government's budget constraint will be binding resulted from decentralization. Thus the degree of inequality between urban and rural residence will be larger when local government is introduced to implement land expropriation policy due to central government's lack of relevant information.

Central government cares about inequality and GDP. $U_C = U(GDP, inequality)$, where $\partial U_C / \partial GDP > 0$, $\partial U_C / \partial inequality < 0$.

Local government cares about the corruption (redistribution to itself) and the "wage" received from central government according to contract. $U_L = U(w, corruption)$.[12]

Assumption A1: Central government lacks relevant capability to carry out land expropriation policy, thus local government is hired to implement the policy and redistribute the income among urban, rural and itself.

Assumption A2: Inequality cannot be directly observed while GDP can; and the number of petitions (appeals from localities to higher authorities) is adopted as an imperfect indicator of degree of inequality.

Timing of the game:

1. Central government chooses the contract of wage contingent on the number of petitions and GDP.
2. Given the contract, local government chooses redistribution. More specifically, $GDP = F(urban)$, $inequality = urban / rural$. The number of petition= $N(inequality, \varepsilon)$, where ε is a random variable.
3. GDP and the number of petition N can be observed by central government and the local government receives its wage contingent on them.

Part 2 (Model B).

This part models the competing forces that help shape final result of the ongoing land institutional change.

There are again two players in the game: central government and local government.

Each local government has a feasible innovation, and can choose whether to propose it to central government or not. All innovations will help to increase GDP, yet having different effects on inequality: the "gentle" innovation reduces inequality, while the "crucial" one leads to a larger inequality (as the cost of GDP growth).

Without observing the type of innovation, central government can choose the proportion of promotion regarding a proposal. Specifically, it can choose "promote" or "not", or the mixed strategy (a probability) between the two.

Intuitively, a higher promotion probability means (almost) fully support the innovation while a lower promotion level means only carry on some experiments rather than widely implement.

Assumption B1:

The type of innovation is known to the local government, but not to the central government before the result (experiment) is realized.

Timing of the game:

1. Local government observes the type of innovation feasible to it, and then chooses to "propose" or "not".
2. If local government proposes to innovate, central government chooses the proportion promotion in [0, 1].
3. The innovation is carried on, and the effects (both on GDP growth and on inequality) of it are in proportion to the level of promotion.

Methodology

[12] Here wage means local government's value resulted from promotion or degradation, and local financial budget central government delivers, etc.

A game theoretic approach is used in this paper. More specifically, multitask principal-agent model is adopted in Model 1. A modified signaling game is applied in Model 2.

Results

Main results of part 1:

There is asymmetric information (moral hazard) between local government and central government, and the inequality can only be imperfectly observed via the number of petitions. Thus the incentive contract between central government and local government is suboptimal, compared with the case of perfect observation of inequality (the first best result).

Although central government cares both GDP and degree of inequality, it is relatively hard for it to provide incentives to reduce inequality. Therefore, in equilibrium (the second best result) the degree of inequality appears higher, compared to the social optimal results. GDP may become higher since it is relatively easy to contract. Corruption may and also may not happen in equilibrium, depending on the relative importance of benefit corrupted to "wages" received.

Main results of part 2:

Since there is asymmetric information between central and local government, this two stage game becomes a signaling game. There will be two kinds of pooling equilibria: In one kind, local governments choose not to propose regardless the type of innovations; and central government chooses a proportion level of promotion near zero, i.e. almost refuses all proposals. In the second kind, both types of innovations will be proposed and central government chooses a level near 1, i.e. almost fully promotes the proposal.

There will also be separating equilibrium, which is more interesting: Central government chooses a mid-level of promotion, which provides local government enough incentive to propose a "gentle" innovation and consciously withhold the "crucial" one.

References:

1. Acemoglu D., Verdier T. (2000) The Choice between Market Failures and Corruption, American Economic Review, 90: 194-211.
2. Carter M. R., Liu Sh., Yao Y. (1998) Dimensions and Diversity of Property Rights in Rural China: Dilemmas on the Road to Further Reform, World Development, 26: 1789-1806.
3. Ohno K. (2007) The East Asian Growth Regime and Political Development, presented at GRIPS.
4. Przeworski A., Limongi F. (1993) Political Regimes and Economic Growth, Journal of Economic Perspectives, 7: 51-69.
5. Qian Y. Weingast B. R. (1997) "Federalism as a Commitment to Preserving Market Incentives", The Journal of Economic Perspectives, 11: 83-92.
6. Weiner M. (1987) Empirical Democratic Theory and the Transition from Authoritarianism to Democracy, Political Science and Politics, 20(4): 861-866.
7. Wong L. (1991) Authoritarianism and Transition to Democracy in a Third World, Critical Sociology, 18 (2): 77-101.

The role of social connections of foreign scientists in the process of international collaboration in Russian universities

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Research Problem

A major challenge facing Russian education institutions is the internationalization of their curricula and research. Several universities in Russia at present are attempting to recruit foreign scientists, providing competitive working conditions. The primary aim of such a strategy is to raise research and teaching standards to an international level. The same strategy is successfully employed in China (He, 2009).

Chinese example is interesting for analyzing situation in Russia, as both countries are transferring from planned economy to market. In the work of Bray and Borevskaya (Bray M., Borevskaya N., 2001) is stated that despite the differences between Russia and China, the undertaken strategies of development lead to a similar consequences in both countries. However, the number of foreign scientists, working in China grows at an exponential rate[13], while in Russia there is no such an increase in numbers.

It was also expected that through close collaboration with foreign scientists Russian scholars could adopt new knowledge, norms and routines that are intrinsic to foreign academic culture. In reality such collaboration is limited, which may cause a range of problems. New knowledge, norms, routines and academic culture are not being spread in Russian academic circles as it was expected. Despite the low level of collaboration all in all some scientists are more integrated into Russian academic community than the others. Considering this fact it is suggested that the issue could be explained by differences in social connections that each foreign scientist obtains within Russian academic circles. Thus the aim of the present research is to analyze social connections role in the process of foreign scientists' integration into Russian academic community.

Literature

Different approaches have been used to analyze international collaboration in science but none can fully explain its rapid growth. Using international co-authorships, Wagner and Leydesdorf (Wagner C., Leydesdorf L., 2005) test the hypothesis that international collaboration is a self-organising network. Applying tools from network analysis, the paper shows that the growth of international co-authorships can be explained based on the organizing principle of preferential attachment, although the attachment mechanism deviates from an ideal power-law. Several explanations for the deviation are explored, including that of the influence of institutional constraints on the mechanism of self-organization.

International collaboration as measured by co-authorship relations on refereed papers grew linearly from 1990 to 2005 in terms of the number of papers, but exponentially in terms of the number of international addresses. This confirms Persson (Persson, O. et al. 2004) hypothesis of an inflation in international collaboration. Patterns in international collaboration in science can be considered as network effects, since there is no political institution mediating relationships at that level. Science at the international level shares features with other complex adaptive systems whose order arises from the interactions of hundreds of agents pursuing self-interested strategies. During the period 2000–2005, as it is show in the study of Wagner and Leydesdorf (Leydesdorf L.,

[13] Guochu, Wenjun
http://books.google.com/books?hl=en&lr=&id=lcuxq29bXloC&oi=fnd&pg=PA177&dq=foreign+scientists+in+russia&ots=HLwjnCQ3CF&sig=pGPBspY9coWQ3SAJua8HMpycZLY#v=onepage&q=foreign%20scientists%20in%20russia&f=false

Wagner C., 2008) , the network of global collaborations appears to have reinforced the formation of a core group of fourteen most cooperative countries. This core group can be expected to use knowledge from the global network with great efficiency, since these countries have strong national systems. Countries at the periphery may be disadvantaged by the increased strength of the core.

Co-authorship among scientists represents a prototype of a social network. By mapping the graph containing all relevant publications of members in an international collaboration network: COLLNET, Yin L. (Yin L. et al., 2006) infer the structural mechanisms that govern the topology of this social system. The structure of the network affects the information available to individuals, and their opportunities to collaborate. The structure of the network also affects the overall flow of information, and the nature of the scientific community. Authors present a number of measures of both the macro- (whole-network) and micro- (actor-centered) structure of collaboration. It was found that scientific community displays many aspects of a "small-world," and is somewhat vulnerable to disruption should major figures become inactive. Authors also find inequality in the roles played by individuals in the network. The inequalities, however, do not create a closed and isolated "core" or elite.

Hypotheses

1. For foreign scientists collaboration in research activities serves as major academic connections, as research is the major sphere of interests for foreign scientists.
2. Work in Russian universities is attractive only for PhD students with small number of publications, as scientists with large number of publications are not interested in work in Russian universities.
3. Former citizens of CIS have more social connections in Russian academic society, thus they are more effective workers, than those who are not former CIS residents.
4. Those who received their PhD in a prestigious foreign university have more social connections within Russian academic society, as their status makes the connection more valuable.
5. The more the number of significant academic connections foreign scientist has the more he / she is integrated in Russian academic society, as social ties prosecute social norms and values.

Results

The proposal is developed in terms of the specific research propositions posed in part 1.

The study will have some major theoretical implications, confirming and expanding the existing social network model, along with other similar studies, it may provide some useful basis for practical activities. However, additional research seems needed on quantifying the suggested factors in more detail in order to describe the problem in a more systematic way.

References

1. Bray M., Borevskaya N. (2001) Financing education in transitional societies: lessons from Russia and China. Comparative education. 37(3): 345 – 365.
2. He T. (2009) International scientific collaboration of China with the G7 countries. Scientometrics, 80(3): 571 – 582.
3. Leydesdorf L., Wagner C. (2008) International collaboration and the formation of a core group. Journal of Informetrics, 2(4): 317-325.
4. Persson O., Glänzel W., Danell R. (2004) Inflationary bibliometrics values: The role of scientific collaboration and the need for relative indicators in evaluative studies. Scientometrics. 60(3): 421–432.
5. Wagner C., Leydesdorf L. (2005) Network structure, self-organization, and the growth of international collaboration in science. Research policy. 34(10): 1608-1618.
6. Yin L., Kretschmer H., Hanneman R., Liu Z. (2006) Connection and stratification in research collaboration: an analysis of the COLLNET network, Information processing and management, 42(6): 1599-1613.

Detection of facts that provoke the collusions in public purchase (fuels and lubricants market as an example)

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Research Problem

Placement of public order by competitive procedures is often combined with a possibility of collusion between potential suppliers. Benefits of cooperative behavior for companies' participation in purchase process appear simultaneously with interest infringement of the Government: overprice purchase but the quality of supplied products, work or services is low. Collusion in public order doesn't meet legal norms in cost effectiveness and efficiency. Therefore, the above proves the necessity of cooperative behavior prevention of public purchase participants. But this process is impossible without examination of factors that facilitate the appearance of stimulus for collusion between potential suppliers.

Literature

The problem of collusion between participants of a public order placement is often examined within the scope of competitors' behavior on oligopolistic market. These competitors coordinate the work and imitate one dominant company to increase the expected gain. Under this approach examination in stimulus detection for collusion of companies is done in several directions.

The first direction deals with theoretical work that defines the economic notion "collusion" and its major categories (Stigler, 1964) with models of coordinated cooperation of companies on oligopolistic market and peculiarities of such unions (Graham and Marshall, 1987). The closest research in public order is the works of McAfee, McMillan (1992) and Aoyagi (2000) in which most prevailing models of collusion between public purchases are highlighted. The way of collusion chains forming within public sale procedure is also described.

Another direction has to do with theoretical work with attempts to define principal market characteristics or procedures peculiarities that help to originate and successfully support the collusion. Therefore, Stenback (1990) work in dynamic model term formulates the dependence of collusion possibility on number and altitude of barriers for market barriers for new companies entrance. Influence of asymmetry level in market shares and production possibilities of cartel participants is highlighted in Bain (1948), Lambson (1987, 1994, 1996) works. In works of Cramton, Schwartz (2000), Robinson (1985) it is discussed the impact of procedure factors on possibility of collusion between purchase participants.

It is possible to say that Porter (1983) articles and Lanzilloti (1996) works are an empirical works on the problem of collusion detection in public purchase. In these works it is possible to find attempts not only in detection of collusion in accordance with the history of US public sales but only to determine its nature of formation mechanism.

Project Aims

The purposes are:

- identification of institutional peculiarities that facilitate the collusion appearance among public purchase participants;
- analysis of contracts' features that may indicate the collusion between participants of order placement.

Hypotheses

- Collusion probability between participants of order placement is increased in case of small number of participants in certain competitive procedure of public sales. The most often the

appearing of cooperation between potential suppliers of similar goods and services in repeated purchase procedures the easier for them to keep and support the collusion.

- Growing demand for offered products makes the cooperative behavior strategy more attractive for competitive procedures participants because the above increases the expected gains in case of collusion.
- Decrease in collusion possibility helps to increase the asymmetry of market shares distribution for potential suppliers of goods and services for governmental needs.

Methodology

This research is done under the project "Analysis of competitive environment on the market of oil-products suppliers for government and municipal authorities and development of plan package in participation in order placement procedures in the Russian Federation Regions» of project and study group "Reformation of public order system and development of state and private partnership institution" at Nizhny Novgorod branch of State University "Higher School of Economics". Examination of institutional peculiarities that help the collusion between participants of order placement is based on comparative analysis of oil products market features in different regions of the Russian Federation. The above supposes the following:

1) Identification of specifics of regional fuels and lubricants markets in RF regions (detection of potential customers and suppliers, annual volume of municipal order in RF regions; density of competition on oil-products market in RF regions and etc.);
2) Analysis of dispute settlements practice by Federal Antimonopoly and Arbitration Court between public order participants and customers in the Russian Federation

This research uses several criteria to settle this objective. These criteria allow to evaluate certain public purchase of fuels and lubricants: purchase form, initial (maximum) Contract price, price of concluded Contract, procedure participants, winner and etc. Analysis of Federal Antimonopoly Service practice and Arbitration practice in public order placement is supposed to be done under evaluation of claims to control authorities taking into account the differentiation depending on purchase procedure stages. Research objects are public purchases of fuels and lubricants information on which is on official sites of order placement in RF regions. Purchase analysis is done from January 1, 2008 up to December 31, 2009.

Results (expected)

1. List of RF regions where fuels and lubricants markets are characterized by peculiarities that help the collusion between competitive procedures participants.
2. Most often provisions of Contracts were founded. These provisions indicate the existence of strategies of coordinated actions between order placement participants.

References

1. Cabral L. M. B. (2000) Introduction to industrial organization/Luis M.B. Cabral. – Massachusetts: MIT Press,.
2. Tirole J. (1988) The Theory of industrial organization, Massachusetts: MIT Press.
3. Pivovarova S.G. (2009) The collusion in public procurement: approaches to analysis, Problems of government and municipal administration, 3: 35-46.

Marketing activities in companies in Serbian market: comparative analysis

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Research Problem

The process of transition, which took place in 1990s in Eastern Europe (and in Serbia is still actual), primarily meant the change from centrally oriented economies to market oriented ones (Enew, Wright and Kirnag, 1996). The main difference has occurred in the approach to customers – marketing gained on importance. Marketing is the whole business seen from the point of view of the final result, that is, from the customer's point of view (Drucker, 1993). Keeping in mind such complexity of marketing, it is very difficult to establish valid parameters: a) to determine whether organization has adopted marketing concept and b) to review all marketing activities in some company.

Literature

However, some generalizations can be made. Literature review indicates that there are three streams of studies conducted on this matter. First, the structural role of marketing shows that there are great differences in the location of the marketing function among companies (Workman et al, 1998; Achrol, 1997). Second, studies reveal that marketing has power, while it depends on environmental conditions (Homburg et al, 1999). Finally, research into the organization of marketing activities finds that wide variations exist (Tull et al, 1991). A major drawback lays in fact that all previous studies focused large, multinational companies, while marketing strategy and activities in small, domestic companies are currently understudied.

There are numerous problems that should be bypassed by local firms in adopting marketing orientation. Namely, those are the general infrastructure problems (Thomas, 1991), the lack of managerial expertise, weakness of supporting industries, perception barriers (McDonald, 1993), etc. Local firms need to have sufficient innovative capabilities to adopt technologies introduced by MNC (Girma, 2003). In the European transition economies, where "soft" technology – marketing and management are weak, it can be argued that outward-oriented MNCs might provide some of the skills that are in shortest supply (Kokko, Kravtsova, 2006).

It is usually supposed that MNCs' subsidiaries have adopted and apply marketing orientation completely. However, that is not always a case. Subsidiaries could just sell the parent's products in the host country and have small sales department there, which also deal with marketing activities (Kokko and Kravtsova, 2006). Moreover, parent company can opt to centralised organisational structure and impose certain limitations on activities to protect the brand name (Lloyd, Ogbonna, 2003).

With just a few studies referring to the examination of how marketing strategies differ between local firms and MNCs' affiliates in developed countries almost nothing is known about it in a country in transition such as Serbia. Therefore, the purpose of this paper is to examine whether there is the difference in adoption of marketing strategy and executing of marketing activities between Serbian companies and MNCs' subsidiaries, which are doing their business on the territory of Serbia.

Methodology

In order to address possible variations in marketing approach in MNCs and domestic companies, we investigated the differences in marketing practices between Serbian companies and MNCs operating in Serbia. We focused our investigation on the following research questions:

- Do local and foreign companies comprise the same set of marketing activities?
- Up to what extent they find the marketing is significant for their business success?
- How many employees are involved in conducting marketing activities?

If Serbian companies in large extent perform the same activities as MNCs and consider marketing orientation as very important, then it is reasonable to conclude that approach to marketing of both local and multinational firms is quite similar. Furthermore, one of the expected results is the larger staff employed in marketing department in foreign companies as far as the total number of their employees is much greater than the number of employees in domestic companies.

In order to answer the research questions, we used a survey in total of twenty two companies operating in Serbia, divided into two independent samples: Sample 1 (Serbian companies) and Sample 2 (MNCs' subsidiaries in Serbia). To analyze collected data we performed the Mann-Whitney U test for testing the null hypothesis that two independent samples are coming from the same population, at the significance level $p \leq 0.05$.

Results

Section I of the Questionnaire, which regards the organisational position and structure of marketing activities, has been transformed into 12 different variables. The results of the Mann-Whitney U test indicate that H0 can be rejected for 3 variables: VAR6, VAR7 and VAR9.

Table 1. Selected results of Mann-Whitney U statistics for 3 variables from the section I

	VAR00006	VAR00007	VAR00009
Mann-Whitney U	33,000	30,000	33,000
Wilcoxon W	111,000	85,000	88,000
Z	-2,062	-2,562	-2,062
Asymp. Sig. (2-tailed)	,039	,010	,039
Exact Sig. [2*(1-tailed Sig.)]	,080(a)	,050(a)	,080(a)

1. The marketing department counts less than 10 employees in 75% of Serbian companies, while that is the case in 40% of sampled subsidiaries.
2. 50% local companies conduct market research among other marketing activities, while that is the usual activity within marketing department for all MNCs subsidiaries.
3. 70% of foreign companies deal with customers' complaints, whereas only 25% of Serbian companies perform the same

Research evidence suggests that marketing department has not been yet fully developed in Serbian companies. Larger marketing department implies that functions within it could be more diversified and each individual could be more specialised for performing his tasks. It should be noted that traditionally marketing activities, such are sales and promotion are equally present in both groups of companies. Quality management, prices policy and distribution management are disregarded in 70% of MNCs subsidiaries and 75% of domestic companies. However, public relations are considered to be an integral part of a marketing department in 90% of foreign and 67% of domestic companies.

Sections II and III, which examined the process of planning of marketing activities and the structure of marketing costs, has been transformed into 17 different variables. The results of the Mann-Whitney U test indicate that H0 can be rejected for 4 variables: VAR16, VAR19, VAR20 and VAR29 (see Table 2).

Table 2. Selected results of Mann-Whitney statistics for 4 variables for the sections II and III

	VAR00016	VAR00019	VAR00020	VAR00029
Mann-Whitney U	25,000	24,000	29,500	26,000
Wilcoxon W	80,000	79,000	84,500	81,000
Z	-2,815	-2,609	-2,226	-2,630
Asymp. Sig. (2-tailed)	,005	,009	,026	,009
Exact Sig. [2*(1-tailed Sig.)]	,021(a)	,017(a)	,043(a)	,025(a)

1. All MNCs in Serbian market plan marketing activities continuously, while only 41.7% Serbian companies has adopted the same practice. 58.3% local companies are planning their activities from time to time, not on constant basis.
2. Some companies do not perceive the importance of planning. Although all MNCs subsidiaries operating in Serbia think that planning of marketing activities is either very important (80%) or just important (20%), it is not the case with Serbian ones (25% consider it highly important, 25% as important, 17% are neutral regarding this question and 33% consider planning of marketing activities as unimportant operation)
3. Very similar findings occurred in the field of the measurement of effectiveness of promotional efforts. All but one foreign company measure how effective their promotional activities were, whereas only 33.3% domestic companies include the same operation in their list of activities.
4. Frequency of advertising also differed from one sample to another at statistically significant level. MNCs advertise more often (continuously: 80%; often: 10%; when need arises: 10%) than Serbian companies (continuously: 33.3%; often: 16.7%; when need arises: 41.7%; and rarely: 8.3%).

It could be stated that strategic role of marketing has not been yet perceived at full extent in Serbian companies. Therefore, all efforts are more focused to operational and organizational activities, while planning and control are neglected. Structure of advertising costs in different media and the structure of sales promotion is almost the same for MNCs and Serbian companies.

References

1. Achrol R.S. (1997) Changes in the theory of inter-organizational relations in marketing: toward a network paradigm", Journal of the Academy of Marketing Science, 25: 56-71.
2. Drucker P. (1993), The Practice of Management, HarperCollins, Inc, New York.
3. Ennew C.T., Wright M., Kirnag J. (1996) The Development of Bank Marketing in Eastern Europe: The Case of Slovakia", Service Industries Journal, 16(4): 443-458.
4. Girma S. (2003), The Domestic Performance of UK Multinationals, National Institute Economic Review, 185: 78-92.
5. Homburg C., Workman J.P.Jr., Krohmer K. (1999), Marketing's influence within the firm, Journal of Marketing, 63(2): 1-17
6. Kokko A., Kravtsova V. (2006), Innovative Capability in MNC Subsidiaries: Evidence from four European Transition Economies, Working Paper No. 224.
7. Lloyd C.H., Ogbonna, E. (2003) The Organization of Marketing: A Study of Decentralized, Devolved and Dispersed Marketing Activity, Journal of Management Studies, 40(2): 483-512.
8. McDonald K. (1993) Why Privatisation is not Enough, Harvard Business Review, 71: 49-59.
9. Thomas M.J. (1991) Marketing, Development and Efficiency: British, Polish and American Perspectives, Journal of Marketing Management, 74: 397-418.
10. Tull D.S., Cooley B.E., Philips M.R.Jr. Watkins H.S. (1991) The Organization of Marketing Activities of American Manufactures, Working Paper No. 91-126.
11. Workman J.P., Homburg C., Gruner K. (1998) Marketing organization: an integrative framework of dimensions and determinants, Journal of Marketing, 62: 21-41.

Systems of corporate governance and imitation rules

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Research Problem

Corporate governance has been defined as the set of mechanisms through which the financiers of a corporation can ensure a return on their outlay Shleifer and Vishny (1997); for this reason, the ability of financiers to exert control on the running of the firm is an important part of governance. But depending on the type of asset one holds in a firm, action will be taken in different circumstances and with different goals. Importantly, creditors merely need to ensure that their credit and interest will be repaid – any extra 1 profit will accrue to equity holders – so that they only need ensure that a certain minimal level of performance is met.

Equity owners, on the other hand, are residual claimants and benefit 1-for-1 from profits, but are not liable for losses; in order to maximize the value of their asset, they therefore wish to ensure that profits are maximal, even if this means burdening the firm with extra risk. Governance systems may be distinguished by whether the creditors or equity holders have more prominent influence on the running of the firm Moerland (1995); Allen and Gale (2004).

External control is especially required when the firm is seen to be "underperforming". But underperformance has different meaning depending on the asset class one owns; for a creditor, it is of no moment if profits fall short of other firms in the industry once she is assured that her loan is repaid. Creditors are therefore likely to be more cautious before intervening, and relying on more conservative policies if they do. This is not true of equity holders: any extra profit accrues to equity, while losses are born by creditors; this type may therefore want to intervene as soon as a firm is performing below average, and take more aggressive action. This could take the form of imitating a strategy that was highly profitable for one firm, even if it does poorly on average or is relatively unproven.

We formalize this argument in a simple model of boundedly rational financiers. Financiers use rules of thumb to decide if they should intervene; intervention takes the form of changing management. They decide to intervene if the profits of their firm are the lowest in the economy. Investors observe the types of management in charge of other firms, and their profits; they may then decide if they wish to adopt, say, the type of management of the firm that has the highest profit across all industries (equity case), or alternatively the type does best on average (debt case). There are three types of managers in our setting, and each is hardwired to decide to produce a level of output that – if each other firm in the market adopted it – would lead to market outcome being either perfectly competitive, collusive or the intermediate case of a Cournot-Nash equilibrium.

Our model contains two duopolistic markets for a homogenous good; these markets are sufficiently far apart that no product trade takes place between them. But they are sufficiently close that information on the strategies and profits adopted by each firm are known to all. The model is played out in discrete time. In each period, financiers either follow their imitation rule or – with a small probability – a random change occurs; a random change moves the system to any one of its states with equal probability. This means that multiple mutations may occur simultaneously – for example, each firm could change its manager for random reasons. Our interest is in the impact of the different rules of thumb on long-run market outcomes; such models are naturally studied using stochastic stability Kandori et al. (1993) as a limit case.

To fix ideas, consider two duopolies. Suppose in market A both managers are of Walrasian type, but that in market B one deviated from Walrasian to the Cournot strategy. Profits in market A are zero; in market B, profits of both firms are positive, but – due to the spite effect – the Walrasian firm is making higher profit. Nevertheless, the average profit of the Walrasian type is low, because of the poor profit performance in market B. Indeed, in our model the average profit of the Walrasian type is necessarily lower than that of the Cournot type. In this case, different adjustment rules lead

to different outcomes: under equity-based external control, both Walrasian types in market A – that have the lowest payoff overall – imitate the Walrasian strategy they already use; hence the state does not change. The debt-based system would trigger replacement with the manager type with the best mean profit overall, i.e. the Cournot type. The system then reaches the CC . CW state, and remains there: the firm that makes the lowest profit already uses the strategy with the best mean payoff (Cournot). This may reflect a "revolving doors" equilibrium, in the sense that external control perpetually replaces the management of the low-profit firm with a new member of the incumbent type.

Literature

All advanced industrial economies have seen the emergence of a substantial corporate business sector, but the institutions that determine how these enterprises are governed differ widely between economies Shleifer and Vishny (1997). This includes rules of executive compensation and the legal framework in which decisions are made; but perhaps the most characteristic difference lies with the sources of financing of firms, and the associated external control exerted upon by firms. For example, while in the United States virtually all of the 400 largest companies are listed on the stock exchange and financed through equity, the corresponding share for Europe is only 54% Moerland (1995). Since these cross-country differences are systematic, corporate governance research has found it useful to group systems into two classes: the European and Japanese bank-based (or network-based) systems and the Anglo-Saxon market-based systems Allen and Gale (2000, 2004). Market-based systems are characterized by dispersed ownership of the firm and external control through the capital markets. In contrast, corporations in bank-based systems rely much more strongly on debt finance, often from a single bank ("Hausbank"). For this reason, creditors have a substantial degree of influence on the running of the organization. Although formal control rights are usually only transferred in the case of a failure to repay loans, informal channels of influence appear to be important in practice. In this section we briefly review the literature on systems of corporate governance and conclude that bank-based systems are likely to be more reflective of the interests of creditors, while market-based systems have a bias towards equity interests. Schmidt and Tyrell (1997) argue that differences between the two systems not so much reflected in sources of finance of the firm, but strongly affect how governance takes place.

The difference in financial structure manifests itself in the mechanisms through which external control is exerted. Although takeovers occur relatively rarely, and hostile takeovers are uncommon even in the United States, the threat of these measures and their associated disruption on the corporation and management especially still serves as an effective disciplining device Scharfstein (1988). Again, maximising the value of equity is the best possible defence against a takeover because it diminishes the possible return to a "raider". Other measures of governance in the Anglo-Saxon world, such as proxy fights Ikenberry and Lakonishok (1993) – in which shareholders replace management directly through their vote shares – and leveraged buyouts also work in a similar way.

Dixon (2000) adopts an aspiration-based model of social learning. In his framework, firms determine through an exogenous process a level of profit that they are "satisfied" with; if profits fall below this level, firms may experiment with different strategies or imitate those of others. But if profits are equal to or exceed the aspiration level, no action is taken. The model thus reflects the idea of satisfying in an organization context Simon (1987). Dixon assumes an economy containing a very large of identical duopolies; information on payoffs accruing to various strategies is available to all, but trade does not take place between the markets. Under the constraint that the aspiration level in the long-run must yield at least normal profit to the firm, it is found that the collusive equilibrium – in which firms jointly maximize profit, and aggregate output is identical to what would be produced by a single monopolist in each market – will almost always be realized. A similar result is obtained by Oechssler (2002), which embeds the model of Dixon into a framework of stochastic stability. The intuition beneath both results is that, in a competitive equilibrium, firms are likely to earning less profit than their aspiration level and therefore experiment with other

strategies; the economy will therefore tend to leave such states. In contrast, if aggregate profit are maximised, firms are certain to be earning more profit than their aspiration level, and will therefore not tend to experiment with alternatives. Once the economy has reached this state, it is likely to persist. Our model can be seen as having an endogenous aspiration level -the second-lowest level of profit observed in the economy, with imitation rule depending on institutional framework.

Project Aims

This paper seeks to link two currently unrelated strands of the literature. Systems of corporate governance have been studied extensively by economists, and governance theories often make reference to bounded rationality; we survey this literature in section 2, and discuss how myopic external control rules may vary systematically with the governance system. Secondly, a range of evolutionary models of market competition has been developed. In this context, concepts of stochastic stability were also introduced to industrial organization research. This paper seeks to show that such models can be given an institutional interpretation, and provide useful input to applied research.

In particular, we aim to motivate rules of thumb for behaviour on the grounds of differences in institutions. Models in this vein have been frequently used in the behavioural literature, but to our knowledge are relatively new to institutional economics.

The substantitive contribution of the paper will be to show how external control is exerted in qualitatively different ways between systems of governance. In particular, bank-based systems of governance provide more favourable conditions for collusive market outcomes.

A broad implication is that, under such bank-based systems of governance, rents accrue to the firm and other institutions – such as unions – may flourish to secure a certain share to their constituency.

Hypotheses

- Depending on the system of corporate governance, when external control is exerted, different types of managers are chosen
- Types of managers manifest themselves in strategies adopted in the product market
- After a manager has been replaced, other firms may wish to change their management in subsequent periods. Thus the choice of one firm has knock-on effects, transmitted through the product market channel
- The system of corporate governance has repercussions on the sustainability of other institutions, such as unions

Methodology

In the paper, we rely on the institutional literature on systems of governance to provide the required background and motivation for the modeling exercise we are going through. Although the literature is quite nuanced, we follow the general bank/market based distinction as a working horse.

The market structure of our paper follows the standard Cournot model familiar from the industrial organization literature. The key difference is that the strategy space in our set-up is quite coarse: firms may only decide between manager types, not individual quantities. Manager types follow the focal outcomes: monopoly, Cournot or Walrasian.

We adopt a "rules of thumb" approach from the behavioural game theory literature. In contrast to the rationalistic best response dynamic used in most of the IO literature, we introduce two elements. Firstly, firms only change their strategies when the outcome in the previous period is perceived to be "bad". We operationalize this notion by allowing the firms earning the lowest profit to change the manager types they employ. Secondly, the decision which type of manager to use is not informed by a full understanding of the model and the best responses of all other players, but by rules of thumb.

Results

This paper investigates the role of bounded rationality in the external control of companies. In our framework, financiers have the opportunity to replace a firm's management if it seen to be "underperforming" in their view. But what financiers see as underperformance will differ depending on the asset they hold in the firm; in particular, because the value of debt does not rise once it is certain to be repaid, investors holding debt do not have an interest in raising the firm's profitability beyond this level. In a bounded rationality setting, this may mean that debt holders wish to replace management with the type that does best on average. In contrast, equity holders benefit one-for-one from additional profit; they may for this reason also seek to imitate the management style of the firm that has the highest profit overall.

Corporate governance systems internationally differ in whether they protect the interests of equity holders or creditors more. In our simple model, a governance system will determine which adjustment rule is used. While we found that the stochastically stable state for both rules is the same – attaching probability one to the all-Monopoly outcome – numerical simulation showed that for, more realistic values of the error rate the stationary distributions of both processes differ considerably. In particular, debt-based systems will exhibit less fierce competition in product markets. One goal of the paper was to show that adjustment rules in evolutionary models can be motivated by institutional factors as well as psychological ones; for this reason, there may well be more overlap in the future between institutional economics and evolutionary game theory as well as evolutionary algorithms.

References

1. Allen F., Gale, D. (2000) Comparing Financial Systems. MIT Press.
2. Allen, F. Gale, D. (2004). Comparative Financial Systems: A Survey. Financial Intermediation.
3. Dixon H. (2000). Keeping up with the Joneses: competition and the evolution of collusion. Journal of Economic Behavior and Organization, 43(2): 223-238.
4. Ikenberry D., Lakonishok J. (1993). Corporate Governance Through the Proxy Contest: Evidence and Implications. Journal of Business, 66(3): 405-435.
5. Kandori M., Mailath G., Rob R. (1993) Learning, Mutation, and Long Run Equilibria in Games. Econometrica, 61(1): 29-56.
6. Moerland P. (1995) Alternative disciplinary mechanisms in different corporate systems. Journal of Economic Behavior and Organization, 26(1): 17-34.
7. Oechssler J. (2002) Cooperation as a result of learning with aspiration levels. Journal of Economic Behavior and Organization, 49(3): 405-409.
8. Scharfstein, D. (1988). The Disciplinary Role of Takeovers. Review of Economic Studies, 55(2): 185-199.
9. Schmidt R. Tyrell M. (1997). Financial Systems, Corporate Finance and Corporate Governance. European Financial Management, 3(3): 333-361.
10. Shleifer A., Vishny R. (1997) A Survey of Corporate Governance. Journal of Finance, 52(2): 737-783.
11. Simon H. (1987) Satisficing. The New Palgrave Dictionary of Economics, 4:243-245.

The empirical analysis of transaction governance mechanisms in Russian manufacturing

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Research Problem

The investigation of alternative transaction governance mechanisms occupies an important place in modern institutional economics [Williamson, 1985]. The comparative advantages of transactions governance depend on the frequency of transactions, assets specificity and the level of uncertainty. The choice of interaction forms between different agents in value chains (including market, hierarchical, modular, relational and captive types) is considered as a factor, which determines the strategy of sellers for enhancing the competitiveness in the framework of value chain theory [Kaplinsky & Morris, 2003]. The economic literature research on alternative governance mode and types of value chains has a numerous examples of comparing the comparative advantages and disadvantages of different options in specific industries. At the same time for the Russian industry an empirical research within institutional economics and value chain theory still remain fragmented.

Literature

During analysis of the works dedicated to testing and development of the O. Williamson's theory, the author was interested not so much in the results as in the methods used by researchers to collect data, approaches to the construction of the dependent and independent variables.

The information sources of the biggest part of the researches are surveys. Such works as Cook (1997), Krickx (1995) are the examples of individual cases, studies Minkler, Park (1994), Lyons (1995) cover several industries. The analysis of empirical literature shows a wide variety of different models. On the one hand, such heterogeneity is related with a lack of "pure types" of mechanism in economic practice. As a result, there are works that offer a variety of alternative classifications (for example, Heide, 1994, Nooteboom, 2004, Bowen, Jones, 1986). On the other hand, all researchers face the problem of constructing variables that reflect themselves, such as asset specificity or uncertainty of the environment. For these purposes the authors use various proxy variables: the ratio of value added to sales volume is used as an indicator of vertical integration in such works as Levy (1985), Balakrishnan, Wernerfelt (1986); in work of John, Weitz (1988) the amount of time that new employee needs to become familiar with the basic characteristics of products and customer service is used as a variable characterizing the specificity.

Project Aims

The main objective of the paper is to classify the Russian manufacturing firms by the type of governance mode and to demonstrate:

- The scale spreading of transaction governance mechanisms;
- Factors of choice of alternative governance modes;
- The influence of type of governance mechanism on the behavior of Russian enterprises: their strategies of product targeting and competitiveness;
- The influence of alternative governance mechanisms on the results of economic activities of firms.

Also, the objective of this study includes the comparison of two alternative classifications of governance transactions: O. Williamson's classification and the classification adopted in the theory of value chains.

Hypotheses

To analyze the choice of different governance modes by the firms, their behavior and performance there were put forward the following hypotheses:

H1. The higher the level of specificity of assets and the level of uncertainty are associated with the greater chances of selecting a hierarchical and / or a hybrid mechanism of transaction governance.

H2. Inside the hybrid mechanism of transaction governance there are two different types of interaction - when the industrial enterprise inside the chain is controlled by the buyer, and when the industrial enterprise interacts with a contractor on the basis of relational contracts (in the theory of value chains it is called the relational and modular types of governance). Characteristics of firms and their behavior are different for these two groups of hybrid mechanisms.

H3. The choice of governance mechanisms depends on the choice of geographical boundaries of the target market and management model of the firm: the sales of enterprises - participants of the hybrid mechanisms are more geographically limited, as the remoteness of the supplier from the buyer directly affects the ability of control (in modular type of governance) and the possibility to sustain the relational contract (within the relational type of governance).Costs separation of ownership from management for enterprises involved in the hierarchical and modular transactions should be lower (in comparison with other types of governance), and consequently, the extent of separation of ownership from management should be higher.

H4. The companies of different governance modes have different strategy in increasing their competitiveness. The price competition as a factor of competitiveness is more important for companies involved in market transactions. For members of hybrid transactions it becomes increasingly important a non-price competition. With such orientation on non-price indicators of competitiveness the enterprises of different types of hybrid modes choose different form of confirmation of product quality: the participants of the relational type of interaction are more likely to invest in brand, while the ISO certification is preferred by firms with modular type of governance.

H5. Hierarchical mechanism creates an advantage in investment protection; thereby promote greater investment costs at the enterprise level.

H6. The firms with market type of governance have better results by short-term indicators of economic activity in comparison with firms-participants of hybrid and hierarchical mechanisms. At the same time firms with hybrid and hierarchical governance mode demonstrate less susceptibility to external shocks and better dynamics of competitiveness.

Methodology

Within the study the author used the tools of new institutional economics, as well as econometric methods of data analysis: descriptive statistics, regression analysis with the construction of linear and ordinal regressions.

Results

Preliminary results of the analysis of governance types show the following:

1) In Russian manufacturing there are all types of governance mechanisms, suggested both by the new institutional theory and the value chains theory. The most numerous group has the market type of governance.
2) Some hypotheses about the factors of choice of governance mechanisms (classification suggested by the new institutional economics) have been confirmed. The specificity of transactions pushed firms to the choice of a hierarchical mechanism in contrast to the market. At the same time the choice of modular type of governance was accompanied by low capital intensity (that it means relatively low switching costs), while the choice of the relational type of interaction was accompanied by the complexity of transactions, which resulted in a higher standard for R&D.

3) Empirical analysis shows that the type of hybrid mechanism has a significant influence on the behavior and position of the enterprises.
4) The governance within value chains substitutes for an internal coordination to a certain extent, limiting the severity of agency problems. Thus the governance of enterprises involved in the hierarchical and modular chains more often bases on the separation of ownership and management.
5) The hypothesis of the difference between the concept of competitiveness and, hence, strategies to achieve competitiveness for the participants of the different governance mechanisms was fully confirmed. Participants of different types of transactions have different attitudes towards price and non-price competition: firms of market governance mode usually use price competition, while members of hybrid transactions focus on non-price competition. As well enterprises of different types of hybrid modes choose different form of confirmation of product quality: the participants of the relational type usually invest in brand, while the ISO certification is preferred by firms with modular type of governance.
6) The hypothesis on investment protection through vertical integration was confirmed. First, the participants of hierarchical mechanism assess the possibility of protection contracts higher in comparison with companies that are included in market transactions. Secondly, in accordance with the institutional theory the involvement in the hierarchical governance mode increases the chances of realization of investment projects at the enterprise level, which in our opinion, relate to specific investments. With respect to the participants of hybrid governance mechanism situation becomes more complex: on the one hand, participants of relational mechanism make a high assessment of protecting their contracts, but on the other hand they consider themselves more exposed to the risk of unfair competition (including the opportunism of the contractor).
7) In general, the hypothesis on the impact of governance transactions on the results of economic activity was not confirmed. Moreover, different indicators almost contradict each other. Some indicators show the larger benefits of participants of hierarchical and hybrid mechanisms. This applies to indicators calculated on the basis of reporting data on economic performance and the subjective evaluations of respondents. At the same time, the share sales in the world market (which is a good indicator of competitiveness for the Russian manufacturing) is significantly higher for enterprises involved in market governance mechanisms.

References

1. Balakrishnan S., Wernerfelt B. (1986) Technical Change, Competition and Vertical Strategic Management Journal, 7(4): 347–359.
2. Bowen D., Jones G. (1986) Transaction Cost Analysis of Service Organization-Customer Exchange, The Academy of Management Review, 11(2): 428–441.
3. Cook G. A. (1997) Comparative Analysis of Vertical Integration in the UK Brewing and Petrol Industries, Journal of Economic Studies, 24(3): 152–166.
4. Heide J. (1994) Interorganizational Governance in Marketing Channels, American Marketing Association, 58(1): 71–85.
5. John G., Weitz B. (1988) Forward Integration into Distribution: An Empirical Test of Transaction Cost Analysis, Journal of Law, Economics, & Organization, 4(2): 337–355.
6. Kaplinsky R., Morris M. (2003) Handbook for Value Chain Research, Institute of Development Studies.
7. Krickx G. (1995) Vertical integration in the computer mainframe industry: a transaction cost interpretation, Journal of Economic Behaviour and Organisation, 26(1): 75–92.
8. Levy D. (1985) The Transactions Cost Approach to Vertical Integration: An Empirical Examination, The Review of Economics and Statistics, 67(3) 438–445.
9. Lyons B. (1995) Specific investment, economies of scale, and the make-or-buy decision: a test of transactions cost theory, Journal of Economic Behavior and Organization, 26(3): 431 – 443.

10. Minkler A., Park T. (1994) Asset specificity and vertical integration in franchising, Review of industrial organization, 9(4): 409–423.
11. Nooteboom B. (2004) Governance and competence: how can they be combined?, Cambridge Journal of Economics, 28(4) 505 – 525.
12. Williamson O. (1985) The Economic Institutions of Capitalism, New York: The Free Press.

The effect of finance system on international trade

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Research Problem

The possibility for economic agents to borrow from banks has a certain influence on consumption, investment, export and other activities, which determine the economic advancement. Liberalization of financial sector, the interest rate changes, progress in new bank services favour the financial system development. The better financial sector gets out entrepreneurs from the drudgery of accumulating funds internally, the bigger is the probability of profitable investment opportunities that moves growth. Due to more developed financial sector it is reasonable to expect some countries are more competitive than others and financial system as the characteristic of institutional environment may be a source of specialization similar in size to relative factor endowment.

Literature

The literature on the influence of financial system development on export is quite recent. Beck (2002) investigates a possible impact of financial development on the structure of the trade balance. Investigating OECD countries Svaleryd and Vlachos (2005) find that countries endowed with well-functioning financial sectors tend to specialize in industries relatively intensive in the use of the services provided by financial sector. The estimation results of Manova (2006) confirm that financially advanced countries export relatively higher volumes in sectors that depend more on outside finance and in sectors with few collateralizable (few tangible) assets and it is relatively a wider range of products. Greenaway et al. (2007) test the dependence of UK manufacturing firms' decision concerning export market participation on the financial conditions (liquidity, leverage) and pay attention on the size of a firm, the ex post and ex ante financial health, whether a firm is a continuous exporter or starter. In papers it is common to use the indicators of financial dependence on external finance and financial contractibility calculated by Rajan and Zingales (1998) and Braun (2003) correspondingly.

Project Aims

The main goal of the project is to investigate the effect of financial system development level on a firm's export performance controlling for both country and industry heterogeneity. When identifying the financial development impact on the trade balance the importance of financial system for economic development and the necessity of policy improvements or even reforms in financial sector confirms. Besides, the influence of trade reforms on the trade balance level and structure may depend on the level of financial development and its predetermined, ex post level can be a good predictor of growth and trade outcomes over the next years or even decades. The research may contribute to the interpretation of cross-country differences in factor accumulation, the composition of economic activity, total factor productivity, and technology adoption.

Hypotheses

The hypothesis is that subject to an industry's financial vulnerability in countries with well-developed financial sector enterprises across industries have higher percent of export in more financially dependent and with fewer collateralized assets industries than for the same industries in countries with low financial development.

Methodology

It incorporates macro and micro data to investigate the impact of a country’s financial sector development on the export performance. In empirical framework it uses the data from the World

Bank's Enterprise Surveys. The answers of entrepreneurs from 49 developing countries are estimated. The countries' financial development is measured in three ways: the ratio of deposit money bank domestic assets to GDP, the ratio of liquid liabilities (M3) to GDP, the ratio of claims on the private sector to GDP. As the dependent variable it is chosen the ratio of export in total sales. The interaction terms of a country's financial development with an industry's financial dependence and tangibility are added to the model. Interactions in the equation are similar to second derivatives and are added to assess the marginal effects of financial development subject to the levels of financial dependence and tangibility of an industry.

The estimated equation can be written down in the following form:

$$Ex_{jcit} = \beta 1 + \beta 2\, Y_j + \beta 3\, C_j + \beta 4\, Ij + \beta 5(FinDevct^{*}\, Dep_i) + \beta 6\,(FinDevct^{*}\, Tang_i) + \beta 7 X_{jcit} + u_{jcit},$$

where j is a firm index, c is a country index, i is an industry index, t is time index, Ex_{jcit} – ratio of export in sales, Y_j, C_j, I_j, is the dummy set (year, country, industry respectively), X_{jcit} is the set of control variables mentioned before.

In order to amend the specification and corroborate the hypothesis the indicator of access to financing includes in the equation. This variable determines from responses to the Survey in which an entrepreneur is suggested to evaluate the access to financing.

To estimate the model first Ordinary Least Squares (OLS) is used which helps to identify the potential problems with data or specification. Besides, the OLS estimators are a basis for comparison with the results of other methods. For the further investigation the Tobit and two step selection (Heckman) models are in use. For the Heckman estimation at the first step additional variable are included in the equation, the presence of internationally recognized quality certification.

At the next step according to the World Bank countries' income classification, countries are divided into two groups: lower and higher middle income. It helps observing different effects of financial development.

Results

The empirical estimations emerge the following facts. Asset tangibility contributes in explaining the decision to export and the magnitude of export (table 1-2). In total low tangible industries make higher share of export sales facing with developed financial system opposite to a poorly developed one. The level of financial development has higher effect when the decision to export makes rather than how much to export. The indicator of financial development that measures the depth of financial system (liquid liabilities to GDP) has the highest size effect on the trade performance.

Table 1. Financial development, access to financing and export performance, Tobit
Dependent variable: export ratio = export share in total sales/100

	Tobit					
Regression with the ratio of deposit money bank domestic assets to GDP						
bdgdp_dep	0.028			0.027		
	(0.17)			(0.16)		
bdgdp_tang	-1.662***			-1.658***		
	(-3.49)			(-3.49)		
Regression with the ratio of liquid liabilities (M3) to GDP						
llgdp_dep		-0.133			-0.135	
		(-0.85)			(-0.87)	
llgdp_tang		-1.991***			-1.983***	
		(-4.40)			(-4.38)	
Regression with the ratio of claims on the private sector to GDP						
pcrdbgdp_dep			-0.045			-0.048
			(-0.40)			(-0.43)
pcrdbgdp_tang			-0.911**			-0.899**
			(-2.83)			(-2.80)
age	0.003***	0.003***	0.003***	0.003***	0.003***	0.003***
	(7.65)	(7.57)	(7.67)	(7.60)	(7.52)	(7.61)
employees_number	0.030***	0.030***	0.030***	0.030***	0.030***	0.030***
	(19.19)	(19.23)	(19.19)	(19.10)	(19.14)	(19.10)
access_finance				-0.013*	-0.013*	-0.013*
				(-2.57)	(-2.56)	(-2.55)
_cons	-0.676***	-0.553***	-0.693***	-0.660***	-0.557***	-0.751***
	(-5.71)	(-4.53)	(-5.88)	(-4.52)	(-3.74)	(-5.34)
N	14309	14309	14309	14309	14309	14309
sigma						
_cons	0.589***	0.589***	0.590***	0.589***	0.589***	0.589***
	(75.94)	(75.95)	(75.94)	(75.95)	(75.96)	(75.95)

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2. Financial development, access to financing and export performance, sample selection
Dependent variable: 2nd stage - export share in total sales/100; 1st stage binary variable = 1 if export ratio>0, 0 otherwise

	(1)	(2)	(3)		(1)	(2)	(3)
2nd stage				1st stage			
Regression with the ratio of deposit money bank domestic assets to GDP							
bdgdp_dep	0.068			bdgdp_dep	0.052		
	(0.52)				(0.16)		
bdgdp_tang	-1.345***			bdgdp_tang	-3.250***		
	(-3.51)				(-3.58)		
Regression with the ratio of liquid liabilities (M3) to GDP							
llgdp_dep		0.081		llgdp_dep		-0.264	
		(0.65)				(-0.89)	
llgdp_tang		-1.656***		llgdp_tang		-3.733***	
		(-4.53)				(-4.30)	
Regression with the ratio of claims on the private sector to GDP							
pcrdbgdp_dep			0.005	pcrdbgdp_dep			-0.108
			(0.06)				(-0.50)
pcrdbgdp_tang			-0.835***	pcrdbgdp_tang			-1.801**
			(-3.31)				(-2.91)
age	-0.003***	-0.003***	-0.003***	certificate	0.704***	0.706***	0.702***
	(-9.24)	(-9.39)	(-9.14)		(23.62)	(23.69)	(23.58)
employees_number	0.001	0.001	0.001	age	0.006***	0.006***	0.006***
	(1.27)	(1.23)	(1.29)		(8.24)	(8.15)	(8.23)
_cons	0.439***	0.527***	0.396***	employees_number	0.104***	0.104***	0.104***
	(3.64)	(4.26)	(3.38)		(18.79)	(18.83)	(18.81)
				_cons	-0.156	0.009	-0.281
					(-0.52)	(0.03)	(-0.97)
mills							
lambda	-0.115***	-0.117***	-0.113***				
	(-5.93)	(-6.07)	(-5.86)				
rho	-0.358	-0.365	-0.354				
sigma	0.321	0.321	0.321				
N	14305	14305	14305				

t statistics in parentheses
** p < 0.05, ** p < 0.01, *** p < 0.001*

For lower middle income group of countries the financial sector development has more than twice larger effect than for higher middle group. For the last group the interactions both with financial dependence and tangibility are statistically significant at different confident levels.

Adding of an individual assessment of access to finance does not improve model results. The aggregation of data to the industry level brings insignificant results.

Focusing on firm level data the research contributes to the interpretation of cross-country differences in factor accumulation, the composition of economic activity and total factor productivity. The results go in line with the previous findings of significant financial development effect in industries with different level of asset tangibility, whereas the effect subject to the external industry dependence does not hold generally. The empirical evidence demonstrates the importance of policy improvements and reforms in financial sector for international trade.

References

1. Ayyagari M., A. Demirgüç-Kunt, Maksimovic V. (2008) How Important Are Financing Constraints? The Role of Finance in the Business Environment. World Bank Economic Review, 22(3): 483-516.
2. Baldwin R. (1989) Exporting the capital markets: Comparative advantage and capital market imperfections. In: Audretsch, D., Sleuwaegen, L., Yamawaki, H. (Eds.). The Convergence of International and Domestic Markets. North-Holland, Amsterdam.
3. Beck T.H.L. (2002) Financial Development and International Trade: Is there a Link? Journal of International Economics, 57(1): 107-131.
4. Beck T.H.L. (2003) Financial Dependence and International Trade. Review of International Economics, 11(2): 296-316.
5. Bernanke B.S. Blinder A.S. (1988) Credit, Money, and Aggregate Demand. American Economic Review, 78 (2): 435-439.
6. Boyd J.H. Smith B. D. (1997) Capital Market Imperfections, International Credit Markets, and Nonconvergence. Journal of Economic Theory, 73: 335-364.
7. Braun M. (2003) Financial Contractibility and Asset Hardness. University of California - Los Angeles mimeo, accessed online at http://matiasbraun.com/Documents/matiasbraun_jobmktpaper.PDF.
8. Cragg J.G. (1971) Some Statistical Models for Limited Dependent Variables with Applications to the Demand for Durable Goods. Econometrica. 39: 829-44.
9. Demirguc-Kunt A., Maksimovic V. (1998) Law, Finance, and Firm Growth. The Journal of Finance, 53(6): 2107-2137.
10. Eichengreen B., Gullapalli R., Panizza U. (2009) Capital Account Liberalization, Financial Development and Industry Growth: A Synthetic View, accessed online at http://polis.unipmn.it/pubbl/RePEc/uca/ucapdv/panizza144.pdf.
11. Goldsmith, Raymond W. (1969) Financial Structure and Development. New Haven, CT: Yale University Press.
12. Greenaway D., Guariglia A., Kneller R. (2007) Financial factors and exporting decisions. Journal of International Economics, Elsevier, 73(2): 377-395.
13. King R., Levine R. (1993) Finance and Growth: Schumpeter Might Be Right. Quarterly Journal of Economics, 108: 717-37.
14. Koetter M., Wedow M. (2006) Finance and Growth in a Bank-Based Economy: is it Quantity or Quality That Matters? accessed online at http://hdl.handle.net/10419/19750.
15. Kletzer K., Bardhan P. (1987) Credit Markets and Patterns of International Trade. Journal of Development Economics, 27: 57-70.
16. Lin T.-F., Schmidt P. (1984) A Test of the Tobit Specification against an Alternative Suggested by Cragg. The Review of Economics and Statistics, MIT Press, 66(1): 174-177.
17. Loudermilk M.S. (2007) Estimation of fractional dependent variables in dynamic panel data models with an application to firm dividend policy. Journal of Business and Economic Statistics, 25: 462-472.
18. Lucas R.E.Jr. (1988) On the Mechanics of Economic Development. Journal of Monetary Economics, XXII: 3-42.
19. Ma Y., Qu B., Zhang Y. (2009) Judicial quality, contract intensity and trade: Firm-level evidence from developing and transition countries. Journal of Comparative Economics, doi:10.1016/j.jce.2009.09.002.
20. Manova K. (2006) Credit Constraints, Heterogeneous Firms, and International trade, accessed online at http://www.stanford.edu/~manova/JMP.pdf.
21. Matsuyama K. (2005) Credit Market Imperfections and Patterns of International Trade and Capital Flows. Journal of the European Economic Association, 3: 714-23.
22. Melitz M. (2003) The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. Econometrica, 71(6): 1695-725.

23. McKinnon Ronald I. (1973) Money and Capital in Economic Development. Washington, DC: Brookings Institution.
24. Mostova N. (2009). Do Financial Development and Industries' Financial Dependence Influence International Trade? Evidence from Transition Countries, accessed online http://kse.org.ua/library/ma_thesis/theses_2009
25. Rajan R. G., Zingales L. (1998) Financial Dependence and Growth. American Economic Review, 88 (3): 559-586.
26. Robinson J. (1952). The Generalization of the General Theory, The Rate of Interest and Other Essays London: Macmillan.
27. Rousseau P. L., Wachtel P. (2009) What is Happening to the Impact of Financial Deepening on Economic Growth? Working Papers 0915, Department of Economics, Vanderbilt University.
28. Sharma S. (2007) Financial development and innovation in small firms. World Bank Policy Research Working Paper, No. 4350, September 1, 2007.
29. Stiebale J. (2008) Do Financial Constraints Matter for Foreign Market Entry? A Firm-Level Examination. Ruhr Economic Paper, No. 51.
30. Svaleryd H., Vlachos J. (2005) Financial Markets, the Pattern of Industrial Specialization and Comparative Advantage: Evidence from OECD Countries. European Economic Review, 49: 113-144.
31. World Bank's Enterprise Surveys, accessed online at https://www.enterprisesurveys.org/.

Utility models over good-price sets

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Research Problem

Let us consider standard consumer choice model. In microeconomics theory we assume that agent maximize her utility subject to the budget constraint. If preferences over goods satisfy some weak conditions (for example, local non-saturatedness - LNS), one can show that in solution consumer will spend all her income. But in real life this situation is almost impossible. How can we explain that?

First of all we can assume, that some assumptions of classical model are not satisfied here: for example, preferences have saturation point, that is why not all income is spend. But let's assume that LNS condition holds. For this case classical microeconomics theory can provide standard explanation: there is some composite good, for which agent spend all residual income. As the result, for initial goods set not all income is spend. In theory of intertemporal choice there is an explanation why consumer do not spend all her money in the first period.

At the same time we can assume that consumer will not spend all her income because she think that the good is overpriced. In other words, *there is preferences not only over goods, but also over prices, that is preferences over good-price sets*.

Let me show this by example. Let us consider the situation when on very hot day some not poor student are going to buy an ice-cream near the Red Square. Due to the high temperature and the place the price of the ice-cream is 100 rubles. As I already mentioned the student is not poor and can easily spend about 300 rubles on such things and this spending will not influence other goods consumption. So he have 300 rubles just for an ice-cream. Let's assume that preferences over 3 available ice-creams are monotonic (this is a very hot day).

According to classical model due to monotonic preferences and only one good all money will be spend and 3 ice-creams will be bought. But in real life there can be another situation. Student can think, that 100 rubles is too high for an ice-cream even it is delicious. That is why he will buy, for example, only one ice-cream. The possible explanation is that there is preferences not only over goods, but also over its' prices. Note that if the price of an ice-cream become 80 rubles, he can buy even 2 ice-creams, because he consider this price as more reasonable for an ice-cream. The important idea is that here spending for higher price is lower than spending for lower price, which contradicts with the results of classical theory for one good and monotonic preferences.

I'd like to outline that price are included in utility not as a new way to demonstrate that under monotonic preferences not all income will be spend, but as the way to show that prices can influence choice not only through the budget constraint, but also directly through the utility.

Project Aims

The aim of the project is to elaborate and study theoretical model of utility over good, price and income sets.

In the project new way to model consumer choice is given under assumption that utility depends not only from quantity of goods, but also from prices. Several axioms are given and preferences are analyzed like in classical consumer choice theory. Let us show how changing in utility form influence solution.

Let us consider the case of perfect substitutes. There are two goods x and y, and utility over goods is given in a following form: $U(x,y) = ax + by$. Let's modify utility by multiplying each good by income and dividing by corresponding price[14]. In this case utility will be:

$$U^M(x,y,p_x,p_y,I) = \frac{axI}{p_x} + \frac{byI}{p_y}$$

or

$$U^M(x,y,p_x,p_y,I) = \left(\frac{ax}{p_x} + \frac{by}{p_y}\right)I \quad (*)$$

Utility maximization problem will be:

$$\begin{cases} U^M(x,y,p_x,p_y,I) = \left(\frac{ax}{p_x} + \frac{by}{p_y}\right)I \\ p_x x + p_y y \leq I \end{cases} \Rightarrow \max_{x,y \geq 0}$$

The slope of indifference curve: $MRS_{xy} = \frac{ap_y}{bp_x}$.

The slope of budget constraint: $\frac{p_x}{p_y}$.

As the result we can find the demand:

$$x = \begin{cases} \frac{I}{p_x}; \frac{a}{b} > \left(\frac{p_x}{p_y}\right)^2 \\ \frac{I - p_y y}{p_x}; \frac{a}{b} = \left(\frac{p_x}{p_y}\right)^2 \\ 0; \frac{a}{b} < \left(\frac{p_x}{p_y}\right)^2 \end{cases} \qquad y = \begin{cases} 0; \frac{a}{b} > \left(\frac{p_x}{p_y}\right)^2 \\ \frac{I - p_x x}{p_y}; \frac{a}{b} = \left(\frac{p_x}{p_y}\right)^2 \\ \frac{I}{p_y}; \frac{a}{b} < \left(\frac{p_x}{p_y}\right)^2 \end{cases}$$

For classical perfect substitute case we have:

$$x = \begin{cases} \frac{I}{p_x}; \frac{a}{b} > \frac{p_x}{p_y} \\ \frac{I - p_y y}{p_x}; \frac{a}{b} = \frac{p_x}{p_y} \\ 0; \frac{a}{b} < \frac{p_x}{p_y} \end{cases} \qquad y = \begin{cases} 0; \frac{a}{b} > \frac{p_x}{p_y} \\ \frac{I - p_x x}{p_y}; \frac{a}{b} = \frac{p_x}{p_y} \\ \frac{I}{p_y}; \frac{a}{b} < \frac{p_x}{p_y} \end{cases}$$

So, one can see, that will be no effect only when $p_x = p_y$. When prices are not equal consumer will early or later than in classical case choose another good. This fact take place because high price not only lower the maximum amount of goods consumer can bought, but also directly lower her utility.

It is important, that this results depends on the type of modification used. This modification (multiplying by $\frac{I}{p_i}$ each x_i) can be considered as some simple and standard modification. A function like $(*)$ can be considered as standard modified utility for perfect substitutes.

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[14] Note, that there is only one form of modification from the infinite number of modifications. This modification can be used if utility over goods is always positive. This modification provides some good conditions: modified utility function satisfy not only reverse monotonicity condition over prices and monotonicity condition over income, but also homogeneity of zero by prices and income.

Let us show the influence of modification by an example. Let $U(x,y) = x + 4y$, $p_x = p$, $p_y = 1$, $I = 5$.

Utility maximization problem will be:

$$\begin{cases} U^M(x,y,p) = \left(\frac{x}{p} + 4y\right)5 \\ px + y \leq 5 \end{cases} \Rightarrow \max_{x,y \geq 0} \Rightarrow \begin{cases} \frac{a}{b} = \frac{1}{4} \\ \sqrt{\frac{a}{b}} = \frac{1}{2} \end{cases}$$

Let's solve modified and classical problems and show two demand curves on x on the same graph.

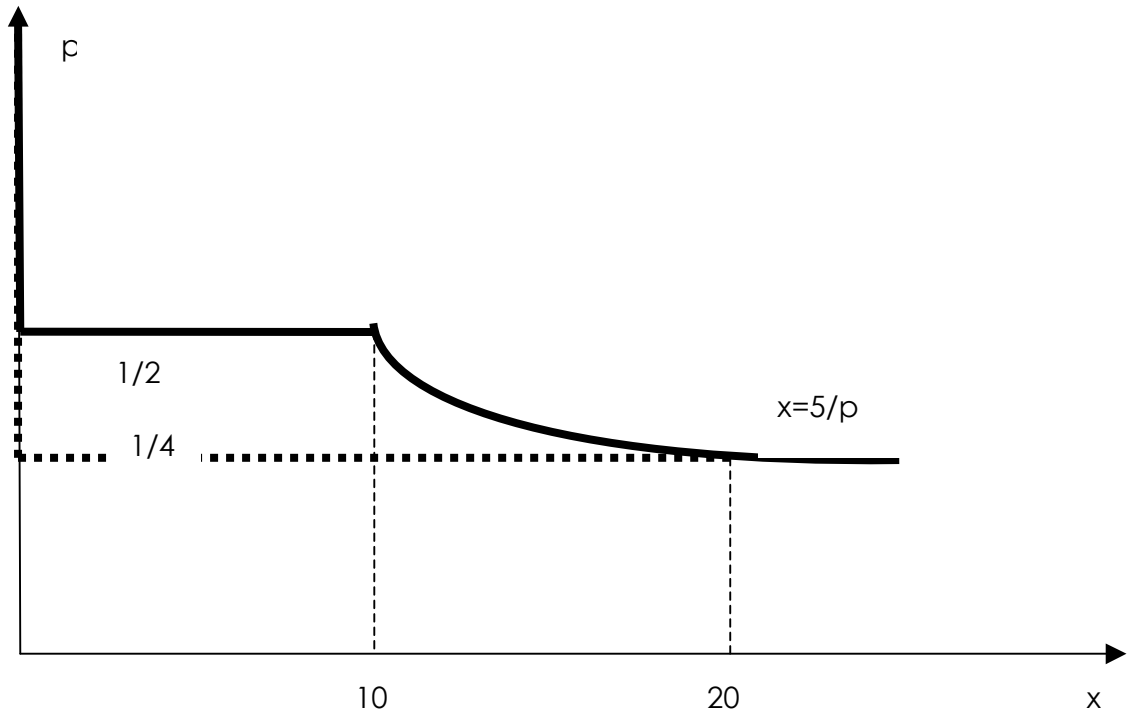

Figure 1. Demand curves comparison (bold line – modified demand, dotted – classical).

As one can see, for some prices modified demand is higher. This fact take place because x is cheaper than y and this fact influence consumer choice.

Results

One of the important results is that indifference curves depend from prices and income. This fact allows us to study interesting problem of income and substitution effects in this framework.

At this time this work is far from finishing. Modified demand curves are calculated for main utility functions. The most important part is the main idea of including prices in utility. This is completely new approach to model economic systems and have wide opportunities of theoretical and practical research.

Universities and applicants: research on matching mechanism in Russia.

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Research Problem

In Russia in 2009 ended the transition to new enrollment system, based on results of Uniform State Exam. The mechanism for applications and enrollment students is not yet perfected. This year the new rule was introduced: each applicant is allowed to apply no more than to 5 universities. It is unclear how this restriction will affect the behavior of students and foster a campaign as a whole. One of the declared objectives of EGE is ensuring equal access to education for all entrants. Does the existing mechanism realize this goal? If not, what percentage of students "lost" opportunities as a result of mechanism failure?

Literature

Investigation of centralized matching mechanisms for participants with preferences, including mechanisms for admission applicants, were originally started in (Gale, Shapley, 1962). Authors proposed centralized "deferred acceptance mechanism", which allows obtaining a stable matching for the marriage market with strict linear preferences of participants and, under certain circumstances, in college enrollment problem. In this model, and subsequent (Roth, Sotomayor, 1990) was considered a central mechanism, in which participants have the opportunity to show their true preferences, and implementation of each step of algorithm do not require transaction costs.

Aim of the Project

The aim is the analysis of stability and efficiency of the matching, produced by existing mechanism of entrants' enrollment.

Hypotheses

Each entrant chooses 5 universities. While choosing, she takes into account probability of being accepted to each university and utility of studying at each university. Probability of being accepted is assumed to be proportionally to the USE-result of the entrant and inversely to the quality of the university. The quality of the university and the result USE entrant assumed to be known to all participants of the game.

Probability that is directly proportional to the usefulness of the proceeds into higher education is proportional to the quality of the university, and also depends on personal preferences entrant. Applicants bear the costs for sending the originals of their documents from one university to another, and universities can deliberately increase these costs.

Methodology

Existing mechanism of entrants' enrollment is assumed to be a matching construction process including transactional costs for each step of mechanism. For modeling students' personal preferences elements of stochastically modeling are used.

Results

Research is not finished at the moment. It's assumed to get an approximate evaluation of amount of students, who are assigned to a worse university, that they could get according to their USE result. Also the weak parts of existing enrollment process would be recognized.

References

1. Gale D., Shapley L. S. (1962) College Admissions and the Stability of Marriage", American Mathematical Monthly, 69: 9-14.
2. Roth A. E., Sotomayor, M. A. O. (1990) Two-sided matching: A study in game-theoretic modeling and analysis. Cambridge University Press.

Influence of "limited morality" norms on market structure

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Research Problem

Industrial organization is based on the dichotomy of (anonymous) markets and firms. However, so-called hybrid forms combining firms and market features were described (Williamson, 1975). The most striking example of hybrid is the business group. This organizational form is defined by the majority of scholars as a set of legally independent firms bound together in persistent formal of informal ways (Khanna, Yafeh, 2007; Kali, 1999).

La Porta et al. (1999) demonstrated that western type widely held corporation with separation of ownership and control is a rarity among firms around the world. Meanwhile, structures similar to business-groups are widespread, especially in the developing countries. Conventional explanation of business-groups existence is that it performs some functions, that in developed western economy peculiar to such institutions as markets for property rights, corporate control and managerial skills, that is it acts as second-best decision (Khanna, Yafeh, 2002; Heinz, 2006). From this point of view, as far as developed market institutions emerge the prevalence of business-group is supposed to diminish. However, it is not conforms to persistence of this organizational form in long historical run (for example in Japanese and Korean economies).

In this work the attempt to explain existence and boundaries of business groups (and therefore the market structure in countries where business groups are prevailing) from the other point of view is taken. The author analyzes impact of "limited morality" norms (i.e. norms that applicable only to the narrow circle of friends or relatives) and trust that emerge from this norms performing on the incentives to cooperation inside and outside the closed community.

Literature

Traditionally norms and culture investigation was a prerogative of sociologists. The best known research exploring norms and culture impact on the incentives for cooperation, firms boundaries and markets structures is Fukuyama's "Trust". In this book business-group is considered to be a "social artifact" in which the deepest values of the society become apparent. The form of economic organization depends on the most widespread way of socialization in the society that in turn depends on the trust level among the society members (Fukuyama, 1995).

Economic theory of the firm in the form it emerged in the 1970s refrains from investigating norms. The main reason is that it is based on the implicit assumption that the behavior of the economic agents is formed prima facie with external motivational factors. Meanwhile, during last two decades the economists apply substantial efforts to integrate the norms into the theory of the firm. This process was confronted by difficulties because all the ways of trust formalization (those are infinitely repeated games, asymmetric information and psychic costs approaches) have important shortcomings. They are quite sensitive to the precise modeling assumptions that are not conform with the facts (e.g. infinitely repeated games approach is based on the assumption that there is no upper bound to the number of times the game is played), infinitely repeated game approach does not take into account the issue of renegotiation, asymmetric information and psychic costs approaches are not tractable (Hart, 2001). Moreover, the viewpoint that incorporation of norms into the theory of the firms will not change its conclusions (in particular norms do not matter for the firms boundaries) is widespread (Hart, 2001). This opinion is based on the analysis of generalized morality norms (i.e. norms that apply all the society) influence on the boundaries of the firm. However, the papers of Greif and Tabellini offer alternative approach. These authors offer to divide "generalized" and "limited" morality.

Applying of this approach is supposed to be especially promising for analysis of business group existence and boundaries, because the majority of business groups are clannish and controlled by closed communities, formed with ties of kinship and friendship with clear dividing the possible contractors to “near people” and “strangers”.

Project Aims

The purpose of the study is to build a model defining “limited morality” norms influence on the incentives to cooperate inside and outside the closed community and respectively to the business groups boundaries and markets structures.

Hypotheses

“Limited morality” norms affect the boundaries of business group.

Prevailing of “limited morality norms” over norms of “generalized morality” conduces to diminishing of overall level of trust in the society (generalized trust) that reinforce incentives to cooperation inside the local communities and respectively lead to the business group boundaries enlargement.

On condition that level of generalized trust is low and level of trust in community is high the scantiness of available for cooperation members of the community becomes the main limiting factor of business group boundaries extending.

Methodology

Application of game theory and the theory of contracts is planned. This toolkit will make possible to model “limited morality” norms influence to business group boundaries. The key role in modeling will play theory of repeated games. In the framework of the theory of contracts is planned to use the model of incomplete contracts.

Results (expected)

The formulation of model defining “limited morality” norms impact on the incentives to cooperate inside and outside the closed community and, accordingly, on the business groups’ boundaries and markets structures is expected to be the result of the research. The model will let to estimate if “local morality” norms influence the business group boundaries.

References

1. Fukuyama F. (1995) Trust social virtue and the creation of prosperity. - New York: Free Press.
2. Hainz C. (2006) Business groups in emerging markets – financial control and sequential investment, CESifo Working Paper No. 1763.
3. Hart O., Moore J. (1998) Foundations of Incomplete Contracts, LSE STICERD Research Paper No. TE358.
4. Hart O. (2001) Norms and the theory of the firm. The Harvard John M. Olin Discussion Paper Series.
5. Jensen M.C., Meckling W.H. (1976) Theory of the firm: managerial behaviour, agency costs and ownership structure, Journal of Financial Economics, 3(4): 305-360.
6. Kali R. (1999) Business groups, the financial market and modernization, Economics of Transition, 15(3): 615-636.
7. Khanna T., Yafeh Y. (2007) Business groups in emerging markets: paragons or parasites? // Journal of Economic Literature, XLV: 331-372.
8. Khanna T. Yafeh Y. (2005) Business Groups in Emerging Markets: Paragons or Parasites? ECGI - Finance Working Paper No. 92.
9. Kreps D., Milgrom P, Roberts J, Wilson R. (1982) Rational cooperation in the finitely repeated prisoners’ dilemma, Journal of Economic Theory, 27: 245-252.
10. La Porta R., Lopez-de-Silanes F., Schleifer A. (1999) Corporate ownership around the world, The Journal of Finance, 54(2): 471- 517.

11. Tabellini G. (2008) The scope of cooperation values and incentives, CESifo Working Paper No 2236.
12. Tabellini G., Greif A. (2010) Cultural and Institutional Bifurcation: China and Europe Compared, http://ssrn.com/abstract=1535848.
13. Williamson O. (1975) Markets and hierarchies: analysis and antitrust implications. – New York: Free Press.

Information cascades and experts institutions

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Research Problem

In recent years, due to global economic downturn, problems of information cascades or herding behavior have attracted a lot of economists' attention. The concept of information cascade has been proposed in Bikhchandani, Hirshleifer, Welch (BHW, 1992). Information cascade in BHW model occurs when an individual waives his own decision in favor of the choice previously made by an ordered set of agents. In this case the actions of individuals who have made the choice first determine (Bayesian) choice of the remaining agents. Such a situation of mass behavior occurs in many economic situations: the adoption of new technologies in the industry, publication of political polls results, the choice of restaurant or even courses in the restaurant.

A model of information cascades can be used to describe some of the financial crisis phenomena: in particular, the stock market panic and bank runs, i.e. massive withdrawals by bank depositors. In addition, it is able to explain the spread of some dominant technologies (e.g., Blu-ray standard that replaced the HD-DVD), or some types of operations in medical (tonsillectomy).

We suggest that only a small number of studies noted that this problem is mostly institutional in its nature. Institutional design is able to help us manage information cascades.

Literature

Banerjee (1992) presented an alternative model of BHW herd behavior, which is in general similar to the cascades model. Anderson, Holt (1996) showed that laboratory experiments confirm the occurrence of information cascades in a statistically significant number of cases. Experimental evidence is also given by Hung, Plott (2001) and Oberhammer, Stiehler (2001). In the latter study authors tried to apply the experimental design of Becker, DeGroot and Marshak mechanism (Becker, DeGroot, Marschak). Experiment by Hunk, Oechssler (2000) showed that agents more often follow their own signal than the Bayesian solution, but, in our opinion, the rules of this experiment were drawn incorrectly. Feltovich (2002) represented an attempt to adjust the accuracy of endogenous signal by the introduction of information costs. Goeree, Palfrey, Rogers, McKelvey (2007) analyze the mechanism of cascades using a model of quantal response equilibrium. Most of these works modeled binary sequential choice of alternatives (usually A and B). De Vany, Lee (1999) proposed a variation of the BHW model: agents choose between N alternatives, also this model proposes the local interaction of agents and adds additional external signal. In the model of the distribution of movies' box office movies it is box office statistics itself.

Project Aims

The purpose of this study is the attempt to combine cascade model with the concept of "expert institution": we introduce a expert agents whose opinion is important to the choice of any other agent. The main task is to determine factors of such effects and test hypotheses regarding some of the parameters of the model using computer and experimental tools.

Hypotheses

We assume that the accuracy of the signal is one of the key parameters of the information cascade. Increasing it we increase average payoff of agents, the probability of private signal following, so agents are less likely to follow other's choice or even expert choice.The second important parameter is the number of the agent in a queue: the higher it is, the more likely he will copy the previous agents' choice. Along with that we expect the growth of average income.

Methodology

In this study we use methods of game theory, Bayesian learning and the probabilities theory. We introduce an agent-based computational model that implies local cascades for N agents distributed in a flat space. Each agent chooses from the two proposed alternatives, following his own signal and signals its neighbors, or agents located within a certain radius of communication. After the initial selection of one or more agents, there is an information cascade. Its parameters are significantly different from the situation of sequential choice.

Results

Basic model of the computer simulation shows that there is strong positive correlation between the accuracy of the signal and the average payoff of agents, as long as between the signal precision and the probability of selection in accordance with the private signal. Expected payoff of agents depending on the number in the queue has a point of saturation.

In the model of local cascades we show that the signal precision does not affect the final allocation of agents among the two alternatives (except in extreme situations 0,5 and 1). However, the distance of local interaction is one of the key parameters: its increase boosts the cascade growth speed and changes the final distribution of agents. Another important parameter is the number of agents making the original choice: when it increases cascade shifts towards one or other alternative.

We have developed a modification of the model that implies the presence of agents of experts (or leaders), whose choice is more important for agents than the choice of neighbors. Results of computer experiments in this model show that there is a steady cascade in the direction of the alternative preferred by most experts.

References

1. Anderson L. R., Holt Ch. A., (1997) Information Cascades in the Laboratory. The American Economic Review, 87(5): 847-862.
2. Banerjee T. (1992) A Simple Model of Herd Behavior, The Quarterly Journal of Economics, 107(3): 797-817.
3. Bikhchandani S., Hirshleifer D., Welch I. (1992) A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades. Journal of Political Economy, 100(5): 992-1026.
4. De Vany A., Lee, C. (1999) Information Cascades in Multi-Agent Models, Papers 99-00-05, California Irvine - School of Social Sciences.
5. Feltovich N. (2002) Information Cascades with Endogenous Signal Precision, Working. Paper, University of Houston.
6. Goeree J., Palfrey T., Rogers B., McKelvey R. (2007) Self-Correcting Information. Cascades, Review of Economic Studies, 74, 733-762.
7. Huck S., Oechssler, J. (2000) Informational cascades in the laboratory: Do they occur for the right reasons?, Journal of Economic Psychology, 21(6): 661-671
8. Hung, A., Plott C. (2001) Information Cascades: Replication and an Extension to Majority. Rule and Conformity Rewarding Institutions, American Economic Review, 91 (5): 1508-1520.
9. Oberhammer C., Stiehler A. (2001) Does Cascade Behavior in Information Cascades Reflect Bayesian Updating?, Sonderforschungsbereich 373 2001-32, Humboldt Universitaet Berlin.

‘Price’ regulation: analysis of interaction between business and the state

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Research Problem

Business and the state are interested in each other. Companies need rules which are enforced by external power (North, 1990), and the state need resources for providing public goods and goods for its bureaucratic mechanism (Tilly, 1990).

The core of any economic regulation consists of a set of rules[15]. We are going to study certain aspects of market regulation, concerning rules that open or close access to the market for companies (certification, licensing, etc.) and inspection issues. We would pay attention both on formal and informal sets of rules, which are important for doing business in any country (De Soto, 1989). The authors would also study entrepreneurs’ perception of business environment, formed by interaction with the government representatives.

Business and the state cooperation could be understood in terms of types of regulation that determine favorable and unfavorable class of regulation in a country, because firms pay a very specific ‘price’ for doing business in a given institutional environment. Such ‘price’ is formed by legal costs that follow from formal rules (tax burden, value of permits, licenses, certificates, and so on) and costs that follow from informal practices applying by the state representatives[16]. The authors do not pretend to cover all forms of costs which characterize a given regulation type.

The main focus of the survey was made on investigating the influence of regulation superfluity on firm’s behavior. We expect that there is a strong correlation between regulation ‘price’ and entrepreneurs’ stimulus and incentives to develop their business, invest in specific human capital of employers, create new jobsites, and so on. We also suggest that positive or negative equilibrium is forming in an economy if firms tend to pay low or high regulation ‘price’ because in a given period of time companies would prefer to run their business in formal of informal ways, and their selection would happen with help of forces that are very differ than market forces. That is why we are going to discuss in the survey the problem of quality of institutions and regulation practices. And the recent economic crisis that uncovered the problem of regulation in the developed economies showed that such discussions are still necessary. We also still need to explain why regulation ‘price’ is differing between countries using both economic and sociological models of explanations.

Literature

Economic sociologists argue that regulation issues correlated with the quality of bureaucracy and the level of its autonomy from the influential groups (Evans 1995). This idea is similar to political economists’ findings (Rodrik, 1995; Shleifer, 1997). The difference between them is how scholars find the answers on the questions and prove their results. Economists prefer to use econometric techniques and the neoclassical set of assumptions (Stigler, 1971; Peltzman et all, 1989). Sociologists tend to use comparative analysis technics and case studies (Evans, 1992; Ebner, 2009). That is why studies that are similar to this investigation mainly made by economists (Shleifer, Vishn,y 1998; Hellman et all, 1999; Hellman et all, 2000; Djankov et all, 2002).

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[15] Social norms, values and rules which are formed by entrepreneurs and enforced by them also are not taking into consideration in the paper. But we understand their importance for economic life and market functioning. How lawlessness economy run in terms of game theory described by Avinash Dixit (2004).

[16] Transaction costs caused by regulation superfluity are very important also. But the authors are not focused on them. A good example how transaction costs could be investigated with help of sociological tool like questionnaire presented in (Benham et all 2004).

Project Aims

The goal of the survey is to determine 'price' regulation, which the firm pays for doing business in a country. For this reason we study how small and medium size companies interact with the state, specifically, when they need to get certificates, licenses, permits, and when companies are inspected and examined by the government representatives.

Therefore we need a microeconomic data on the firm's behavior. The Business Environment and Enterprise Performance Survey (BEEPS), conducted in 29 countries[17] by the World Bank and the European Bank for Reconstruction and Development in 2009 on 11'688 companies, is an appropriate source of information. The data was taken from 2008 to 2009[18] as a personal interview with top-manager/owner of the firm with the principal one interview – one company. The questionnaire had 60-75 questions and covered many aspects of the firm's behavior. The companies were selected by stratified random sampling.

Hypotheses

Actually, we have three main hypotheses. They are listed below:

H1: There are different types of regulation. Formal rules are fixed in each country and we suggest that its implementation should vary from country to country because of the nature of institutional arrangement in the states[19]. Consequently, we can find variation within respondents' answers on different topics related to the regulation aspects. BEEPS-2009 covered firms that run business in very different institutional contexts, that's why we should test such hypothesis.

H2: The higher GDP per capita, the lower the 'price' regulation in a country. If H1 can be proved it is possible to place countries on the continuum from the lowest to the highest 'price' regulation. Doing business costs are good indicators of the institution arrangement quality. The quality should be translated into economic performance of the country (GDP), we believe. Therefore, we can test such correlation (there is a problem of endogeneity which we try to solve, if not, discuss in the paper)[20].

H3: The higher the quality of the government regulation, the lower the 'price' regulation in a country. Here we assume that high costs of doing business negatively associate with the firm's performance. And the micro level of the firm behavior correlated with the macro level of the state behavior. So, we are going to test this hypothesis too.

Methodology

All three hypotheses would be tested with help of multiple regressions. We also would use factor analysis (method of principal component analysis) for reducing the dimension of the respondents' answers, concerning their perception of business and competition environments in a country. The main regression would have the following formula:

$$Firm\_Perform = \beta_0 + Size + Sector + Locat + Legstatus + I_{reg} + \varepsilon \quad (1),$$

where:

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[17] There are 7 Southern-East Europe countries, 10 EU states, and 11 ex-USSR countries: Albania, Belarus, Georgia, Tajikistan, Ukraine, Uzbekistan, Russia, Poland, Romania, Serbia, Kazakhstan, Moldova, Bosnia and Herzegovina, Azerbaijan, Fyr Macedonia, Armenia, Kyrgyz Republic, Estonia, Czech Republic, Hungary, Latvia, Lithuania, Slovak Republic, Slovenia, Bulgaria, Croatia, and Montenegro plus Mongolia, Turkey and Kosovo.

[18] Financial information of the questionnaire covered the 2007 financial year.

[19] There are studies that show very interesting for a new institutional economics stories about diverse institutional arrangement not only between countries but also within a country. See, for example, Gimpleson et all (2009) empirical research on this topic about Russia.

[20] There is a big discussion among economists about economic growth reasons and factors. The most recent survey shows that it is more likely that the level of human capital translated into economic growth of the country rather than the quality of institutions (Glaeser et all 2004). Nevertheless, we assume that the quality of institutions is translated into economic performance of the state because it influence on entrepreneurs' incentives and strategies.

Firm_Perform is an indicator of economic performance of the firm, measured as (i) annual sales; (ii) net employment increase from 2004 to 2007; (iii) net employment increase from the company's beginning to 2007.

Size is an ordinal variable that reflects the fact how many full-time employers were working in the establishment in 2007;

Sector is a nominal variable that reflects the fact in which sector of the economy the establishment was working in 2007;

Locat is an ordinal variable that reflects the fact in what size of a city or town the firm was located in 2007;

Legstatus is a nominal variable that reflects the fact of firm's current legal status;

I_{reg} is an ordinal variable (an index) that reflect the fact of the firm's membership to the defined type of regulation.

The Index (I_{reg}) would be constructed based on 20-25 questions, concerning formal and informal costs of interaction with the government representatives that cover not only corruption issues but also time spending issues and others.

Businesses environment perception would be calculated with help of PCA, based on 12-14 questions, concerning respondents' answers about actual obstacles to the current operations of the establishment: respondents evaluated different types of obstacle on 5-point scale from taxation issues to the access to the land. Than we would run the following regression:

$$Bus\_Env = \beta_0 + Size + Sector + Locat + Legstatus + \Pr + fComp + Inno + Country + \varepsilon \quad (2),$$

where:

Bus_Env is a result of PCA applying;

Size is an ordinal variable that reflects the fact how many full-time employers were working in the establishment in 2007;

Sector is a nominal variable that reflects the fact in which sector of the economy the establishment was working in 2007;

Locat is an ordinal variable that reflects the fact in what size of a city or town the firm was located in 2007;

Legstatus is a nominal variable that reflects the fact of firm's current legal status;

Pr is a nominal variable that reflects the fact how the establishment was privatized;

fComp is a result of PCA applying to the questions related to the firm's perception of competition environment;

Inno is a nominal variable that reflects the fact that the firm invented for the last three years (since 2007) new product or service for sale;

Country is a nominal variable that reflects the fact to which country the firm is belong to. Because we have clustered answers on the questions, we will evaluate standard error as a robust standard error with paying attention to the clusterization effect, as it is recommended in Moulton (1990).

References

1. Benham A., Benham L., Jaramillo C., Shirley M., Zylbersztajn D. (2004) Questionnaire on Costs of Exchange: Registering a New Firm Officially. Ronald Coase Institute Working Papers. 3: 1-28. http://www.coase.org/workingpapers/wp-3.pdf.
2. De Soto H. (1989) The Other Path: The Invisible Revolution in the Third World. HarperCollins.
3. Dixit A. 2004. Lawlessness and Economics: Alternative Modes of Governance. Princeton: Princeton University Press.
4. Djankov S., Porta R., Lopez-de-Silanes F., Shleifer A. (2002) The Regulation of Entry. Quarterly Journal of Economics, 1 (CXVII): 1-37.

5. Ebner A. (2009) Entrepreneurial State: The Schumpeterian Theory of Industrial Policy and the East Asian “Miracle”. In: Uwe C., Jean-Luc G., Lionel N. (eds.). Schumpeterian Perspectives on Innovation, Competition and Growth. Berlin/Heidelberg: Springer; 367-388.
6. Evans P. (1992) The State as Problem and Solution: Predation, Embedded Autonomy, and Structural Change. In: Haggard S., Kaufman R. (eds). The Politics of Economic Adjustment. Princeton: Princeton University Press; 139-181.
7. Evans P. (1995) Embedded Autonomy: States and Industrial Transformation. New Jersey: Princeton University Press.
8. Glaeser E., La Porta R., Lopez-De-Silaanes F., Shleifer A. (2004) Do Institutions Cause Growth? Journal of Economic Growth, 9: 271-303.
9. Gimpelson V., Kapeliushnikov R., Lukiyanova A. (2009) Employment Protection Legislation in Russia: Regional Enforcement and Labor Market Outcomes, IZA Discussion Paper 4484: 1-34.
10. Hellman L., Jones G., Kaufmann D. (1999) Seize the State, Seize the Day: State Capture and Influence in Transition Economics. Journal of Comparative Economics, 31: 751-773.
11. Hellman J., Jones G., Kaufmann D., Schankerman M. 2000. Measuring Governance and State Capture: the Role of Bureaucrats and Firms in Shaping the Business Environment. EBRD Working Papers, 15: 1-50.
12. Moulton B. (1990) An Illustration of a Pitfall in Estimating the Effects of Aggregate variables in Micro Units. Review of Economics and Statistics. 2(72): 334-338.
13. North D. (1990) Institutions, Institutional Change and Economic Performance. Cambridge: University Press.
14. Peltzman S., Levine M. E., Noll R.G. (1989) The Economic Theory of Regulation after a Decade of Deregulation, Brookings Papers on Economic Activity. Microeconomics, 1989: 1–59.
15. Shleifer A. (1997) Schumpeter Lecture: Government in Transition. European Economic Review, 41: 385-410.
16. Shleifer A., Vishny R. (1998) The Grabbing Hand: Government Pathologies and Their Cures. Cambridge: Harvard University Press.
17. Tilly C. (1990) Coercion, Capital, and European States, AD 990-1990. Cambridge: Blackwell.

Does federalism hinder democracy? The impact of center-periphery relations on regime change in Russia

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Research Problem

There are three levels of government in Russia: federal, regional end local. By 2010 at all these levels were established relatively stable non-competitive regimes. Why did it happen? How did center-periphery relations influence on regime change in Russia and, more broadly, how do federalism affect democracy?

After the collapse of the USSR Russian federalism became very popular issue, hence the vast majority of studies were devoted to the legal framework of federal relations and economic effects of decentralization. Political science also wasn't silent, but highlighted only the impact of regime change on federalism, while neglecting reverse influence.

Conventional wisdom goes from Montesquieu and founding fathers of the US, asserts that federalism promotes democracy and good government trough establishment of a system a checks and balances and bringing power closer to the people. Although this normative view is coherent, it is based mostly on the experience of the US and doesn't match empirical facts from many other countries. For instance, recent studies of political development show that federalism can be an important obstacle for democratization and consolidation of democracy, while it allows regional leaders to create political monopolies in their "domains" and provokes trade-offs between political elites. I develop this approach and try to explain the relationship between federalism and democracy by studying the interactions between political leaders from different levels of government in the context of electoral contest.

The research makes an endowment in debates on determinants of democracy, political effects of decentralization and federalism, and more generally, effects of different institutional designs.

Literature

Positive theory of federalism was established by Riker (1964), who has shown the conditions of maintaining federal bargain and role of political parties in this process. Moreover, Riker was the first, who cast doubt on positive relationship between federalism and democracy.

The main emphasis of further research of federalism was made on public policy, not politics, due to the influence of Tiebout (1956) seminal article, which has shown that federalism leads to effectiveness through competition. Qian and Weingast (1997) developed this approach and shown that federalism has positive impact on market performance, while it provides a system of checks and balances on the state. Enikolopov and Zhuravskaya (2007) have drawn a conclusion that federal system with strong political parties has positive effect on quality of government.

Political parties are the main explanatory variable in studies of political effects of federalism, which meets Riker's classic theory. Fillipov et. al., (2004) have proven that political parties play crucial role in center-periphery relations in general, and determine degree of political centralization in particular. Guriev et. al. (2010) have shown that role of political parties also can be played by big business, that opens new research perspective in studying interest-group politics in federal state.

Myerson (2006) has modeled the impact of federal structure on democracy's performance and made a conclusion that federalism has positive influence on democracy, while improving incentives of politicians by giving opportunities for cultivating good reputation. According to this model, provincial leaders will use their power responsibly, because they hope to rise to the national leadership and in response national leaders will also improve their performance. In general sense, Myerson is absolutely right, but he pointed political limits of his model by himself. His theory can

be undermined by strong regional identities and other regional factors. Furthermore, the model underestimates the role of political parties and the influence of central authorities on the selection of provincial governors.

Game theory also was used for investigations of political effects of federalism by de Figueiredo and Weingast (2005), Diaz-Cayeros (2006) and Bednar (2009).

Solnick (1995) presents process of state-building in post-soviet Russia in game theory framework. He has pointed several peculiar features of federal bargain. First, Center plays with all actors on regional level simultaneously. Second there is no enforcement mechanism for strengthen federal contracts. Finally, regional actors are not equal in access to resources. These conditions, according to Solnick, provide opportunities for divide-and-rule strategy for Center and exacerbate collective action problem among regional actors.

Project Aims

The research aims to explain the impact of center-periphery relations on regime changes on federal and regional levels in post-soviet Russia in comparative perspective and build a general model of distribution of political power in federal state

Although, Soviet Union formally was a federal state, really it was the overcentralized system based on the party's hierarchy domination. After the collapse of the USSR set of formal federal institutions was adopted for the new political reality and regional elites became significant players of the political process. In the conditions of the struggle between Gorbachev and Yeltsin political decentralization became a key factor of weakening soviet elite. His famous words "take as much sovereignty as you can swallow" were the manifestation of the new policy toward regions. In conditions of hard decline of state capacity decentralization was an effective measure for the restriction of political opportunities of regime's opponents and for mobilization of support for the reforms. During state's crisis in Russia regional elites had several possible strategies of interaction with the Center, which can be called following the Hirschman's model as "exit", "voice" and "loyalty". The "Exit" strategy became apparent in the regional elite's separatist demands, based on ethnical mobilization. In the most cases it was only measure for increasing stakes in the bargaining game, but in Chechnya it was the real end. The "Voice" strategy consisted in bargain with the Center on most significant questions, primarily on the control of resources. Resource-rich ethnic republics Tatarstan, Bashkiria and Saha were the most successful players in such a game. The "Loyalty" strategy was chosen by resource-poor regions, dependent from Moscow both in political and economical ways. Center had to choose between strategies of non-intervention and suppression in all cases.

The Constitution accepted in 1993 provided the formal rules of federal relations. It stated a case that all units of federation were equal, but speaking the Orwell's words, some regions were more equal than others. The Institutionalization of center-periphery bargaining was achieved through bilateral treaties. One argues that bilateral treaties were the manifestation of a divide-and-conquer tactics of the federal Center. I argue that Constitution and bilateral treaties between federal Center and regions are incomplete contracts, because of commitment problem inherited in politics. Therefore, it is strategies of actors that determine real political outcomes of federalism.

On the eve of 1996 presidential elections the most of regional elites made a strategic choice to support Yeltsin and provided necessary results for the incumbent on their constituencies. In exchange for the results they received additional political and economic resources.

I argue that the dynamics of center-periphery relations was obeyed for logic of political struggle. The Center's weapon was redistribution of budgetary founds for most loyal and most resistant regions before elections. Financial crash of 1998 decreased available resources and produced a deep split within the power elite. Regional elites decided to receive control of federal positions and created their own party of rower "Fatherland". But they were defeated on elections by new Kremlin's project "Unity". Upon assuming the presidency in 2000 Vladimir Putin placed at the top of his agenda a policy of strengthening the Russian state's "executive vertical". To achieve this goal Putin initiated a set of federative reforms. They are very well-known and include the creation

of seven federal districts, the reorganization of the Federation Council, the abrogation or revision of bilateral treaties, the establishment of control of regional branches of federal agencies, changes inter-budgetary relations and in the end the abolition of governor's elections. After Putin carried out such reforms, the political pendulum had made a full swing to the dominance of the center over regional elites.

The great question is why did regional elites accept the new rules of the game? Why did the regional leaders not resist federal encroachment? I argue that this suboptimal decision was in final way very attractive for regional leaders, because it served to prolong their stay in office and decreased their political accountability. So, we can consider all participants of this deal as winners, not losers. So it is evident, that Center-periphery relations are not zero-sum game.

I assert that political process in federal state is two-level game between Center and regions on the first level, and between government and opposition on the second. There are two crucial arenas of the game – political centralization and political competition. Strategies of actors are shaped by costs and benefits from both levels of the game, thus actors in power chose suboptimal strategies in interaction with other level actors to improve their positions through weakening political competition, i.e. weakening democracy.

Methodology

The research is based on game theory and contract theory and provides economic analysis of political institutions of federalism.

I consider Constitution and bilateral treaties between Center and regions as incomplete contracts. To explain enforcement problem I suppose to build a game model of power distribution in federal bargain. For studying strategies of actors in federal bargain I will use Shelling's (1960) theory of conflict interactions.

I will also exploit the economic model of struggle between monopolist and small competitors (Selten, 1978; Kreps, Wilson, 1982), which accurately illustrate political process in federal state.

Further I will set up a model of "nested" (Tsebelis, 1990) or two-level game between different levels of government on the one hand and governments and opposition on the other hand. Regional elites choose between strategies of"exit", "voice" and "loyalty" (Hirshman, 1970), which were formalized by Gelhbach (2006). Bednar (2007) has applied Hirshman's theory of "exit" to study of secession in federal state, but other options are neglected in academic literature.

Results

The results of the research are building block of my dissertation project.

References

1. Bednar J. (2007) Valuing exit option. - Publius: The Journal of Federalism.
2. Bednar J. (2009) Robust federation: principles of design. Cambridge; Cambridge University Press.
3. Diaz-Cayeros A. (2006) Federalism, fiscal authority, and centralization in Latin America. Cambridge; Cambridge University Press.
4. Enikilopov R. Zhuravskaya E. (2007) Decentralization and Political Institutions. Journal of Public Economics 91 (11-12): 2261-2290.
5. de Figueiredo R. Wengast B. 2005. Self-enforcing federalism. Journal of Law, Economics, and Organization, 21(1): 103-135.
6. Fillipov M., Ordeshook P., Shevtsova O. (2004) Designing federalism: a theory of self-sustainable federal institutions. Cambridge; Cambridge University Press.
7. Gehlbach S. 2006. A Formal model of exit, voice and loyalty, Rationality and society, 18 (4): 395-418/
8. Guriev S. Yakovlev E. Zhuravskaya E. 2010. Interest group politics in a federation. Journal of Public Economics/

9. Hirshman O. (1970) Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States. Cambridge, MA: Harvard University Press.
10. Kreps D., Wilson R. (1982) Reputations and Imperfect Information, Journal of Economic Theory, 27 (2): 253-279.
11. Myerson R. (2006) Federalism and incentives for success in democracy. Quarterly Journal of Political Science, 1: 3-23
12. Ordeshook P. (1993) Game Theory and political Theory. Cambridge; Cambridge University Press.
13. Qian Y, Weingast B. (1997) Federalism as a Commitment to Preserving Market Incentives, The Journal of Economic Perspectives, 11(4): 83-92/
14. Riker W. 1964. Federalism: Origin, Operation, Significance. Boston,
15. Selten R. 1978. The Chain Store Paradox, Theory and Decision, 9(2): 127-159.
16. Schelling T. 1960. The Strategy of Conflict. Harvard University Press.
17. Solnick S. 1995. Federal Bargaining in Russia. - East Europ. Constitutional Review, 52.
18. Tiebout C. 1956. A pure theory of local public expenditures, Journal of Political Economy, 64 (5): 416-424.
19. Tsebelis G. (1990) Nested games: Rational choice in comparative politics. Los Angeles, University of California Press.

Moral hazard as a marriage of convenience: do universities benefit from getting rid of weak students?

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Research Problem

The problem of professional readiness of university graduates to high-quality performance of their duties within the received specialty has long been discussed in society: business accuses universities of the inability to cultivate the necessary practical skills, universities, appealing to the state standards, insist on its mission to form theoretical background, students do not object, accepting both work and study standards as parallel. In connection with the transition to USE, university teachers (if unable to perform additional tests) note the reduction in "quality" of applicants and their degree of readiness to study at the university in general and to study some particular specialty.

Under the current system of higher education financing the quality of students and graduates subsequently monitored at the inlet (ex ante) by the state through the system of unified state exam and at the exit (ex post) by the employer (job market). Market or nearly market criteria work in the external environment, internally the university has a certain freedom of action, since the quality of educational services primarily assessed by the same system that provides them. In addition, individual strategies for the teacher who prefers to work with concerned students, stand apart from the strategy of the university administration, for which the total number of students is more important than quality performance.

The relationship between interest groups in the educational process becomes more transparent and market-like. This contributes to the rating system, the introduction of USE for applicants and FEPO for students. The state encourages colleges and applicants to the signaling (respectively, the highest places in the rankings and high scores in USE). The employer is also awaiting signals from the contenders for the job - Diploma of Higher Education (Gimpelson, 2004). Entering a university, a student finds (him-)herself in the field of the relational contract between the teacher and the university, the essence of which: "Work (teaching load) in exchange for a formal quality performance." Thus, the institution erodes market incentives for the students, replacing them by relational contract. The peculiarity of this contract consists in the fact that the transition to USE deprives colleges from the impact on the quality of the “incoming” and, accordingly, they may not significantly affect the quality of the “outgoing” graduates.

For which group of assessors university must keep to a fair strategy? If a university expels a lot of "weak" students, faithfully fulfilling its obligations before future employers, the next cycle of public order allocation turns into his losses. A reasonable question arises: are universities interested in maintaining reasonably high standards, which can and should lead to the exclusion of students not coping with the curriculum? Students under the threat of expulsion for academic failure do not always transfer to the extramural department of the same university or move to paid training (in these cases they are likely to face with the same teachers staff and similar level of requirements). On the other hand, transfer to another school, even by the same specialty hamper specific assets accumulated by student (the need to adapt to the new academic plan, retake exams or to learn some courses omitted by himself). Underachievers in one university are very likely to join the ranks of competitors’ students, thereby at least increasing the demand for its services, and as a maximum, bringing their money to the competitor. Thus, the dominant strategy of the university is “to cherish students” regardless of their actual performance.

This is also associated with high opportunity costs of peoples’ "use" for the higher education system. If the state and the labor market, in principle, know what to do with a man without higher education, a university has no alternative use of the student.

Consider a situation when two high schools in one city offering education in the same professions, with the same level of tuition fees (irrespective whether the student pays for tuition himself or so does the state). We also assume that the value of higher education is high and the labor market demanding signals. Accordingly, a student expelled from one university for academic failure, will seek to continue his / her studies in another.

The second university	The first university	
	Expel (not accept) losers	Cherish losers
Expel (not accept) losers	0, 0	0, 2
Cherish losers	2, 0	1, 1 [N, P]

Figure 1: University strategies in respect of underachieving students

Players have dominant strategies leading them to the point of Nash equilibrium (1, 1), which is also Pareto-optimal. Universities benefit from deviation from socially preferable equilibrium (0, 0), preventing the production of bad specialists from weak students. So, keeping the losers, high school obviously don't simplify the task of recruiting for the future employer. However, it solves the problem of keeping budget places safe and thus keeping public funding.

Literature

The presence of secondary and higher education increases the chances of permanent employment (Gimpelson, 2004), respectively, the demand for them remains high, as opposed to quality (Klyachko, Mau, 2007). Some authors see prospects for improving the quality of education and its practical orientation in the vertical integration of higher education and industry, while rightly pointing to the limited applicability of such practices (Polishchuk, Livni, 2005). The duality of students' role in the educational process theoretically confirms the interest of universities in strong students (Leslie, Johnson, 1974; Yudkevich, 2004). However, applicants with lower scores on the USE also present a demand for higher education, which is not optimal from the viewpoint of society (Volkov, Kuzminov et al, 2008). Many authors concentrate mainly on combating adverse selection of applicants and universities and excluding from number of sellers and consumers of higher education those not satisfying the requirements (Kuzminov, 2008). Combating moral hazard in higher education involves monitoring the quality of educational services provided by the university, and one aspect of this assessment is the success of students both during school and after graduation in the labor market.

Project Aims

The aim is to identify the reasons for the stability of moral hazard in the system of relations "university (teacher) – student" and ways to cope with it.

Hypotheses

1. The contradiction between individual and socially preferable university strategies towards underachieving students distorts the signaling system between participants of the educational process.

2. "University – student" relationships are based on mutual exchange of moral hazard: both parties in contract may perform it poorly, and in this exact situation the contract will be stable.

3. Any (existing and suggested per capita) distribution system of budget places between institutions stimulates the formulation and fixing of a contract between all parties internal educational process, based on losers cherishing regardless of their actual performance. External rationing, prompting universities to expel bad students, can easily be neutralized by incentives for universities to maintain quotas on budget places and incentives of teachers to maintain academic load.

4. Under any system of funding many non-branded high schools for reasons of self-preservation are likely reject what they were willing to get - the right to carry out their own entrance

tests in addition to USE. Thus, high school getting no advantage from fighting with moral hazard, actually would refuse to fight with adverse selection.

Methodology

The study is expected to use the tools of game theory and theory of contracts, allowing to model parameters and results of interaction between participants in the educational process. Expected to carry out a survey of teachers and administration of the universities and the identification of the dominant strategies towards underachieving students (both studying for free and studying for pay) and the conditions that would weaken this dominance. To identify strategies towards underachieving students intra- and interuniversity statistical analysis of the dynamics of student movement is required (in a specific city, region).

Results

Identification of conditions and mechanisms for effective "screening" of underachieving students, defining how to eliminate contradictions between the dominant strategy of Russian universities, perceiving students as customers, and labor market requirements.

References

1. Eggertson T. (2001) Economic behavior and institutions. Moscow: Delo.
2. Furubotn E., Richter R. (2005) Institutions and Economic Theory: Achievements of the new institutional economics ed. from English. Ed. V. Katkalo, N. Drozdov. Petersburg.: University Press.
3. Gimpelson V. (2004) Temporary Employment in Russia: the data level, the dynamics, prevalence, Economic Journal HSE, 2.
4. Klyachko, T., Mau V. (2007) Trends in the development of higher education in the Russian Federation, Problems of Education, 3.
5. Kuzminov Ya. (2008) Mass Higher, Vedomosti, July 23.
6. Larry L. L., Johnson G. P. (1974) The Market Model and Higher Education, The Journal of Higher Education, 45(1): 1-20.
7. Polishchuk L., Livni E. (2005) The quality of higher education in Russia: the role of competition and labor market, Problems of Education, 1.
8. Tambovtsev V. (2004) Standards of public services: economic theory, international experience and Russian reform, Moscow.
9. Yudkevich M. (2004) Model of perfect competition and the market of higher education: 30 years later, Problems of Education, 2.
10. Volkov A., Kuzminov Ya., Remorenko J., Rudnik B., Frumin, I., Jacobson, L. (2008) Russian education - 2020: a model of education for innovation economy, Problems of Education, 1.

Civil society as a factor of development: what do the Russian data show?

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Research Problem

Beginning with the work of Putnam (1993), in which the author has clearly demonstrated the role of civil society in determining the outcome of political reform, the problem of measuring the quality of civil society and its impact on socio-economic success of the region attracting the attention of economists. It turns out that such characteristics of society as people's participation in associations, clubs, mutual respect and trust are highly inertial and they are factors of the regional success. In other words, the ability of society to unite to solve their own problems (social capital) is one of the factors of development. There are several prerequisites that such a relationship holds for Russia. Indeed, the last decade has witnessed a significant influx of physical and financial capital, but substantial progress in promoting development and modernization has not happened. Reforms (judicial, administrative, pension, military, etc.) did not give significant results Why do the authorities not able to change the institutions and people are not ready to change the government? To find the answer to the question by introducing the factors of development of civil society is a complex but very interesting problem for study.

Project Aims

The purpose of the study to identify the main factors of civil society in Russia and to correlate them with the indicators of regional development. To this end, highlighting the effects of society's development into urban (unit - the town) and regional indicators (unit - the subject of the RF).

Hypotheses

It is assumed that the indicators of society (eg, solidarity, mutual aid, a willingness to join) a positive effect on the situation in the cities and the socio-economic prosperity of regions.

Methodology

The main source of data on civil society are all-Russian Public Opinion Foundation poll Georeyting "Civil Society" in 68 regions of Russia are sample size 34 038 respondents, the survey was conducted in September 2007.Questions asked to tell the respondent and their values: trust friends and people in general, responsibility for family court, the city, ready to assist, unite, and to assess the people around: cohesion, mutual aid, a willingness to unite. For answers to these questions need to restore some common, initial characteristics of the society. To search for hidden variables, we use factor analysis, which identifies three major indexes: the index of an open network (with the greatest weight, it includes parameters of the consent and willingness to join), the index closed networks (trust relatives compared with the confidence of everyone else), the index of civic culture (responsible for them in the yard and the city).

Note that the indicators of civil society were highly scattered within the regions, the spread among the regions is much smaller. Therefore, as the unit of measurement was first selected locality. In this large (over 100 thousand inhabitants) and small towns are separated when the structure of the effects they have different. An analysis of the regions, in turn, allows more data on the socio-economic development (Rosstat data).

Results

Analysis of urban development. As an indicator of speaking when asked about satisfaction with the situation in the city. As the explanatory variables were used in the above three factors plus

the rate of city government accountability as a channel through which society can influence the situation.

It turns out that the rate of open networks and civic culture is positively associated with the situation in the city, while closed networks have a negative influence (significant effects at 1%). An even more powerful influence on the state of affairs provides the accountability of the authorities (Figure 1). It turns out that for large cities accountability is a channel through which the current structure of society - among them is a strong relationship (Figures 2,3) and, while inclusion in the regression of the influence of civil society to development is lost. A similar situation is observed for small towns with the exception that the effect weakens, but does not disappear.

Analysis of regional development indicators. As they were considered as economic indicators (GRP growth, investments, share your own income, middle income), and performance in general (for a comprehensive data base prepared by the Ministry of Regional Development for the calculation of payments to encourage the leading regions). The control group the initial level of GRP, the volume of mineral production, indicators on the types of regions on the methodology of the Scientific Institute of Social Policy. The result was not found evidence to suggest that civil society defines as a state of affairs in the regions. This can be attributed to the fact that after the abolition of regional elections, the authorities are no longer accountable to the public, and therefore the channels of society in power there.

References

1. Beugelsdijk S., van Schaik T. (2005) Social capital and growth in European regions: an empirical test. European Journal of Political Economy, 21(2): 301-324.
2. Blume L., Sack D. (2008) Patterns of Social Capital in West German Regions European Urban and Regional Studies, 15(3): 229-248.
3. Casey T. (2004) Social Capital and Regional Economies in Britain. Political Studies, 52: 96-117.
4. Djankov S., Glaeser E., La Porta R., Lopez-de-Silanes F., Shleifer A. (2003) The New Comparative Economics. Journal of Comparative Economics, 31: 595-619.
5. Durlauf S., Fafchamps M., Social Capital, In: Philippe Aghion & Steven Durlauf (ed.) Handbook of Economic Growth, Ch. 26, 2005, 639-699.
6. Dzialek J. (2009) Social Capital and Economic Growth in Polish Regions. MPRA Working paper 18287.
7. Glaeser E., Laibson D., Scheinkman J., Soutter Ch. (2000) Measuring Trust. Quarterly Journal of Economics, August, 811-846.
8. Glaeser E., Laibson D. Sacerdote B. (2002) An Economic Approach to Social Capital. Economic Journal, 112: F437–F458.
9. Guiso L., Sapienza P., Zingales L. (2003) People's opium? Religion and economic attitudes. Journal of Monetary Economics, 50: 225–282.
10. Guiso L., Sapienza P. Zingales L. (2006) Does Culture Affect Economic Outcomes? Journal of Economic Perspectives, 20(2): 23–48.
11. Helliwell J. (1996) Economic Growth and Social Capital in Asia. NBER Working Paper 5470.
12. Helliwell J., Putnam R. (1995) Economic Growth and Social Capital in Italy. Eastern Economic Journal, 21(3) 295-307.
13. Keefer Ph., Knack S. (2005) Social Capital, Social Norms and the New Institutional Economics. In: C. Menard and M. Shirley, Handbook of New Institutional Economics, Springer, 701–725.
14. Knack S. (2002) Social Capital and the Quality of Government: Evidence From the U.S. States. American Journal of Political Science, 46(4): 772–785.
15. Knack S., Keefer Ph. (1997) Does Social Capital Have an Economic Payoff? A Cross-Country Investigation, Quarterly Journal of Economics, November, 1251-1288.

16. La Porta R., Lopez-de-Silanes F., Shleifer A., Vishny R. (1997) Trust in Large Organizations. American Economic Review, 87(2): 333-338.
17. Putnam R. (1993) Making Democracy Work: Civic Tradition in Modern Italy. Princeton Univ. Press.
18. Raiser M., Haerpfer Ch., Nowotny Th., Wallace C. (2001) Social Capital in Transition: A First Look at the Evidence. EBRD Working Paper 61.
19. Tabellini G. (2008) Institutions and Culture. Journal of the European Economic Association, 6(2-3): 255–294.

Electrification and institutional quality in Russian regions

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Research Problem

Russian regions are very different among each other. They differ in institutional features as well. Patterns of interaction between business and regional authorities differ substantially. Is it possible to estimate quality of this interaction and degree of its preference to processes of modernization and economic growth? Is it possible to show that regions with better institutes show the best results?

Literature

The linkage between institutional quality and economic efficiency is repeatedly established in theoretical and empirical researches (for example, Agemoglu, Robinson, 2007). The majority of these researches are based on cross-country comparisons. However, there are some works where it is shown that difference in institutions causes difference in economic results at subnational level (Corey, 2009).

One of the consequences of the effective institutions is higher resource-efficiency of production and proper response of economic agents to changes of resource prices. Efficiency of energy consumption is higher in developed market economies than in less developed countries. Research in this area shows that in developed countries demand for energy is more sensitive to changes in prices (Suslov, Ageeva, 2005). It is not only because of climate distinctions but also because of difference in institutions. Developed market institutes create the stimulus for consumers to save energy. This is true for electricity as well. At the same time, less developed countries often have lower levels of electrification as a result of underdevelopment and prevalence of out-of-date technologies. The electrification process is closely connected with modernization and demands for favorable institutional environment that would create the corresponding stimulus.

Project Aims

Russian regions also essentially differ in levels and rates of economic development. These differences are defined by natural and geographical characteristics of the regions, by the manufacture structure which was inherited from Soviet period, and by short-term tendencies of energy price increase in 2000th years. Efficiency in usage of resources is defined by the same factors in great extent. Therefore it is not easy to evaluate influence of institutional factors on economic efficiency. We try to show that economic and social institutes affect intensity of manufacture sector reaction on resources price changes, in particular electric power price and wage changes.

The goal of the project is to show that the difference in social and economic institutions in Russian regions in 2000th years influences efficiency of economy of the regions using as an example the electricity usage pattern in production sphere.

Hypotheses

Development of Russian economy includes two simultaneous processes in the sphere of electricity consumption — (1) the electricity saving process due to the increase in electricity prices and (2) the process of electrification due to increase in wages and modernization.

Our hypothesis is that the intensity of these processes is influenced by the quality of institutes, especially the quality of relations between firms and the state. A firm that realizes projects related to electricity saving or electrification has the stimulus to obtain competitive advantages. However, under the conditions of excessive intervention of the authorities or

inconsistent economic policy, it appears that a more preferable investment is investment in special relations with the authorities. Investments in relations with the state, both in monetary and non-monetary forms, yield the direct effect in the form of competitive advantages available in short-term, compared to more long-term investments in power saving or modernization. Dependence on inconsistent decisions of the state increases the risks of investments in other projects, making them less attractive. As a result changes become slower as inside firms and as in economy structure as a whole.

So our *hypothesis in general is that in the regions with greater state intervention and worse institutions commercial purchasers tend to react weaker to price changes*, especially if such reaction demands additional investments and changes in manufacture structure.

Methodology

The data on electricity consumption of main sectors, electricity prices, wages and output of the sectors in 2000-2008 in Russian regions (mainly from ROSSTAT web site) are used.

To find out difference in institutional features at regional level in Russia we try to use the electoral statistics for Russian regions, Social Atlas of Russian Regions indexes, OPORA Rossii indexes and ROSSTAT data about activity of the regional authorities. As a result it is possible to find indicators which, in our opinion, show degree of excessive non-market intervention of the regional authorities in public life and economy. These are percentage of voters who took part in elections in Duma in 2007 year and percentage of voters for “United Russia". Correlation between these indicators is 0.88 that means considerable usage of "administrative resource” and low level of democratic character of these elections. High values of these indicators mean deformation of democratic institutes in regions and administrative intervention. Researchers specify (Treisman, 2009) that higher percentage of appearance to the election and voices for "United Russia" are typical for national republics, regions with high share of rural population, high share of agriculture and public sector in gross regional product, less developed or very specific regions. All these features show that in these regions possibility of the regional authorities to interfere in public and economic life is much wider than in other regions. It is necessary to notice that these indicators are negatively correlated with index of democratization from Social Atlas of Regions of Russia. It is obvious they catch the same features.

Then we estimate the following equation:

$$\ln\left(\frac{E_i^{2007}}{E_i^{2000}} / \frac{Q_i^{2007}}{Q_i^{2000}}\right) = b0 + b2 * \ln\left(\frac{W_i^{2007}}{W_i^{2000}} / \frac{PE_i^{2007}}{PE_i^{2000}}\right) + b3 \ln\left(\frac{Q_i^{2007}}{Q_i^{2000}}\right) + e$$

where E – electricity consumption per capita in a given sector of regional economy in 2007 and 2000 correspondingly; Q – output per capita in the sector; W and PE — average wage and electricity price in the sector; i – index of a region. Then b2 is price elasticity of electricity consumption per output that corresponds to electricity demand price elasticity when only substitution between production factors is taken into account while output level is under control. This parameter reflects sensitivity of industrial output to relative prices of electricity and labor.

In order to test hypothesis about influence of quality of institutions on elasticity of electricity consumption per output in long run firstly we estimate this equation for the whole sample of Russian regions. Then we do the same for two groups of regions — with the best institutional indicators and with the worst ones. Then we compare the results.

Then we estimate following equation:

$$\ln\left(\frac{E_i^{2007}}{E_i^{2000}} / \frac{Q_i^{2007}}{Q_i^{2000}}\right) = b0 + b2 * \ln\left(\frac{W_i^{2007}}{W_i^{2000}} / \frac{PE_i^{2007}}{PE_i^{2000}}\right) + b4 * BAD\_INSTi * \ln\left(\frac{W_i^{2007}}{W_i^{2000}} / \frac{PE_i^{2007}}{PE_i^{2000}}\right) + b3 \ln\left(\frac{Q_i^{2007}}{Q_i^{2000}}\right) + e$$

where BAD_INST – institutional variable; in our analysis we use following indicator: squared deviation of percent of voices for «United Russia» from minimum percentage for «United Russia» for all Russian regions. This approach allows to create more variability in values of the

institutional indicator, from zero in the best case to maximum value in the worse one. Variable of interaction between the institutional indicator and relative price variable is called interaction variable. We use it following the other authors (Polterovich, Popov, 2004, Суслов, Агеева, 2005). Its significance might mean that institutes affect the economy through price mechanism also. It is easy to see that [b4 × BAD_INST + b2] is price elasticity of electricity consumption per output and it is function of the institutional quality variable. So we can see influence of institutional quality on sensitivity of production sector to price changes. We also use climate variable but it is insignificant.

Estimations will be made for the main sectors of economy (industry, construction, agriculture, services and trade) and production sector as a whole.

Results

Table 1. Estimation of electricity consumption per output changes in 2000-2007 years.

Regressors	Dependent variable — changes in electricity-output ratio: $\ln(\frac{E_i^{2007}}{Q_i^{2007}} / \frac{E_i^{2000}}{Q_i^{2000}})$			
Changes in relative prices: $\ln(\frac{W_i^{2007}}{PE_i^{2007}} / \frac{W_i^{2000}}{PE_i^{2000}})$	0.2*** (3.1)	0.3*** (3.5)	0.1 (1)	0.275*** (4)
Changes in GRP per capita: $\ln(\frac{Q_i^{2007}}{Q_i^{2000}})$	-1.062*** (-12.2)	-1.01*** (-4.95)	-1.061*** (-14.3)	-1.02*** (-12.2)
Interaction variable: $BAD\_INST * \ln(\frac{W_i^{2007}}{PE_i^{2007}} / \frac{W_i^{2000}}{PE_i^{2000}})$				-0.00022* (-1.9)
Constant	0.1 (1.75)	0.1 (1)	0.11 (1.8)	0.08 (1.4)
R2 adjusted	0.54	0.54	0.55	0.58
Number of observations	73 regions	37 regions with share of voters who took part in Duma elections in 2007 year and share of voters for “United Russia" less than 0.64	36 regions with share of voters who took part in Duma elections in 2007 year or share of voters for “United Russia" more than 0.64	73 regions

*In brackets is t-statistics (for White estimations). Coefficients with stars (***,**,*) is statistically significant at 1%, 5%, 10% level correspondingly.*

In intermediate-run period, in 2000-2007 years, changes in relative electricity tariffs led up to changes in electricity consumption per output.

In this period, wages increased in greater extent than tariffs; so the increase of wages/tariffs ratio by 1% led up to increase in electricity consumption per output by 0.2%. It means that the electrification process was going. And it was going more intensively in the regions with less state interventions in economy: in regions with the better institutions corresponding increase was in 1.5 times higher. In regions with the worse institutions the effect of relative price changes on electricity consumption per output was not found, the relative price variable is not significant. The significance of the interaction variable has the same meaning: the worse quality of institutions means the weaker influence of relative prices on electricity consumption per output.

In the same time production growth had substantial influence on electricity consumption per output: 1% increase in output level led up to the same decrease in electricity consumption per output. So the electricity saving process was due to the economy of scale.

References

1. Agemoglu D., Robinson J. (2007) Lecture Notes for Political Economy of Institutions and Development. Course: MIT 14.773.
2. Corey G. (2009) Development in US States, Economic Freedom, and the "Resource Curse". Studies in Mining Policy, Fraser Institute.
3. Fredriksson P.G., Vollebergh H.R.J., Dijkgraaf E. (2004) Corruption and Energy Efficiency in OECD Countries: Theory and Evidence, Journal of Environmental Economics and Management, 47: 207–231.
4. Polterovich V., Popov V. (2004) Accumulation of Foreign Exchange Reserves and Long Term Growth, Slavic Eurasia's Integration into the World Economy, ed. by S. Tabata, A. Iwashita. Slavic Research Center, Hokkaido University.
5. Treisman D. Elections in Russia, 1991-2008. Report for 10th International Conference on the Problems of Economic and Social Development, Moscow, April 7th-9th 2009.
6. ROSSTAT web-site: http://www.gks.ru
7. Database Russian Electoral Statistics, http://db.irena.org.ru/
8. Суслов Н., Агеева С. Потребление энергии и ВВП: анализ соотношения в рыночных и переходных экономиках: Научный доклад. EERC, 2005.

Why do the laborers' rights need to be protected: a study on the labor contract in unequipollent terms

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The protection of laborers' rights is not only an academic issue, but also a significant policy problem for government's frequent intervention in labor market. The author introduces the unequipollent bargaining power (that is, two parties involved in the labor market are unequal in force, power, or validity, and not the same in effect or signification) to explain the representative phenomena and operation mechanism in labor market.

A. Smith implicitly mentioned unequipollent relationship between the employer and the employee of a firm in his famous work (1776), but he indicated that the interests of the two parties were by no means the same, and K. Marx elaborated their interests diametrically opposed in Das Kapital (1867). R. H. Coase portrayed the master have rights to control the servants' work by himself or his agent within a firm (1937). Williamson believes the existence of firm reduces transaction costs, but brings about managers' abuse of their rights (1985). Some other NIE scholars still insist that employees are rewarded less than those who have major influence and bargaining strength in the firm (2000). All these scholars imply that employers and employees are in an unequal position and have conflicts in interests. Employees are less powerful than their employers. No one reveals why the unequipollent position leads to quite different equilibrium as well as the performance handicap of labor contracts.

From the perspective of game theory, contemporary theory can be divided into two branches. They are cooperative game theory for bargaining problem (or named axiomatic bargaining theory) (Nash, 1950; 1953) and non-cooperative game theory (or known as a strategic bargaining theory) (Rubinstein, 1982). It is well known that these two methods are completely equivalent in the same terms. However, bargaining theory studies the problem of rent allocation within the organization, which in essence is the issue of contract enforcement. The study of workers' negotiation rights before the signing of labor contract is based on the assumption that the initial bargaining power between employers and employees are equipollent, which is not consistent with real world.

This research will be based on the following hypothesizes. First, the participants are adaptive expectations; second, there are incomplete information between two parties, which will lead to adverse selection and moral hazard; third, there are unequipollent powers on the labor contract not only in singing but also enforcement course, and employers are dominant. And this research project will focus on Chinese economy.

As China's actual situation is concerned, it is more complicated, In microeconomic level, the employers squeeze workers by cutting down wages, extending working hours, increasing labor intensity and avoiding obligations, etc., which escalate their conflicts. Considering macro aspect, the proportion of labors' compensation to national income has decreased year by year (from 54% in 1996 down to 39.7% in 2007). On the other hand, the capital return and managers' rewards are sharply increasing. The ratio of capital to GDP has increased from 20% to 30.6% in recent years. Because of ever-widening gap in income distribution, people urge government to devote more force for protection.

After introducing the unequipollent labor contract, the author sets up a bargain model to study the signing and enforcement of the contract. As the bargaining power between two parties is unequipollent, under the influence of iron law of wages, the price in labor market is usually pulled down at the equilibrium, which will be proved inefficient. As a result, the proportion of labors' compensation to national income has been declining, contrarily the capital return and managers'

rewards are increasing since the reform and opening of China. And the low efficient use of labor resources will reduce the utility of workers as well as limit the enhancing of firm competitiveness. In the final, with the ever-widening gap in income distribution, people urge government to provide more protection for workers.

References

1. Acemoglu D., Shimer R. (1999) Holdups and Efficiency with Search Frictions. International Economic Review, 40(4): 827-849.
2. Aghion P., Tirole J. (1997) Formal and Real Authority in Organizations. Journal of Political Economy, 105: 1-29.
3. Aoki M. (2000) What are Institutions? How should We Approach Them? Villa Borsig Workshop Series working paper.
4. Baker G., Gibbons R., Murphy K.L. (1994) Subjective performance measures in optimal incentive contracts. The Quarterly Journal of Economics, 109(4): 1125-1156.
5. Bebchuk L., Fried J., Walker D. (2002) Managerial Power and Rent Extraction in the Design of Executive Compensation. University of Chicago Law Review, 69: 751-846.
6. Bolton P. Whinston M. (1993) Incomplete Contracts, Vertical Integration, and Supply Assurance, Review of Economic Studies 60: 121-148.
7. Coase R., (1937) The Nature of the Firm, Economica, 4: 386-405.
8. Cook F.L. (2002) Ownership Change and Reshaping of Employment Relations in China: A Study of Two Manufacturing Companies, The Journal of Industrial Relations, 44(1): 19-39.
9. Crawford V. (1988) Long term Relationships Governed by Short term Contracts. American Economic Review, 78(3): 485-499.
10. Dessein W. (2002) Authority and Communication in Organizations, Review of Economic Studies, 69: 811-38.
11. Dow G. K. (1993) Why Capital Hires Labor: A Bargaining Perspective, American Economic Review, 83: 118-134.
12. Grossman S., Hart O. (1983) Implicit Contracts under Asymmetric Information. Quarterly Journal of Economics, 98: 123-156.
13. Grossman S., Hart O. (1986) The Costs and Benefits of Ownership : A Theory of Vertical and Lateral Integration, Journal of Political Economy, 94: 691-719.
14. Hart O., Moore J. (1988) Incomplete Contracts and Renegotiation, Econometrica, 56(4): 755-785.
15. Hart O., Moore J. (1999a), Foundations of Incomplete Contracts, Review of Economic Studies, 66: 115-138.
16. Hart O., Moore J. (1999b) On the Design of Hierarchies: Coordination vs. Specialization. NBER Working Paper no. 7388.
17. Green J., Kahn Ch. M. (1983) Wage-Employment Contracts, The Quarterly Journal of Economics, 98: 173-187.
18. Paganoand M., Volpin P. F. (2005) Managers, workers, and corporate control, The Journal of Finance, 60(2): 841-868.
19. Maskin E., Moore J. (1999), Implementation and Renegotiation, Review of Economic Studies, 66: 39-56.
20. Nash J. (1950) The Bargaining Problem, Econometrica, 18: 155-162.
21. Nash J. (1953) Two-Person Cooperative Games, Econometrica, 21: 128-140.
22. Pearce D.G. (1998) The Interaction of Implicit and Explicit Contracts in Repeated Agency, Games and Economic Behavior, 23: 75-96.
23. Rubinstein A. (1982) Perfect Equilibrium in a Bargaining Model, Econometrica, 50: 97-109.
24. Williamson O. E., (1985) The Economic Institute of Capitalism, New York: Free Press.

A straw for a bubble: a contract approach to irrational trading

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Research Problem

The so-called bubbles appearing from time to time on modern financial markets, costing trillions of dollars of anti-crisis support, causing bankruptcies and unemployment, give us reasons to think: what if the effective market hypothesis (Fama, 1965) is not that perfect, and financial markets are vulnerable to their endogenous fiasco? Unfortunately, architect of the financial system do not lose faith in the rationality of economic agents and react in this regard to the financial failures, virtually, only post-factum. However, since the second half of the twentieth century there have appeared a number of papers on issues such as financial bubbles mechanism and how society can minimize the negative externalities from those bubbles.

Literature

The field of research on the mental and emotional factors, influencing the pricing of financial assets destructively, is called the theory of behavioral finance. Irrational agents, while making decisions, can be influenced by the bandwagon effect, over-confidence (Barber, Odean, 2001), strong cognitive dissonance (Festinger, 1957), ignoring statistics in favor of particular cases, and many other factors (see Hirshleifer, 2001; Thaler, 1991, 2000). In reality, these psychological irrationalizators are so significant that they can explain the pricing fluctuations (see Roberts (1959) who shows how from randomly generated variables and their graphs one can recognize figures that are included in textbooks on technical analysis) and the gaps between the real and the market value of the asset. Of course, there are rational agents on the market (so-called arbitrageurs), able to predict crowd's decisions, to see the real value of overvalued assets, and, by making in-time arbitrage, to eliminate bubbles at the early stages. However, as shown in Abreu, Brunnermeier (2003), arbitrageurs, even having enough funds and resources, can act separately (differently predicting bubble burst-outs), and sometimes even detrimentally (making extra profits by speculating during the last stages of bursting). Meanwhile, financial bubbles bring about not only the loss to the majority of secondary market participants and to issuers[21] of overvalued securities (in case of stock exchanges), but also cause sharp negative externalities in form of recessions and depressions to the society as a whole.

It is logical to consider a situation in which society seeks minimization of negative externalities of financial markets, using certain economic restrictions.

Project Aims

To assess the perspectives of restricting access to financial markets, considering the irrationality of some traders acting on financial markets as one of the reasons of the formation of financial bubbles.

Hypotheses

1. The problem can be represented as a model of *adverse selection*, in which the principal is society, and agents are two types of financial market participants with different degrees of rationality. The latter is an opinion of agents about the expected profit and the expected level of risk to take (the model is represented in terms of "risk-return").

[21] Sometimes, even AAA-ranked securities can be overvalued (e.g. Fannie Mac, Freddie Mae and other)

2. The principal is informed only about probability distribution of agent types; every agent knows his own type.
3. The principal can evaluate menus and prices of contracts (which are, in this context, the costs of entering financial markets), maximizing his utility function

$$U = \beta \times [p_1 - f(r_1)] + (1 - \beta) \times [p_2 - f(r_2)],$$

where β is share of certain group of agents, p_1 and p_2 – prices of contracts (entrance price), $f(r_1)$ and $f(r_2)$ – functions representing the society's tolerance of different levels of financial market risks.
4. The principal offers the contracts menu to agents; each of them either chooses one or declines all of the contracts.

Methodology

While seeking for menus, prices of contracts and parties' trade-offs, the approaches of the contract theory (Yudkevich, 2002),the game theory and graphical analysis have been used in the current research.

Results (expected)

Acquired set of contract prices can serve as a compensating mechanism: while entering a market, every agent pays for expected market risk growth, which might appear in course of his actions. Besides, the rational-type agents will be more likely to pay because they are more certain of their ability to get that money back at a profit. Less-rational agents will be more likely to look for alternatives instead of entering the financial market. This can increase the probability that marginal agent entering a market will bring more expected profitability than the expected risk and, hence, increase average rationality on the market.

Empiric research of the data is to follow.

References

1. Yudkevich M., Podkolzina E., Ryabinina A. (2002) «Basic contract theory: models and problems», HSE Publishing house.
2. Abreu D., Brunnermeier M.K. (2003) Bubbles and Crashes, Econometrica, 71(1): 173-204.
3. Barber B.M., Odean T. (2001) Boys Will Be Boys: Gender, Overconfidence, and Common Stock Investment, The Quarterly Journal of Economics, 1: 262-292.
4. Fama E.F. (1965) Random Walks in Stock Market Prices, Financial Analysts Journal, 21(5): 55-59.
5. Festinger L. (1957) A theory of cognitive dissonance. Evanston, IL: Row, Peterson.
6. Hirshleifer D. (2001) Investor Psychology, Journal of Finance, 56: 1533-1597.
7. Roberts, H. (1959) Stock Market 'Patterns' and Financial Analysis: Methodological Suggestions, Journal of Finance, XIV(1): 1-10.
8. Thaler R.H. (1991) Quasi rational economics. New York, NY: Russel Sage Foundation.
9. Thaler R.H. (2000) From Homo Economicus to Homo Sapiens, Journal of Economic Perspectives, 14(1): 133-141.

Formal and informal mechanisms for quality control in public procurement

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Research Problem

Russian public procurement system is currently regulated by the Federal Law №94 (ФЗ №94). The regulation strategy promoted by this law is different from an average public procurement regulation strategy and introduces several additional restrictions for the procurer. The law severely bounded the limits of procurement officials' authority in the choice of competitive procedure. Although the law doesn't directly prohibit the use of quality parameters for the assessment of bids, it promotes the first price sealed bid and open bid auctions as the main tools for public procurement. It also implicitly prohibited the use of prequalification procedures or any pre-procedural requirements other than financial stability and lack of tax debts.

Together with the set of pre-procedural and procedural restrictions the new law introduced the set of authorized contract enforcement strategies. Three types of enforcement can be used: reputational mechanism of "Official List of Dishonest Suppliers", administrative enforcement, and legalistic enforcement. The proposed set of contract enforcement strategies, in our view, is imperfect. The procurer is not obliged neither to add a supplier to the "Official List of Dishonest Suppliers" if a breach of a contract had happened, nor to ban the supplier from the list from future procedures. At the same time the trust in administrative and legislative systems is low both between the procurers and the suppliers.

The combination of the severe restrictions of the procurer's authority and imperfect contract enforcement, in our view, should generate frequent breaches of contracts and strong incentives for introducing an alternative informal contract enforcement mechanism. On the other hand, relaxation of existing restrictions may indeed promote corruption in the system.

The main objective of this research is to assess the impact of imperfect formal enforcement and excessive restrictions on the public procurement system, and to suggest the procedural solutions that may reduce the contractual risks for the benevolent procurer while keeping in mind the possibility for corruption.

Literature

The importance of post-contract relationships in designing the optimal contract and awarding mechanisms is wildly acknowledged in works both on auction theory and public procurement theory.

Spulber (1990) models the contractual relationships that arise in the case when the contract is auctioned. He notices that perfect contract enforcement is not always the case, and when the firms that take part in the auction are aware of the imperfections of enforcement system they may breach the contract if the realization of their costs is high. Spulber argues that when the perceived risks for the future are high and the contractual terms are not fully binding, i.e. there is no perfect contract enforcement, the firms tend to lower their bids and breach the contract in cases of high "cost overruns". However, Spulber doesn't emphasize the features of enforcement mechanisms that may lead to imperfect enforcement.

The "imperfections" of contract enforcement system can be modeled in several ways. For example, Anderson and Young (2002) assume that the court enforces only a certain proportion of breached contracts. The unenforced contracts can be either renegotiated, returned to home market or enter the spot market. The authors show that in this case there may exist multiple market equlibria. These results correspond to the case of a non-government market and don't hold for the case of

public procurement, since the procurer can not get the good, work or service desired at a spot market, and often also can not renegotiate the contract.

Doni (2006) models imperfect contract enforcement for public procurement contracts and suggests that in the case of imperfect contract enforcement it is impossible to design a punishment for breaching that would be equal to or greater than the expected damage for the procurer. When the two-dimensional scoring auction is used to choose a supplier, the suppliers perceive the weaknesses of enforcement mechanisms and tend to "promise" high quality levels that they are not going to fulfill.

The empirical studies of public procurement auctions are rather scarce and, as far as we know, do not include the considerations of imperfect contract enforcement. Nevertheless, the relative empirical literature includes a vast body of the research on structural econometrics of auctions (Guerre, Perrigne and Vuong (2000), Jofre-Bonet and Pesendorfer (2000)).

Hypotheses

The research hypothesis can be separated into two groups. The first group considers the potential supplier's behavior:

- The existing institutional environment generates a sub-set of potential suppliers that enter the competitive procedures without the intention to fulfill the contract at hand;
- The risk of breach of the contract by the supplier depends on the bidding behavior of the potential supplier, for example there exists a threshold price P with any supplier bidding lower than P breaching the contract at hand.

The second group of hypothesis considers the procurer's behavior:

- Facing a certain type of supplier or type of contract, the procurer does not use the legal system when the contract is breached;
- The procurer would prefer to use an informal contract enforcement mechanism, such as elimination of bids lower than P or reputational enforcement in this case even if she faces some administrative risks of doing so.

Methodology

As a main theoretical model of contractual interaction between the procurer and suppliers in the market we take the first price sealed bid auction with independent values. Yet, in our case, the private values of the potential suppliers depend both on their production abilities and characteristics of the market in general, and institutional or legalistic abilities and characteristics of the institutional environment. To capture the possible effects of institutional variables I present a simple model with "law abiding" procurer.

The main characteristics of the participating agents and the environment captured in the model:

- The procurer is sensible of quality of the good at hand. If the good (work, or service) of quality Q is received, she faces utility $u(Q)$, and there exist a value $\underline{Q}$ such that $\forall Q < \underline{Q}: u(Q) < 0$;
- The judicial system (the court) is imperfect and costly. The court enforces a breached contract with a probability $\mu < 1$. It also collects fixed payments (legislative costs) from both sides;
- The suppliers differ both in their production costs c, and their legislative costs L^S.

The game analyzed goes as follows:

1. The procurer announces the quality threshold $\underline{Q}$ (in the "technical requirement);
2. The suppliers provide their bids simultaneously;
3. The supplier with the lowest bid wins and signs the contract with the price equal to his bid;
4. The winning supplier chooses the quality of the good at hand that he would produce and supply to the procurer. He can breach the contract by supplying quality below the threshold;

5. If the contract is breached, the procurer may plead to court for the formal enforcement;

6. The court enforces the proportion $\mu < 1$ of pleaded contracts, and collects both legislative costs, and a fine A from the loosing side to the benefit of the winning side.

7. All the sides receive their payments.

Results

- The suppliers can be characterized by price threshold functions $P_1(\underset{-}{L},\underset{+}{c})$ and $P_2(\underset{+}{L},\underset{-}{c})$ such that for any price of the contract within the interval $[P_1, P_2]$ the supplier produces nonzero quality and expects no court action even if the contract is breached, while outside this price interval he produces zero quality and expects court action;

- For the certain parameters of the judicial system some of the phenomena found in real-life Russian public procurement practice are possible:

  i. Dumping the price of the contract to zero, or very close to zero, if $\mu < \frac{1}{2} - \frac{L^S}{2A}$;

  ii. Keeping the breached contract out of court (by the procurer), if $\mu < \frac{L^G}{2A} + \frac{1}{2}$;

- If the production costs for all the suppliers are high – the legalistically efficient supplier would always win and produce zero quality.

The cases of corrupt and benevolent "non-law-abiding" procurer are still to be considered.

References

1. Anderson J.E., Young L. (2002) Imperfect Contract Enforcement, NBER Working Papers, No. 8847.
2. Doni N. (2006) The Importance of Reputation in Awarding Public Contracts, Annals of Public and Cooperative Economics, 77(4): 401-429.
3. Guerre E., Perrigne I., Vuong Q., (2000) Optimal Nonparametric Estimation of First-Price Auctions, Econometrica, 68: 525-574.
4. Jofre-Bonet M., Pesendorfer M. (2000) Bidding Behavior in a repeated procurement auction: A Summary, European Economic Review, 44: 1006-1020.
5. Spulber D. F. (1990) Auction and Contract Enforcement, Journal of Law, Economics and Organization, 6(2): 325-344/
6. ВШЭ (2010) Система госзакупок: на пути к новому качеству. Доклад ГУ-ВШЭ. М., март 2010, см. https://www.hse.ru/data/2010/02/24/1233015864/HSE-23feb.pdf
7. Федеральный Закон Российской Федерации №94 от 21 июля 2005 г., О размещении заказов на поставки товаров, выполнение работ, оказание услуг для государственных и муниципальных нужд.

Effectiveness of leniency program in antitrust

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Research Problem

Leniency program (LP) is one of the most important tools of modern antitrust policy of the last decades. Leniency program is a mechanism of antitrust regulation of cartels, which reduces an amount of penalty for participation in a cartel agreement to the collusion party in case if he would be the first to provide information or the information will be especially valuable in an investigation and thus it creates additional incentives to destruct the cartel. Collusion between market participants is one of the most dangerous forms of competition restriction, negatively affecting the production activity, the efficiency of resource allocation, which is associated with the practice of price fixing and market sharing. According to studies, the average cartel markup over the competitive price can come up 32% (Connor, 2006).

The main effect of antitrust regulation of cartels is influencing its stability, which, in turn, depends on market structure. As a result, when assessing the effectiveness of the leniency program it is important to take into account not only its design but also the structure of the market where it is used, as well as the interaction nature of market participants.

Leniency program development is considered the most important contribution to the theory of strategic interaction (game theory) in a set of methods of anti-cartel state policy.

Literature

Currently, the literature on leniency program identifies common approaches to understanding the content and effects of this antitrust policy mechanism, marks approaches which suggest the effectiveness of the leniency program.

It is found out the program may result in the destruction of cartels, as well as in their appearance - but under certain conditions (Motta, Polo, 2003). It is shown that a necessary condition for the successful application of the program is sufficiently high penalties (Aubert et al., 2006). It is proved that the program application can affect not only the explicit collusion, but also the parameters of tacit collusion (Bigoni et al., 2008). The conditions under which the program can show results opposite to the expected are analyzed (Buccirossi, Spagnolo, 2006.). However, in the current economic literature the impact of market structure on the results of the program is not resolved so far, despite the fact that the structure of markets is a key factor in determining the incentives to collude (Ivaldi et al., 2003).

Project Aims

The purpose of this study is to analyze the factors that influence the effectiveness of the leniency program, including the program design, the effectiveness of the national anti-trust authority and the market structure, where cartel operates. The study is expected to consider the distinctions of the leniency program application in different countries, to establish the dependence of leniency program design on the institutional environment in which it is applied. However the special roles in the study are given to the impact analysis of the features of the Russian markets to the leniency program action and assess how the system of Russian law enforcement affects the use of this antitrust regulation tool.

Hypotheses

The effectiveness of the leniency program depends on the market structure in which it is applied. The leniency program has an impact on the cartels' stability, besides the market structure affects the stability of cartels. It follows that the leniency program application in markets with certain market structure characteristics should have a multiplicative effect on the stability of cartels.

Methodology

Methodological basis of the study is the micro-economic analysis of incentives to maintain collusion ("folk theorem"), including the impact of market structure and operating rules of anti-trust law application on the incentives to deviate from collusion. Besides, the method of statistical analysis of the relationship between the characteristics of the national anti-trust law, the characteristics of market structure and the fact of disclosure of collusion information with the help of the leniency program was used.

Results

In the frame of the study the economic-mathematical model allowing evaluating the leniency program impact depending on various characteristics of the market structure was designed. The study has demonstrated that the greatest benefits/impact from the leniency program application can be expected on the following markets: with a few parties, where firms own different market shares, with high barriers to entry, where there is frequent interaction between the participants, which implies a high rate of demand growth, with a high probability of innovations' introduction, if firms interact in several markets.

The study has proved that the active methods of competition policy are more effective as an instrument to fight against cartels than the leniency program itself.

Features of Russian markets lead to the fact that antitrust regulation in Russia should be oriented to the introduction of leniency program. However, even the leniency program application may not always create a good number of sufficient incentives to destruct collusion. In this regard, an effective anti-trust regulation in Russia, aimed at competition promoting, can be achieved by exposure to such market characteristics as: the number of market participants, barriers to entry and exit, the frequency of interaction, the degree of innovations; the opportunity to interact in several markets.

References

1. Aubert C., Rey P., Kovacic W. (2006) The Impact of Leniency Programs on Cartels, International Journal of Industrial Organization, 24 (6): 1241-1266.
2. Buccirossi P, Spagnolo, G. (2006) Leniency Policies and Illegal Transactions, Journal of Public Economics, Elsevier, 90(6-7): 1281-1297.
3. Connor J.M., Hemers C.G Statistics on modern Private International Cartels, 1990 – 2005: http://www.antitrustinstitute.org.recent2/567.pdf
4. Ivaldi M., Jullien B., Rey P., Seabright P., Tirole J. (2003) The Economics of Tacit Collusion, Report for the European Competition.
5. Motta M, Polo M. (2003) Leniency programs and cartel prosecution, International Journal of Industrial Organization, 21(3): 347-379.
6. Spagnolo G. (2000) Self-defeating antitrust laws. How leniency programs solve Bertrand's Paradox and Enforce Collusion in auctions, F.E.E.M. Nota di Lavoro No. 52.00, Fondazione ENI "Enrico Mattei," Milano.
7. Шаститко А.Е. (2007) Экономические аспекты ослабления наказания за нарушение антимонопольного законодательства. Вопросы экономики, №8.

A noisy screening model of education with endogenous noise

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Research Problem

In his seminal paper Spence (1973) shows that signaling is a sufficient rationale for investment in education. Recent empirical research show that in many cases, indeed signaling effect dominates human capital gains from investment education. (i.a.Bedard (2001) and Hamalainen and Uusitalo (2008). When the signal observed is a noisy, as it is in case of education - the curricula do not always test the qualifications required by the employers and because cheating can not be fully prevented the exam grades not always show the true abilities within the tested discipline - significant distortions to Spence model predictions are observed. In this paper we focus on the implications of imperfect signaling on total education expenditure and participation in education with a focus on the role of universities and their responsibility for the level of noise. The main objective is to understand the impact of education market structure on individual decisions and social welfare for policy recommendations.

Literature

Since the publication nearly 40 years ago the Spence (1973) signaling model has seen a lot of attention and numerous extensions (see Riley (2001) for a review). However noise in the signal, which intuitively seems to contribute to a more accurate description of reality, has not been a subject of an intense research attention. Matthews and Mirman (1983) show that adding a stochastic term to the signal reduced the number of equilibria in the Spence model. Carlsson, Desgupta (1997) formalize a concept of a noise-proof equilibrium. Those papers lack, however, the analysis of impact of noise on individual decision on investment in signal. Similar concept of imperfect signal has been used in certification literature, where quality certificates are used to reduce Akerlof-type (1970) market failures. De and Nabar (1991) show that when certificates don't reveal with certainty the total demand for quality certificate may increase. Similar results in the framework of Spence model are presented by Landeras and de Villareal (2005), who show that noise in education credential system may lead to over investment. The further significant extension to the framework is by Daley and Green (2009) who divide the signaling process into two stages - first agents pay for education which enables them taking an exam which gives a noisy information on agents' type. The more education the agents buy the higher the precision of the test.

Project Aims

All the papers presented in the literature review take the level of noise and hence the actions of the certification institutions as given not allowing for strategic manipulations of the level noise to maximize their utility. This aspect of the noisy signaling is the main contribution of this paper. We want to show that depending on the university market structure, their respective monopolistic power and the level of regulation the total expenditure on education and the participation levels differ. Furthermore we want to analyze the effect of liquidity constraints of students on the equilibrium quality of universities. The analysis could explain very high participation rates and high total tertiary education expenditures (as % GDP) and very low quality of universities in countries of Central Europe (e.g. Poland and Lithuania) and possibly also CIS.

Hypotheses

In the noisy setting, within a certain range of parameters total educational expenditure is higher than in the noiseless case. Education market structure affects the equilibrium outcomes.

Competition may lead to overinvestment, whereas monopoly can lead to underinvestment in noise reduction. When there is a heterogeneity of universities students liquidity constraints will lead to equilibrium in which bad and good universities will coexist.

Methodology

The model follows a framework used by de Haan, Offerman and Sloof, (2008). Within a theoretical game-theoretic framework we introduce the following agents and timeline.

Students/Workers

We consider an economy with continuum of individuals differing in ability. For simplicity we assume there exist only two types with respective abilities θ_H and θ_L where $\theta_H>\theta_L>0$.
The proportion of high ability workers in the population $Pr(\theta=\theta_H)$ is denoted by $\lambda \in (0,1)$. Before entering the labour market individuals can enrol at a university to obtain an education certificate. If they decide to do so, they pay a fixed tuition cost p and at non-pecuniary cost $c(e,\theta)=(e/\theta)$ they obtain educational attainment $e \in E \subset R$. Upon leaving the university individuals enter the labour market, where they are offered a wage. The utility of a worker is given by the following equation.

$$U(w,e,\theta_i)=w-p-c(e,\theta_i).$$

Education Technology

We assume that the true educational attainment e is not perfectly observed by the employers, what they see is a random variable z. In the model we assume the credentials to be a sum of the students educational effort e and a random variable $\sigma \cdot \varepsilon$, where ε is drawn from a differentiable distribution $\Phi(\varepsilon)$ and σ is a scaling factor that can be understood as quality of universities. Formally:

$$z=e+\sigma \cdot \varepsilon$$

In the remaining part we assume ε has a standard normal distribution.

Employers

We assume two types of job which differ in skill requirements. In the competitive market for low skills jobs productivity and hence wage of both types is θ_L .. In the non-competitive high type jobs high and low skill worker receives expected lifetime income h and l respectively. The employers profit from employing high and low skill worker is $x= \theta_H$-h>0 and $-y=l- \theta_L<0$. High skill employers observe only the noisy measure of educational attainment hence they set a threshold level of signal above which they decide to employ. They set threshold such that the expected profit (using Bayesian updating)from employing a worker sending a signal z is => 0.

Universities

Universities offer education at a cost that consists of two elements - linear marginal cost of facilities/ hours taught and convex diligence (noise reduction) cost. Since the utility function is linear in income without loss of generality we can assume the fixed cost per student is negligible. We consider different education market structures, its impact on total education expenditure and total welfare. We assume that universities by manipulating their choice variables - tuition fees p and the level of noise σ maximise their profits.

$$V_U=\chi \cdot (p-h(\sigma))$$

Here χ is a proportion of students participating in education (in our setting it can take only values λ,1-λ or 1), h(σ) is a convex function of noise reduction cost.

Heterogeneous universities will be introduced to test the effect of liquidity constraints on equilibrium education quality.

Timing:

1.After a random move of nature which determines the type of each worker, universities simultaneously choose the level of noise and tuition fees

2.Employers in high skills industry choose a threshold level of the observed signal z* in order to maximise profits given the exogenous wage.

3.Given the offers made by the employers, workers choose whether to enrol university and commit to their educational attainment.

4.The education system causes noisy distortions ε

5.Outcomes and payoffs.

Results

All the hypotheses are confirmed (within certain parameter ranges) analytically and/or numerically. The precise results depend on assumptions on functional forms.

References.

1. Akerlof G. (1970) The market for 'lemons': Qualitative uncertainty and the market mechanism, Quarterly Journal of Economics, 89: 488-500.
2. Bedard K. (2001) Human capital versus signaling models: University access and high school dropouts, Journal of Political Economy, 109(4): 749-775.
3. Carlsson H., Dasgupta S. (1997) Noise-proof Equilibria in Two-action Signaling Games, Journal of Economic Theory, 77(2): 432–460.
4. Daley B. Green B. (2009) Market Signaling with Grades, Working Paper
5. de Haan T. Offerman T. Sloof R (2008) Noisy Signaling. Theory and Experiment, mimeo
6. De S., Nabar P. (1991) Economic implications of imperfect quality certification, Economics Letters, 37(4): 333-337
7. Hamalainen U. Uusitalo R. (2008) Signaling or Human Capital: Evidence from the Finnish Polytechnic School Reform, Scandinavian Journal of Economics, 110(4): 755-775.
8. Kroch EA. Sjoblom K. (1995) Schooling as human capital or a signal: some evidence, The Journal of Human Resources, 29(1): 156-180.
9. Landeras P., de Villarreal P.J.M. (2005) A Noisy Screening Model of Education, Labour. 19: 35-54.
10. Matthews S. A., Mirman L. J. (1983) Equilibrium Limit Pricing: The Effects of Private Information and Stochastic Demand, Econometrica, 51: 981–995.
11. Riley J. G. (2001) Silver Signals: Twenty-Five Years of Screening and Signaling, Journal of Economic Literature, 39: 432–478.

Electricity market structure and tacit collusion

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Research Problem

Russian wholesale electricity market is currently undergoing the reform, which is supposed to end in the beginning of 2011. As of January 1st, 2011, wholesale prices on electricity will not be regulated. The aim of the reform is to create competition, which may be threatened in several ways, including a single firm with market power and a number of firms engaged in a tacit collusion. International experience, for instance, California electricity crisis, suggests that the structure of deregulated market should be carefully examined as it may enhance potential problems. Hence, it is necessary to analyze potential incentives for non-competitive behavior that may be induced by market structure after the reform.

The purpose of the study is to examine the main features of the deregulated wholesale market of electricity that can create incentives for tacit collusion among generating companies. In particular the research focuses on the influence of forward contracts on the incentives for tacit collusion in spot market.

Literature

The impact of forward trading on spot market performance is a subject of an ongoing discussion. There are several hypotheses about how the introduction of forward contracts affects incentives for non-competitive behavior among companies in spot market. First, forward contracts can be considered as a way to reduce incentives suppliers have to exercise market power and as a way to protect consumers from volatile spot prices.

Due to this hypothesis deregulation can based on the assumption that forward contracts enhance competition on spot market. For instance, (Joskow, 2001) considers restriction of forward contracts as a contributing factor to the California electricity crisis. This hypothesis is supported by findings of (Allaz, Vila, 1993) which demonstrate that introduction of forward market obstructs demonstration of market power. According to this work, the introduction of forward contracts in the duopoly case when only one of the two producers has access to the forward market, having the opportunity to trade forward is equal to having the opportunity to act as a Stackelberg leader in a one-period model. When both firms have access to the forward market, both compete to be a leader and prices decline. In the limit, when the number of forward trading periods increase, the duopolists will produce the competitive output level. Experimental testing in (Bushnell, 2007) confirms these results.

However, second hypothesis suggests that the combination of forward contracts and spot market cam be considered as a multi-market contact, which according to Ivaldi et al. (2003), facilitate collusion. Findings of Le Coq (2004) and Liski, Montero (2006) support this view.

Thus, there is not common opinion concerning influence of forward trading on incentives for non-competitive behavior in spot market. One can assume that this influence depends on a number of market structure parameters, relative size of forward and spot markets included.

Project Aims

The purpose of the research was to analyze incentives for tacit collusion among generating companies that may be induced by structure of Russian deregulated wholesale electricity market.

Hypotheses

Considering previous studies following hypotheses were brought forward and tested by means of theoretical analysis:

1. Forward market creates possibilities for facilitation of tacit collusion in spot market among generating companies;
2. The facilitating effect depends on a number of market structure parameters and can be eliminated under certain conditions;
3. After the deregulation of Russian wholesale market of electricity is completed, changes in the market structure will result in elimination of collusion-facilitating effect.

Methodology

The research uses microeconomics models of tacit collusion as presented in Ivaldi et al. (2003). To analyze incentives for tacit collusion two cash flows were compared - profits from sustaining collusion and profits from deviation. Relative importance of current profits compared to future profits in the firms' objective, as reflected by their discount fact was also taken into account. To analyze the influence of reformed market structure on incentives for tacit collusion a number of modifications is introduced into the model from Ivaldi et al. (2003).

The research indicates that introducing capacity constraints can result in elimination of the facilitating effect. Under given assumptions, existence of the collusion-facilitating effect depends on a number of market structure parameters.

The empirical data was obtained through publicly available sources. Empirical application of the model suggests an indicator of presence of collusion-facilitating effect.

Results

Several conclusions can be drawn from model analysis. For a middle-sized generating company introduction of forward market does not facilitate tacit collusion. At the same time for a large-sized company introduction of forward market results in facilitation of tacit collusion. Intuition behind this result is that for a middle-sized generating company profits from deviation are greater than for companies of other sizes.

Empirical application of model analysis was also presented in the paper. Data for 2008 was used, and with certain assumptions calculations were made for 2011, the year when the reform is supposed to end.

Several conclusions can be drawn from the analysis.

1. Depending on a number of market structure parameters forward contracts may create incentives for tacit collusion among generating companies in spot market. Introducing capacity constraints can result in elimination of the facilitating effect;
2. The reform will change a number of current market structure parameters. this will result in eliminating of the facilitating effect in some of geographical market segments.
3. Nevertheless at this time there is tendency of forward contracts' volume to grow. Therefore there is a possibility that now in most of geographical market segments existence of forward contracts and their volume facilitate tacit collusion among generating companies.

References

1. Allaz B., Vila J.-L. (1993) Cournot competition, forward markets and efficiency, Journal of Economic Theory, 59(1): 1-16.
2. Bushnell J. (2007) Oligopoly equilibria in electricity contract markets. Journal of Regulatory Economic, 32(3): 225-245.
3. Green R., Le Coq C. (2006) The Length of Contracts and Collusion. CSEM Working Paper №154. http://www.ucei.berkeley.edu/PDF/csemwp154.pdf
4. Joskow P.L. (2001) California`s electricity crisis". Oxford Review of Economic Policy, 17(3): 365-388.
5. Ivaldi M., Jullien B., Rey P., Seabright P., Tirole J. (2003) The economics of tacit collusion, IDEI Working Paper №186.

6. Le Coq C. (2004) Long-term supply contracts and collusion in the electricity market, SSE Working Paper №552.
7. Le Coq C., Orzen H. (2006) Do Forward Markets Enhance Competition? Experimental Evidence, Journal of Economic Behavior and Organization, 61(3): 415-431.
8. Liski M., Montero J.-P. (2006) Forward trading and collusion in oligopoly, Journal of Economic Theory, 131(1): 212-230.
9. Klemperer P.D., Meyer M.A. (1989) Supply Function Equilibria in Oligopoly Under Uncertainty, Econometrica, 57(6): 1243-1277.
10. Sokolova E., Chernous M. (2008) Analysis of competition in Russian electricity industry. Unpublished draft, Saint-Petersburg state university (in Russian)
11. Trading System Administrator (Администратор Торговой Системы), 2008. Annual survey of electricity prices on spot market. http://www.atsenergo.ru/index.jsp?pid=619 (in Russian)
12. Governmental regulation №643 «On rules of trading in wholesale electricity market during the reform», dated October 24th 2003 (in Russian)
13. Federal Antimonopoly Service, 2007. Analysis of electricity wholesale market in 2006. http://fas.gov.ru/analisys/tek/a_17282.shtml (in Russian)
14. Federal law N 135-FZ "On protection of competition", dated July 26th 2006. (in Russian)

What type of market economy is emerging in Kazakhstan?

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Research Problem

My research project on Kazakhstan, as the main regional economic 'locomotive', aims at providing new theoretical and empirical observations with regard to the study of capitalist variations in a systemic transition context. Kazakhstan offers a unique opportunity as its economy is market-oriented, yet it is still emerging with long-term perspectives hardly to predict. The main Aim of the Projectis to find out what type of market economy is emerging in Kazakhstan according to the Varieties of Capitalism theory.

Literature

In general there is little research done on the development of institutional systems in Central Asia. Since 1991 there were not so many economists who have been studying Central Asian economies. In this regard, the studies of Reppegather, Troschke (2006), Kaser (1997), and Rumer (2003), focusing on general economic development and reform in Central Asian countries should be mentioned or, e.g., Troschke, Zeitler (2006) focus on more specific aspects such as corporate governance, privatization, foreign investment, and fiscal decentralization, respectively.

As many economists argue the lack of effective market institutions, in particular the lack of secure property rights, leads to high transaction costs and impedes economic development in all transition countries (North 1997). This is relevant to Kazakhstan and even exacerbated by weak law enforcement mechanisms, which have negative effect on the long-term economic progress of the country.

Ken Charman (2007) in his research provides general framework of the Kazakhstan's type of market economy arguing that the country has a mixed type of the economy. This economy can be characterized as a state-led model which fosters the development of market economy institutions.

Coming to the application of the VoC approach to post-communist countries in transition, it has been rarely done. First analyses were devoted to the investigation of some specific aspects of institutional development. For instance, Martin (2002) did a comparison of organizational structures within the old networks from the socialist past with Western best-practice models. However, so far no research on Central Asia was done which would consider institutional complementarities as well as contradictions according to the VoC framework.

Nevertheless studies which would analyze complementarity in transition economies are rare and so there is still research vacuum which is to be partly filled by investigating what type of market economy is evolving in Kazakhstan.

Project Aims

By identifying and analysing the institutions of the emerging market economy in Kazakhstan, my research can make theoretical and empirical contributions toward a better understanding of the political and economic developments both in the country and in Central Asia. Research of the evolution of transitional institutions and their potential complementarities or contradictions in Kazakhstan can provide an answer to the question what type of market economy is emerging in the country. It can also bring new insights into the current research on the institutional economics.

My research project is innovative in several aspects. First, no comprehensive research has been done so far on institutional development in Kazakhstan which would answer the following question: considering the reform model of Kazakhstan, towards what kind of institutional setting the country gravitates?

Secondly, the VoC research framework has not yet been extended to countries of the former Soviet Union. In comparison with East European countries, Central Asian economies have not been touched upon systematically in cross-societal examinations (Ahrens, 2008).

Thirdly, the research of institutional settings in Kazakhstan may bring solid contributions to the literature on the institutional economics and the political economy of transition.

At last my research project may contribute to the policy elaboration of many external actors such as the International Monetary Fund, the World Bank, the EBRD, the Asian Development Bank, the UNDP, bilateral donors and international NGOs in Kazakhstan.

Hypotheses

There are several hypotheses in the research. The first hypothesis is that Kazakhstan having a distinct transitional reform model is gravitating towards a distinct type of market economy, which is located between two different types - the Liberal Market Economy (LME) and the Coordinated Market Economy (CME). Both types of market economy are rooted in the theoretical framework of the Varieties of Capitalism approach (VoC).

On the example of Kazakhstan it is demonstrated that distinct reforms and distinct institutional settings during the transition period help to explain overall economic development, economic performance, growth, income distribution as well as other socio-economic indicators.

A rigorous analysis is necessary to answer the research question. For that aim the institutions within the sub-systems of the Varieties of Capitalism (VoC) approach - industrial relations, corporate governance, social security, financial system, and vocational training (Hall, Soskice, 2001) are discovered.

The second hypothesis relates to the distinctive structure of the Kazakh economy. Currently the Kazakh economy has two distinct parts – the sector of natural resources and the non-primary sector, which are loosely interacting with each other. It can be even argued they are extremely separated from each other, so that they can be presented as two 'non-communicating vessels'[22] within the economy. The reason is that the primary sector employs 6% of the economically active population, with the volume of production of 70% of GDP, whereas the non-primary sector employs 94% of the population. The difference is striking.

Thus the hypothesis to test is that the level of institutional complementaries is likely to be higher in the primary sector than that of the non-primary one. One possible explanation would be the fact that the government largely involves into regulation, coordination and steering the primary sector. The best of government's resources are directed to develop the sector of natural resources. So, transacting costs are lower within this sector.

This is obvious looking at the enforcement level of rights and regulations, advanced contract system and the efficient level of the state regulation policy in the oil and gas sector. The role of the state is critical here, the same as it is critical for low performance of the non-primary sector.

Methodology

There are two main methods for data collection: document analysis and semi-standardized interviews. First a thorough analysis of the country-specific institutional settings is conducted. Press reviews, empirical studies, national statistics, and publications of academics as well as international organisations will be analyzed and evaluated. During the prior research the official position on the type of co-ordination in the public domain as well as in the five dimensions - industrial relations, corporate governance, financial sector, social security systems, and vocational training are explored and assessed. Relevant legal and regulatory institutions in Kazakhstan are analyzed to make comparable indicators of types of institutions (e.g., existing legal norms, corporate governance

[22] This term reflects the situation when the entire economy is split into two different parts and although these two parts should by definition be interdependent, in fact they are not. There is little interconnection between them in terms of economic exchange, transacting activities etc.

structures, educational standards and processes, labour-market regulations). Moreover, the role of the state institutions in economic policy making in Kazakhstan is analysed.

The second method is a semi-standardized open-ended interview. 200 people from the following categories have been interviewed in Kazakhstan: politicians, experts, local entrepreneurs, foreign companies, international organisations and state-owned enterprises. The main purpose of the interviews is to ask people involved in economic policy making about their subjective 'perception' on evolving of institutions in Kazakhstan. Therefore, the reason behind using the interviews is to find out important aspects of institutional development, which were not covered during the document analysis.

Content analysis is used for data analysis.

Results

Currently the collected data are analyzed so that the results will appear first in April-May 2010.

References

1. Ahrens J. (2002) Governance and Economic Development. A Comparative Institutional Approach, Cheltenham: Edward Elgar.
2. Ahrens J., Jünemann, P. (2007) Transitional Institutions, Institutional Complementarities and Economic Performance in China. A 'Varieties of Capitalism' Approach. Duisburg Working Papers on East Asian Studies No. 72, Duisburg.
3. Charman, K. (2007) Kazakhstan, A State-Led Liberalized Market Economy? In: D. Lane/M. Myant (eds.), Varieties of Capitalism in Post-Communist Countries, Basingstoke: Palgrave Macmillian, 165-182.
4. Deeg R., Jackson G. (2007) Towards A More Dynamic Theory of Capitalist Variety, Socio-Economic Review, 5: 149-180.
5. Deeg R. (2007) Complementarity and institutional change in capitalist systems, Journal of European Public Policy, 14 (4): 611-630.
6. Deeg R., Jackson G. (2006) How Many Varieties of Capitalism? Comparing the Comparative Institutional Analyses of Capitalist Diversity. MPIfG Discussion Paper 06/2. Cologne: Max Planck Institute for the Study of Societies. http://www.mpi-fgkoeln. mpg.de/pu/mpifg_dp/dp06-2.pdf
7. Deeg R. (2005) Complementarity and Institutional Change: How Useful a Concept? Discussion Paper SP II 2005, 21, Social Science Research Center Berlin.
8. Drahokoupil J. (2008) After Transition: Varieties of Political-Economic Development in Eastern Europe and the Former Soviet Union, Comparative European Politics, 6(3), forthcoming.
9. Hall P.A., Soskice D. (2001) An Introduction to the Varieties of Capitalism, in: Hall, P. A., Soskice, D. (eds.): Varieties of Capitalism: The Institutional Foundations of Comparative Advantage, Oxford and New York: Oxford University Press, 1-68.
10. Hall P.A., Soskice, D. (2003) Varieties of Capitalism and Institutional Change: A Response to three Critics. In: Comparative European Politics, 1: 241-250.
11. Hall P. A., Thelen K. (2005) Institutional Change in Varieties of Capitalism. Conference Paper. American Political Science Association Annual Meeting, Washington, 1 September.
12. Kaser M. (1997) Economic Transition in Six Central Asian Economies, in: Central Asian Survey, 16(1): 5-26.
13. Knell M., Srholec M. (2006) Emerging Varieties of Capitalism in Central and Eastern Europe, in: Lane, D., Myant, M. (eds.): Varieties of Capitalism in Post-Communist Economies, Palgrave, forthcoming.
14. Martin R. (2002) Politicized Managerial Capitalism: Enterprise Structures, Post-Socialist Central and Eastern Europe, in: Journal of Management Studies, 39 (6): 823-839.

15. North D.C. (1990) Institutions, Institutional Change and Economic Performance. Cambridge: Cambridge University Press.
16. Reppegather A., Troschke M. (2006) Graduelle Transformation von Wirtschaftsordnungen: Ein Vergleich der Reformstrategien Chinas und Usbekistans. Osteuropa-Institut Working Paper No. 260.
17. Roland G. (2004) Understanding Institutional Change: Fast-Moving and Slow-Moving Institutions, Studies in Comparative International Development, 38(4): 109-131.
18. Rumer, B. (ed.) (2003) Central Asia in transition: dilemmas of political and economic development. Delhi: AAKAR Books.
19. Troschke M., Zeitler A. (2006) Privatisation and Corporate Governance in Kazakhstan and Uzbekistan: Insights from a Corporate Survey in Food and Light Industries. Osteuropa-Institut Working Paper No. 259.

Do elections matter? Appointed vs. elected governors and their effects on educational spending in Russia

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Research Problem

The way regional chief executives fill the office (through appointment or election) determines their incentives, which affect the decisions they make. Although a governor should act in the interests of regional population, in fact he or she will deal with two types of contracts depending on whether he or she is elected by people or appointed by the federal government.

In the election case a politician acts as an agent of people who can make a decision depending on how effectively he or she fulfills their contracts. People can extend the contract or elect a new governor. In the case federal government is only an agent of local people and supervises whether governors execute their contracts well or not.

Governors appointed by a federal government have a different contract and incentives. In this case a governor acts as an agent of the government, which controls them through administrative methods of management as well as through the system of transfers and investment policy.

In resource abundant countries federal government hardly regards taxes as a source of revenue because budgets are based on windfalls. Therefore federal governments might be more interested in reducing the level of political competition to retain control over rent revenues than in stimulating economic growth to increase people's loyalty.

The effect of this shift in priorities is that federal government does not invest in human capital. Relatively cheap capital resource inflows cause labor demand to decrease. Labor surplus is absorbed by sector of non- tradable goods, mainly by state sector, which is not sensitive to quality of human capital (especially in defense sector, police etc.).

Under these circumstances one might suggest that the way governors take office – through election or appointment – has an impact on the size of public educational expenditures.

If a governor is elected, he or she is more interested in human capital investments. The reason for this is that education investments make electorate loyal, which is crucial for retaining power. Thus the impact of federal government' rent-seeking behavior can be reduced by political competition which can be an enforcement tool for contract execution between government and population at the regional level.

If a governor is appointed by federal government his incentives are subordinated to the incentives of the federal government. But federal government doesn't have incentives to encourage the human capital investment at regional level if its revenues come from rent windfalls. Consequently federal government doesn't create incentives for its agents (governors) to invest in education. In other words federal government opportunistic behavior does not encourage governors to invest in human capital.

Literature

The political economics of federalism, particularly interaction between local and central government and its influence on economic performance is discussed by Qian Y., Weingast B. (1997), Shleifer A., Blanchard O. (2001), Enikolopov R., Zhuravskaya E. (2003) etc. However the special features of federalism in resource abundant country are not discussed there.

Political economics aspects of natural resource curse are studied by Ross M.L. (1999, 2001), Hodler R. (2006), Auty R.M., Gelb A.H. (2000), Torvik R. (2002), Guriev S., Egorov G., Sonin C. (2007) etc.

Stijnsa J.P. (2006), Gylfason T. (2001), Bravo-Ortega C., de Gregorio J. (2005), Volchkova N., Suslova E.(2007) study natural resource curse and human capital accumulation.

Project Aims

The aim of the paper is to answer the following question: Does the change in the way governors fill the office influence public spending on education in a resource abundant country?

Hypotheses

In the paper the following hypotheses are considered:

- the elected governors spend more on public education than those appointed by federal government caeteris paribus
- the level of public spending on education depends on by the following: term of office , career path (businessman or a professional politician), being a resident in the region
- political competition has an impact on the level of public spending on education in the following way: the less share of ruling party in regional parliament is the higher is the share of educational expenditures in regional budget

Methodology

The research strategy includes theoretical model as well as empirical study. In theoretical part I am planning to describe the interactions between inhabitants, governor and federal government.

The empirical part of research strategy involves testing the hypotheses using difference-in-differences estimator for Russian region' panel data for 2003-2007. I intend to assess how the change in the way Russian governors fill the office influences public spending on education in the regions with governors being elected or appointed. The share of education expenditures in regional budget will be used as a measure of public spending on education. I will also study the impact of the following factors on public education spending: income per capita, inequality, resource abundance, density, age structure, urbanization, corruption, share ruling party ("United Russia") in regional parliament, etc.

Results (expected)

I expect to determine whether the changes in the way governors fill the office influence public spending on education. I also aim to evaluate the effect of political competition on decisions made by governors elected or appointed.

References

1. Auty R. M., Gelb A. H. (2000) Political economy of resource abundant states.
2. Birdsall N., Pinckney, T., Sabot, R. (2001) Natural resources, human capital and growth /In: Auty, R.M. (Ed.), Resource Abundance and Economic Development. Oxford University Press, Oxford, 57–75.
3. Blamchard O., Shleifer A. (2001) Federalism With and Without Political Centralization: China Versus Russia, IMF Staff Papers, 48: 171-179.
4. Bravo-Ortega C., Gregorio J. (2005) de The Relative Richness of the Poor? Natural Resources, Human Capital, and Economic Growth: World Bank Policy Research, Working Paper №. 3484.
5. Enikolopov R., Zhuravskaya E. (2005) Decentralization and Political Institutions,WP/2003/036.
6. Gylfason T. (2001) Natural Resources, Education, and Economic Development // European Economic Review, 45(4-6): 847-859.
7. Hodler R. (2006) The curse of natural resources infractionalized countries, European Economic Review, 50: 1367-1386
8. Qian, Y., Weingast B. (1997) Federalism as a Commitment to Preserving Market Incentives, Journal of Economic Perspectives, 11: 83–92.
9. Stijns J.P. (2006) Natural resource abundance and human capital accumulation, World Development, 34(6): 1060-1083.
10. Suslova E., Volchkova N. (2007) Human Capital, Industrial Growth and Resource Curse: Working paper WP13/2007/11, Moscow: State University, Higher School of Economics,

11. Torvik R. (2002) Natural resources, rent seeking and welfare, Journal of Development Economics, 67: 455-470
12. Гуриев С., Егоров Г., Сонин К. (2007) Свобода прессы, мотивация чиновников и "ресурсное проклятие": теория и эмпирический анализ, Вопросы экономики, №3.

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