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Ceremonial Science: The State of Russian Economics Seen Through the Lens of the Work of ‘Doctor of Science’ Candidates

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Abstract

The paper investigates the current status of economic research in Russia using a previously unexplored dataset of Russian ‘Doctor of Science’ (Dr. Sc.) theses. The Dr. Sc. degree is a postdoctoral qualification necessary for career advancement at most Russian universities. Thus, by looking at the Dr. Sc. theses we are able to provide a systematic overview of ‘average’ scientific standards in Russia, particularly at the mass universities at which most administrators and bureaucrats are trained. We show that the level of integration of Russian economics into the international scientific community remains very low. Moreover, we obtain a picture of a mostly ‘ceremonial’ science. Researchers combine references to ‘classical’ research, formal methods and practical application merely as an instrument for presenting the mostly verbal argument in a more ‘scientific’ way.

JEL-Classification: A11, B41, I23, P39

Keywords: Russian economics, international integration, scientific methodology

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1 Introduction

Twenty years after the collapse of the Soviet Union, Russian economics, like Russian social science in general, is still in a deep crisis. One of the main reasons for this is what Sutela and Mau (1998, 37) call an ‘adverse selection’ mechanism: in the Soviet Union those willing to study social sciences very often either had too low grades for choosing ideologically less restricted subjects and/or were especially loyal citizens of the Soviet state. Being an inseparable part of the official state ‘religion’, Soviet political economy with its focus on the exegesis of terms and concepts in the light of the Marxist-Leninist dogma had more in common with medieval scholastics than with modern economic analysis (Sutela 1991, 53; 114).¹ The Soviet Union was an extreme case of an economics community strongly isolated from international academic discourse.² The lack of a fundamental understanding of how markets work was, and still is, a reflection of this intellectual isolation.

Economists have found rich evidence that studying economics has a significant effect on human behavior (for a discussion see Baumann and Rose 2011; Carter and Irons 1991; Cipriani et al. 2009; Frank and Schultze 2000; Frank et al. 1993; Frey and Meyer 2003; Labland and Bell 1999; Marwell and Ames 1991; Rubinstein 2006) including that of central bank officials (Göhlmann and Vaubel 2007) and politicians (Dreher et al. 2009). Obviously, if studying economics matters, it also matters what exactly is being taught in economics courses. In short, as academic economics shapes what Kuzminov (1992) calls the ‘economic culture of decision-makers’, it is of great practical importance especially for a country like Russia which is in urgent need of reforms. Indeed, the implementation of reforms in Russia has met time and again with the obstacle of administrators who simply did not understand the logic behind market

¹ Besides the dominating Political Economy of Socialism, there was also a much smaller mathematical current in Soviet economics (see Sutela 1991, chap. 2). However, it focused so exclusively on mathematical problems that in the West its representatives would have been classified as operations researchers rather than economists (Bruehl and MacPhee 1995: 184).

² Soviet political economy was related to academic discussion in other Socialist countries – e.g. Eastern Europe, Cuba, China and Vietnam – and to some extent to the discussion within the international Communist movement (although, for example, many Western Marxists who did not comply with Soviet orthodoxy were severely censored). But links to the international economics community were very limited (see Sutela and Mau 1998).

reforms.³ The way economics is taught at Russian universities affects not only what graduates have learned but also what they think about economics as a science and whether they are ready and willing, for example, to accept advice from the economic profession when implementing public policy. Thus, we hold that learning more about the way Russian economists engage in research and teaching can help us to understand the difficulties of implementing a functioning market economy in Russia. If ideas matter for institutional change, the re-integration of Russian economics into the global scientific community seems to be a prerequisite of its potential to catch up enduringly.

With this question in mind, we are more interested in the work of average economists at average universities than in the work of top researchers at top research units. This is what distinguishes our paper from the existing academic research on the state of economics in Russia.⁴ The contribution most closely related to what we are intending with this paper is Lokshin's (2009) content analysis of 250 papers on the issue of poverty published in Russian economic journals between 1992 and 2006. According to Lokshin, 60% of the analyzed papers did not have a clearly defined research question, half of them had no references at all, and there were no papers containing a formal theoretical model or a formal test of alternative hypotheses. The existing research on Russian economics, however, has almost entirely concentrated on journal articles. The majority of Russian journal articles are written by authors located either in the capitals (Moscow and St. Petersburg) or in the branches of the Russian Academy of Sciences (RAS).⁵ Analyzing journal articles thus tells us a lot about research at the higher echalons of Russian economics. But it says little or nothing about what is going on at the average provincial universities which account for the economic education of the vast share of average decision-makers.

³ Furman (1996) argues that the only consistent picture of the market economy and democracy for many Russian bureaucrats and politicians was the one created by Soviet propaganda.

⁴ Other papers investigating Russian economics include Alexeev et al. (1992); Auktsionek and Churkina (2002); Dezhina and Dashkev (2008); Poletaev (2008); Muravyev (2011); Kirtchik (2012). In addition, Kovzik and Watts (2001), Avtonomov et al. (2001, 2004) and Ofer and Polterovich (2000) focus on teaching rather than research.

⁵ In his analysis of Russian poverty research, Lokshin (2009) found that no less than 78% of all the articles in his data base were written by authors from Moscow (70%), St. Petersburg or Novosibirsk (4% each). In the studies by Poletaev (2008) and Kirtchik (2012) the set of institutions covered is even more narrow: most international papers from Russia originate from scholars of the New Economic School and the Higher School of Economics, as well as some other institutions.

The gap between elitist/central and average/provincial universities already existed in the Soviet Union. After 1991, it even widened. Whereas a few new units were set up which have successfully adapted to international standards (e.g. the New Economic School (NES) in Moscow, the European University in St. Petersburg (EUSPb) and the Higher School of Economics (HSE) with campuses in Moscow, St. Petersburg, Perm and Nizhny Novgorod), especially during the 1990s many of the provincial universities encountered major financial difficulties and a brain drain of their staff into alternative occupations. However, it is here that most Russian decision-makers are educated. The lack of competence of street-level bureaucrats and enforcement gaps within the Russian administrative hierarchy have been a major problem for Russia's economic development (Yakovlev and Zhuravskaya 2013). Yet even if we look at the top of the political hierarchy of 2013, of the nine members of the Russian government (ministers and deputy prime ministers) who received their first university degree in economics, only one is a graduate of a newly established isle of excellence (the New Economic School).⁶

As outlined above, the poor state of the art of Russian economics is mainly a result of its isolation from the global scientific community during the Soviet period. Thus, the central issue regarding Russian average universities today is the degree to which they have overcome this isolation and have re-integrated themselves into the global discourse. Focusing on this question, we look (1) at the research focus of Russian economists, ask (2) to what degree international standards of economic research are maintained and (3) to what degree the Russian academic community is integrated into the global one. To capture the research focus, we look for differences between the research topics chosen by Russian economists and those of their international colleagues. Regarding research standards, we highlight the methods used by Russian economists. To capture the extent of international integration, we look at both their passive integration (the degree to which they cite their Western colleagues) and their active integration (the degree to which they are present in international publications and at international conferences).

⁶ Three members of the government are graduates of the Moscow and St. Petersburg State Universities; four studied at specialized economics universities in Moscow, and two received their education outside Moscow or St. Petersburg.

A rather specific institution of the Russian academia proves useful for dealing with our focus on Russian ‘average economics’. In Russia the career of a scholar at any university other than the NES, the HSE and the EUSPb crucially depends on defending a second doctoral dissertation (the ‘Doctor of Science’, henceforth Dr. Sc.), similar to the German *habilitation*. Hence, examining the expectations of Russian universities concerning the content of these dissertations, we can, firstly, infer the academic standards in the Russian economic profession. Secondly, the form of the dissertation is standardized throughout Russia, and data on their content are easily available. The website of the ‘Supreme Attestation Commission’ contains all *avtoreferaty* (extended summaries of a standardized length) of the Dr. Sc. theses.

In a nutshell, our analysis of the data at hand gives the following answer to the main research question, namely whether, and if so to what degree, Russian economics has overcome the isolation from the global economic discourse inherited from the Soviet past, and (inseparably connected with this) to what degree it has overcome the legacy of Marxist-Leninist political economy. First, the level of both the acceptance of international standards and integration into the global academic community is still very low. The scientific work of Russian Dr. Sc. candidates is strongly influenced by patterns that have their roots in the Soviet past. This finds its expression in the instrumental approach to science, which is mainly expected to serve practical purposes, in the ‘ceremonial’ way of citing scientific authorities in order to give weight to arguments and in the similarly ‘ceremonial’ way of using simple mathematics and quantitative criteria that do not add to the theoretical and/or empirical argument but, rather, are used in the hope of making the argument look more ‘scientific’. Secondly, we find that these features are more strongly pronounced at the ‘provincial’ universities and less typical for the research institutes of the RAS, or the Moscow and St. Petersburg universities. However, even at these core institutions, the level of acceptance of international standards is still very low. Furthermore, there is no convincing pattern of researcher- or region-specific variables which would predict higher adherence to international standards or stronger international integration.

2 Data and empirical strategy

2.1 Why Dr. Sc. theses?

International economic journals are both a tool for the dissemination of economic knowledge and a selection tool for academic careers, a role which has significantly increased over recent years. Ideally speaking, the institutional arrangement of double-blind peer reviewing (the dominant selection mechanism) opens access to journals to all members of the scientific community. At the same time the high rejection rates turn a publication in one of the leading journals into a major distinction that pays off in the form of better career opportunities and/or higher earnings.

All this is fundamentally different in Russia. Russian economic journals neither function as an entry barrier to academic positions nor do they have a major influence on academic careers. Most of the c. 400 economics journals in Russia would not be unequivocally labelled academic economic journals in the international scientific community, since the vast majority of articles deal with concrete problems of economic policy rather than with theoretical issues and because the analysis of these concrete problems is regularly not explicitly based on theories or models. Although it is more prestigious to publish in one of the traditional core journals (of which there are five to ten), there is no strict hierarchy of journals, and no generally accepted ranking list exists (see discussion in Muravyev 2012). The market for economics articles in Russia is a distinct sellers' market: it is not authors who are fighting hard to get a publication in a good journal but, on the contrary, journal editors searching for authors and pressing articles from them. It almost goes without saying, then, that Russian economics journals have very low rejection rates.

Western economics journals serve as the central tool for the dissemination of economic knowledge and as a selection tool for the market of academic careers and positions. In contrast to journal articles, Russian (second) doctoral dissertations fulfil exactly these two functions. With the vast majority of journals being mainly policy-oriented, in Russia scientific monographs are still the basic medium for the dissemination of more theoretically oriented research. At the same time, the necessity to defend a (second) dissertation forms the decisive entry barrier to academic positions.

And as Russian doctoral dissertations have to be ‘defended’ against scientific ‘opponents’, they undergo a quality control by peers.⁷

A further argument in favor of our dataset is its coverage. The Soviet academic system was characterized by very strong internal divisions. There was a country-wide, elaborate system for the identification of gifted pupils, who were sent to, and educated in, Moscow, from where they would only return if they failed to make a career in the capital(s) or at the branches of the RAS. And there was a strict separation between the rather elitist research institutes (usually part of the RAS) and the universities whose professors had only restricted access to (especially foreign) literature and were not expected to engage in research. Thus, in Russian science there was a double dividing-line between the center(s) and the provinces, and between research institutes and universities (and other teaching entities). Analyzing journal articles thus does not really cover the work of Russian run-of-the-mill economists. However, academics working at average universities all over the country have, once in their lives, to deliver a scientific work that undergoes evaluation by members of the scientific community. Thus, if we want to learn something about the state of the art of Russian ‘normal’ science, it is doctoral dissertations we have to look at rather than journal articles.

2.2 Source of data and coverage

A typical Russian Dr. Sc. thesis is a manuscript of 300–400 pages. At the same time, however, it is required that the main findings are published in the form of papers before the thesis is submitted. A Dr. Sc. candidate should have published at least one monograph and several papers in Russian academic journals related to the topic of the thesis. In addition to the actual thesis, each doctoral candidate has to submit a summary of approximately 50 pages referred to as *avtoreferat*. The importance of *avtoreferaty* can hardly be overestimated: it suffices to say that the members of the Scientific Council (the degree-granting body) usually base their decision regarding acceptance or rejection entirely on the *avtoreferat* and rarely ever actually read the thesis. The form of the *avtoreferat* in Russia is strictly regulated. In addition to the main results of the thesis

⁷ As a matter of fact, a major motive for publishing in journals in Russia is to satisfy the formal criteria for a Dr. Sc. thesis defense, which require the publication of a certain number of articles in certain Russian journals.

and research methods, they also include a list of conferences and seminars where the thesis was presented and (if relevant) the areas where the findings of the thesis are applied in practice, as well as all publications in which the main findings have so far been reported.

A major advantage of the *avtoreferaty* is that, due to their formalized structure, they can easily be compared with one another. Furthermore, they report the entire content of the thesis in an abbreviated form. In addition, due to the importance of the documents the authors have a strong incentive to include all the relevant information. Thus, based on the *avtoreferaty* a clear picture can be gained of what is actually valued by the Scientific Council regarding research contributions. Finally, since autumn 2007 all candidates are required to publish their *avtoreferat* before the defense on a central website maintained by the Supreme Attestation Commission (vak.ed.gov.ru).

Each *avtoreferat* is assigned to a particular discipline. Focusing on ‘economic sciences’, we have excluded three groups of theses from our analysis, namely

- all theses from the domain of business administration (e.g. marketing, management, accounting etc.);
- all theses on agricultural economics, a topic which in Russia traditionally plays a much more prominent role than in most other countries and which would strongly distort our results;⁸
- all theses written and defended at the academic institutions of Tajikistan, which are also managed by the Russian Supreme Attestation Commission.

Our time frame is the period from fall 2007 (when the first *avtoreferaty* were placed online) to December 31, 2010. Our database embraces 552 doctoral theses,⁹ which we will investigate in the following.¹⁰

⁸ On agricultural economics in Russia see Kirtchik 2011.

⁹ Overall, in 2007–2010 there were approximately 1,100 *avtoreferaty* on the website attributed to ‘economic sciences’, i.e. 50% were classified as business administration theses or agricultural economics or were defended in Tajikistan.

¹⁰ It should be mentioned that the website includes all theses *submitted for defense*; some of them may have failed it. However, the share of theses which are actually *admitted* to defense and then *fail* it is negligibly low.

The sample we obtain indeed nicely satisfies our objective of learning more about average Russian economics. Almost 90% of all the theses in our sample were written by researchers affiliated to universities. The RAS accounts for 12% of the theses. A further 7% were written by faculty and affiliated researchers of the Moscow and St. Petersburg State Universities. Thus, more than 80% of the theses in our dataset come from the lower-ranked schools and universities. The theses included in our sample were written in 50 of the 83 Russian regions, thus providing us with a much better spatial coverage than datasets applied in the preceding research.¹¹ 56% of the theses were written in Moscow and St. Petersburg, a much smaller share than the 75% of journal articles Lokshin reports on in his paper (see Fn. 5).

2.3 International standards: key characteristics

To answer the main research question of our paper – the extent to which Russian researchers accept international standards and are integrated into the global scientific community – we look at four key characteristics which are extracted from the analysis of the *avtoreferaty*.¹²

Research topics: First, we want to learn more about the degree to which Russian researchers share interests and research foci with their international colleagues (for a similar exercise for Italy see Birolo and Rosselli 2009). Specifically, we assigned JEL codes (usually one or two) to each *avtoreferat*. In many cases assigning codes from the international classification system to Russian Dr. Sc. theses is not an easy task, a problem we shall return to later.

Methods: Second, a major element of research standards is the choice of methods: we therefore collected information on the methodology used in the theses. For this purpose we created several dummies. A dummy was established for all theses using at least some form of inductive statistics and econometrics. Furthermore, we set up a dummy with the value of 1 for all theses containing some sort of formal model. Finally, a large percentage of Russian theses contain some kind of optimization rules or simple

¹¹ See *Appendix A1*.

¹² *Appendix A2* provides detailed information on how these variables, as well as other variables used in our analysis, were computed.

quantitative indicators. We have created a dummy with the value of 1 for all these theses, which will be referred to in the following as ‘simple quantitative criteria’.

International presentations and publications: An obvious measure of international integration is the extent to which a researcher participates in the global scientific discourse. We have counted all papers published and all presentations made by the candidate abroad, specifically in the OECD countries. In addition, we have counted all papers published in well-established international journals and all presentations at international refereed conferences.

Citation patterns: While the publications of researchers show the extent to which they themselves participate in the global exchange of ideas (active integration), citation patterns in the theses show the degree to which global discussion affects researchers (passive integration). *Avtoreferaty* do not contain any references but only lists of authors who, according to the candidates, have most strongly influenced their work. We concentrate on whether the Russian scholars cite the most ‘important’, internationally acknowledged economists. Important economists in our understanding are (1) all Nobel Prize winners; (2) the 100 top economists from the REPEC ranking; and (3) the 100 economists from Blaug (1986), covering the most important contributions before Keynes. The most relevant measure of adherence to international standards is the number of citations of economists from the REPEC list, since these researchers have the main impact on the development of modern economics.

2.4 Research strategy

The research strategy we pursue in this paper consists of three steps:

Overall picture: In a first step, we provide a general picture of the Russian academia from four angles: (1) choice of topics; (2) choice of methods; (3) degree of active integration; (4) degree of passive integration. At this stage, we limit ourselves to descriptive statistics, since our goal is to obtain a broad picture of the Russian academia rather than investigate differences within the Russian scholarly community.

‘Core’ vs. ‘periphery’: In a second step, we compare the degree of integration (both active and passive) of Russian economists at the ‘core’ and the ‘periphery’ of

Russian academia. For this purpose, we use two definitions of the ‘core’: an *institutional* definition, focusing on the RAS, Moscow and St. Petersburg Universities (another traditional leader – the Novosibirsk State University – did not produce a single thesis for our sample); and a *geographic* definition (all institutions in Moscow and St. Petersburg). The overlap between these definitions is only partial (many institutes of the RAS are outside Moscow and St. Petersburg). We perform a simple mean comparison of the ‘core’ and the ‘periphery’ in terms of the key characteristics described above.

Determinants of acceptance of standards: The third step attempts to identify the key characteristics which enable researchers to be more successful in terms of integration into the global community and acceptance of global standards. Instead of looking at the scholarly community as a whole or its segments, we attempt to explain why each particular thesis was more or less successful in this respect. Specifically, we look at five variables: three measuring the extent of internationalization (number of REPEC citations, number of presentations in OECD countries and number of publications in OECD countries) and two related to methodology (dummy for theses using econometrics and dummy for theses using formal models).¹³ Three measures of the extent of internationalization are count variables, which, as will be shown in the next section, are characterized by an excessive number of zeros. We therefore use zero-inflated negative binomial regressions (ZINB), which are specifically designed to deal with this type of data. The choice of ZINB is also confirmed by the statistical tests. The Vuong test is significant, indicating that the ZINB is preferable to negative binomial regressions;¹⁴ and the LR test comparing ZINB with the zero-inflated Poisson (ZIP) model is significant as well, indicating that ZINB should be preferred.¹⁵ For the measures of methodology choice we use logit regressions.

¹³ We will not investigate the publications and presentations in the well-established international journals and at refereed conferences, since there are very few of them in our sample. Our results could then be determined by just one or two researchers.

¹⁴ For three baseline specifications (1)–(3) from *Table 3* the Vuong test is equal to 1.99, 1.58 and 3.26 respectively.

¹⁵ The magnitude of the test statistics for the specifications (1)–(3) is 44.30; 86.15 and 16.84.

Formally, for the measures of methodological choice, we estimate the following model:

$$\Pr(Y_i = 1) = \Lambda(\delta_0 + \delta_1 RAS_i + \delta_2 UNIV_i + \delta_3 AGE_i + \delta_4 PUB_i + \delta_5 GEN_i + \delta_6 PRACT_i + \sum_j \delta_{7j} JEL_{ij} + \sum_r \delta_{8r} REG_{ir} + \sum_t \delta_{9t} TIME_{it})$$

where Y is the dependent variable (i.e. the use of econometrics or formal models) and Λ is the function $\Lambda(z) = \frac{\exp(z)}{1 + \exp(z)}$. We include in the regression three sets of control variables, as well as a set of year dummies (denoted $TIME$). The first set captures the *individual characteristics* of a particular researcher. This set consists of six variables:

- RAS (dummy for researchers working at the Russian Academy of Sciences) and $UNIV$ (dummy for researchers working at the Moscow and St. Petersburg Universities). We hypothesize that institutional affiliation is likely to affect incentives for the choice of particular methods or the level of internationalization. These control variables also extend the analysis to be performed at the second step of our research strategy: it is possible that the difference between the ‘core’ and the ‘periphery’ institutions exists in terms of both the composition of the set of researchers (e.g. their age) *and* the academic standards – the regressions allow us to perform a *ceteris paribus* analysis.
- PUB (total number of publications of a researcher). If the standards of the Russian and the international academic communities strongly differ, for Russian economists there might be a trade-off between being successful on the domestic market and maintaining global research standards. If we find that researchers with the largest number of papers¹⁶ adhere to the international standards to a lower than average extent, then this trade-off exists and vice versa.
- $PRACT$ (dummy for theses which contain practical recommendations already implemented by particular companies or agencies). A requirement of the Russian regulations is that any Dr. Sc. thesis should not only make a theoretical contribution, but also have a practical impact. Thus, all the authors in our dataset

¹⁶ For almost every researcher in our sample, most papers were published in Russia.

argue that their work is practically relevant. However, in some cases the authors go further than that, claiming that their work has been used, for example, in individual companies (mentioning these organizations), or had an impact on political or administrative decisions (mentioning the particular governmental agency or administration in which the thesis' results were used). In this case they are often expected to provide a written statement by the company or governmental agency supporting their claim. The existence of the need to show practical relevance may confront Russian Dr. Sc. candidates with another trade-off: the adjustments of the topic, research question and methods to the needs of the practitioners may contradict the requirements for rigour of methodology and theory, crucial in view of international research standards.

- *AGE* ('academic age' of the researcher). One of the major factors limiting the ability of researchers to improve their level of integration into the global academia and their acceptance of new standards is age: younger scholars probably face lower adjustment costs. Although *avtoreferaty* do not contain information about the author's age, we are able to compute what we call 'academic age': the time between the publication of the researcher's first paper and the time of defense of the Dr. Sc. thesis.
- *GEN* (gender dummy = 1 for males). Various forms of gender discrimination may exist in academia, especially associated with career advancement or access to resources. If this is the case it may, for example, limit the ability of certain groups to publish in international journals or to present at international conferences due to lack of funding for travel, language correction etc.¹⁷

The second set of variables (denoted *REG*) includes the *region-specific characteristics* of the place where the thesis was written. Academic mobility in Russia is very low, and in most cases each region constitutes a relatively closed academic market (Sokolov and Titaev 2013). These markets may exhibit their own dynamics when adapting to international standards. First, we check for the level of development of the region,

¹⁷ We should note that this outcome is unlikely: generally, the sample of Russian Dr. Sc. candidates is gender-balanced with males accounting for 52%. This ratio is different from that of Western universities, where women still constitute a minority in economics (Ginther and Kahn 2004). Still, in order to err on the side of caution we check for this hypothesis as well.

captured by three characteristics: income per capita, population size and degree of urbanization. Scholars from more developed regions may have better access to various resources (e.g. funding for international travel); these regions may also have larger scholarly communities. At the same time, in developed regions the scholarly community is likely to have been large already in the Soviet period: thus, the old standards may be more entrenched and limit the ability to change. Second, we control for the distance between the regional capital and Moscow. We have already mentioned the traditional gap between research in Moscow and in other parts of Russia. It is possible, therefore, that researchers working in regions relatively close to Moscow have greater opportunities to adopt practices existing in Moscow (by visiting conferences and seminars, having better access to publications, easier contact to foreign visitors etc.) Third, we use a dummy for ethnic republics, a sub-group of Russian regions with large ethnic minorities, because in many ethnic republics academic researchers could be influenced by the political agenda of their government.¹⁸ This could, in turn, have an impact on the choice of methods, topics and citation patterns.

The third set of variables (denoted *JEL*) is a set of dummies for all JEL code groups, i.e. *thesis-specific characteristics*. It is possible that the extent to which international standards are adopted varies not only across institutional or geographical segments of Russian academia, but also across communities working on *different research topics*. For example, those working on Russian economic history may find it more difficult to publish internationally than those working on microeconomics. Furthermore, fields may differ in the extent to which adherence to international standards and integration into international academia is valued. For international economics, for example, it seems easier to accept the need to refer to foreign scholars than for studies on Russian regions. Formal methods may be perceived as more valuable by macroeconomists than by economic historians. In addition, different fields use different methods – some were already more formal in the Soviet period.

¹⁸ For instance, Tatarstan is known in Russia as one of the centers of federalism research, which was supported (partly) because of the Tatarstani government's struggle for greater autonomy.

For the measures of internationalization, formally, the ZINB distribution is given by

$$P(Y_i = 0) = p_i + (1 - p_i) \left(\frac{k}{\mu_i + k} \right)^k$$

$$P(Y_i = n) = (1 - p_i) \frac{\Gamma(Y_i + k)}{\Gamma(k)\Gamma(Y_i + 1)} \left(\frac{k}{\mu_i + k} \right)^k \left(\frac{\mu_i}{\mu_i + k} \right)^{Y_i}$$

where Y is the dependent count variable, n a non-negative integer, and Γ represents the gamma distribution. The ZINB model assumes that the population consists of two parts: those ‘not at risk’, for whom the only possible outcome is zero, and those ‘at risk’, for whom the possible outcome may be zero or a non-negative integer. In our case, those ‘not at risk’ are those who decided not to pursue integration into the global community at all (and thus do not publish or present in OECD countries and do not cite REPEC scholars), while those ‘at risk’ exhibit various levels of integration. The probability of being in the first regime is p , and it is estimated using a logit model. For the second regime, the negative binomial model is used. Formally, therefore:

$$\logit(p_i) = \gamma_0 + \gamma_1 RAS_i + \gamma_2 UNIV_i + \gamma_3 AGE_i + \gamma_4 PUB_i + \gamma_5 GEN_i + \gamma_6 PRACT_i$$

$$\log(\mu_i) = \beta_0 + \beta_1 RAS_i + \beta_2 UNIV_i + \beta_3 AGE_i + \beta_4 PUB_i + \sum_j \beta_{5j} JEL_{ij} + \sum_r \beta_{6r} REG_{ir} + \sum_t \beta_{7t} TIME_{it}$$

In the inflation stage, we include controls which explain why a researcher pursues internationalization at all rather than focusing exclusively on the requirements of the local academic market. In the negative binomial stage, we include controls which explain why those who decided to pursue internationalization were more or less successful. Unfortunately, there is no unambiguous way to allocate variables to both stages of the ZINB, given the lack of strong theoretical priors for our research question. In the baseline specification regressions are designed as follows:

- Institutional affiliation, age and total number of publications are included at both stages, since they may affect both the general decision whether to pursue internationalization and the degree of adherence to international standards.
- Gender and practical applications dummies are included only in the inflation stage. For gender, if discrimination were present, it would affect the probability of researchers entering the international scientific market in the first place (this ‘entry ticket’ is often

determined by the local institution, which could, for example, restrict access to travel funds or prohibit travel altogether), but once they obtain sufficient resources to do so, it should not influence the probability of their publishing or presenting internationally (unless the international publishing and presentation market is gender-discriminating). Regarding practical application, researchers may either see the relevant audience of their research among practitioners (and then adherence to international standards provides little gain) or among researchers (and then adherence to international standards may pay off, depending on the standards of the scholarly community).¹⁹

- JEL codes are included only in the negative binomial stage. On the one hand, choosing a certain field should not automatically prevent researchers from citing modern scholars or publishing internationally at all, although for some fields publishing internationally may be more difficult than for others. On the other hand, in our data we find researchers who do not cite REPEC scholars and do not present and publish internationally in every field, so it is also possible to work without international integration in any field.
- Regional characteristics are also included in the negative binomial stage: while coming from a remote or poor region definitively may make access to modern publications and to international travel more difficult, there are hardly any regions in Russia where this access is completely impossible.²⁰

As some of these assumptions are certainly contestable, we will use a set of robustness checks, changing the allocation of variables across the inflation stage and the negative binomial stages of the model, as discussed in the following.

Thus, we estimate five regressions for five characteristics of internationalization and choice of research methods.²¹ Ideally, we hope to find a coherent pattern, i.e. that certain variables (researcher-, thesis- or region-specific) always have an impact on the

¹⁹ See Sokolov (2012) for anecdotal evidence.

²⁰ The access to international donors' funding steadily declined during the last decade.

²¹ In the logit regressions and in the negative binomial stage of the ZINB regressions, whenever the coefficients of certain variables in these tables have a positive sign, the particular researcher, thesis or regional characteristics are associated with stronger adherence to international standards or integration in the global research community. In the inflation stage of the ZINB, the interpretation is the opposite: a positive sign means that zero is a more likely outcome, and hence that the researcher's work does not follow international standards.

adherence to international standards. It is, however, possible that we find different results for different characteristics. For example, scholars in certain research fields may be more likely to cite currently active foreign scholars, but at the same time less likely to use advanced methods. There are, in fact, reasons to expect this outcome: historically, the spread of international standards in Russian economics took place very much coincidentally, depending on individual contacts between particular Russian and Western researchers. As a result, the picture Russian researchers obtained about the way economics is practiced abroad was possibly fragmented (Latov and Nureyev 2002). At the same time, in the last two decades there have been several training programs aiming at closing the gap between international and Russian economics. These may have helped to overcome this fragmentation.

3 Results

3.1 Overall picture

In a first step, let us discuss the overall picture we obtain from our analysis of Russian Dr. Sc. theses. Regarding all four of our criteria (topics, methods, international publications and presentations, and citation patterns), the results are unambiguous. First, *Russian scholars clearly deal with different topics than the members of the global scientific community.* Figure 1 presents the share of theses belonging to each large JEL classification group.²² A comparison with the JEL codes of SSRN papers (as of November 10, 2011)²³ reveals striking differences. The share of theses in the areas of microeconomics, macroeconomics, quantitative methods (mostly theoretical econometrics), finance, law and economics, and business economics is substantially smaller than the respective shares of SSRN papers. The share of Russian Dr. Sc. theses devoted to core disciplines of modern economics – microeconomics, macroeconomics and econometrics – is extremely low, whereas a large share of studies deal with topics like regional and urban economics, industrial economics, economic development, international economics, labor and demographic economics, and health, education and welfare, all of which are regarded as somewhat peripheral in the Western scientific economics community. There is almost no correlation between the distribution of SSRN papers by topic and that of Russian theses (the respective coefficient is -0.108).

Regional and urban economics are by far the most popular topics among the authors of Dr. Sc. theses. In fact, simply looking at the JEL codes even somewhat underestimates the dominance of this sub-group. Almost a third (29%) of the theses in the second largest sub-group (public economics) are about center-region relations (H7) and thus also (at least partly) deal with urban and regional economics. If one adds the theses belonging to the R and the H7 groups of the JEL classification, they make up

²² Each group was calculated in the following way: number of theses which were assigned to the JEL codes only from this group plus 0.5 times the number of theses for which the second JEL code is from another group.

²³ As a caveat, the comparison is only partly valid (since in SSRN one paper can receive more than two JEL codes). Furthermore, SSRN includes many purely finance and business papers, which we have excluded from our sample – finance and business economics papers only remained in our sample if they could at the same time be attributed to another “pure” economics area (e.g. monetary macro, industrial organization etc.)

24% of all theses defended in Russia. Given the size and heterogeneity of the Russian Federation, the importance of regional economics as such is not surprising. Yet it also reflects the organization of Russian academia, which for scholars outside Moscow and St. Petersburg creates strong incentives to focus primarily on the economics of their region. Though regional universities in other countries also concentrate on regional problems, in Russia this seems to be much more pronounced. The second most popular group, industrial economics, simply represents the dominance of industry studies in Russia: 68.7% of the theses in this group are devoted to the discussion of particular industries (mostly dealing with issues of regulation). This is also very different from international research, where the main part of industrial economics is comprised of more general and theory-driven studies. The third group, public economics, is probably related to the immense importance of the state and governmental intervention in Russia. The fourth group, economic development, seems to be strongly driven by the interest of Russian scholars in innovation and technological progress. Finally, the fifth group, international economics, also includes a substantial share of theses on topics of national economic security (F5) – an area which is almost absent from Western research but is highly attractive to Russian scholars. Thus, the Russian economics community clearly favors the applied investigation of particular regions and industries, and investigations into governmental activity and economic security to more general and theoretically oriented work.

Second, *there is little evidence of the acceptance of internationally recognized methods in Russia.* We find that 15% of Dr. Sc. theses use some form of inductive statistics or econometrics, 11% apply formal models and 48% use simple quantitative criteria. 58% of the theses use at least one of these methods. Thus, on the one hand, the penetration of modern quantitative methods in Russian economics is relatively low. This is particularly striking in the case of econometrics, which is the most natural tool of the applied research so strongly favored by Russian economists. As the high share of ‘simple quantitative criteria’ shows, quantitative methods are, in the form of optimization routines, quantitative indicators etc., mainly used as tools to develop normative criteria for government or management decisions.

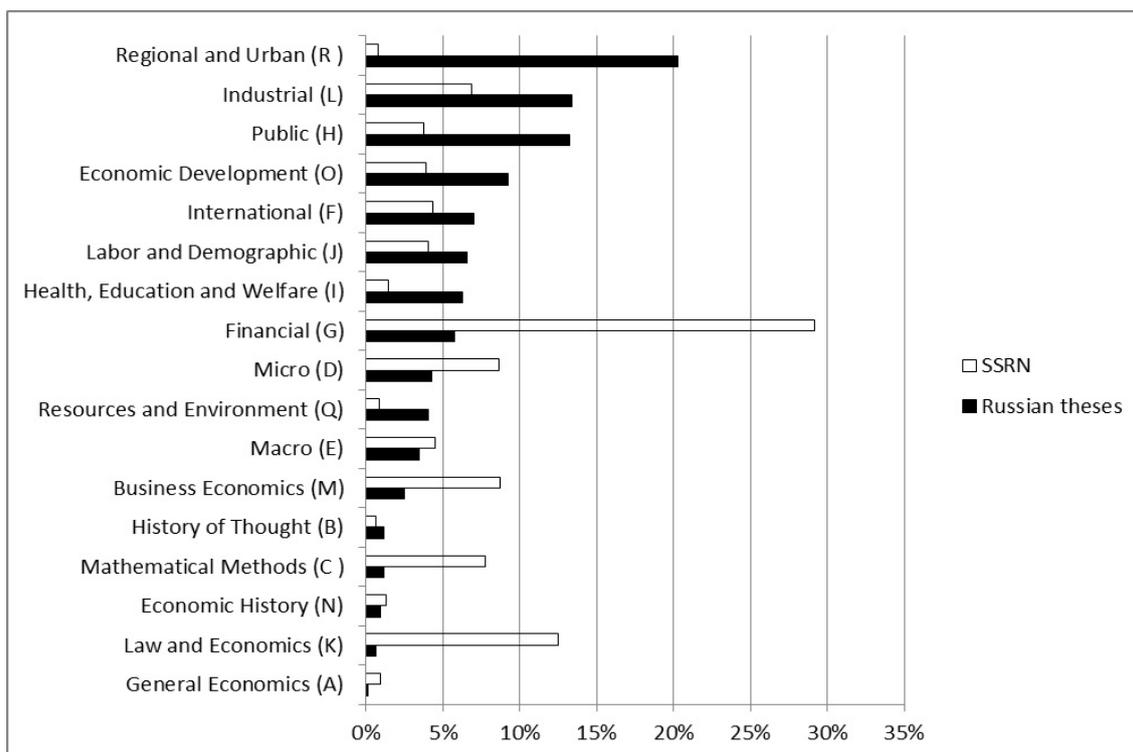


Figure 1 Distribution of Russian theses and SSRN papers according to topics

Third, we find that *the extent to which Russian scholars publish and present their work internationally is severely limited*. Altogether, 552 Dr. Sc. candidates published 258 papers in the OECD countries (less than 1% of the overall number of papers published²⁴) and presented their work at 273 conferences in the OECD countries.²⁵ The situation is much worse if one looks at peer-reviewed conferences and papers in well-established international journals. Altogether, our candidates presented 98 papers at peer-reviewed conferences and published 11 papers in well-established international journals listed in SCI/SSCI/Scopus. The list of journals is even more surprising: many of them are, strictly speaking, outside the domain of economics. Russian doctoral candidates published their work in *European Urban and Regional Studies*, *Environ-*

²⁴ In terms of total number of publications, on average a candidate published 45 papers before the defense (the highest figure was 279), or about 4 papers per year. Only three (!) researchers in our sample published more than 10% of their publications in OECD countries. 471 candidates did not publish a single paper in OECD countries.

²⁵ The fact that these numbers are so close to each other is not a coincidence: most of the papers were published in conference proceedings. 462 researchers did not make a single presentation in OECD countries.

mental and Resource Economics, Europe-Asia Studies, Energy Economics, European Journal of Contraception and Reproductive Healthcare, Emerging Market Review, Journal of Futures Markets, and Arab Law Quarterly. Clearly, it is possible that the candidates published more papers *after* their defense or have not cited some of their published papers in the *avtoreferat*, but this is still a very strong signal that either the Russian academia does not really value international journals, and/or that the quality of Russian research is too low to be published in international economics journals. Since the overall number of publications and presentations in the OECD countries is much larger than that of refereed presentations and publications in well-established journals, it is safe to say that the low presence of Russian doctoral candidates in international journals and conferences is determined not only by linguistic or financial constraints.²⁶

Fourth, *there are strong differences in the citation patterns of Russian and international scholars.* Table 1 reports the top thirty scholars cited by Russian Dr. Sc. candidates. Of these ‘top thirty’ only two (!) are also included in the REPEC list – Gary Becker and Joseph Stiglitz – and both of them are at the same time Nobel Prize winners. Instead of citing the currently leading foreign economists, Russian Dr. Sc. candidates cite either classic authors or Nobel laureates. The top six names look almost like chapters from a history of economics textbook: Adam Smith, John Maynard Keynes, Karl Marx, Joseph Schumpeter, Alfred Marshall and David Ricardo. They are followed by Joseph Stiglitz, who is probably better known to the Russian economists for his critique of neo-liberalism (which is very widespread in Russian academia) than for his theoretical contributions. The list also includes Nikolai Kondratief. Due to the popularity of neo-institutionalism among Russian economists, Ronald Coase, Oliver Williamson and Douglass C. North also receive much recognition. All in all, it is obvious that Russian economists pay much more attention to the status of the economists than to their current contributions. Andrei Shleifer, who holds the top position on the REPEC list and who has actually written a number of papers on

²⁶ Of the eleven papers mentioned above, one was published by a researcher simultaneously employed by a non-Russian university during the Dr. Sc. defense. Other international refereed journals in which Russian scholars have published are *Computer Enhanced Spectroscopy, European Security, European Journal of Comparative Economics, Journal of East-West Business* and *Economics of Planning* – again, one political science, one computer science, one management and two economics journals.

transition economies, is cited only 8 times in our database. James Heckman is cited only once, Robert Barro 12 times, and Daron Acemoglu 6 times. More than half of the top 100 REPEC scholars do not receive a single citation from the Russian Dr. Sc. candidates in economics.

Table 1 Number of citations of the top 30 most cited international economists in the Russian doctoral theses

Name	Number of citations
Adam Smith	153
John Maynard Keynes	140
Karl Marx	134
Joseph Schumpeter	131
Alfred Marshall	120
David Ricardo	106
Joseph Stiglitz	105
Douglass North	102
Paul Samuelson	101
Ronald Coase	82
Nikolai Kondratief	81
Oliver Williamson	72
Milton Friedman	68
Friedrich August von Hayek	68
John Stuart Mill	63
Wassily Leontief	59
John Hicks	56
Max Weber	56
Gary Becker	54
Gunnar Myrdal	51
Thorstein Veblen	48
Arthur Pigou	47
Robert Solow	44
John Bates Clark	40
William Petty	38
James Buchanan	37
Vilfredo Pareto	37
Jean-Baptiste Say	37
Alfred Weber	33
Kenneth Arrow	30

While it is possible to cite authors without really being familiar with their work, references to scholars from the REPEC list can, with some caution, be interpreted as an indicator of familiarity with modern economics. In the following, therefore, we will look separately at two indicators: the number of citations of the REPEC scholars, and from the Blaug list and the list of Nobel laureates (scholars who appear in both lists will be counted twice). Another peculiar feature of the citation practices of Russian Dr. Sc. candidates is that some of them tend to cite more non-economists than economists. They refer particularly often to management scientists (like Harry Ansoff or Peter Drucker) or sociologists (like Immanuel Wallerstein). This practice shows how blurred the borders between the social sciences still are – clearly a heritage of the Soviet past.²⁷

Summing up, the overall level of acceptance of international standards and integration into the global academic community is very low. While some of the differences (e.g. different focus on topics) should not necessarily be interpreted as negative (possibly, they reflect a somewhat different set of economic problems encountered by the Russian economy which Russian researchers attempt to take into account), we arrive at another quite negative conclusion: there is a very low degree of correspondence of the topics, citation patterns and methods chosen by Russian economists and their international colleagues. Indeed, the list of most cited scholars does not contain the key researchers working in the field of regional economics or industrial economics; the mostly empirical focus of Russian theses contradicts the negligible share of econometrics. One possible interpretation of these contradictions can be the primarily ‘ceremonial’ nature of the work done by Russian scholars.

This interpretation suggests itself if we look at the use of simple ‘quantitative methods’ in Russian theses. In many cases simple quantitative criteria look quite artificial in terms of conclusions and applications; unlike econometric models (which

²⁷ In the USSR many topics which would be attributed to sociology, political science or management in the West counted as part of ‘political economy’. As mentioned, after the start of the transformation different Russian scholars took different paths to international integration: essentially every researcher (sometimes by random chance) established contacts with other researchers abroad and, as a result, could have learned more about sociology or political science than actual economics. While today there are numerous scholars in Russia with systematic international training and foreign Ph.D. degrees, these old ‘patterns of integration’ still seem to influence the behavior of Russian academics.

reveal new regularities) and formal models (which allow the establishment of interesting equilibria or the application of comparative statics), ‘optimization approaches’ very often simply represent a weighting function including a number of parameters with an arbitrarily determined weight. Ultimately, in many cases the same claim could have been made without using any quantitative criteria at all; but if the latter are applied, the results of the thesis look more ‘scientific’. The ceremonial features of Russian Dr. Sc. theses in economics are even more obvious regarding citation practices. Though at the top of the list of the most cited foreign economists, it is highly doubtful that Adam Smith’s ideas have any significant impact on the highly applied work of ‘average’ Russian economists. Rather, references to Adam Smith (and other classic authors) are made very much in the same way as they were made to Marx and Engels during the Soviet period: in order to give ‘weight’ to some of the basic arguments.²⁸

Another characteristic confirms our interpretation of the ceremonial character of Russian economics: 58% (!) of the authors report that their results have already found practical application in the real economy or in public administration. If that really was the case, the relevance of research by Russian scholars for practitioners would probably be much higher than elsewhere in the world. However, taking this indicator at face value would be misleading. First, in many cases the statements regarding the practical implementation of the theses are exaggerated; in reality the candidates merely use their informal contacts to obtain the necessary confirmation. They do so in order to fulfill the official requirements, but the data reveal a kind of ‘excessive compliance’: the Supreme Attestation Commission requests the theses to have potential practical application, but not to have been used in practice already. Thus, although some researchers may attempt to minimize the bureaucratic risks associated

²⁸ This type of behavior is also indicated by the fact that many Russian scholars seem to cite textbooks in their *avtoreferaty*. While we cannot provide any unambiguous evidence for that (since, as mentioned, the *avtoreferat* includes only the *names* of the researchers, but not the full references), it is still worth noticing that many theses cite Campbell R. McConnell and Stanley L. Brue, the authors of the undergraduate economics textbook which was among the first to be translated into Russian and had an enormous influence on Russian scholars. Also the citations of Fisher, Dornbusch and Schmalensee are not rare, possibly representing the citation of their economics textbook. In fact, in our opinion, quite a few references to Samuelson may in fact be driven by the availability of the Russian translation of his famous textbook.

with the approval of their theses by the Commission after defense, this should not be the only explanation for this excessive compliance. It does, however, fit into and reinforce the picture of a ceremonial science still very much reflecting Soviet patterns. Practical recommendation is likely to be merely one more element Russian researchers want to add to their thesis to make it look more ‘scientific’, instead of focusing on the actual relevance of research questions, topics and methods.²⁹

3.2 ‘Core’ vs. ‘periphery’

In the next step we compare the ‘core’ and the ‘periphery’ of the Russian academic community from the point of view of the key regularities reported above. For this purpose, we compare the means of the key characteristics described above. There is one exception: as mentioned above, Russian Dr. Sc. candidates very rarely publish in leading international journals or present at refereed conferences. Therefore, we do not look at the *quantity* of papers and presentations by each scholar, but merely at a dummy equal to 1 for having presented/published at the relevant conferences or in the relevant journals (and zero otherwise). *Table 2* reports the results comparing the RAS and the rest of the country, the Moscow and the St. Petersburg State Universities and the rest, and Moscow and St. Petersburg with other regions.

At first glance, the RAS seems to clearly outperform universities in terms of the use of formal models (but not of econometric methods), and publications and presentations in the OECD countries; more candidates defending their theses at the RAS have published in well-established journals or presented their work at refereed conferences. At the same time, simple quantitative criteria, references to ‘classical scholars’ and to practical application are less frequent at the RAS than elsewhere. Thus, the RAS seems to show a higher level of adherence to international standards and a higher level of integration into the global academia according to almost all criteria. However, the

²⁹ We should also note that a certain fraction of the Russian doctoral theses *are* written by practitioners, who are interested in receiving the academic degree for status or image reasons. This is, in fact, rather a problem for us, as it may contaminate the sample. Since there is no way of clearly distinguishing the practitioners from the academics based on the information contained in the avtoreferaty, we acknowledge this limitation of our research. It is, however, unlikely that almost 60% of the theses are written and defended by practitioners.

relatively good performance of the RAS should be treated with caution. The contribution of the RAS in terms of publications and presentations abroad (including well-established journals) is strongly driven by a very small set of outliers. Still, it is possible to conclude that the research at the RAS is of a less ceremonial character than elsewhere. Among further observations, one should notice that on average researchers at the RAS have a higher scientific age;³⁰ thus, our conjecture that ‘older’ researchers may find it more difficult to adjust does not necessarily hold.³¹ Finally, RAS scholars are somewhat more likely to write theses on mathematical economics and less likely to work on business-related issues.

Table 2 Differences in academic performance and productivity between different segments of the Russian academia, mean comparison across samples

Variable	RAS vs. the rest	MSU/SPSU vs. the rest	Moscow/ St. Petersburg vs. the rest
Adherence to international standards/international integration			
Mathematical models	0.077*	-0.032	-0.042 ^{*a)}
Econometrics and advanced statistics	-0.055	-0.077	-0.076**
Simple quantitative criteria	-0.193***	-0.259***	-0.146***
Citations of REPEC scholars	0.017	0.962**	0.035
Citations of classical scholars	-1.204 ^{*a)}	2.425**	-1.867***
Presentations in OECD	0.505*	0.652*	0.397**
Publications in OECD	1.563***	0.205	0.438***
Well-established journals and refereed presentations	0.156***	0.027	0.045**

³⁰ The average ‘academic age’ for our full sample is 11 years, suggesting that most candidates started to publish only in the late 1990s and in the 2000s. While we have no exact data on this topic, assuming that the first paper was published at age 25–26 (with average university graduation age of 22–23 in Russia) we could conjecture that most members of our sample are 35–36 years old and thus spent most of their scientific career after the collapse of the Soviet Union, though were possibly trained at Soviet universities. There is, however, a substantial variation in this respect: 12% of the candidates report their first paper as having been published before 1991. We should note that many of these cite papers in applied mathematics (where the ideology bias was smaller) rather than economics, but some also include purely economics papers published before 1991 in the list.

³¹ This result, however, may be also driven by another consideration: researchers at the Academy may be equivalent to other Russian researchers in terms of age in a biological sense, but more prone to cite their older research. Thus, the result can be driven by the stronger orientation towards mathematical economics already present in the Academy of Sciences in the Soviet period. The next section investigates this topic in greater detail.

Table 2 (continued)

Variable	RAS vs. the rest	MSU/SPSU vs. the rest	Moscow/ St. Petersburg vs. the rest
Other characteristics			
Scientific age	2.944 ^{***}	2.325 ^{**}	0.612
First paper before 1991	0.187 ^{***}	0.017	0.045 [*]
Male	0.114 [*]	0.008	0.154 ^{***}
Total number of publications	4.383 ^{*a)}	-8.821 ^{**}	-6.770 ^{***}
Practical application	-0.110 [*]	-0.314 ^{**}	-0.167 ^{***}
Topics (JEL codes)			
General economics (A)	-0.002	-0.002	-0.004
History of thought (B)	-0.004	-0.020	0.003
Mathematical methods (C)	0.025 ^{*a)}	-0.023	-0.006
Microeconomics (D)	-0.032	-0.021	-0.018
Macroeconomics (E)	0.018	0.079 ^{**}	0.008
International economics (F)	0.029	0.168 ^{***}	0.088 ^{***}
Financial economics (G)	-0.034	-0.010	0.026
Public economics (H)	-0.066	-0.069	0.005
Health, education and welfare (I)	-0.044	-0.008	-0.028
Labor and demographic economics (J)	0.012	0.014	-0.026
Law and economics (K)	-0.014	0.014	0.015 ^{*a)}
Industrial economics (L)	-0.002	-0.098 ^{*a)}	-0.043
Business economics (M)	-0.037 ^{*a)}	-0.023	0.004
Economic history (N)	0.003	0.071 ^{***}	0.023 ^{**}
Economic development (O)	-0.014	0.071	0.014
Resource and environment economics (Q)	0.028	0.018	-0.005
Regional and urban economics (R)	-0.028	-0.258 ^{***}	-0.151 ^{***}

Note: significance of the difference of the means (two-tailed t-test, if not stated otherwise). ^{a)} significance is based on a one-tailed t-test. ^{***} significance at 1%, ^{**} 5%, ^{*} 10%.

The results for the Moscow and St. Petersburg State Universities show smaller differences to the rest of the Russian research community but, basically, again demonstrate a somewhat higher degree of international integration in terms of presentations in the OECD countries and citations of REPEC scholars. At the same time, practical application and simple quantitative criteria are also less frequent at the core universities. However, we still find more frequent references to the classical scholars than at other institutions. If we look at the geographical location of researchers, all in all, scholars working in Moscow and St. Petersburg are more

successful in terms of integration into the international scholarly community and adherence to international standards in almost all respects, and also less inclined to a purely ceremonial use of references, to practical application and simple quantitative criteria. We also find that scholars in the capital cities and at the two key national universities differ from scholars from the rest of the country regarding their choice of topics: they are significantly more likely to work on international economics and economic history and less likely to engage in regional economics. This is, as mentioned, once again a replication of old Soviet patterns. While at the ‘center’ the scholars were expected to have a ‘broader’ view, looking at topics ‘outside’ the national boundaries, in the periphery scholars were expected to study their own ‘regional’ economies.³²

Summing up, we find that the traditional ‘core’ of the Russian community is less inclined to purely ceremonial research and shows a higher level of adherence to international standards and integration into the global research community. Still, even for the ‘core’ the level of adherence to international standards, although higher than for the rest of academia, is relatively low. For example, if one looks at the RAS, the most cited researchers in the theses of the RAS scholars are still Schumpeter, Keynes, Marshall, Adam Smith, Stiglitz and Marx; on average, researchers from the RAS have published two papers in the OECD countries (about 60% of all Dr. Sc. candidates have not published a single paper in developed countries); and 76% of the theses use neither econometrics nor mathematical models. Furthermore, we find that the researchers at the ‘core’ differ from those at the ‘periphery’ in terms of the topics chosen, but we still do not see evidence that the choice of topics corresponds to that of the global academia.

³² This pattern is, however, not only a reflection of the Soviet past, but also of the very low mobility of Russian scholars, which leads them to focus on the problems of particular regions (see Frey and Eichenberger 1993 for a similar argument), and of expectations regarding the function of regional universities in post-Soviet Russia (Sokolov and Titaev 2013).

3.3 Quality of individual theses

The final step of our analysis deals with the individual research strategies of Dr. Sc. candidates. For this purpose, we run a set of regressions using the control variables described in section 2, using logit and ZINB, depending on the nature of the dependent variable. We should point out that some of the control variables (especially the choice of the topic) may be selected simultaneously with the methods of investigation, and therefore our results constitute merely correlations and not causal claims. Each regression is estimated for two samples: all theses and theses defended outside Moscow and St. Petersburg. The second sample may be important given the main task of this paper: to learn more about the research practices at ‘provincial’ Russian universities. All regressions are estimated with robust standard errors clustered at the regional level.

In addition to the baseline regressions, we also estimate a set of robustness checks as described below.³³ In the logit regressions, we use the following robustness checks: (a) dropping all region-specific controls and (b) dropping all JEL codes. For this estimation technique, we occasionally also had to exclude some JEL codes from regressions to avoid the perfect prediction problem.³⁴ Therefore, every regression including JEL code dummies was re-estimated twice: (a) dropping the respective dummy variables, but using all observations possible and (b) dropping the dummy variables and observations with respective JEL codes. In the ZINB regressions, the following seven robustness checks are estimated: (a) adding gender to the negative binomial stage;³⁵ (b) adding the practical application dummy to the negative binomial stage;³⁶ (c) adding some of the

³³ We do not report them in the main paper, but the estimations are available on request.

³⁴ A, K and N for dummy econometrics and dummy formal models for the full sample; A and K for dummy econometrics and the sample excluding Moscow and St. Petersburg; and A, B, I and K for dummy formal models and the sample excluding Moscow and St. Petersburg (there are no JEL codes N outside Moscow and St. Petersburg in our sample). These codes represent 15 observations for the full sample, 2 observations for the sample excluding Moscow and St. Petersburg (A and K) and 36 observations for the sample excluding Moscow and St. Petersburg (A, B, I and K).

³⁵ For example, if there are several sources of funds supporting the internationalization of a researcher, with some of them exercising some sort of gender discrimination and some not, it means that internationalization is feasible for both genders, but more costly for the discriminated one.

³⁶ As we have mentioned, practical application reported by Russian scholars is often purely ceremonial; thus, it may not require a full reorientation of the thesis, and may merely represent another source of costs (e.g. from obtaining confirmations from companies and agencies) thus limiting the effort researchers could spend on internationalization.

JEL codes to the inflation stage;³⁷ (d) adding region-specific controls to the inflation stage;³⁸ (e) adding time fixed effects to the inflation stage; (f) dropping region-specific controls and (g) dropping JEL codes. Unfortunately, in several cases we encounter a problem typical for ZINB regressions estimated with a large number of dummies: the estimator does not converge (for a recent similar example see Ledyeva et al. 2013). In this case we estimate ZIP models. An unfortunate disadvantage of the ZIP models is that they may under-estimate standard errors, so we have to be conservative in interpreting significant results. In some (rare) cases neither ZINB nor ZIP models converge, and we were forced to drop a particular robustness check.³⁹

Table 3 reports the findings of the ZINB regressions, and *Table 4* of the logit regressions. In the tables, the coefficients, which remain robust in *each and every specification* described above, are printed in bold; in the following, our discussion concentrates particularly on these robust effects. Probably our most obvious result is that we do not find a single characteristic with an unambiguously positive influence on all aspects of internationalization or adherence to international standards. The effect is always limited to merely some characteristics. Thus, we do not find evidence that there are certain segments of the Russian academic community which embrace international standards to a greater extent than others. Rather, internationalization happens at an

³⁷ We add JEL codes C (mathematical methods: this field may explicitly require the use of some sort of formal models or econometrics to comply with existing standards); F (international economics: it may be required from researchers in this field that they cite some foreign sources to show the ‘international’ nature of their research), K (law and economics: it may be biased towards a purely legal approach, which focuses on Russian law and thus makes internationalization impossible), N (economic history: scholars working on Russian history topics may generally be less interested in internationalization) and R (regional economics: as Sokolov and Titaev (2013) argue, research in this field is partly explicitly organized in a way consciously ignoring international standards).

³⁸ This accounts for the possible setup in which some regions in Russia make internationalization impossible at all (e.g. due to the extremely low salaries of researchers in poor regions).

³⁹ ZIP regressions were estimated for the full sample: for robustness check (a) and (e) and number of REPEC citations as dependent variable; for robustness check (d) and number of REPEC citations and OECD publications as dependent variables; for the sample excluding Moscow and St. Petersburg: for robustness checks (a), (b), (c), (e) and number of REPEC citations as dependent variable; for robustness check (d) and all dependent variables; for robustness check (f) and number of OECD publications as dependent variable; and for robustness check (g) and number of REPEC citations and OECD publications as dependent variables. For the following specifications, neither ZINB nor ZIP converged: full sample, robustness check (e), number of OECD publications as dependent variable; sample excluding Moscow and St. Petersburg, robustness check (c), number of OECD publications as dependent variable; and robustness check (e), number of OECD publications and presentations as dependent variables.

unequal pace in different research areas and in different organizations. Even individual scholars tend to comply with some aspects of international standards, but hardly ever with all of them. Since this outcome is observed almost twenty years after the start of post-socialist reforms, it may indicate that the ‘intermediate’ situation, when some groups of researchers adopt to certain, but not to all, aspects of international standards, may be stable over time. This would suggest that unless the full set of academic standards is adopted from the very beginning (as happened, say, at the NES, which is outside our sample), we cannot hope for slow convergence towards international standards over time.

Table 3 Correlates of international integration, ZINB

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.	REPEC citations	OECD presentations	OECD publications	REPEC citations	OECD presentations	OECD publications
Moscow and St. Petersburg included	Yes	Yes	Yes	No	No	No
Russian Academy of Sciences	0.110 (0.117)	1.086*** (0.194)	0.726* (0.408)	-1.141*** (0.424)	1.639 (1.412)	-2.747*** (0.541)
Moscow or St. Petersburg State Univ.	0.587*** (0.075)	0.056 (0.377)	-0.667*** (0.197)			
Scientific age	-0.006 (0.010)	-0.014 (0.031)	-0.116*** (0.009)	-0.025 (0.016)	0.077 (0.060)	-0.283*** (0.062)
Total number of publications	0.009** (0.004)	0.001 (0.010)	0.004 (0.004)	0.005 (0.004)	-0.035*** (0.010)	0.017*** (0.005)
JEL code: A	0.398** (0.190)	-13.067*** (1.112)	-38.780*** (1.191)	0.197 (0.650)	-5.644*** (1.610)	-3.617** (1.515)
JEL code: B	0.218 (0.186)	0.568 (0.570)	0.444 (0.358)	0.048 (0.518)	-20.885*** (1.566)	-13.480*** (1.078)
JEL code: C	-0.797** (0.376)	0.197 (0.437)	-0.555** (0.271)	-1.477 (1.129)	-2.793*** (0.916)	-15.820*** (0.937)
JEL code: D	1.055*** (0.305)	0.570 (0.485)	0.179 (0.328)	0.235 (0.352)	-0.092 (1.445)	-0.804 (1.112)
JEL code: E	0.988*** (0.242)	0.002 (0.490)	0.156 (0.275)	0.958** (0.412)	-0.002 (1.011)	-3.949** (1.924)
JEL code: F	0.737*** (0.179)	2.277*** (0.334)	1.730*** (0.623)	-0.326 (0.381)	3.550*** (0.741)	3.748** (1.566)
JEL code: G	0.306 (0.320)	0.626* (0.349)	0.683 (0.449)	-0.370 (0.299)	2.720*** (0.888)	0.843 (1.123)
JEL code: H	0.051 (0.132)	0.154 (0.385)	-0.358 (0.270)	-0.111 (0.257)	-0.920 (0.727)	-3.606*** (0.759)
JEL code I	-0.029 (0.187)	0.905*** (0.229)	0.174 (0.519)	-0.402 (0.278)	0.909 (0.668)	1.543*** (0.418)
JEL code: J	-0.045 (0.159)	1.205** (0.485)	1.251*** (0.455)	-0.395 (0.411)	3.151*** (0.493)	-1.646 (1.047)

Table 3 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
JEL code: K	-0.357 (0.751)	-12.826*** (0.995)	-16.170*** (0.973)	-0.343 (0.383)	-21.781*** (1.551)	-14.303*** (1.879)
JEL code: L	-0.150 (0.192)	-0.429** (0.212)	-0.277 (0.341)	-0.580** (0.275)	-0.349 (0.791)	-2.238*** (0.680)
JEL code: M	-0.869** (0.371)	1.085** (0.456)	0.420 (0.696)	-0.176 (0.558)	3.836*** (1.450)	3.185** (1.528)
JEL code: N	-1.133*** (0.147)	-0.893* (0.455)	-0.535 (1.012)			
JEL code: O	0.391*** (0.137)	-0.205 (0.492)	-0.154 (0.742)	0.226 (0.278)	1.264 (0.921)	2.627* (1.418)
JEL code: Q	-0.173 (0.389)	1.450** (0.615)	1.114*** (0.407)	-0.767 (0.900)	1.950° (1.118)	2.979° (1.750)
JEL code: R	-0.228 (0.226)	0.043 (0.370)	0.315 (0.212)	-0.364 (0.373)	0.554 (0.497)	-1.753*** (0.606)
Distance from Moscow	-0.026 (0.077)	0.050 (0.137)	-0.138 (0.147)	-0.144** (0.073)	-0.254 (0.301)	-0.035 (0.102)
Income per capita	0.070* (0.036)	-0.125** (0.052)	-0.121 (0.082)	0.279*** (0.064)	-0.230 (0.156)	-0.027 (0.127)
Population	-0.000* (0.000)	0.000** (0.000)	0.000 (0.000)	-0.000** (0.000)	0.000 (0.000)	0.000 (0.000)
Urbanization	-0.006 (0.006)	0.045*** (0.016)	0.040*** (0.010)	-0.004 (0.017)	0.129*** (0.047)	0.092*** (0.034)
Republic dummy	0.549 (0.346)	-1.291 (0.792)	-0.369 (0.992)	0.489*** (0.187)	-1.821 (4.937)	1.857** (0.921)
Constant	-0.760 (0.645)	-3.760** (1.646)	-1.207 (1.165)	-1.555 (1.067)	-7.579*** (2.225)	-2.958 (2.206)
Inflation stage						
Russian Academy of Sciences	0.039 (0.621)	0.007 (0.376)	-1.823*** (0.499)	0.284 (0.643)	0.047 (0.833)	-20.930*** (1.260)
Moscow or St. Petersburg State Univ.	-31.998*** (0.830)	-1.462*** (0.413)	-1.421*** (0.183)			
Scientific age	-0.090* (0.048)	-0.075 (0.136)	-0.190*** (0.056)	-0.049 (0.034)	-0.021 (0.053)	-0.303*** (0.086)
Total number of publications	0.027** (0.011)	-0.045*** (0.006)	-0.025*** (0.008)	0.009 (0.009)	-0.082*** (0.019)	-0.029** (0.011)
Male	0.280 (0.765)	-0.914 (0.622)	-0.173 (0.339)	-0.230 (0.463)	-1.215** (0.618)	0.606 (0.715)
Practical applications	13.209 (11.139)	-0.069 (0.577)	0.354 (0.299)	1.596*** (0.574)	-0.881 (0.559)	0.422 (0.735)
Constant	-14.909 (10.730)	3.117*** (0.863)	4.355*** (0.468)	-1.582* (0.879)	5.908*** (1.405)	5.572*** (1.284)
Observations	552	552	552	243	243	243

Note: All regressions estimated using clustered standard errors and including time fixed effects in the count model stage. Robust standard errors in parentheses. *** significance at 1% level, ** 5%, * 10%. Inflation stage estimated using logit. In regression (4) ZINB model does not converge; hence, results for a ZIP model reported. Results, which are robust to all modifications of specifications, are marked bold. JEL code N dummy is excluded from regressions (4)–(6), since there are no theses with this JEL code in this sub-sample.

Let us summarize the more specific findings, starting with individual-specific characteristics. First, researchers from the RAS seem to perform somewhat better in terms of internationalization: if we look at the full sample, they are more likely to publish in the OECD countries (both inflation and negative binomial stage). However, the results for the RAS are primarily determined by the institutes located in Moscow and St. Petersburg and disappear if one excludes the capitals and looks only at the provincial RAS branches; here the scholars of the RAS are more likely to publish in OECD than scholars from other institutions (inflation stage), but less likely to have a large number of publications (negative binomial stage).⁴⁰ We also find that the scholars from the RAS are, *ceteris paribus*, less likely to use econometrics than the rest of our sample. Second, the scholars from the Moscow and St. Petersburg State Universities cite more REPEC scholars than other researchers and are more likely to publish in OECD countries (but they tend to be less likely to use econometrics). Third, we also find that researchers with a larger number of publications in Russia are also more likely to publish in OECD countries. Thus, there seems to be no trade-off between publishing in Russia and internationally. At the same time, a large number of publications is negatively correlated with the probability of using formal models, which may indicate the existence of higher requirements in this segment of Russian economics. A large number of publications also reduces the probability of citing REPEC scholars. Fourth, we find that ‘scientific age’ has a positive influence on the probability of using econometrics. The latter fact may also, as mentioned, have another explanation: it is possible that more ‘formal’ researchers have a higher propensity to cite their older work, since the impact of ‘ideological bias’ is smaller; we do not find this effect for the formal models though. We do find that researchers with a greater ‘scientific age’ are also more likely to publish in the OECD, but less likely to have a large number of OECD publications.⁴¹

⁴⁰ This may indicate that there is a huge quality gap within the RAS itself; while the Moscow and St. Petersburg institutes are at least more aware of the global economic discourse, the provincial institutes (remember, though, that Novosibirsk is almost absent in our sample) are worse than their counterparts from the university sector.

⁴¹ This may indicate that older researchers are more likely to have received an opportunity for OECD publication by random chance, e.g. through an invitation to an edited volume, during their longer career. It may also reflect the greater interest in Russia-specific topics among international academia immediately after the transition started.

If we look at thesis-specific characteristics, we find that there is some correlation between the research topics and the level of integration into the international community. The most robust effect is that research in international economics leads to more presentations and publications in OECD countries (it also leads to more REPEC citations, but the effect is not robust in one of the additional specifications we estimate). As mentioned above, this may be due to the self-perception of researchers in this area, who are more likely to seek opinions and to communicate with foreign scholars. At the same time, scholars in this field are less likely to use formal models. Among other fields, K (law and economics) is, as expected, less prone to have a large number of publications and presentations in OECD countries; researchers of this field also never use econometrics or formal models. Researchers in area C (mathematical methods) are more likely to use formal models and (though this result is less robust) econometrics,⁴² as one would expect, but have lower indicators of internationalization (the effect is often not robust though; if we include the JEL codes in the inflation stage, we find that researchers in this area are more likely to publish in the OECD, present in the OECD and cite scholars from the OECD, but have a lower number of OECD publications⁴³). Most other indicators vary a lot depending on the sample and the particular proxy of internationalization and research methods.

The effect of region-specific controls is more difficult to interpret; while they are occasionally robust to change of specification, the sign varies a lot for different dependent variables. There seems to be no particular characteristic of regions which has an unambiguously positive effect on internationalization; the only dimension which never has a significant negative effect is urbanization (but it is insignificant or not robust for many dependent variables). There is no evidence that the level of integration systematically decreases when researchers work further away from the capital.

⁴² Interestingly, this effect is substantially less robust if we exclude Moscow and St. Petersburg: meaning that outside the capital cities research in area C is mostly about what we called simple quantitative criteria.

⁴³ Results are reported for full sample. They may indicate that in the community of ‘mathematical economists’ in Russia some evidence of internationalization is welcomed, but there is no incentive to go beyond the basic level, or that mathematical economists face higher costs in producing each additional publication, and therefore have fewer of them, but that they are also of a higher quality.

Table 4 Methodological choices of Russian scholars, logit

	(7)	(8)	(9)	(10)
Dep. var.:	Dummy econometrics	Dummy formal models	Dummy Econometrics	Dummy formal models
Moscow and St. Petersburg included	Yes	Yes	No	No
Male	0.363* (0.206)	0.054 (0.313)	0.465 (0.327)	0.460 (0.519)
Russian Academy of Sciences	-0.698** (0.304)	0.454* (0.270)	-0.333 (0.849)	0.404 (0.585)
Moscow or St. Petersburg State Univ.	-0.615*** (0.218)	-0.337 (0.259)		
Scientific age	0.035* (0.019)	0.008 (0.014)	0.067* (0.037)	0.021 (0.023)
Practical applications	0.203 (0.266)	-0.134 (0.282)	-0.045 (0.448)	-0.672 (0.428)
Total number of publications	-0.001 (0.007)	-0.020*** (0.007)	-0.020 (0.014)	-0.013 (0.009)
JEL code: B	0.246 (0.709)	-0.607 (0.862)	-0.316 (1.327)	
JEL code: C	0.959* (0.545)	2.514*** (0.708)	0.207 (1.045)	1.974*** (0.719)
JEL code: D	-0.227 (0.498)	0.638 (0.614)	-0.530 (0.837)	-0.012 (0.635)
JEL code: E	0.810 (0.543)	0.770 (0.595)	1.776** (0.748)	0.686 (0.754)
JEL code: F	0.030 (0.348)	-1.040*** (0.389)	-0.363 (0.912)	-1.231 (0.935)
JEL code: G	-0.482 (0.473)	-0.568 (0.532)	-0.988 (0.903)	-0.101 (0.752)
JEL code: H	-0.217 (0.370)	-1.022** (0.418)	-0.622 (0.740)	-0.626 (0.740)
JEL code I	0.139 (0.460)	-1.801* (1.054)	0.507 (0.699)	
JEL code: J	0.656** (0.301)	-0.794 (0.899)	0.661 (0.506)	-0.702 (1.025)
JEL code: L	-0.037 (0.292)	0.413 (0.539)	0.200 (0.564)	0.082 (0.592)
JEL code: M	-0.736 (0.691)	-1.638 (1.304)	-1.087 (1.151)	-1.013 (1.812)

Table 4 (continued)

	(7)	(8)	(9)	(10)
JEL code: O	-0.997* (0.540)	0.058 (0.535)	-1.822** (0.719)	-0.345 (0.719)
JEL code: Q	0.052 (0.578)	0.293 (0.632)	-1.417 (1.353)	0.327 (0.983)
JEL code: R	0.325 (0.285)	-0.534 (0.354)	0.292 (0.582)	-0.457 (0.610)
Distance from Moscow	-0.004 (0.112)	0.338*** (0.112)	-0.060 (0.130)	0.328*** (0.124)
Income per capita	-0.019 (0.057)	-0.136 (0.088)	-0.015 (0.142)	-0.054 (0.135)
Population	0.000 (0.000)	0.000* (0.000)	0.000 (0.000)	0.000* (0.000)
Urbanization	-0.018 (0.012)	-0.018 (0.015)	-0.023 (0.029)	-0.018 (0.032)
Republic dummy	0.097 (0.441)	-0.65 (0.654)	-0.068 (0.486)	-0.654 (0.659)
Constant	-0.417 (0.986)	0.59 (1.418)	0.184 (1.927)	-0.97 (2.166)
Observations	552	552	243	243
Pseudo R-squared	0.094	0.205	0.170	0.178

Note: selected JEL codes are omitted due to perfect prediction problem. All regressions estimated using clustered standard errors and including time fixed effects. For the JEL codes, as the baseline option we use the very few these assigned P and Z (economics of religion) groups. Robust standard errors in parentheses. *** significance at 1% level, ** 5%, * 10%. Results, which are robust to all modifications of specifications, are marked bold.

4 Conclusion

The aim of this paper was to learn more about economic research, and, indirectly, teaching at average Russian universities and research units. We argued that this kind of research tells us something about ‘economic culture’, which has an important impact on the quality of economic decision-making in politics, administration and enterprises. This ‘culture’ might also have an impact on the understanding and acceptance of the market mechanism among broader strata of the population. We see the present paper as an attempt to enrich the existing empirical literature on the state of the art of Russian economics by analyzing a rich dataset of 552 *avtoreferaty* of Dr. Sc. theses submitted between 2007 and 2010. This material has not yet been taken into account and provides interesting insights both because Dr. Sc. theses serve similar purposes to journal articles in the West (namely the dissemination of economic, mostly theoretically oriented knowledge and as a selection tool for the market of academic careers and positions), and because it improves our understanding of the research by average Russian economists working at average Russian university and research facilities.

Our analysis provides us with the following overall picture of the average Russian Dr. Sc. candidates in economics. They are usually engaged in highly applied work (which has ideally already been applied in practice) and focus on particular regions and industries. They use mathematics, but usually merely as a tool to provide helpful guidelines for optimal decisions rather than as an instrument of formal modeling or econometric analysis, which are basically absent from Russian Dr. Sc. theses.⁴⁴ The typical Dr. Sc. candidate does not publish internationally and does not follow the current developments in economics. References to international authors are usually to classic authors or to Nobel Prize winners, not to current leading scientists. This overall picture shows that the old Soviet patterns still have a strong impact on the practice of today’s average Russian economists. Besides the ideological restrictions, an instrumental, practically oriented approach to the social sciences (and correspondingly a dismissive attitude to pure theory as a decadent art for art’s sake) was the all-decisive characteristic of Soviet political economy. The institutionalized habit of demonstrating the practical application of a scientific work is an expression of this attitude.

⁴⁴ Still, and we believe this to be an important point, Russian doctoral theses are more theoretically oriented and much more likely to apply quantitative methods than Russian journal articles.

Our results also suggest a predominantly ‘ceremonial’ attitude towards research in economics in Russia: various elements (practical relevance, simple quantitative methods, citations of classical economists) are combined without really taking into account how they could fit to each other or whether they are helpful for producing the desired research objective. We should stress that the ‘ceremonial’ approach to science is not unique to Russia; for example, there exists a large debate about the abuse of significance tests in empirical economics which also points out that they are used without proper understanding merely to make the research look more scientific.⁴⁵ This is not the place to engage in detailed discussion of this topic; still, we can conclude that the extent to which economics in Russia is ‘ceremonial’ is extremely high. The research done in the capital cities, at the Moscow and St. Petersburg State Universities and at the Russian Academy of Sciences (especially in the Moscow and St. Petersburg institutes) seems to be less ‘ceremonial’ and shows a higher level of adherence to international standards. However, while the situation is better than in the rest of Russia, it still leaves much to be desired. Finally, we do not find a single scholarly community in Russia that successfully demonstrates acceptance of international standards. What we see is, rather, that some elements of these standards are accepted by some communities without taking others into account.

Now if our thesis is correct that Dr. Sc. theses are representative of the state of the art of economics at average Russian universities and if what is being taught there has an impact on the Russian economic mind, what can we then conclude from our study? Research and teaching in today’s Russia still seem to be firmly in the grip of patterns shaped by the Soviet past. These patterns are likely to reproduce themselves. Even if the old theoretical foundation for research is no longer used, it seems to have been replaced by a ceremonial approach to science rather than by convergence to global standards.

While some individual researchers and groups of researchers are more able and willing than others to adapt to global influences, in many cases they take up international standards only partially and thus still encounter severe difficulties when communicating with their international colleagues. All in all the positive spillover effects

⁴⁵ Different points of view on this topic are discussed in Altman 2004; DeLong and Lang 1992; Engsted 2009; Gigerenzer 2004; Hoover and Siegler 2008; Kraemer 2011; Mayer 2012; McCloskey and Ziliak 1996; Ziliak and McCloskey 2004; 2008.

generated by the island of excellency established after 1990 seem to be rather limited. Hence, our results suggest that most Russian administrators can be expected to demonstrate a very poor understanding of the economy and, at the same time, have little respect for the economics profession, which they have observed as being a mostly 'ceremonial' one. Thus, the poor state of the economics profession is likely to be among the factors contributing to the very poor quality of governance in Russia. There are good reasons to fear that this obstacle to development will be a lasting one.

The question remains whether there is any way to overcome these barriers. From this point of view, it would probably be very interesting to look at the quality of research in other comparable large transition countries, where similar problems are likely to exist. Small transition countries are unlikely to serve as a good reference point, since the task of reforming merely a handful of universities is far less challenging in terms of the human capital (i.e. qualified researchers) and monitoring capacity required than the task Russia is facing. One possible case of comparison is China. It is a transition country which in the past has been separated from the global academic community to an even greater extent than Russia, and it has a very large domestic scholarly community, yet at the same time the government seems to have set much stronger incentives towards internationalization. However, while it is well known that top universities in China are fully adherent to international standards (Yu and Gao 2010), there has been little research on how economics is practiced at lower ranked research institutions.

As a final caveat, we should mention that our study is not representative of key internationalized departments in Russia – the NES and the HSE, as well as the EUSPb (in business administration we should also mention the Graduate School of Management of the St. Petersburg State University). In recent decades some of these departments have established themselves as highly competitive in the international market for research; some show extremely positive tendencies. Yet again: their researchers rarely defend Dr. Sc. theses, and the main requirement for the advancement of their academic careers is publications in international journals (often combined with a Ph.D. degree from a recognized Western university). However, our paper depicts rather accurately the *average Russian universities*, i.e. the places where most of the middle- and lower-level administrators and bureaucrats, regional officials, politicians, managers and businessmen are trained.

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Appendix

A1 Spatial distribution of Dr. Sc. theses in our sample

Region	Share of total number of theses in %	Number of theses per 1,000 of the regional population
Arkhangelsk	0.181	0.079
Astrakhan	0.181	0.100
Chelyabinsk	0.181	0.028
Chuvashia	0.181	0.078
Kalmykia	0.181	0.351
Karelia	0.181	0.145
Kemerovo	0.181	0.035
Magadan	0.181	0.608
Mordovia	0.181	0.120
Northern Ossetia	0.181	0.142
Novgorod	0.181	0.154
Sakha	0.181	0.105
Udmurtia	0.181	0.065
Vologda	0.181	0.082
Kaliningrad	0.362	0.213
Kostroma	0.362	0.288
Nizhny Novgorod	0.362	0.060
Orenburg	0.362	0.095
Perm	0.362	0.074
Primorski Krai	0.362	0.100
Ulianovsk	0.362	0.153
Buriatia	0.543	0.312
Irkutsk	0.543	0.120
Omsk	0.543	0.149
Bashkortostan	0.725	0.099
Belgorod	0.725	0.263
Dagestan	0.725	0.148
Ivanovo	0.725	0.372
Khabarovsk	0.725	0.285
Krasnoiarsk	0.725	0.138
Mariy El	0.725	0.570

A1 (continued)

Region	Share of total number of theses in %	Number of theses per 1,000 of the regional population
Vladimir	0.725	0.277
Kabardino-Balkaria	0.906	0.561
Novosibirsk	0.906	0.190
Adygeia	1.087	1.357
Tomsk	1.268	0.675
Voronezh	1.268	0.308
Volgograd	1.449	0.307
Moscow Oblast	1.630	0.134
Krasnodar	1.812	0.195
Samara	1.812	0.315
Tambov	1.812	0.908
Saratov	1.993	0.427
Stavropol	1.993	0.406
Orel	2.355	1.587
Tatarstan	2.717	0.398
Rostov	4.167	0.541
Ekaterinburg	4.348	0.546
St. Petersburg	13.768	1.661
Moscow (City)	42.210	2.221

A2 Description of key variables

Variable	Definition
Citation of classical scholars	Number of scholars included in the Blaug list cited in the avtoreferat
Citation of Nobel laureates	Number of Nobel laureates (until 2010) cited in the avtoreferat
Citation of REPEC scholars	Number of scholars included in the top 100 REPEC ranking (as of July 1, 2011) cited in the avtoreferat
Distance from Moscow	Distance between the City of Moscow and the capital of the region, where the thesis was written, as reported by the Russian official statistics, thousands of km, 0 for Moscow City and Moscow region
Dummy econometrics	1 for theses using some soft of econometrics or inductive statistics (including regression and correlation analysis, hierarchical cluster analysis and factor analysis) and zero otherwise

A2 (continued)

Variable	Definition
Dummy first paper before 1991	1 if the first paper published in the thesis appeared before 1991, and zero otherwise
Dummy male	1 for male and zero for female candidates
Dummy mathematical models	1 for theses using mathematical models (including calibrated models) and zero otherwise
Dummy MSU/SPSU	1 if the thesis was written at the Moscow or St. Petersburg State Universities and zero otherwise
Dummy practical application	1 if the avtoreferat mentions a particular organization (governmental agency, company etc.) which has already used the results of the thesis in its work, and zero otherwise
Dummy publications in well-established journals and refereed conferences	1 if researcher has either (a) published a paper in a journal, included in SSCI, SCI or Scopus or (b) presented a paper at a regularly organized conference of international scholarly associations which, according to its call for papers, have a refereeing process for the papers submitted
Dummy RAS	1 if the thesis was written at an institute of the Russian Academy of Sciences and zero otherwise
Dummy republic	1 if the region, where the thesis was written, is an ethnic republic, and zero otherwise
Dummy simple quantitative criteria	1 for theses containing simple quantitative expressions (formulas for computing statistics or optimization routines) without any actual statistical calculations or specifying a full model and zero otherwise
Income per capita	Average monthly income per capita from all sources in the region, where the thesis was defended, thousands of RUR, as reported by the official Russian statistics
JEL code dummies	1 if at least one of two JEL codes assigned to each thesis corresponds to particular group (only highest-order JEL codes used) and zero otherwise.
Population	Population of the region, where the thesis was written, in thousands of people, as reported by the official Russian statistics
Presentations in OECD	Number of presentations held by researcher in OECD countries throughout her or his career. Presentations held before these countries joined OECD (e.g. during Socialist times) excluded. Conferences and seminars that took place in OECD countries but were organized only for Russian participants excluded, as, in our view, this kind of event does not contribute to international integration in any way.
Publications in OECD	Number of papers published by a researcher in OECD countries throughout her or his career (including conference proceedings). Papers published before these countries joined OECD excluded.

A2 (continued)

Variable	Definition
Scientific age	Year of defense of the thesis minus the year in which the first paper was published by the researcher (in case the avtoreferat explicitly mentions an earlier starting date of research project, this earlier date is used)
Total number of publications	Total number of publications (including conference proceedings and, if mentioned, newspaper articles) by the researcher, listed in the avtoreferat
Urbanization	Share of population of the region, where the thesis was written, residing in cities in %, as reported by the official Russian statistics

Notes:

1. The gender variable was obtained based on the given names of candidates, as well as the gender form of surnames, which are used in the Russian language for most Russian surnames. The approach allowed us to identify gender unambiguously.
2. We have been extremely generous in assigning the value of 1 to the dummy econometrics: even if the thesis uses some simple bivariate regressions, we still consider this to be an application of statistical/econometric methods. Had we been more demanding, we would have probably ended up granting only one or two theses a 'one'.
3. The reason for restricting our attention to the OECD countries is that the lion's share of presentation and publishing activities of Russian Dr. Sc. candidates still takes place in other post-socialist countries that are also not yet integrated into the international community. In fact, in our opinion looking at all OECD countries overestimates rather than underestimates the degree of internationalization of the Russian academia, as in some cases (Estonia, Poland, Czech Republic) the publications and presentations are likely to follow the old ties established during the Soviet period.
4. For international publications and publications in well-established journals, we have excluded those journals which publish English translations of articles originally written in Russian and published in Russia as this would have led to major distortions (these journals are currently published by ME Sharpe, EastView and MAIK Nauka/Interperiodika). In addition, Russian Dr. Sc. candidates sometimes publish in English-language publications of Russian universities and research associations (e.g. *European Journal of Natural History* or *International Journal of Applied and Fundamental Research*, which are not listed in SSCI/SCI/Scopus); all these journals are excluded from the list of international publications.
5. International refereed conferences were included regardless of the conference site (quite a few of them take place in developing countries, and in one case a conference was held in Russia).
6. The Nobel Prize winners list and the REPEC partly cover the same economists, if a particular Nobel Prize winner is also among the current leading economists according to REPEC. We should point out that the lists we use to identify influential economists include two economists who spent their career in Russia: Nikolai Kondratief (who is listed in the Blaug list) and Leonid Kantorovich (a Nobel Prize winner). We counted the number of citations of these two researchers as well: if some Russian scholars have been recognized as having a major impact on the development of economics by the international community, it would be unreasonable to expect that adherence to the international standards and integration into the global community requires Russian scholars to cite these researchers to a lesser extent.
7. For JEL codes, we have refrained from using the P group of the JEL codes ('economic systems'), since it is generally speaking applicable to almost all empirical theses (most of them deal with the Russian transition in some way), unless using the P group was the only viable option. We have limited the number of different JEL codes assigned to each thesis to a maximum of two, since otherwise the compatibility of entries for different theses would be limited.
8. One thesis in our sample was written at an institute of the Academy of Sciences of Tatarstan; in this case, dummy RAS is also set to be equal to 1.