Russian Regional Institutions: Measurement, Typology, and Dynamics[1]

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1. Introduction

Successes and failures in economic development are associated with institutions – "rules of the game" in the economy and society, which create more or less favorable environments for economic activity. Effective institutions support entrepreneurship, attract investments, and promote economic growth. On the contrary, stagnation and poverty, even when resources are abundant, are usually associated with flaws in the institutional environment.

Once it is realized how important institutions are for economic development, it is natural to make an attempt to measure institutional quality. Interest in such measures can be explained by at least three reasons. First, entrepreneurs and investors who choose countries and regions for their operations need assessments of investment climate in prospective jurisdictions. Second, these indicators are useful in assessing the performance of government agencies by voters, higher authorities (in case of regions), and by international organizations, which often condition assistance, loans, membership in developed countries club, etc., on the quality of national institutions. Measurable improvement of institutions reflected by international ratings could be included in political platforms and campaign promises, as it recently happened in Russia. Finally, analysts need these ratings in order to forecast development of national and regional economies, identify their competitive advantages and "bottlenecks", and to evaluate the impact of various factors (history, geography, public policy, social structure, norms, and values etc.) on the quality of institutions.

Of course, the measurement of institutions and their contribution to economic outcomes must be preceded by a clear definition of the institutions. In the literature there are different points of view as to what can and cannot be considered institutions. Common definition of institutions by D. North as man-made "rules of the game" in the economy and society admits various interpretations. In particular, there are formal and informal institutions; in addition institutions are contrasted to organizations, however subtle the differences between the two could be. Both statutory regulations and their implementation and enforcement practices can be considered as institutions. Long-term institutes are contrasted with shorter-term policies emphasizing the role of institutions as constraints on the choices made by governments and private sector agents. A hierarchy can be established among institutions – basic institutions (such as e.g. constitutional provisions) shape the framework for economic activity, including dispute resolution, property and contract rights, competition, etc. Various parts of such framework, in their turn, could also be considered as institutions. Disagreements in the literature about the extent to which institutions affect economic and social outcomes are largely due to different interpretations of the very concept of institution.

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As definitions of institutions differ, so do approaches to institutional measurement. Measures of institutions can be formal – in this case they record presence or absence of certain regulatory authorities, legislation, officially prescribed procedures, and so forth. Another possibility is to use substantive indices reflecting the opinions, experiences and appraisals of institutions' users (for example, entrepreneurs, managers, citizens), as well as external experts who are able to compare the quality of institutions in different jurisdictions (Voigt, 2013). Finally, institutions can be gauged by indirect indicators which are observable and measurable and expected to be correlated with institutions of interest. Presently there many dozens of institutional quality measures produced by rating agencies, think tanks, international organizations and research groups. Despite the fact that these measures are susceptible to criticism (see Langbein, Knack, 2010; Thomas, 2010; Glaeser et al., 2004), they are widely used in academic literature, applied analyses, and for other purposes.

Various measures are available for Russian institutions, including the protection of property rights, rule of law, business climate, government accountability and effectiveness, etc. However, it is well known institutional environment in Russia is highly uneven across its vast territory, and Russian regions exhibit significant differences in investment attractiveness, business climate, and regional government effectiveness. Nation-wide institutional measures do not reflect (and in fact hide) such variations (Snyder, 2001); to have a better idea of the actual conditions on the ground, one needs institutional measures for particular regions.

Indices and ratings of Russian regional institutions were being produced over the last 10-15 years. Although they are not as varied and numerous as country-level indices of institutional quality, their number has exceeded a few dozen. It is not easy for potential "consumers" to navigate this variety, and therefore there is a need for an analysis of available indices, as well as assessment of their suitability for academic and practical purposes. This problem has not received proper attention in the literature (one of the few such studies is by Libman and Kozlov (2013)), and the present paper is intended to partially fill this gap.

Our first order of business is to analyze the links between the various indicators of the regional institutions and, in particular, to find out to what extent these indicators are correlated with each other. In the case of high statistically significant correlations of most indicators with each other one can rank regions in terms of their overall institutional performance. Conversely, a weak correlation between individual indices supports a "multidimensional" view of regional institutions. In this case it would be problematic to derive composite institutional indexes by aggregating partial indicators such as rule of law, competitiveness of the regional economy, corruption prevention, etc. It should be borne in mind that the above institutional categories are themselves generalized concepts ("constructs"), and the ability to measure them is not obvious a priori and must also be confirmed empirically using various specific indices.

In this paper we consider as regional institutions various aspects and components of the actual regional environment for economic activities. As noted above, this extended interpretation contradicts the «narrow» one, which is common in the literature and defines institutions as the long-term constraints on economic, administrative, and political decision-making. We base our interpretation on the fact that the institutions «de-facto», not «de jure», are relevant for development; furthermore sometimes there is no significant and robust relation between institutions de jure and de facto. Cross-country studies show that formal legal provisions, including

constitutional norms such as checks and balances, do not in and of themselves systematically affect economic outcomes – the mere existence of these norms does not guarantee their enforcement (Glaeser et al., 2004). When governments are not properly accountable, bureaucrats and/or interest groups easily sidestep, if needed, statutory requirements or manipulate and misinterpret those (Acemoglu et al., 2008).

Implementation practices could be of greater immediate relevance for doing business than the formal rules proper. This is particularly likely in Russia where lax and arbitrary implementation proverbially compensates for excessive tightness and rigidity of statutory requirements. Furthermore in Russia legislation and other institutions are commonly misused (for the more details see Polishchuk, 2008), which further widens the gap between formal institutions and the actual conditions on the ground.

In our analysis we preserve the defining "man-made" characteristic of institutions which emphasizes their dependence on government actions and policies, as well as on the prevailing conventions and behavioural practices. Hence institutions are contrasted with exogenous factors of regional development, such as geography, resource abundance, historically shaped structure of the regional economy, socio-cultural characteristics and ethnic mix of the population, etc. Sometimes it is difficult to separate «man-made» institutions from exogenous factors, since history and geography are powerful institutional determinants (technically speaking, they serve as "instrumental variables" for institutions) (Sokoloff, Engerman, 2000; Acemoglu et al., 2001; 2002). In turn, institutions affect other factors which are essential for regional development, such as norms and values of population, human capital accumulation, etc. (Tabellini, 2008b).

It could be quite difficult to properly grasp this complex web of cause-effect relationships. However cross-regional analyses within the boundaries of a single country could simplify such task in comparison to cross-country comparative institutional studies which are prevalent in the literature (Snyder, 2001). Russian regions are subject to the same federal laws, they are parts of the Russia-wide market, share common history, have similar politics and socio-cultural characteristics and other factors and features that affect the relations between institutions and economic outcomes. With such commonality one can have greater confidence in statistical models describing institutional causalities. Regions of the same country more likely satisfy the «ceteris paribus» requirement than different and often disparate countries of the world, and cross-regional analyses are less likely to be distorted by the «omitted variables» bias.

In the next section of this paper we analyse the main approaches to the measurement of institutions presented in the literature, mostly at the cross-country level, to draw lessons and recommendations for the institutional measurement in Russian regions. We then proceed to a discussion of how Russian regional institutions evolved since the outset of market reforms until the present time; we are particularly interested in the causes of institutional diversity between regions observed under the conditions of economic and political decentralization in the 1990s, and sustained in the following decade of the «vertical power».

In the empirical part of the paper we review various sources of data sources, including regional ratings and rankings, which are available for institutional measurement. To better understand what exactly such ratings measure and whether they could be used jointly or separately, we analyse how such measures relate to each other. We propose new indexes of regional institutions making use of

the recent Russian enterprise surveys, which leads to a taxonomy of regional institutional regimes. Next we discuss regional institutional dynamics against the backdrop of institutional trends nationwide, and argue that a decline of the quality of national institutions was concurrent with a divergence of regional institutional regimes. We conclude with a discussion of causes and consequences of institutional diversity between Russian regions.

2. Measurement of institutions: methodology and dilemmas

The history of institutional measurement began in investment ratings produced by international consultancies for potential investors. These ratings characterized the prospects of doing business in various countries. When economists turned to measuring institutions, they encountered a number of serious methodological and practical problems.

Measurement of institutions cannot be separated from the ongoing debates on the role of institutions in economic development. The main problem is to properly separate institutions from economic outcomes and do not take the latter into account while measuring institutions lest the link between institutions and development become tautological. The above mentioned formal procedural approach fully meets this requirement but is not very helpful otherwise, since the mere presence of formal rules is not systematically related to the outcomes.

This certainly does not imply that constitutional and other long-term formal constraints on political and economic actors are of no practical significance. Rather, such rules, when they are enacted formally but have no roots history and culture and no robust enforcement mechanisms, can be violated with impunity. In particular it is well-known that simple copycat replication by developing countries of the institutions of developed market democracies rarely brings about the expected result (Weingast, 1997) because such constitutional provisions often die on the vine.[2] Thus what matters are not the formal provisions per se, but rather their enforcement practices which renders the formal approach to institutional measurement largely impractical.

The most common alternative is to use subjective opinions and judgments by experts and/or users of institutions. In this case one should expect «noisy» results, and the question is to what extent these noises are random and uncorrelated with each other (if they are, one could hope to reduce noise by aggregating survey results, using opinions of different experts, etc.), or there are systemic distortions which cannot be eliminated by aggregation. Such distortions can be due to the «halo effect» (Bardhan, 2002), when judgments about an institution are actually inferred from social and economic conditions on the ground. Experts gladly give high marks to institutions in economically successful countries, and do not hesitate to give low scores to institutions of poor, stagnant and politically unstable nations.

Such approach is justified inasmuch institutions are abstract categories which cannot be directly observed and therefore it is natural to use for their assessment observable characteristics which are expected to be linked to the underlying institutions. It is clear however that any statistical inferences

[2] This can be illustrated by e.g. the absence of clearly expressed link between the quality of monetary policy and the presence of a law on central bank independence (Acemoglu et al., 2008).

obtained by using observable outcomes as institutional measures would be suspect of reverse causality.

To mitigate such risks, modern methods of institutional measurement are based on cross-country comparisons of "standard situations", such as common administrative procedures (opening business, access to utilities, issuance of permits and licenses (Djankov et al., 2002)), settlements of comparable commercial disputes (Doing Business, 2014), frequency of the occurrence of certain institutional pathologies (property expropriation, raider attacks on business), etc. Experts, business consultants, managers and entrepreneurs are requested to assess competition, corruption, independence of courts, effectiveness and competency of bureaucracy, etc. It is hoped that the use of specific questions and unified measurement techniques reduces distortions, and aggregation of institutional measures obtained from various sources would further improve the precision of measurement and make it less subjective.

Such principles are implemented in the best known and most widely used institutional measurement project "Governance Matters" (Kaufman et al., 2011). The project takes stock of numerous institutional measures produced over the last decades, and aggregates those into clusters which correspond to various aspects (dimensions) of the institutional environment. Authors of the project demarcate six main clusters: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. All data sources used to construct those measures are based on perceptions of institutions by respondents. To defend such methodology the authors argue that economic decisions, which are most likely to affect economic performance, are largely based on such perceptions, and hence thus derived institutional measures will likely be suitable to describe the impact of institutions on economic outcomes.

Aggregate indexes of institutional quality mentioned above are widely used in economic studies, both explaining cross-country variations of the institutional quality and using institutions to explain economic outcomes. These indicators are also widely used in various international programs and projects (Thomas, 2010). At the same time, "Governance Matters" indicators are subject to criticism which calls into question both the measurement methodology and the very definition of the measurement objects. The six clusters are abstract categories ("constructs") which aggregate sometimes disparate phenomena and aspects of economic activity. For example, the notion of corruption incorporates low-level bureaucratic corruption, high-level corruption, political corruption, government capture, patronage etc. Different corruption measures, including those based on corruption perception or on corruption experience, do not agree with each other and are explained by various sets of factors (Treisman, 2007).

Vague definitions of corruption and other institutional clusters make it difficult to assign to such clusters various specific measures. This gives an extra reason to doubt the applicability of the "Governance Matters" aggregate indexes, since it is arguably unclear if there is indeed a real-life life object that is measured rather than an artificial concept (Thomas, 2010).

Institutional indicators of the "Governance Matters" project are highly correlated with each other (their pairwise correlations range from 0.6 to 0.9 and higher), and factor analysis yields a principal component explaining over 60% of the total variation of all indexes (Langbein, Knack, 2010). This could be interpreted as evidence of close connectedness of various institutions to each other, in which case one could make judgements about the overall quality of national institutions (Tabellini,

2008a) by using, e.g., the above-mentioned principal component as an aggregate institutional performance index.

Such high degree of agreement between different measures can be expected when government and/or society have broad discretion over institutional choices and use it in the interests of society which requires commensurable progress along all of the institutional axes (in other words, various institutions are complements, rather than substitutes, so that e.g. political stability cannot make up for high corruption). This likely overstates and oversimplifies the realities of institution-making, and contradicts the observed variability of institutions and their bundles across the world. An alternative explanation, corroborated by in-depth analysis of linkages between institutional indexes of the "Governance Matters" project, is that the high correlations between these indexes is due to the employed methodology and reflects either common measurement errors (e.g., the halo effect), or vague definitions of what is measured.

Different institutions play various roles in economic development, which is another indication that institutions are inherently multi-dimensional, should not be aggregated in a single measure of institutional quality, and could not be derived from one such measure. In particular, property rights protection is one of the fundamental factors of sustainable economic development, while the effect of contract enforcement on development is not as evident, even though it strongly affects business activity and financial system (Acemoglu, Johnson, 2005). Furthermore, property rights and contract enforcement have different historical roots, which is another argument for separate rather than aggregate analysis of institutional measures. Similar conclusions can be drawn economic successes of countries such as China with weak democratic accountability, absence of checks and balances, and unconventional protection of property rights protection, which get low scores in some international rankings (Qian, 2003; Glaeser et al., 2004).

Another reason why institutions cannot be measured by a single aggregate indicator (or group of closely connected separate measures) is that the impact of a particular institution on economic outcomes depends on other characteristics of the institutional environment (Aoki, 2007). Due to complementarity of various institutions, similar reforms (such as liberalization, privatization, etc.) could lead to diverse outcomes depending on the institutional backdrop (see, e.g., Polishchuk, 2013; Dower et al., 2014). Obviously such effects can be analysed only with multiple institutional measures at hand.

Of particular interest are indirect institutional measures that can be derived from observable economic outcomes. It was pointed out earlier in the paper that a serious shortcoming of this approach is potential reverse causality. Nevertheless such measurement technique could be justifiable when economic indicators can serve as "litmus tests" for institutional quality. An example of such an indicator is the share of informal economy (in the GDP, employment, etc.). Usually informal sector offers inferior conditions for doing business, as it restricts access to finance, puts "glass ceiling" to firms' growth, denies shadow businesses of legal protection, etc. These extra costs of doing business informally suggest that firms are forced to exit into the informal sector to avoid even greater losses if they stay in the official economy and suffer from red tape, predatory taxation and other institutional pathologies. The share of informal employment is thus strongly correlated with other measures of institutional quality (Djankov et al., 2002) and could thus itself serve as such measure.

Institutional performance measures are being produced not only for nations of the world, but also for regions of a given country; presently such measures are available inter alia for subnational units of the US, China, India, Italy, Germany, Poland and other European countries. While measurement of regional institutions is not as active as of the national ones, usually the same methods and approaches are applied in both cases (see for example Knack, 2002; Hall, Sobell, 2008; Tabellini, 2008a; Calì et al., 2011; Giordano, Tommasino, 2011; Xu, 2011), all the more so as national and regional indicators are often produced by the same organizations (Karabegovich, McMahon, 2006).

The two decades-long experience of measuring institutions in various countries and regions of the world demonstrates that institutions are fundamentally diverse, that their impact on economic and social outcomes is as a rule multifaceted, and that such measurement calls for a range of different methods and data sources. Another lesson is that a structure in the institutional diversity should not always be imposed a priori – it might be better to obtain such structure endogenously, deriving it from the available data (e.g. by using factor analysis), and subsequently seek proper interpretation for the obtained measures which are grounded in data, rather than hypothesized in advance.

3. Institutions in Russian regions

It is well known that Russian regions significantly differ from each other in their investment attractiveness and business environment (Zubarevich, 2010).The interregional variations in the intensity of red tape, access to infrastructure and markets, costs and risks of doing business which are observed in Russia (Shchetinin et al., 2005; Doing Business, 2014) are rarely seen within a singe country. These variations are reflected in domestic and especially foreign investments in regional economies, sizes of informal sectors in the regions (Syunyaev, Polishchuk, 2014), and some other key indicators.

Interregional institutional diversity is inevitable for a country as vast and diverse as Russia, with uneven distribution of resources, population, and economic activity. It is known from the literature that geography and natural environment shape institutions and thus could be causes of institutional diversity (Engerman, Sokoloff; Acemoglu, Robinson, 2012). History also plays a role (Acemoglu et al., 2001), and indeed, the institutional diversity between Russian regions has deep historical roots (see e.g. Dower, Markevich, 2014; Kuzmina et al., 2014).

Therefore spatial diversity of institutions in Russia is natural in many respects. However, such natural causes notwithstanding, the actual interregional variations in institutional environment far exceed what can be expected from a single country with a centralized political, administrative, and fiscal system and heavily restricted, at least over the last decade, regional legislative and regulatory discretion. Interregional variation of institutions in Russia shows that federal legislation is not uniformly and consistently enforced across the country (Yakovlev, Zhuravskaya, 2013). Hence Russia-wide measures of institutional quality could be at best accurate on the average and remote from the actual conditions on the ground in a particular region. Therefore there is a strong need to measure institutional performance regionally.

The patchwork of institutional regimes had emerged in Russia at the outset of market reforms, when a weak central government was unable to establish and effectively enforce the same “rules of the

game“ for the whole country.[3] Regional governments to the full extent took advantage of the offer to «take as much power as you can use». As a result, depending on the structure and conditions of regional economies, consolidation and composition of local elites and other exogenous factors, Russian regional institutions in the 1990s featured panoply of “liberal“, “conservative“, and various hybrid regimes.

The transfer of the institution-making power to the regions was a pragmatic choice of an unstable regime which willingly offloaded painful and politically risky reforms to lower-level governments. Another expected advantage of a «reform from below» was in allowing institutional experimentation when different versions of regional institutions had to demonstrate their relative strengths and weaknesses in competition for mobile investment and the capacity to stimulate economic growth. It was expected that more successful regional institutions would spread across the country by way of emulation. This logic was based on the well-known concept of market-preserving federalism (Weingast, 1995) which opens opportunities and creates incentives for competitive selection of efficient regional regimes.

Implementation of this idea in Russia in the 1990s did not produce the expected results and, in particular, did not lead to the elimination of inefficient regional institutions. While regions indeed actively «learned from each other», they more often than not were adopting dubious ideas restricting competition, undermining property rights and threatening financial stability and the unity of Russian market (Polishchuk, 2001). One possible cause of such outcome was insufficient political centralization without which economic decentralization failed to improve economic performance (Blanchard, Shleifer, 2001). Furthermore institutional outsourcing to the regions was attempted during a deep and prolonged economic recession with minimal investments in the Russian economy. Under those conditions nation-wide efforts to improve investment climate in a particular region were not properly rewarded, as they remained in the shadow of an unfavorable investment reputation of the Russian economy at large (Polishchuk, 2013).

One would expect that the far-reaching re-centralization of the political system (also known as establishment of the «vertical power») which began in Russia in the early 2000s should have narrowed interregional institutional disparity. Indeed, radical measures were undertaken to put an end to the regional «parade of sovereignties» virtually eliminate regional legal and regulatory prerogatives. Russian public finance was similarly centralized. Finally, elections of regional governors by popular vote were cancelled (to be restored later with considerable restrictions and caveats), and regional chief executives were subordinated to the Russian president.

Against expectations, the «vertical power» has not harmonized institutional regimes in Russian regions. Russian cities and regions still significantly differ from each other in their business environment, even if they are otherwise comparable in terms of the capacity of regional market, population, and other exogenous factors which affect regional economic conditions and regions’ attractiveness for investment (in fact, we show later in the paper that regional institutions under the “vertical power” exhibited further divergence, rather than the expected convergence). In part this was due to the limited ability of the federal government to exercise control over regional administrations, even when implementing key nation-wide reforms. Thus, the implementation of the

[3] For a more detailed discussion of the recent history of Russian regional institutions see (Polishchuk, 2013; Полищук, Сюняев, 2014).

national de-regulation program was delayed and highly uneven across the country (Yakovlev, Zhuravskaya, 2013). Significant differences remained in the pace of reforms of public administration, social services, land market development, etc.

The failure of the central government to effectively resolve the agency problem vis-à-vis regional administrations left the latter with significant autonomy de-facto in choosing regional economic policies and ultimately regional institutions. As a result, regional institutions have been shaped by the incentives of regional elites. Cancellation of gubernatorial elections weakened direct political accountability of regional governments to the society, and hence undermined the political mechanism that aligns elites' incentives with sustainable regional development. Instead the vertical accountability of regional governors to the central government linked regional institutions to the principles and criteria of the assessment of governors' performance by the federal center.

In theory such principles should reflect the contribution of regional authorities to economic development and social welfare; in other words, to establishing and maintaining efficient regional institutions. Therefore the problem of measuring regional institutions took on new, purely pragmatic, administrative and political significance. It turned out, however, that in practice the assessment of governors' performance posed a number of serious problems. First, governors are responsible for numerous tasks and hence the results of their work are inherently multi-dimensional. Accordingly the official criteria of governors' performance quickly mushroomed, reaching in numbers several hundred. Second, even for a relatively small number of criteria it is unclear how one should aggregate them with each other, what weights should be assigned to particular indicators, and so on. Finally, it is quite difficult to judge when successes and failures of regions should be attributed to the performance of local authorities and when to market conditions which beyond regional governments' control, or to other external factors and "shocks" of regional development. These difficulties notwithstanding, Russian government agencies for a number of years have been producing various indexes of regional administrations' performance (more on that in the next section of the paper), which could be considered as officially endorsed measures of regional institutions.

Actual preferences of the federal center over the performance of regional governors are revealed by governor reappointment decisions. The available data do not reveal any statistically significant association between governors' confirmation in the office for another term and the state of regional economy and public sector. Instead, reappointment decisions are strongly predicted by the demonstrated electoral support of the ruling at federal and regional elections (Zhuravskaya, 2010; Reuter, Robertson, 2012). The desired voting targets were achieved by various means, and as long as ruling regional elites had sufficient resources to meet such requirements, they otherwise preserved broad discretion over regional institutions. The latter can thus be considered as endogenous political equilibria, shaped by various factors but not pre-determined externally by the upper-level government, as one could expect with the "vertical power" firmly in place.

Some of the above factors, of geographic or historical nature, are long-run determinants of regional development but otherwise Russian regional institutions are outcomes of public choice involving regional elites and various interest groups, which are often in symbiotic relations with each other (Petrov, Titkov, 2010; Syunyaev, Polishchuk, 2014). As a result the problem of assessment and measurement of Russian regional institution is as topical as ever, and in the next section we review the sources of data that could be used to this end.

4. Data sources

Regional indices of institutional quality are produced by private rating agencies, nonprofit organizations (including business associations and think tanks), government agencies, and individual researchers. In this section we review the most widely cited sources of data on regional institutions, as well as the new indicators developed by the authors[4]. A summary of the covered institutional measures for Russian regions is presented in Table 1.

Russian Regional Investment Attractiveness Rating by RA Expert rating agency is perhaps the best known measure of the quality of institutions in Russian regions. The rating aggregates two components – investment risk and investment potential, and each of those combines several sub-components based on data collected by state statistical services and private consultancies. These data cover the quality of public administration, political and legal risks, and other factors. Weights used to aggregate sub-components are determined by annual surveys of experts from Russian and foreign consulting and investment companies. RA Expert rating agency does not disclose its methodology in detail.

The business association of small and medium-sized enterprises "Opora Rossii" composes widely known *indices of entrepreneurial climate*. This business association has offices in every Russian region and its membership runs around 450 thousand. Since 2005 "Opora Rossii" has been analyzing regional business climate and ranks regions accordingly. Neither sampling nor methodologies of such rankings have been consistent over the observation period. "Opora Rossii" publishes ratings of administrative climate, business security, corruption, and measures of "freedom from inspection agencies pressure", "freedom from law-enforcement agencies pressure", and "freedom from criminal pressure".

Lately regional institutional measures have been regularly produced by central government agencies; this task has acquired added importance after the cancellation of direct gubernatorial elections. This has been sanctioned by a presidential decree which authorized a formal evaluation of the situations in Russian regions and specified several dozen indicators of the quality of regional governance and policies, including *indices of public opinion about the functioning and transparency of regional administrations*[5]. These data are stored in the Unified Interdepartmental Statistical Information System (UniSIS)[6]. The Ministry of Regional Development of the Russian Federation also evaluates performance of regional administrations; it separately calculates measures of *effectiveness* and *goal orientation* of regional authorities.

As noted above, the quality of formal institutions can be assessed by *the size of the shadow economy*, which provides a shelter from excessive burdens and risks of the official institutional environment. At

[4] Our list of institutional indicators is incomplete; in particular it does not include outdated indices developed many years ago and not updated since. Moreover, as already noted, the boundary between measures of institutions and institutional outcomes is often blurred. Hence we do not consider various indicators of economic performance and business climate in the Russian regions, which in our opinion are more on the outcomes side. We also skip measures of political institutions, press freedom, or the state of civil society (with the exception of the democracy rating produced by Carnegie Moscow Center. A short summary of indicators of regional institutional quality, including sources that are not used in this article, can be found (Sunyaev, Polishchuk, 2014). A detailed review of regional corruption indicators is presented in (Libman, Kozlov, 2013).

[5] These assessments are used to allocate fiscal transfers to the best performers among Russian regions.

[6] UniSIS is a government statistical database (http://www.fedstat.ru/user/about.do)

the same time, the shadow economy diverts resources that could otherwise be used to support formal institutions and public factors of production. The size of the shadow economy, and hence the quality of institutions, can be gauged by the number of employees in the informal sector. The Russian Statistical Service (Rosstat) annually estimates the size of informal employment for every region, based on quarterly employment surveys.

Corruption plays out prominently in measures of institutional environment in Russian regions. In addition to the above-mentioned ratings by "Opora Rossii", one should mention the *regional corruption rankings by the Carnegie Moscow Center (CMC)* (Petrov, Titkov, 2013). These ratings are based on expert assessments of the collusion between political and business elites, the effectiveness of anti-corruption efforts, and frequency of corruption scandals. CMC also generated a *democracy rating of the regions*, reflecting experts' opinions on openness and transparency of the political life of the regions, strength of political opposition, fairness of elections, etc.

Another index of corruption, developed by the National Institute for the System Studies of Entrepreneurship (NISSE), does not measure corruption per se – instead, it quantifies *efforts toward prevention of corruption*, such as enactment of regional anti-corruption legislation, existence of special agencies to bodies to combat corruption, as well as openness and transparency of anti-corruption policies (Saidullaev, Smirnov, 2010).

An important element of the institutional environment is business security, including property rights protection and personal safety of business executives. Russian law enforcement is highly centralized and civil and criminal law is the same across the country. However, law enforcement practices and "rules of the game" for business activities vary considerably from region to region, affecting risks of doing business. To estimate such risks, one could use official data such as the *number of economic criminal cases in the region* (in relation to the number of firms or regional population). It should be borne in mind that such measures could reflect both the level of economic crime in the region and the degree of violent pressure on business given the fact that criminal law is often used in Russia for solving commercial disputes and raider attacks.

Since police statistics may, for whatever reasons, be distorted, it is useful to supplement it with information about attacks on business executives from alternative sources. In (Belokurova, 2012) comprehensive data is presented on *business-related physical attacks on businessmen, including the number of injured and murdered business executives*. Sources of data are publications in the media, police, press releases, and court decisions. Another similar source is media coverage of raider attacks in various regions of Russia (Rochlitz, 2014). The disadvantages of such indicators are their possible bias due to uneven media development and freedom in various regions. Finally, the Center for Public procedures "Business Against Corruption" keeps records of complaints about raider attacks, violation of rights of businesspeople, and unjustified criminal cases opened against them (Yakovlev et al., 2014).

A useful and so far underutilized source of information for the assessment of institutional quality in Russian regions is the EBRD-administered Business Environment and Enterprise Performance Survey (BEEPS) project. This project conducts periodic surveys of enterprises in different transition countries, including Russia. In the last wave, the Russian sample included 4,220 randomly selected firms from 37 regions. The sample is representative in each region. BEEPS questionnaire includes dozens of questions on various aspects of enterprise activities, including relationships with regulatory

and supervisory bodies, access to resources and infrastructure, competition, dispute resolution, threats to business, etc. By averaging responses to such questions in a region, one could get various regional indicators of institutional quality. This approach is not suffering from possible distortions arising from the use of expert opinions; it describes actual conditions of regional institutions as seen by those who confront them in their everyday life. Resulting institutional indicators have clear meaning and are derived in a transparent and reproducible manner.

Such indicators can be divided into several categories, including administrative barriers (the costs of compliance with legal and regulatory requirements, passing inspections, obtaining permits and licenses, tax compliance), the rule of law (fairness, timeliness and effectiveness of the courts), safety of doing business (losses due to criminal actions, costs to businesses of private security services), access to infrastructure (connection to energy grids and telecommunications networks, access to finance), and the level of corruption (frequency and size of bribes in dealing with various government bodies). A drawback of the BEEPS project as a source of data for institutional measurement is a relatively small number of represented regions.

Table 1. Regional institutions indices

Name	Type of institution	Number of regions	Year	Data source
Investment rating by RA Expert rating agency	Investment climate and risks	83-89	2000-2012	RA Expert website http://www.raexpert.ru/ratings/regions/
Opora Rossii	Entrepreneurial climate, corruption, red tape, crime prevention	40-80	2005, 2006, 2008, 2011, 2012	Opora Rossii website http://new.opora.ru/projects/index
Performance of regional administrations	Outcomes and transparency of regional governments	83	2007-2011	UniSIS
Satisfaction of the population with regional administrations	Quality and effectiveness of regional governance	83	2007-2010	The Ministry of Regional Development of the Russian Federation
Size of the shadow economy	General characteristic of institutional quality	89	2001, 2004, 2006-2013	Rosstat
Corruption rankings by the Carnegie Moscow Center	Level of corruption	88	2004, 2010	Petrov, Titkov, 2013; http://atlas.socpol.ru/indexes/index_democr.shtml
Democracy rating by the Carnegie Moscow Center	Political competition, openness and transparency of regional politics	88	2001, 2003-2010	Petrov, Titkov, 2013
Monitoring of anti-corruption legislation	Anti-corruption legislation	83	2008-2010	NISSE http://www.nisse.ru/work/projects/monitorings/anti-corruption/
Regional crime statistics	Business protection from criminal attacks, violent pressure on business	89	2000-2010	UniSIS

Victims of business-related violence	Business security	74	1991-2010	Belokurova, 2012
Corporate raiding cases reported in the media; complaints about raider attacks	Property rights protection	89	1999-2010	Rochlitz, 2014; Business Against Corruption website http://www.nocorruption.biz/?cat=6
BEEPS institutional indexes	Red tape, the rule of law, business security, access to infrastructure, the level of corruption	37	2012	BEEPS project www.ebrd-beeps.com

5. Interplay of institutional indicators

To which extent measures of regional institutional quality described in the previous section are related to each other? To answer this question we look at the correlations between those measures. Recall that in the case of measurement of institutional quality at the cross-country level tight connectedness between different indicators raised questions about soundness and reliability of measurement techniques and pointed out to possible measurement errors.

Pair-wise correlations between various institutional indexes for Russian regions are presented in Table 2. In the table we show only signs of correlation coefficients and only if those are significantly different from zero. To simplify reading of the table, we assume that for all indicators higher values correspond to higher institutional quality (better quality of governance, improved investment climate, lower corruption or crime rates, etc.)[7]

[7] First eight indicators in Table 2 are ordinal (rankings), while the rest are cardinal. If at least one indicator in a correlation is ordinal, we report Spearman correlations, and conventional Pearson correlations otherwise.

Table 2. Pairwise correlations of institutional quality measures

	Effectiveness of Executive Branch (MRD)	Performance of Executive Branch (MRD)	Overall assessment of executive branch (MRD)	Overall effectiveness (MRD)	Investment Risk (RA Expert)	Investment Rating (RA Expert)	Investment Potential (RA Expert)	Corruption (Carnegie Center)	Died in business crimes (Belokurova)	Businessmen died in business crimes (Belokurova)	Number of economic criminal cases per firm (UniSIS)	Number of appeals to Business against Corruption per economic criminal cases (BAC)	Share of employed in informal sector of economy (Rosstat)	Anti-Corruption Legislation (NISIPP)	Satisfaction with executive branch performance (UniSIS)	Freedom from bureaucratic pressure (OPORA)	Freedom from bureaucratic pressure (OPORA)	Satisfaction with transparency of executive branch (UniSIS)	Raider attacks reported in media (Rochlitz)
Effectiveness of executive branch (MRD)																			
Performance of executive branch (MRD)	+***																		
Overall assessment of executive branch (MRD)	+*	+*																	
Overall effectiveness (MRD)	+***	+***	+***																
Investment risk (RA Expert)			–**																
Investment rating (RA Expert)	+***			+***	–***														
Investment potential (RA Expert)	+**			+***		+***													
Corruption (Carnegie Center)		+*	+**																
Died in business crimes (Belokurova)	-***			-***		-***	-***	+**											
Businessmen died in business crimes (Belokurova)	-**			-***	+**	-***	-***	+**	+***										
Number of economic criminal cases per firm (UniSIS)	+***						+*		–**	–*									
Number of appeals to Business against Corruption per economic crime (BAC)			+*			-*	-*	+*	+***	+***									
Share of employed in informal sector (Rosstat)							–*	-*	+***	+*	-*	+*							
Anti-corruption legislation (NISIPP)			+*																
Satisfaction with executive branch performance (UniSIS)	+**		+***	+***	–*			+***				+**		+*					
Freedom from bureaucratic pressure (OPORA)	+*			+***															
Freedom from criminal pressure (OPORA)			+*	+***	+**											+***			
Satisfaction with transparency of executive branch (UniSIS)			+***	+**	–***			+**	+**	+**		+**	+**		+***				
Democratic rating (Carnegie Center)			–*				+*	+***			+**			–*	–**				
Raider attacks reported in media (Rochlitz)		+**				-***	-***		+***	+***	–**	+***	+***					+*	-*

(+) – positive correlation; (–) – negative correlation; (***) – 0.05 significance level; (**) – 0.1 significance level; (*) – 0.2 significance level

The table shows that the links between various institutional measures in Russian regions are far less pronounced and straightforward as it were in the case of the Governance Matters country indicators. First, correlations of regional indexes in almost 60% of all possible pairwise combinations are statistically insignificant. Second, among significant correlations only 70% are positive (positive correlations should be expected if various indexes agree with each other in estimating institutional quality). Negative correlations point out to either inconsistencies of measurement techniques, or, if the involved institutions differ from each other in their role and purpose, to possible substitution between such institutions.

Three indicators of the executive branch performance included in our analysis are positively associated with each other, which is probably due similar methods used by the same government agency – the Ministry of Regional Development (MRD) – to derive those measures, and to their semantic proximity with each other. The above indicators are also significantly correlated with RA Expert investment rating with the expected sign. Surprisingly, risks of doing business as measured by crime rates (G. Belokurova's data) are higher in regions where MRD deems regional administrations more effective, and which have higher investment ratings and potential.[8] Perhaps this is an indication that economic crimes follow ebbs and flows of economic activity. At the same time, lower levels of corruption (measured by Carnegie Canter) are, as expected, associated with lower crime rates.

We also find that corruption (measured by Carnegie Center) is lower in regions with larger shares of informal sector in the regional economy. A possible explanation is that corruption occurs mainly in the formal sector, or, put differently, that informal economy provides a shelter against corruption. Existence of anti-corruption legislation in a region is weakly correlated with the actual levels of corruption and other indicators of institutional quality. The last finding agrees with earlier literature which concludes, based on cross-country comparisons, that formal institutions in and of themselves do not necessary entail the expected outcomes.

Another measure of regional institutional quality is the UniSIS index of satisfaction with regional governments' performance. This measure is consistent with analogous indicators produced by MRD and is furthermore positively correlated with absence of corruption. Also according to UniSIS data transparency of regional administrations is an important factor of institutional quality as it is positively correlated with most of the official measures of regional governance and also economic security indexes. Finally, Carnegie Center's democracy rating is weakly correlated with most of indicators, except the corruption index produced by the same agency.

In general, it is hard to find any consistent patterns in the patchwork of links or lack thereof between institutional quality indicators across Russian regions. On a positive note, regional institutional measures do not feature "near unanimity" observed for some national indicators of institutional quality; recall that such "consensus" between various measures raised doubts about their applicability in applied institutional studies. On the other hand, since many indexes of Russian regional institutions are produced in a non-transparent manner, and their derivation cannot be

[8] Note that measures based on the data collected by G. Belokurova largely agree with similar measures produced from the dataset independently collected by M. Rochlitz; such agreement lends credibility to both measures. This is in some contradiction with the OPORA's data suggesting that the assessment of executive branch's performance is positively correlated with the freedom from criminal pressure on business.

independently reproduced and verified, it is hard to say to what extent the "disagreement" between such indexes reflects the actual multidimensionality of regional institutions, and to what extent it is artifact due to ad hoc approaches to institutional measurement and subjectivity of expert judgments.

It could also be problematic to compress the multidimensional bundle of measures into a smaller number of aggregate indexes by factor analysis, since factors thus obtained could reflect not necessarily objective links between institutions and their measures, but e.g. commonality of measurement techniques. In such case interpretation of aggregate factors is hardly possible.

In what follows we use an alternative approach to discerning a structure in regional institutions, based on the BEEPS dataset (2012 survey of Russian firms) and on a common methodology of measuring institutions by aggregating the opinions expressed by businesspeople about various aspects of their institutional environment. Some of such indexes characterize various aspects of the same "cluster" of closely related institutions, in which case they can be with greater confidence aggregated within such cluster in a single integral index. However by using BEEPS data we restrict our analysis to 37 regions which were covered by the project and thus reduce sample size of regions by more than half.

Among indicators of institutions from BEEPS, calculated as regional averages of responses to particular questions, we single out two clusters of indexes, which we call hereafter "institutions-rules" and "institutions-services". Both of those clusters characterize business environment, and as such can be considered institutions. Institutions-services are public factors of production, such as access to infrastructure (electricity and telecommunications), security, and access to finance. We measure access to finance by using survey responses to a direct question from the BEEPS survey, while in the case of access to infrastructure and security we aggregate responses to several related questions by using a structural equation model[9] (see Table 3).

We also construct three indexes of institutions-rules, of which two characterize different types of institutional pathologies, while the third one measures the rule of law in a region. In the case of first pathology there is no "strong hand" in a region that effectively controls regional economy and bureaucracy. This could be a sign of a split between various groups of economic and political elites, in which case regional bureaucracy is not constrained by either democratic or administrative accountability, which leads to decentralized and uncoordinated corruption with frequent bribery by multiple bureaucrats. A flip side of uncoordinated corruption is excessive red tape. A measure of such institutional pattern of "administrative chaos" (hereafter Type 1) is constructed by aggregating responses to BEEPS questions about frequency of bribery and tax administration/bureaucratic burden (Table 3).

[9] See, e.g., Reiss, Wolak (2007) for the overview of this aggregation methodology. Similar techniques are used on several other occasions further in the paper.

Table 3. Factor loadings of aggregated indexes

	Institutional type 1	Institutional type 2	Rule of law	Access to infrastructure	Security
Frequency of bribing officials	0,776				
Frequency of bribery at customs	0,81				
Frequency of bribery related to courts	0,818				
Frequency of bribery related to tax administration	0,811				
Taxation as a barrier to business	0,404				
Licensing and permits as a barrier to business	0,251				
Average kickbacks in public procurement		0,536			
Average size of bribes paid to government officials		0,536			
Fairness of court system			0,673		
Efficiency of court system			0,697		
Enforcement of court decisions			0,633		
Difficulties in accessing electricity				0,664	
Difficulties in accessing telecommunication				0,664	
Absence of security costs					0,432
Absence of losses from crimes					0,54
Crimes and disorder as a barrier to business					0,542

An alternative to "administrative chaos" is "administrative order" (hereafter Type 2), which is characterized by a firm grip on power of the regional governor. Such regime usually involve centralized corruption organized on a "one-stop-shop" basis whereby a large one-off payment secures an informal "license to operate" which protects from petty uncoordinated and unauthorized bribery by lower-level bureaucrats. A measure of Type 2 aggregates answers to the survey questions about size of bribes and kickbacks in public procurement. Finally, to measure the rule of law in a region we aggregate responses to questions about fairness and efficiency of court system as well as enforcement of court decisions.

It is well known that centralized corruption is less burdensome and damaging for the private sector than decentralized one, being "the lesser of two evils" (Shleifer and Vishny, 1993). Numerous and uncoordinated extortions reproduce the "tragedy of commons", turning the regional economy into an open-access resource for uncontrollable lower level bureaucracy. BEEPS data show that another advantage of Type 2 over Type 1 is higher quality and availability of institutions-services.

Indeed, according to Table 4, all three types of institutions-services are positively and highly significantly correlated with each other making it possible to rank regions according to technical conditions of doing business. At the same time institutional Type 2 is significantly correlated with all three institutions-services, while Type 1 – only with access to finance[10]. Therefore, regions of "administrative order" offer better conditions for doing business then regions of "administrative chaos" due to lesser red tape, greater availability of public production inputs and service, and lower total burden of corruption. Such advantages agree with the view that non-democratic regimes with

[10] Note that regional financial systems are integrated into the national one and thus depend on and affected by regional governments much less then infrastructure and security, which are largely localized within a regions.

strong grip on power have “encompassing” interests in economic development and hence stronger incentives to supply public production inputs (Olson, 1993).

Notice that both of the above types do not conform to the conventional view of enabling institutions which rule out both high- and low-level corruption, ensure efficient provision of public goods and services and are based on the rule of law. It is symptomatic that the rule of law in Russian regions is orthogonal (both literally and metaphorically) to both institutional types and in addition is not significantly related to any of the above described institutions-services.

Table 4. Pairwise correlations of aggregate indexes

	Institutional type 1	Institutional type 2	Rule of law	Access to infrastructure	Security
Institutional type 2	+***				
Rule of law					
Access to infrastructure		+***			
Security		+***		+***	
Access to finance	+***	+***		+***	+***

(+) – positive correlation; (–) – negative correlation

(***) – 0.05 significance level; (**) – 0.1 significance level; (*) – 0.2 significance level

Most of pair-wise correlations of the two institutional types with other indexes are most of the time statistically insignificant. This could be due to differences in methodologies, lower number of regions for which BEEPS-originated measures could be calculated, and last but not least could be an indication that the Russian institutional palette is essentially multi-dimensional and cannot be adequately described by just a few indicators. It is noteworthy however that institutional Type 1 is negatively correlated with the assessment of regional administrations by MinRegion, and such correlation is highly significant. In contrast, MinRegion’s assessments are neutral to Type 2 (there is no significant correlation between the two). Evidently the federal government dislikes “administrative chaos” and ceteris paribus gives preference to the “administrative order”, despite of large-scale centralized corruption that could be present in such regimes.

6. Dynamics of regional institutions

Apart from institutional differences across regions, changes of institutional quality over time are also of considerable interest. Institutional indicators that are available both across regions and for different periods in time could be used to study institutions along both special and temporal dimensions and shed light on a number of additional questions. Is it true that institutional trends for particular regions follow such trends for the country at large, or deviate from those? Is it possible to improve institutions in a region against the backdrop of institutions deteriorating nationally? Is there any rotation among regions holding top and bottom positions in institutional rankings? Finally, is

there evidence of convergence of regional institutions, or deep variations between regional institutional regimes are preserved and perhaps even grow deeper?

We do not have sufficient data to fully address all of the above questions. Most of the available measures of regional institutions exist only for one period of time, or in case they are available for several periods, those are years apart from each other. Furthermore various indexes cover non-identical sets of regions. Nevertheless, those indicators that were produced repeatedly over time and for a sufficiently large number of regions allow us to gain at least an approximate picture of institutional dynamics in Russian regions.

The most regular source of data on regional institutional quality in Russia is the investment climate rating of Russian regions, which is annually updated by the rating agency "RA Expert". Unfortunately this indicator provides only *relative* (ordinal) ranking of the investment attractiveness of Russian regions, and thus is not suitable to gauge absolute changes of institutional quality in a given region. Still, the ratings show how often regions change their positions with respect to each other, and therefore sheds light on how stable (or fluid) is the cross-regional institutional profile. To this end, we use (Spearman) correlations between the "Expert" rankings for different years. The closer such coefficients are to 1, the less Russia's regions change their relative positions in the ranking. We find that the correlation coefficients for regional rankings can actually fall as much as to 50% - 60% for selected years, which reveals significant changes of regions' position vis-a-vis each other in the terms of institutional quality.

Table 5: Correlation Coefficients for RA Expert rating over time

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1998	1	0,80	0,64	0,65	0,61	0,64	0,56	0,57	0,63	0,66	0,52	0,61	0,54	0,64	0,71	0,71
1999		1	0,73	0,70	0,66	0,68	0,60	0,57	0,60	0,57	0,54	0,62	0,46	0,66	0,71	0,72
2000			1	0,78	0,72	0,72	0,53	0,54	0,56	0,47	0,46	0,60	0,45	0,50	0,56	0,59
2001				1	0,77	0,80	0,56	0,57	0,58	0,53	0,49	0,54	0,45	0,54	0,58	0,61
2002					1	0,86	0,65	0,65	0,63	0,50	0,47	0,54	0,39	0,51	0,63	0,59
2003						1	0,65	0,68	0,66	0,62	0,54	0,61	0,50	0,57	0,62	0,64
2004							1	0,84	0,75	0,65	0,70	0,64	0,61	0,62	0,61	0,65
2005								1	0,81	0,67	0,65	0,63	0,64	0,68	0,63	0,70
2006									1	0,70	0,65	0,66	0,59	0,67	0,62	0,66
2007										1	0,73	0,77	0,58	0,78	0,72	0,73
2008											1	0,80	0,77	0,72	0,67	0,76
2009												1	0,71	0,66	0,71	0,74
2010													1	0,62	0,63	0,73
2011														1	0,82	0,84
2012															1	0,93
2013																1

All correlations are statistically significant at the 1% level.

Another way to evaluate regional institutional dynamics is to look at the number of people employed in the informal sector. As indicated above, the size of the informal sector can serve as a "litmus test" (with the opposite sign) for the quality of institutions in the formal sector. Data on informal sector employment has been regularly collected for all Russian regions for a number of years, and in contrast to the rankings produced by "RA Expert" the size of the informal sector is not a subjective and ordinal measure of institutional quality, but an objective and cardinal one. As before, we look at the correlation coefficients (this time conventional Pearson correlations) of this measure for different years to assess the changes of interregional institutional profiles over time.

Table 6: Correlations of informal sector employment in the regions for various years

	2001	2004	2006	2007	2008	2009	2010	2011	2012	2013
2001	1	0,83	0,80	0,74	0,68	0,67	0,72	0,73	0,72	0,71
2004		1	0,88	0,82	0,78	0,75	0,74	0,74	0,72	0,68
2006			1	0,93	0,85	0,83	0,85	0,83	0,82	0,82
2007				1	0,89	0,85	0,83	0,83	0,83	0,79
2008					1	0,91	0,87	0,85	0,88	0,85
2009						1	0,92	0,91	0,91	0,87
2010							1	0,91	0,92	0,90
2011								1	0,96	0,87
2012									1	0,93
2013										1

All correlations are statistically significant at the 1% level.

Here too we see significant changes of regional institutions, measured by the level of informal employment, with correlation coefficients going down by 25% and more for selected years. This is a yet another confirmation of significant institutional fluidity in Russian regions, which suggests that regional institutions are affected not just by the national institutional trends, but also by various local factors.

Finally, a range of proxies for property rights security in Russian regions can be used to illustrate changes in regional institutional regimes. Such proxies make use of crime data published by the Federal State Statistics Service, or specific databases tracing assaults on businesspeople (Матвеева, 2007; Belokurova, 2014) and raiding attacks against firms in a given region (Rochlitz, 2014).

Table 7 lists regions with the highest levels of violent pressure on business for various years, measured by the number of fraud cases, raiding attacks and physical assaults on businesspeople.[11] According to the table, between the first and the second half of the 2000s the groups of regions with greatest danger of doing business (variously measured) have changed their compositions by more than 50%. This is a yet another evidence of significant instability of Russian regional institutions. From a positive angle it means that badly performing regions could pull themselves out of dangerous zone and significantly risks of physical violence and property rights violations for local business communities. However, read differently, this means that in relatively short period of time a safer region could slip to the bottom of the ranking. Such instability can be a powerful deterrent for investments and private enterprise.

Table 7: Regions with the highest levels of violent pressure on business

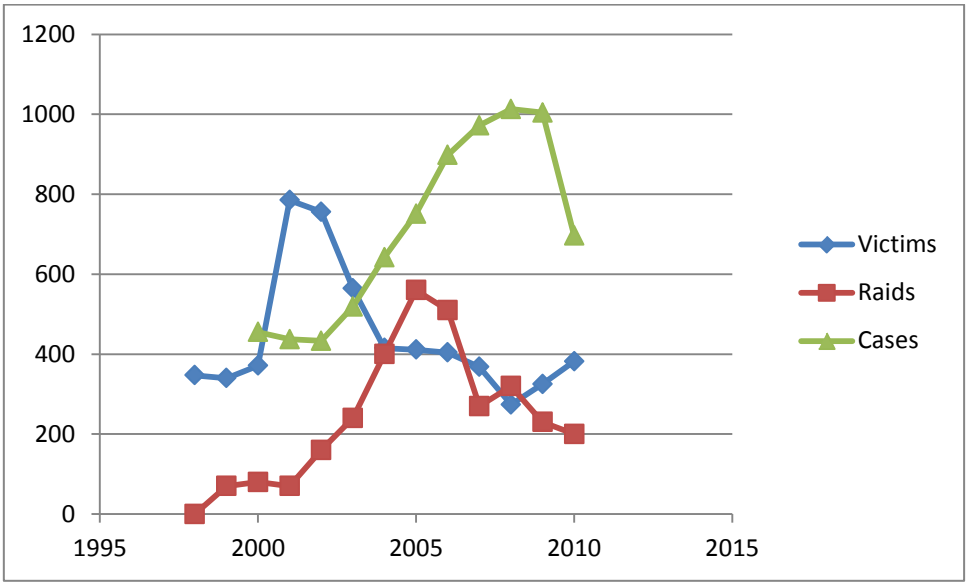
Fraud Cases		Raider attacks against firms		Attacks against businessmen	
1998-2003	2004-2010	1998-2003	2004-2010	1998-2003	2004-2010
Magadan oblast	Novosibirsk oblast	Chuvashia	Ulyanovsk oblast	Sakhalin oblast	Adygeya
Komi Republic	Oryol oblast	Sverdlovsk oblast	Perm krai	Moscow (city)	Primorskii krai
Khanty-Mansijsk	Magadan oblast	Tatarstan	Voronezh oblast	Astrakhan oblast	Astrakhan oblast
Kamchatka krai	Stavropol krai	Marij El	Primorskii krai	Primorskii krai	Moscow (city)

[11] Fraud cases and attacks against businessmen are normalized on a per capita basis, while raiding attacks are measured in relation to the number of firms in a region. Regions are lsited in the declining order of the above measures.

Kabardino-Balkaria	Smolensk oblast	Tiumen oblast	Sverdlovsk oblast	Novgorod oblast	Kaliningrad oblast
Chukotka	Vologda oblast	Kemerovo oblast	Tver oblast	Samara oblast	Orenburg oblast
Yamalo-Nenets	Tatarstan	Penza oblast	Volgograd oblast	Khabarovsk krai	Moscow oblast
Volgograd oblast	Bashkortostan	Volgograd oblast	Saint-Petersburg	Saint-Petersburg	Zabaikal krai
Kursk oblast	Tomsk oblast	Tver oblast	Saratov oblast	Smolensk oblast	Kamchatka krai
Tiumen oblast	Tuva	Chelyabinsk oblast	Chelyabinsk oblast	Moscow oblast	Khabarovsk krai
Vologda oblast	Perm krai	Arkhangelsk oblast	North Ossetia-Alania	Kemerovo oblast	Samara oblast
Kaluga oblast	Astrakhan oblast	Vladimir oblast	Murmansk	Mordovia	Novgorod oblast

During the last two decades the overall quality of institutions in Russia remained low, and even continued to decline, as evidenced e.g. by the "Governance Matters" indices (mode details can be found in Polishchuk, 2013). Although a slight improvement was recorded for a number of institutional measures in the early 2000s, it proved to be short-lived. The above indices of criminal pressure on business also demonstrate a lack of clear-cut and sustainable tendency of institutional strengthening in the country.

Figure 1: Dynamics of violent pressure on business in Russia

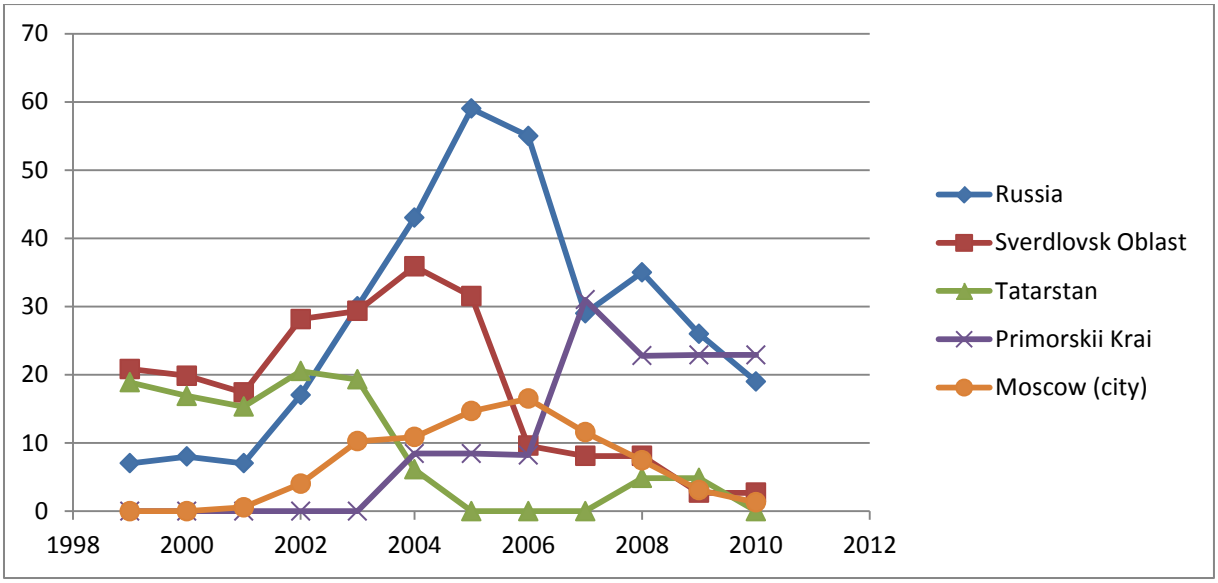


Victims: the number of killed or injured businessmen in Russia per year as documented by media sources (Belokurova 2014); Raids: number of companies attacked by corporate raiders per year in Russia as documented by media sources (Rochlitz 2014); Cases: the number of property related crimes per year in Russia from official police statistics. To present all three curves on a single graph, the numbers of raids have been multiplied by 10, and property related crimes documented by police have been divided by 100.

Although our results indicate that institutions in Russian regions evolve in different directions, on should still expect that that regional indicators of economic, legal and political institutions broadly follow the overall Russian trends – if nothing else, because national indexes are aggregates of regional ones. Furthermore, as it was already pointed put, negative image of national institutions suppresses the incentives to improve regional ones. While it is indeed true that in accordance with

such expectations in most of the regions institutions follow the Russia-wide trajectories, in some instances they significantly deviate from the national trends.

Figure 2: Raider attacks on businesses for Russia and selected Russian regions

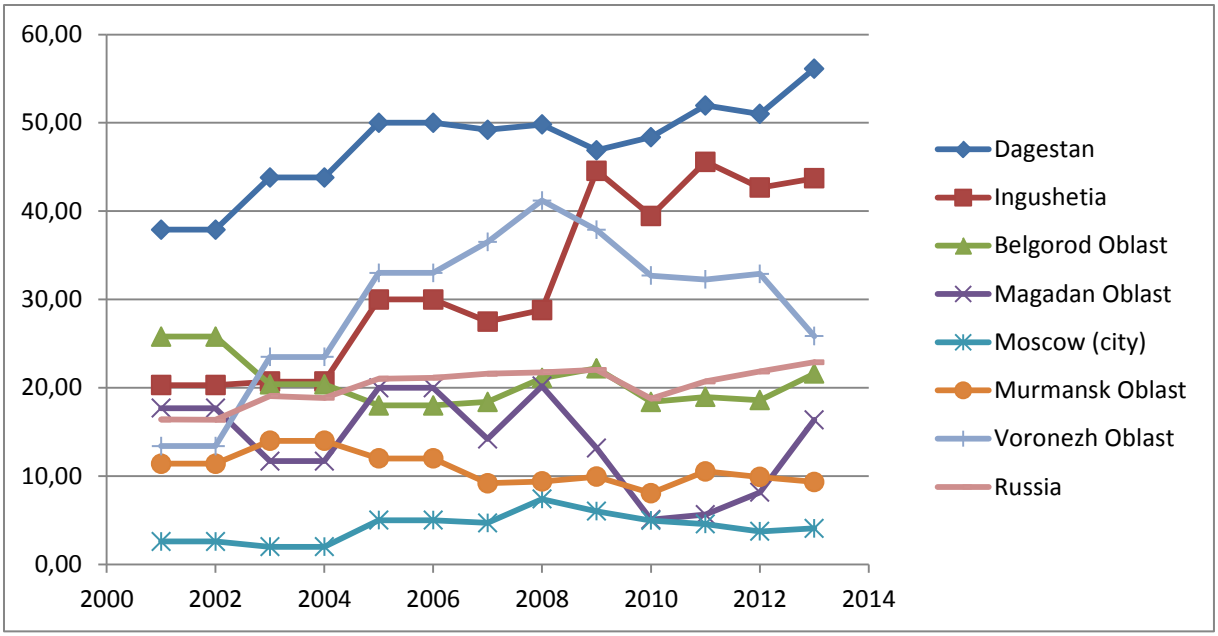


Russia: number of raider attacks per year; regions (Sverdlovsk Oblast, Tatarstan, Primorskii krai, Moscow): number of raider attacks per year divided by the number of firms.

According to Figure 2, the number of raider attacks in Russia peaked in mid-2000s. Regions with a a large share of heavy industries (Sverdlovsk oblast, Tatarstan etc.) suffered from multiple raider attacks in the late 1990s and early 2000s. Once the fight for redistribution of industrial assets came to an end in these regions, the property rights situation became more stable. In Moscow corporate raiding attacks had a slower start, reached a peak and reached a peak, as in Russia at large, in mid-2000s. Some other regions, such as Primorskii krai, experienced an increase in raiding attacks only towards the end of the decade, possibly due to massive investments in large-scale infrastructure projects.

The interrelation between national and regional trends can also be explored by using regional informal employment data. For Russia at large the share of informal employment has increased from 16.4% in 2000 to 21.8% in 2012, again reflecting a decline of the overall institutional quality. During that period the share of informal employment increased in 63 regions (especially in the North Caucasus and some regions in central Russia and Siberia), while in 17 regions the share of informal employment actually *de*creased. However, in none of these 17 regions the observed decrease was significant and sustainable.

Figure 3: Employment in the informal sector (% of overall employment) in Russia and selected Russian regions



It is usually assumed that the informal sector grows in response to the increasing pressure on businesses operating in the formal sector. While there is some reflection of such effect in our data, it is not sufficiently robust and sometimes opposite tendencies transpire. According to Table 8 below, the correlation coefficients between various measures of violent pressure on business and the share of informal employment in Russian regions, calculated for the years between 2000 and 2010, are often small and subject to significant change over time. The link between informal employment and violence against entrepreneurs is pronounced more clearly, although this link, too, gets weaker towards the end of the observation period.[12] This is a yet another indication of complexity and "multidimensionality" of regional institutions and their heavy dependence on geographic, economic and other idiosyncratic factors.

Table 8: Pairwise correlation between various proxies for institutional quality and the share of informal employment

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
raid / vic	0,03	0,04	**0,30**	**0,77**	**0,71**	**0,63**	**0,86**	**0,44**	**0,85**	**0,45**	**0,64**
raidw / vicw	0,05	-0,05	0,17	-0,01	0,01	0,08	0,02	-0,04	0,05	-0,01	0,02
159/raid	-0,05	0,06	-0,07	0,03	-0,05	0,00	-0,06	-0,05	-0,02	0,01	-0,06
159/vic	-0,02	-0,02	-0,01	0,13	0,02	0,02	0,05	-0,08	-0,15	-0,10	0,06
inf/159	-0,12	-0,09	-0,11	-0,15	**-0,22**	**-0,26**	-0,16	**-0,24**	**-0,23**	**-0,29**	**-0,25**
inf/raid	-0,16	-0,09	**-0,26**	**-0,33**	**-0,35**	**-0,35**	**-0,27**	**-0,21**	-0,18	**-0,22**	**-0,21**
inf/vic	**-0,51**	**-0,44**	**-0,41**	**-0,49**	**-0,42**	**-0,47**	**-0,29**	0,02	**-0,38**	**-0,32**	**-0,26**
inf/raidw	-0,10	-0,02	-0,18	-0,06	-0,12	-0,07	-0,02	-0,06	-0,04	-0,09	**0,26**
inf/vicw	**-0,22**	-0,09	-0,21	**-0,40**	**-0,26**	-0,15	-0,03	0,14	-0,16	-0,08	0,09

raid = number of raiding attacks per year and region; vic = numbers of businessmen injured or killed per year and region, raidw = number of raiding attacks per year and region weighted by the number of firms in a region in the given year; vicw = numbers of businessmen injured or killed per year and region weighted by regional population; 159 = number of fraud cases per year and region weighted by regional population; inf = % share of the regional workforce employed in the informal sector.

[12] Recall that a negative association between informal economy and violence against businesses could be an indication that the informal economy provides shelter from crime.

As already mentioned, Russia's regions feature profound institutional heterogeneity. It is important to know how the spatial institutional disparity evolves over time, and in particular whether there is institutional convergence of Russian regional institutional regimes, or they are drifting further apart. The logic of "market-preserving federalism" would suggest a convergence of regional institutions to best-practice patterns, since the regions that are lagging behind their neighbours are forced to improve their institutions in order not to lose out in the competition for mobile investments and other resources. However, essential preconditions of the theory of "market-preserving federalism", such as the effective protection of Russia-wide markets, are not met in the Russian context, and therefore the question of conversion or diversion of regional institutions needs to be answered empirically.

To this end, we use once again the share of the informal employment, to see how the national average of such shares and their variance evolve over time.

Table 9: Mean and variance for the share of informal sector employment

	2001	2004	2006	2007	2008	2009	2010	2011	2012	2013
Mean	16,40	18,86	21,14	21,59	21,75	22,03	18,78	20,72	21,84	22,89
Variance	4,86	5,79	7,29	7,27	6,48	7,17	6,63	6,73	7,02	7,33

Table 9 shows that against the backdrop of declining institutional quality nationally regional institutions exhibit significant divergence. A possible explanation might be that the inadequate national institutions suppress investments in the Russian economy and impede the development of a national market and the integration of regions into a single economic space, which could have led to institutional convergence across the country. Instead, what we observe is an ongoing institutional divergence reminiscent of the first years of economic reform in the early 1990s.

7. Causes and consequences of institutional divergence

Availability of clearly interpretable indexes of institutional quality improves the odds of quantifying the role of institutions in socio-economic development in Russian regions, and of identifying root causes of the institutional heterogeneity across the country. Such analysis could reveal the potential of institutional reform in advancing regional development, as well as long-term exogenous determinants of regional institutions that facilitate or impede progressive institutional change.

In-depth discussion of these issues is beyond the scope of this paper, which is primarily about institutional measurement per se, rather than using institutional measures in applied regional studies. We will conclude by several examples drawn from the recent literature which illustrate how regional institutional measurement expands opportunities for linking regional institutions to their causes and consequences.

In a number of papers institutional measures are used to explain interregional variations of economic outcomes. Thus, corruption, crime, and excessive red tape are shown to impede foreign direct investments in Russian regions (Kuzmina et al., 2014). Taking a different perspective, Menyashev and

Polishchuk (2011) demonstrate that accountability of local administration affects life satisfaction in Russian cities.

Various institutions could be linked to each other in affecting economic outcomes. Thus liberalization of a regional economy (easing licensing requirements and cutting the number of inspections) complements the quality of regional governance: in regions with transparent administrations liberalization boosts SME development, whereas no such effect is observed in poorly governed regions (Yakovlev, Zhuravskaya, 2013). In the same vein institutional quality, including control of corruption, affects economic outcomes of privatization. According to Dower et al. (2014), the "De Soto effect" (i.e. economic benefits of formal land ownership by commercial firms) is considerably weakened or simply absent in regions with weak institutions, in part because land ownership increases the risks of raider attacks.

The conditions of regional institutions also affect the allocation of talent in the economy and ultimately the economic returns to investments in human capital. In Russian regions with strong institutions the percentage of talented students choosing sciences and engineering as study areas is higher in comparison to regions with weak institutions, where education in law and public administration is far more popular (Nathkov, Polishchuk, 2012).

The value of reliable institutional measures is not only in establishing and quantifying the links from institutions to outcomes, but also in revealing historical, social and political causes of institutional variations between regions. Such analysis, being of considerable interest in and of itself, could also be useful in ruling our reverse causality between institutions and their outcomes. Institutional "roots" exposed with the help of institutional quality measures could serve as instrumental variables providing consistent estimators of the association between institutions and development.

Institutional diversity is often rooted in history. Thus Kuzmina et al. (2014) link the quality of today's institutions in Russian regions to labour unrests in Russia in Russia over 100 years ago. Similarly Dower and Markevich (2014) established a connection between the recent privatization of the Russian economy and the intensity of conflicts during the Stolypin land reform in 1906; such connections reveal stable views and preferences that could have been shaped by historical events and continue to shape institutional outcomes in the present era.

The quality of regional institutions and of subnational governance in Russia is influenced by norms and values of the population, which in its turn are often determined by historical, geographical or other exogenous factors. Menyashev and Polishchuk (2011) show that the link between civic culture and local government accountability observed in a number of European countries also holds for Russia. Ethnic mix of population many decades ago could be uncorrelated with today's ethnic composition, but still relevant by shaping sustainable norms and values which remain significant for the quality of contemporary political and economic institutions (Grosfeld et al., 2013).

Finally, the quality of regional institutions, including the investment climate, may by affected regional political processes, symbiotic relations between political and business elites, and as well by prevailing patterns of the private sector's representation in the political domain. Thus, political competition in a region has an impact on the activities of business associations which in their turn are relevant for the protection of property rights (Pyle, 2011). Protection of property rights and investment

attractiveness of regions depend on the rotation regional governors and their affiliations with the private sector (Sunyaev, Polishchuk, 2014).

The above examples do not exhaust the analytical possibilities which are opened up by access to reliable indicators of regional institutional quality. Once can expect that improvement in regional institutional measurement would increase the quantity and quality of such studies in the future.

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