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СПбФ АРАН. Ф. 2. Оп. 1-1839. Д. 1. (SPb B ARAN. F. 2. L. 1-1839. F. 1.)

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Bibliometric analysis of Russian and Chinese publications on modernization in DBs Web of Science

Bibliometric analysis of publications on modernization in leading countries of the world was carried on. The results, based on Web of science data (1945–2011), are given in tables and figures. Special attention is paid to the dynamics of modernization publications in Russia and China.

Keywords: Russia, China, publications on modernization, Web of Science, bibliometrics, research activity, period 1945–2011.

Introduction

‘*Modernization*’ is one of the most frequent words in public discussions in Russia, China and other countries. Research group for China modernization strategies China Center for Modernization Research Chinese Academy of Science presented a report outlook for the period 2001–2010, which included annual reports on modernization in the world and China. The translation of this book in Russian was published in 2011 (1).

The aim of the present paper is to compare those two countries in DBs Web of Knowledge as far as modernization goes. The methods of bibliometrics will be used for this purpose.

Methods and material

Since the beginning of the 1960-ies, a new direction in the study of science has been gaining ground — the quantitative analysis of information flows (bibliometrics). (Some precedents of bibliometric studies go back to 1917). Various bibliometric methods fall into two major approaches. The first is based on the analysis of the dynamics of individual features: “plain bibliometrics”. The second is associated with the study of the correlation between objects, their clustering and classification: “structural bibliometrics”. The development of both approaches in bibliometric studies was greatly facilitated with the advent of the ISI/Thomson Reuters systems, which are a universal (world-wide and polythematic) information base. In this study, the methods of plain bibliometrics were used for the assessment of Russian and Chinese (and some leading countries) publications on modernization presented in world and national corpora in DBs Web of Science (2). Material for this study was drawn from DBs ISI Web of Knowledge: Web of Science Citation Databases:

Science Citation Index Expanded (**SCI-EX**) — 1945-present;

Social Sciences Citation Index (**SSCI**) — 1956-present;

Arts & Humanities Citation Index (**A&HCI**) — 1975-present;

Conference Proceedings Citation Index — Science (**CPCI-S**) — 1990-present;

Conference Proceedings Citation Index — Social Science & Humanities (**CPCI-SSH**) 1990-present;

Book Citation Index— Science (**BKCI-S**) — 2005-present;

Book Citation Index— Social Sciences & Humanities (**BKCI-SSH**) — 2005-present.

World Research Activity countries in field of modernization

Results of search in all databases of Web of Science for all countries discovered 14529 publications by keyword (*modernization or modernisation*) for all years (1945–2012.05.23):

SCI-EX — 3584

CPCI-S — 1854

BKCI-S — 73

SSCI — 7811

CPCI-SSH — 922

BKCI-SSH — 296

A&HCI — 2626

For the period 1945–2011 there were 14,346 publications, for the most part of them applied to 1960–2011 period: 1945–1955 — 8, 1945–1959 — 51, 1960–2011 — 14,314 publications.

Distribution of 14,346 publications by Web of Science Categories with more than 100 publications it is shown below: Sociology (1,412), History (1,394), Political Science (1,322), Area Studies (913), Economics (834), Planning Development (596), International Relations (537), Anthropology (473), Environmental Studies (440), Social Sciences Interdisciplinary (423), History Philosophy of Science (137), History of Social Sciences (194), Law (155), Philosophy (122), Architecture (76) Language Linguistics (73), Literature (115).

Engineering Electrical Electronic (434), Metallurgy Metallurgical Engineering (401), Materials Science Multidisciplinary (132), Computer Science Software Engineering (75),

Computer Science Interdisciplinary Applications (145), Operations Research Management Science (127).

The number of publications on modernization in ten leading counties is shown in table 1 and fig 1 for 2007–2011 period. This table demonstrates the contribution in publications on modernization of China (471) and Russia (134) among 10 countries (USA, Canada, Japan and EC leading countries) in 2007–2011. The place of China is third (471) and Russia is 6 (134). The majority of Russian publications (51.5) are included in DB SCI ex, while Chinese publications spread evenly between DB SCI and BD SSCI.

Table 1
Number of publications on modernization in 2007–2011 (Total publications = 4445)

Rank	Country	All DBs	SCI ex		SSCI		A&HCI	
		Publ	Publ	%	Publ	%	Publ	%
1	USA	812	222	27.3	469	57.7	163	20.1
2	England	472	91	19.3	335	71.0	71	15.0
3	Peoples-R-China	471	73	15.5	73	15.5	29	6.2
4	Germany	272	88	32.3	127	46.7	43	15.8
5	Spain	135	40	29.6	64	47.4	37	27.4
6	Russia	134	69	51.5	37	27.6	13	9.7
7	Canada	119	28	23.5	65	54.6	27	22.7
8	Italy	94	23	24.5	43	45.7	21	22.3
9	France	88	29	33.0	45	51.1	18	20.4
10	Japan	58	15	25.7	26	44.8	10	17.2

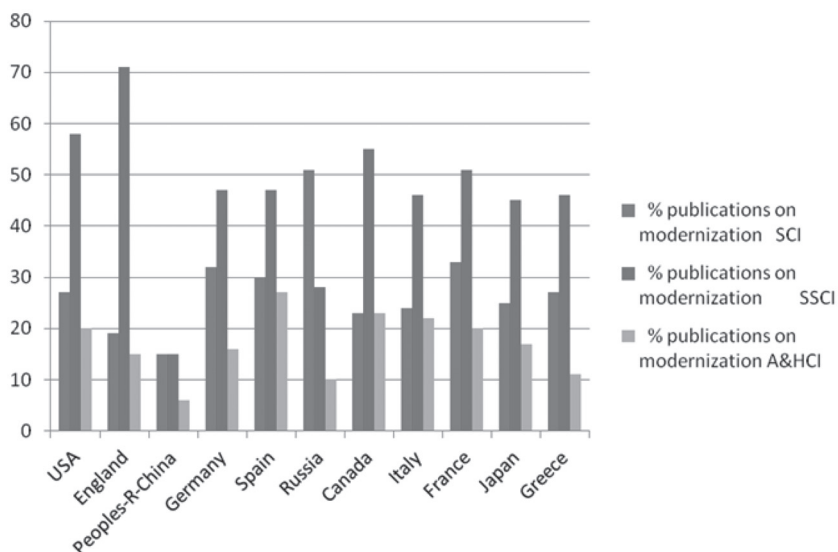


Fig. 1. Per cent of publication on modernization in DBs SCI, SSCI, A&HCI

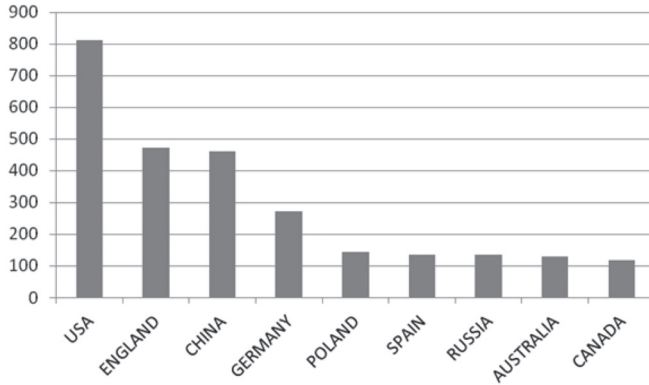


Fig. 2. Distribution of the publications on modernization by countries

It is clear that publications on modernization are present in DB SSCI; the only exceptions are China and Russia. Their number for China is equal in two first DBs, while Russian publications in DB SCI (51 %) greatly exceed those in DB SSCI (28 %).

Distribution of the 4445 publications on modernization by Web of Science Categories with more than 200 publications shows 4 social science categories and one science category: History (379 publications), Political Science (309), Sociology (305) Economics (269), Engineering Electrical Electronic (218).

Those 4445 publications were done in Document type: Article (3,041), Proceedings Paper (963), Book Chapter (222), Book Review (220), Review (152).

The publications on modernization are very frequent in other countries as well:

USA (812), England (472), **Peoples-R-China (462)**, Germany (272), Poland (143), Spain (135), **Russia (134)**, Australia (130), Canada (119), Netherlands (110), Romania (109), Byelarus (5) (see fig. 2).

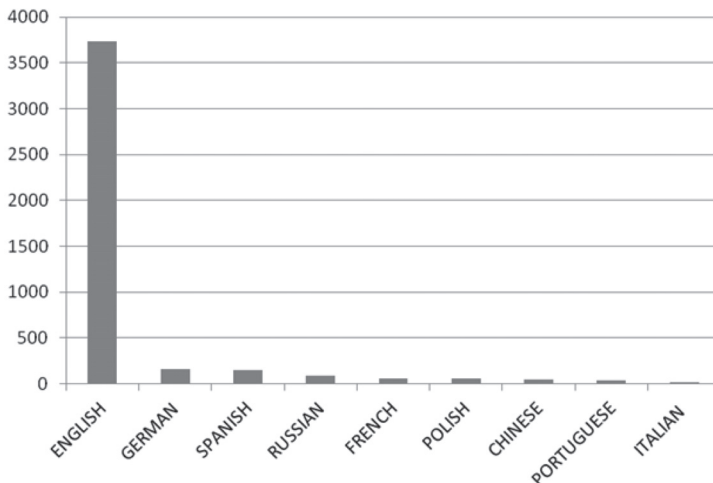


Fig. 3. Distribution of the publications on modernization by languages

As might be expected the great majority of publications on modernization are written in English (3730). Other important languages are German (157), Spanish (151), **Russian (85)**, French (59), Polish (59), **Chinese (47)**, Portuguese (37), Italian (18) (see fig. 3).

The number of total publications in ten leading counties in Citation databases is shown in table 2 for 2007–2011 period. Per cent of total publications in DBs SCI, SSCI, A&HCI is shown in fig. 4.

Table 2

Total number of publication in Citation databases in 2007–2011

Rank	Country	All DBs	SCI ex	%	SSCI	%	A&HCI	%
1	USA	2,697,260	2,042,727	75.7	445,647	16.5	143,821	5.3
2	Peoples-R-China	951,168	657,839	69.2	22,988	2.4	3,083	0.3
3	Germany	635,605	519,566	81.7	50,905	8.0	13,401	2.1
4	England	633,200	463,810	73.2	115,403	18.22	46,815	7.4
5	Japan	530,114	447,426	84.4	14,607	2.7	1,789	0.3
6	France	429,509	360,472	83.9	24,260	5.6	11,253	2.6
7	Canada	393,522	302,593	76.9	62,023	15.8	18,542	4.7
8	Italy	368,797	310,799	84.3	21,859	5.9	6,518	1.8
9	Spain	299,170	244,801	81.8	30,247	10.1	9,197	3.1
10	Russia	163,719	145,691	89.0	4,043	2.4	1,732	1.1

The number of publications on modernization in DB SSCI for ten leading counties is shown in table 3 for 2007–2011 period. This table demonstrates that for the most leading countries it is significant a light share of publications on modernization in DB SSCI (0.1–0.3 %),

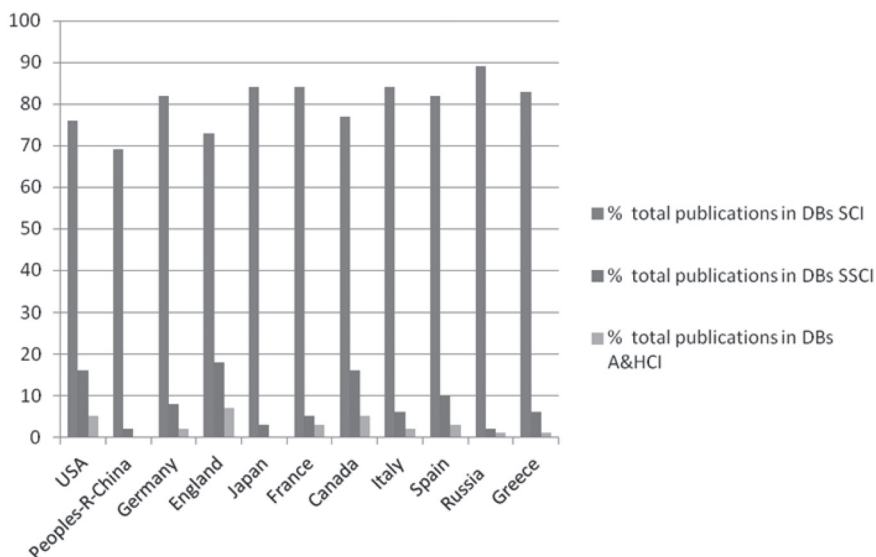


Fig. 4. Per cent of total publications in DBs SCI, SSCI, A&HCI

but for Russia this share comes 0.9 %. In social sciences modernization is treated in historic and economic context in contrast to science proper, where this concept is discussed in terms of technological innovations.

Table 3

% publications on modernizations in DB SSCI 2007–2011

Country	SSCI Total publ	SSCI publ on moderniz	% publ on moderniz in SSCI
USA	445,647	469	0.1
England	115,403	335	0.3
Peoples-R-China	22,988	73	0.3
Germany	50,905	127	0.2
Spain	30,247	64	0.2
Russia	4,043	37	0.9
Canada	62,023	65	0.1
Italy	21,859	43	0.2
France	24,260	45	0.2
Japan	14,607	26	0.2

Comparative analysis of publications on modernization in Russia and China

The number of publications on modernization in China and Russia is shown in table 4 and fig. 5 for four cumulative periods. Material for this study was drawn from all DBs included in Web of Science. The first decade of the XXI century witnessed a spectacular rise in such publications both in Russia and China. In China the process is going on an accelerating pace.

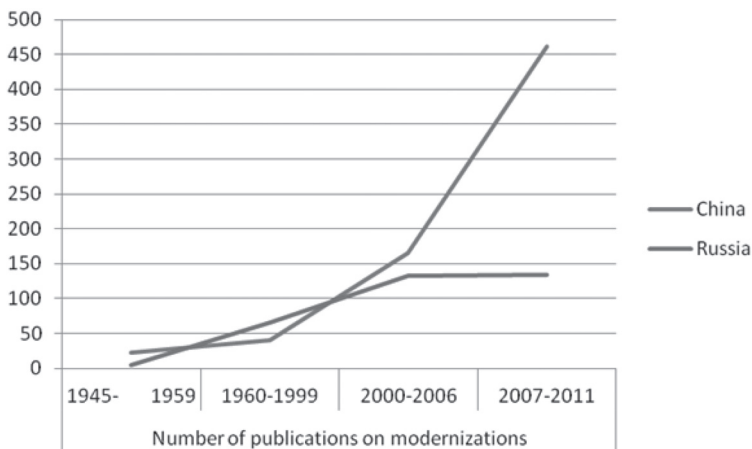


Fig. 5. Dynamics of publications on modernization

Table 4
Number of publications on modernization and average yearly (av.year) (All DBs)

Country	1945–1959	Average yearly	1960–1999	Average yearly	2000–2006	Average yearly	2007–2011	Average yearly
China	22	1.5	40	1.0	165	23.6	462	92
Russia	4	0.3	65	1.6	133	16.1	134	27

Table 5 and figs. 6–7 show distribution of Russian and Chinese publications in five DBs of Web of Science for 3-years periods: 2000–2002, 2003–2005, 2006–2008 and 2009–2011. This table and figures show that Russia and China differ markedly in their policy of participation in international conferences.

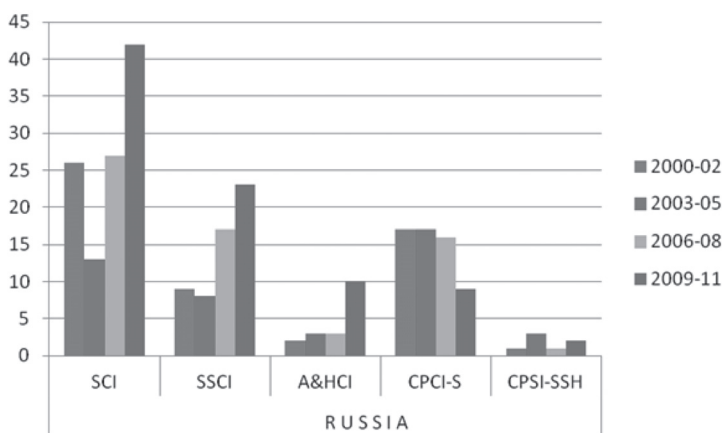


Fig. 6. Distribution of Russian publications on modernization in Web of Science

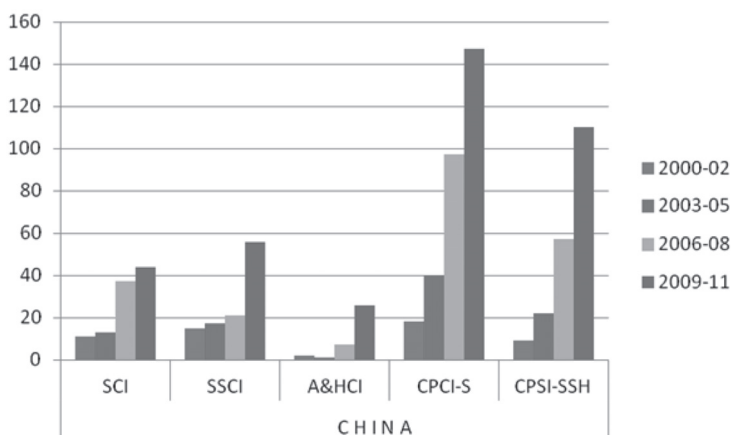


Fig. 7. Distribution of Chinese publications on modernization in Web of Science

Table 6

Distribution of Russian and Chinese publications on modernization in Web of Science: 2000–2011

Years	RUSSIA					CHINA				
	SCI	SSCI	A&H- CI	CPCI- -S	CPSI- -SSH	SCI	SSCI	A&H- CI	CPCI- -S	CPSI- -SSH
2000–02	26	9	2	17	1	11	15	2	18	9
2003–05	13	8	3	17	3	13	17	1	40	22
2006–08	27	17	3	16	1	37	21	7	97	57
2009–11	42	23	10	9	2	44	56	26	147	110

Analysis of Russian publications on modernization

The database Web of Science includes 134 Russian publications on modernization in a total of 4,445 records (documents) in 2007–2011 (see table 1). The papers on modernization are analyzed by (1) categories, (2) institutions and (3) journals in which those papers were published.

(1) **Web of Science Categories:** Instruments Instrumentation (15), History (12), Sociology (12), Metallurgy Metallurgical Engineering (11), Engineering Multidisciplinary (10), Education & Educational Research (8), Physics Applied (8), Physics Particles Fields (7), Physics Particles Fields (7), Engineering Electrical Electronic (6), Engineering Electrical Electronic (6), Political Science (6), International Relations (3), Philosophy (3), History Philosophy Of Science (2), Anthropology (2);

(2) **Institutions:** Russian Acad Sci (13), All Russian State Inst Cinematog (1), Ctr Independent Social Res (1), Ctr Independent Social Res (1), Gr Derzhavin Tambov State Univ (1), Higher Sch Econ St Petersburg (1), Moscow Carnegie Ctr (1), Russian State Univ Humanities (1);

(3) **Journals:** 33 Russian publications on modernization (2007–2011 period) were spread over 16 journals indexed in the fields: History, Sociology, Political Science, Philosophy. The most number of them was published in the journal “*Sotsiologicheskie Issledovaniya*”:

Title of journal	Number of papers
Sotsiologicheskie Issledovaniya	10
Otechestvennaya Istoriya	5
Voprosy Filosofii	3
Historical Social Research-Historische Sozialforschung	2
Osteuropa	2
Cahiers du Monde Russe Current History East European Jewish Affairs Environmental Politics European Review Of History-Revue Europeenne d Histoire European Societies Japanese Journal of Political Science Russian Politics and Law Sixteenth Century Journal Sociological Review Voprosy Istorii	1

Bibliographies of those 33 Russian papers on modernization are presented in Annex.

DB Journal Citation Reports: Social Science Edition in 2010 included 6 Chinese journals and 6 Russian journals. Tables 6 and 7 show the journals and bibliometric indicators (total Cites, Impact factor, Immediacy Index and number of articles in 2010) and Web categories in which those journals were indexed (3).

Table 6

Chinese Journals in DB JCR: 2010 SSE

Abbreviated Journal Title (language of publication)	Category	2010 Total Cites	Impact Factor	Immediacy Index	2010 Articles
Ann Econ Financ (Eng)	Economics	49	0.278	0.062	16
Asia Pac Law Rev (Eng)	Law	9	0.059	0.000	17
China Rev (Eng)	Area Studies	65	0.125	0.059	17
Chinese Law Gov (Eng)	Law; Political Science	18	0.048	0.024	42
Chinese Soc Anthropol (Eng)	Anthropology Sociology	10	0.053	0.000	9
Transportmetrica (Eng)	Transformation	64	0.808	0.100	20

Table 7

Russian Journals in DB JCR: 2010 SSE

Abbreviated Journal Title (language of publication)	Category	2010 Total Cites	Impact Factor	Immediacy Index	2010 Articles
Anthr Archeol Euras (Eng)	Anthropology	12	0.031	0.000	15
Eurasian Geogr Econ (Eng)	Area Studies Geography	339	1.472	1.077	39
Psikhol Zh (Ru)	Psychology, multidis	111	0.115	0.052	58
Russ Polit Law (Eng)	Political Science	10	0.027	0.030	33
Sotsiol Issled+ (Ru)	Sociology	321	0.147	0.020	205
Vop Psikhol+ (Ru)	Psychol., Educationl	189	0.157	0.036	84

Conclusion

1. Publications on modernization are concentrated in social sciences and are reflected in DBs Social Science Citation Index (SSCI) and Conference Proceedings Citation Index-Social Science & Humanities (CPCI-SSH). In social sciences modernization is treated in historic and economic context in contrast to science proper, where this concept is discussed in terms of technological innovations.

2. XXI century witnessed a growth of modernization publications in Russia and China. In case of China this trend turned into a real boom in 2009–2011.

3. It should be specially mentioned that Russia and China differ markedly in their policy of participation in international conferences. While in 2000–2002 the two countries were on a par, in 2009–2011 the figure for China was twenty times greater than that for Russia.

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China Modernization Report Outlook (2001–2010) / ed. Chuanqi He. Peking University Press, 2010. (Translation in Russian; ed. N. I. Lapin. Moscow. "Ves"; Mir", 2011.)

ISI Web of Knowledge: Web of Science.

ISI Web of Knowledge: Journal Citation Reports: Social Science Edition 2010.

Annex

33 Russian publication on modernization presented in DBs Web of Science: 2007–2001

Title: **Modernization: the Burden of the Past**

Author(s): Yanitsky Oleg N.

Source: SOCIOLOGICAL REVIEW Volume: **59** Issue: **4** Pages: **741–757** DOI: **10.1111/j.1467-954X.2011.02039.x** Published: **Nov 2011**

Title: **Modernizing Russian Foreign Policy**

Author(s): Trenin Dmitry

Source: RUSSIAN POLITICS AND LAW Volume: **49** Issue: **6** Pages: **8–37** DOI: **10.2753/RUP1061-1940490601** Published: **Nov-Dec 2011**

Title: **The Asian Values Thesis Revisited: Evidence from the World Values Surveys**

Author(s): Welzel Christian

Source: JAPANESE JOURNAL OF POLITICAL SCIENCE Volume: **12** Pages: **1–31** DOI: **10.1017/S1468109910000277** Part: **Part 1** Published: **Apr 2011**

Title: **Social Cultural Factors for Russian Stagnation and Modernization**

Author(s): Lapin N. I.

Source: SOTSIOLOGICHESKIE ISSLEDOVANIYA Issue: **9** Pages: **3–18** Published: **2011**

Title: **Education in Russia and Modernization of Economy**

Author(s): Beliaeva L. A.

Source: SOTSIOLOGICHESKIE ISSLEDOVANIYA Issue: **12** Pages: **13–24** Published: **2011**

Title: **Modernization of Pedagogical Education**

Author(s): Zasytkin V. P.; Zborovsky G. Ye.

Source: SOTSIOLOGICHESKIE ISSLEDOVANIYA Issue: **2** Pages: **87–93** Published: **2011**

Title: **On Modernization in RUSSIA: a Historical Sociological Analysis**

Author(s): Andreev A. L.

Source: SOTSIOLOGICHESKIE ISSLEDOVANIYA Issue: **9** Pages: **111–120** Published: **2011**

Title: **Modernization in Russia and around. Synopsis**

Author(s): Yanitsky O. N.

Source: SOTSIOLOGICHESKIE ISSLEDOVANIYA Issue: **5** Pages: **136–145** Published: **2011**

Title: **Private Property and Social Interest — the Dilemma of Russia**

Author(s): Glinchikova A. G.

Source: VOPROSY FILOSOFII Issue: **3** Pages: **3–11** Published: **2011**

Title: **Prolegomena to the Idea of Technology**

Author(s): Rakitov A. I.

Source: VOPROSY FILOSOFII Issue: **1** Pages: **3–14** Published: **2011**

Title: **Medvedev's Potemkin Modernization**

Author(s): Shevtsova Lilia

Source: CURRENT HISTORY Volume: **109** Issue: **729** Pages: **275–280** Published: **OCT 2010**

Title: **Anti-Jewish Violence in Russia and the American Omission for Freedom at the Turn of the Twentieth Century**

Author(s): Zhuravleva Victoria

Source: EAST EUROPEAN JEWISH AFFAIRS Volume: **40** Issue: **1** Pages: **43–60** Article Number: **PII 921575815** DOI: **10.1080/13501671003593642** Published: **2010**

- Title: **Russian Society and Elites in 1989–2009: Transformation Results and Future Perspectives**
Author(s): Gaman-Goluvina Oxana
Conference: **Conference on Transition Transformations — Trajectories of Social, Economic and Political Change after Communism** Location: Jena, GERMANY Date: 2009
Source: HISTORICAL SOCIAL RESEARCH-HISTORISCHE SOZIALFORSCHUNG
Volume: 35 Issue: 2 Special Issue: SI Pages: 41–53 Published: 2010
- Title: **Computer Modeling of Historical Processes by Means of Fractal Geometry**
Author(s): Zhukov Dmitry; Lyamin Sergey
Source: HISTORICAL SOCIAL RESEARCH-HISTORISCHE SOZIALFORSCHUNG
Volume: 35 Issue: 3 Pages: 323–350 Published: 2010
- Title: **Dead End Authoritarian Modernisation in Russia**
Author(s): Gel'man Vladimir
Source: OSTEUROPA Volume: 60 Issue: 1 Pages: 3-+ Published: Jan 2010
- Title: **Social limitations for Russia's modernization**
Author(s): Yanitskiy O. N.
Source: SOTSIOLOGICHESKIE ISSLEDOVANIYA Issue: 7 Pages: 17–27 Published: 2010
- Title: **On Modernisation of Russia in the Book by B. N. Mironov**
Author(s): Ostrovsky A. V.
Source: VOPROSY ISTORII Issue: 10 Pages: 119–140 Published: 2010
- Title: **Evolution of Russia's military command during the first quarter of the eighteenth century: The role of European influence in the implementation of Peter's reforms**
Author(s): Cernikov Sergej
Source: CAHIERS DU MONDE RUSSE Volume: 50 Issue: 4 Pages: 699-+ Published: Oct-Dec 2009
- Title: **Backwardness and Modernization: Poland and Eastern Europe in the 16th–20th Centuries**
Author(s): Ivonin Yuri
Source: SIXTEENTH CENTURY JOURNAL Volume: 40 Issue: 2 Pages: 457–458 Published: Sum 2009
- Title: **The Processes of Modernization on Russia's European North in the 1920s–1930s: Social and Economic Aspects**
Author(s): Filimonchik S. N.
Source: OTECHESTVENNAYA ISTORIYA Issue: 3 Pages: 185–194 Published: May-Jun 2009
- Title: **Ethnic and Cultural processes in the context of economic modernization on European North-east from the 1930s till 2000**
Author(s): Maksimova L. A.
Source: OTECHESTVENNAYA ISTORIYA Issue: 3 Pages: 247–251 Published: May-Jun 2009
- Title: **The Modernisation of Imperial Russia and the wealth of its population**
Author(s): Mironov B. N.
Source: OTECHESTVENNAYA ISTORIYA Issue: 2 Pages: 137–155 Published: Mar-Apr 2009
- Title: **Concentration of working-age male mortality among manual workers in urban Latvia and Russia, 1970–1989**
Author(s): Andreev Evgueni; Hoffmann Rasmus; Carlson Elwood; et al.
Source: EUROPEAN SOCIETIES Volume: 11 Issue: 1 Pages: 161–185 DOI: 10.1080/14616690802054358 Published: 2009
- Title: **Experts on Kazakhstan society modernization**
Author(s): Ermakhanova S. A.; Korel' L. V.
Source: SOTSIOLOGICHESKIE ISSLEDOVANIYA Issue: 5 Pages: 81–86 Published: 2009
- Title: **The Russian History in the Mirror of Modernization**
Author(s): Fedorova V. G.
Source: VOPROSY FILOSOFII Issue: 12 Pages: 3–18 Published: 2009