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Unequal effects of liberalisation on diversification of Russia's regions

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Summary

In this paper we document how the unequal liberalisation of business regulation across Russia's regions leads to varying effects on the diversification of Russia's economy. We find that national liberalisation laws were better enforced in those regions with more transparent government. As a result, economic diversification was more marked and growth of the small business sector more significant. In contrast, in regions with less transparent government, we observe no effect of reform.

Keywords: diversification, liberalisation, Russia.

JEL Classification: H10, K20, L50.

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1 Introduction

In recent years, liberalisation of business regulations has become very popular among policymakers all over the world. For example, in 2005-07, 62 countries undertook reforms to cut the administrative costs of starting a business and getting a licence (World Bank, 2006, p. 4; 2007, p. 4). The effects of such policy experiments have been widely studied (see Djankov, 2009, for a survey). So far, much of this work has focused on estimating the average effect of reforms and has neglected the fact that it may depend on local institutional environment. Aghion et al. (2008) were the first to show that liberalisation reform had different effects depending on local labour market institutions in the context of Indian delicensing reform. In the context of Russian reform of inspections, licences and registration, this paper also documents unequal effects of liberalisation and provides evidence on one of the channels through which local institutions affect the results of liberalisation, namely, the level of enforcement. We show that government transparency had an impact on the level of enforcement of national liberalisation laws in Russia and by means of influencing enforcement had an effect on liberalisation outcomes. Previous work focused on the effects of changes in *de jure* regulations on outcomes without taking enforcement into consideration. We show that differences in the level of enforcement of liberalisation laws, that is, the wedge between *de facto* and *de jure* regulations, give rise to the variation in reform outcomes across different institutional environments.¹

Between 2001 and 2004, Russia undertook drastic liberalisation of business regulation. Three consecutive national laws aimed at liberalisation of entry and operation of existing businesses in the areas of inspections, licences, and registration. A limit of no more than one inspection in two years was put to the number of inspections by each inspecting agency (for example, fire, sanitary, labour, or certification inspection) in each particular firm. A substantial delicensing took place: over 100 business activities which previously had required licences became exempt. Registration of new firms was transformed from authorisation-based to notification-based (by abolishing the need for startups to obtain permissive documents from various government agencies before starting their operations). Prior to this reform, many scholars pointed to the excessive regulatory burden on Russian firms and argued that over-regulation was among the most important reasons for Russia's poor economic performance during the first eight years of transition.² The proclaimed goal of the reform was to increase entry and the growth of small business.

In this paper we study how transparency of regional government affected whether this reform succeeded in bringing down the administrative costs of doing business and whether it reached the ultimate goal of boosting small business development and diversifying the Russian economy. We use a unique panel survey data of small firms with questions about their *actual* regulatory burden which allow us to measure the enforcement of liberalisation reform. For each of the three regulatory areas liberalised by the reform (inspections, licences, and registration), we construct a firm-level measure of reform enforcement by comparing reform target to the actual

¹The lack of enforcement has been recognised as an important reason for ineffectiveness of regulation at least since Stigler and Friedland (1962). Empirical research, however, had little to say about the obstacles and driving forces behind the enforcement of liberalisation reforms.

²See, for instance, Frye and Shleifer (1997); Shleifer (1997); Johnson et al. (1998); Shleifer and Vishny (1998); Frye and Zhuravskaya (2000).

regulatory burden faced by the firm. The data spans a selection of subnational regions, and therefore, we are able to observe varying success of reforms in different regions. As Russia's regions are relatively homogenous in culture, but differ greatly in governance institutions, we can study the effect of government transparency on reform and its outcomes.

As the first of the two steps in our analysis, we study how government transparency at the regional level affects the enforcement of reform. As liberalisation takes away rents from these bureaucrats, they may be reluctant to decrease regulatory burden on firms (Shleifer and Vishny, 1993, 1994). Indeed, we find that the reform was far from perfectly enforced. Despite some reduction in regulatory burden after the reform, inspectors came to inspect firms too often if compared to the target set by the liberalisation law on inspections; firms had to apply for licences for activities which are not supposed to be licenced according to the delicensing law, and new firms had to obtain authorisation to start operations from various local government agencies despite the new notification-based registration. Local public officials who administer regulation are expected to have particularly strong incentives to sabotage liberalisation when they are not well monitored by the public and businesses. We find that the enforcement of liberalisation reform in all three areas of regulation was better in regions with higher transparency of authorities. In addition, we find that government transparency affects the enforcement of liberalisation of entry and of the operations of established firms in the same way. Our empirical methodology is difference in differences: we estimate the differential effect of introduction of liberalisation laws on the wedge between *de jure* liberation targets (that is, the maximum level of regulation permitted after liberalisation) and *de facto* regulations (that is, the actual level of regulation faced by firms) depending on pre-reform government transparency.

Second, we use the interaction between the timing of liberalisation and government transparency as an exogenous source of variation in the level of actual regulations to estimate a causal effect of reform on diversification of Russia's regional economies and entry of small firms. Instrumenting regulation is important because of reverse causality going from outcomes to regulation as bureaucrats who administer regulations have higher incentives to over-regulate best-performing firms because the potential bribe tax that can be collected from these firms is larger. We consider the following reform outcomes: diversification of regional economies, measured in three different ways by C4, HHI, and GINI coefficients; small businesses entry to the official sector; and official small business employment, all at the regional level.

Using 2SLS, we find a significant positive effect of delicensing on diversification of industry in regions with relatively high government transparency and practically no effect in regions with relatively low government transparency. There is also some evidence that liberalisation in the area of inspections leads to a small increase in diversification, but also only in the regions with high transparency of government. liberalisation of registration does not affect industry concentration ratios. In addition, we find that liberalisation of registration had a significant positive impact on the employment of small businesses per capita and liberalisation in the area of inspections on the number of small businesses, but also only in the regions with high government transparency.³

³As we have data only on the official sector, the increases in small business employment per capita and in the number of small businesses following liberalisation in regions with high government transparency reflect the actual business formation as well as the shift of business activity between the official and unofficial sectors. Both have

An important question is why liberalisation, when properly implemented, affects diversification? The most important reason is that established and politically powerful industries have political capital in order to cope with excessive regulatory burden, while those new industries that could have developed in the absence of barriers to entry, under heavy regulatory burden cannot enter and cannot accumulate political capital required to cope with it. Thus, in over-regulated economy industrial structure is sub-optimally concentrated.

The paper is organised as follows. In Section 2, we describe the reform and the regulations data. Section 3 focuses on the estimation of whether government transparency affects the enforcement of the liberalisation reform. Section 4 reports the estimates of the effect of the reform on outcomes. Section 5 discusses robustness. Section 6 concludes.

2 Background and the measures of regulation

2.1 Russia's liberalisation of business regulation

The level of regulatory burden prior to the Russian liberalisation reform of business regulations was extremely high. The goal of the reform was to cut costs of firms associated with inspections, licensing, and registration. The reform consisted of a package of three laws passed at different points in time during 2001-2004: the law on inspections – on August 8, 2001; the law on delicensing – on February 11, 2002; the law on registration – on January 1, 2004.

The liberalisation reform introduced clear measurable limits for regulatory burden in some areas of regulation and abolished some other regulations completely (for example, Shehovtsov et al., 2005). In particular, the law on inspections stipulated that each inspecting agency is allowed to conduct a maximum of one regular (or so-called “planned”) inspection of each firm in a two year period. If no violation is found during the inspection, the next visit can take place no earlier than in two years. If violations are found, they need to be officially recorded by the inspectors, an official fine should be levied on the firm, and inspectors can return to confirm correction of the violation. The previous legislation did not put a limit to the number of “planned” visits by inspectors. Before the new law took force, inspectors came to visit firms very often and they rarely officially recorded violations, instead extracting unofficial payments from businessmen and not requiring them to correct violations.

The delicensing law reduced the list of business activities which require licences from 250 to 103 activities. For example, the following business activities became exempt from licensing in 2002: realtors, pawn shops, publishing houses, audio studios, private certification firms, antique shops, construction firms, bread making, wholesale and retail of bread, drilling and drill manufacturing, and service work in sea ports.⁴

The registration law introduced a so-called “one-stop shop” rule for registration and formalised

important first-order effects on the economy (Johnson et al., 1998, 2000).

⁴This law also increased the minimum length of licence validity from three to five years.

the list of required documents. Previously, any start-up had to obtain authorisations with several different government agencies, such as the pension fund, the social security department, the statistical and fire departments, and the local administration; and the rules for registration differed across localities. According to the new law, a start up needs to submit all necessary documents to the local branch of the tax ministry and no permission is necessary to start operations.

We study the effects of these three changes in the legislation.⁵

2.2 The MABS survey

The Center for Economic and Financial Research in Moscow conducted a long-term project of Monitoring of Administrative Barriers to Small business (MABS). The project collected data on regulatory burden on Russian firms by means of regularly repeated surveys of top managers in 2,000 small firms in a selection of 20 regions of Russia. During face-to-face interviews, top managers were asked about firms' actual quantifiable costs associated with inspections, licensing and registration.⁶ Two survey instruments are used: one inquires about the regulatory burden on firms established more than a year ago and the other is designed for newly registered start-ups in order to monitor the administrative costs of entry. Panel data are collected to monitor the administrative burden on existing firms that comes from inspections and continuation licences and a repeated cross-section is collected to monitor costs of registration and acquisition of start-up licences. New start-ups constitute about 20 per cent of the total sample in each survey round. The samples were constructed separately in each region: the sample of established firms was drawn at random from the census of regional small and medium-size businesses as of 2000 and the sample of start-ups was drawn at random from the official list of firms registered in the region during the last half year.

The MABS data set includes the results of all six rounds of the survey conducted in the spring and the fall of 2002, the spring of 2003, 2004 and 2005, and the fall of 2006.⁷ Each round collected information about all aspects of the regulatory burden on firms for the immediately preceding six months (for example, the fifth round took place in the spring of 2005 and collected all variables for the second half of 2004. In addition, the first round of the survey (which took place in the spring of 2002) collected information about inspections in the first half of 2001.

⁵Another important change to Russian legislation took place in on January 1 2003 that could potentially have an effect on the business environment. A law on a simplified tax system for small businesses was passed. This law increased the scope of application of the existing system of simplified tax administration which allows small firms to pay a single "unified" tax with a flat rate on either profit or revenue instead of many taxes such as VAT, profit, sales, and property taxes and reduced the tax rate for the "unified" tax. The timing of this law is such that it is not a confounding factor to the liberalisation reform that we consider. In addition, on July 1 2002 and on July 1 2003, two laws streamlined the procedures for product certification and registration, but—unlike the liberalisation laws that we consider—they did not liberalise any regulatory areas and were not aimed at reducing regulatory burden.

⁶The survey also collected objective information on certification and tax administration and asked managers about their subjective perceptions of the business climate. In this paper, we focus exclusively on the objective data on the regulatory burden in the areas affected by liberalisation.

⁷See reports on survey results at www.cefir.org/index.php?l=eng&id=25 and interactive data base at www.cefir.ru/monitoring.

Figure 1 in the appendix presents the timing of the stages of liberalisation reform and the periods covered by the data. The first round of the survey collected baseline information from the time before any of the liberalisation laws came into force. The data from the second round onwards allow evaluation of reform progress after the enactment of the law on inspections; the data from the third round onwards enable an assessment of the effect of delicensing law. The last two rounds allow evaluation of the impact of the registration law.⁸

The sampling procedure was as follows. In each round and each region, 20 newly-registered firms were chosen at random from the list of the population of all firms which registered in this region in the half-year preceding the survey round. In the first round of the survey, in each region, 80 established firms were chosen at random from the registry of existing small businesses with the following quotas that ensured over-representation of construction and manufacturing firms: 8 construction firms and 25 manufacturing firms.⁹ From the second round onwards, the aim was to keep as many established firms in the sample as possible in order to ensure the panel structure of the data. In every round starting with the second one, 88 per cent of established firms come from the previous round sample. Out of them, 85 per cent come from the established-firms sample of the previous round and 15 per cent come from the new-firms sample of the previous round. The attrition from the sample established firms, therefore, was 25 per cent if compared to the previous round sample. It is, however, over-stated as 9 per cent of firms that do not appear in current round reappear in next two rounds. So, the attrition rate in the panel of established firms over 4 rounds is 22 per cent.¹⁰ The replacements to firms that dropped out of the panel were chosen at random, first, from the pool of firms that appeared in the sample of newly-registered firms in previous rounds and, then, from the registry of existing small businesses.

2.2.1 Measuring the enforcement of liberalisation

We measure at the firm-level whether regulatory burden meets the targets set by the liberalisation reform. At each round of the survey for every firm in the sample, we construct dummies for whether the actual inspections and licences of firms comply with the liberalisation laws on inspections and licences. And for every newly-registered firm in the sample, we construct a dummy for whether registration procedure complies with the law which liberalised registration.

⁸All of these data are in half-year increments. The enactment of the law on registration fell exactly between the rounds 4 and 5 of the survey. This is not the case for the laws on licensing and inspections. In our empirical exercise, we assume that the law on inspections took force between rounds 1 and 2, even though in reality the law took force in the *middle* of round 1. Similarly, we assume that the law on licences took force between rounds 2 and 3 (rather than in the middle of round 2). This is done for two reasons: first, one should expect at least a few months lag between the enactment of the law and its implementation; and second, during the half-year period when each of these laws were enacted, inspectors and licence authorities may have deliberately shifted their activities earlier in the respective half-year periods in order to avoid the need to comply with the new laws. The results are robust to making an alternative assumption about the timing; this, however, requires the use of retrospective data for inspections in the first half of 2001, which are subject to a recall bias.

⁹Selection was based on the industry code originally reported by the firms at the time of registration, and therefore, often was different from the actual industry reported during the interview.

¹⁰There is no data on the reasons for attrition, which could range from the exit from the market or relocation to refusal to participate in the survey.

For inspections, our measure of meeting the liberalisation target is a dummy indicating whether there was no more than one sanitary inspection in six-month period.¹¹ We focus on sanitary inspection because it is one of the most frequent in our sample.¹²

To describe the measure of meeting the liberalisation target in delicensing, let us first define the terms. We call a licence “*legitimate*” if it is issued for a business activity that is supposed to be licenced according to the 2002 delicensing law. In turn, we call a licence “*illegitimate*” if it is granted for an activity that is not supposed to be licenced according to this law.¹³ We consider a dummy for having no illegitimate licences in a firm as an indication that the delicensing target is met.

We measure compliance with the liberalisation target in the area of registration by a dummy indicating whether registration of a new firm did not require admissive documents. More precisely, it takes the value of one if the firm had to visit only the local branch of tax ministry for registration and takes the value of zero if the firm had to visit and obtain permission to enter the market from any government agencies apart from the local branch of tax ministry.

Before the liberalisation laws took force, the three measures indicate whether liberalisation reform was binding in each of the respective areas of regulation. After the liberalisation laws took force, the three dummies indicate the level of enforcement of respective liberalisation laws.¹⁴

Summary statistics for the measures of meeting liberalisation targets are reported in the upper panel of Table 1 for before and after the reform. The table shows that in all three dimensions of reform, the level of attainment of liberalisation targets had increased after the reform compared to before the reform. Yet, the change in the compliance with liberalisation targets is not very high on average, particularly, for inspections and licensing. 88 per cent of firms had fewer than two inspections in half-a-year period before liberalisation of inspections compared to 93 per cent after the liberalisation. 77 per cent of firms had no illegitimate licences before delicensing

¹¹The dummy equals zero only when the extreme violations of the liberalisation target occurs, because the law limits the number of inspections to one in *two years*, whereas we look at the situations with two or more inspections in a firm during *six months* in order to avoid autocorrelation in our panel. These extreme violations are not rare: in 2001, 12 per cent of all firms had more than one sanitary inspection in six months; the situation improved by 2006 (five years after the law took force), but the rate of violations of this deregulation target remained non-trivial: 6.4 per cent of firms.

¹²According to our data, 36 per cent of firms dealt with sanitary inspections. There is some industry-level variation in frequency of sanitary inspections. In food industry 85 per cent of firms had sanitary inspections. In high-tech and construction industries one quarter of firms had sanitary inspections. In other industries this number varies from 35 to 46 per cent. We control for industry dummies in all specifications.

¹³For example, if a realty firm applied for and was granted a licence to operate after 2002, we record a violation of the law and call this licence illegitimate. The data show that many firms applied for and were granted licences for the activities that do not require licences according to the new delicensing law after it took force. In focus group interviews, firm managers said that it is cheaper for them to pay for the illegitimate licences than to defend their right to operate without a licence in court. Most illegitimate licences have been granted by regional authorities.

¹⁴It is important to note that since our data are comprised of firms that actually exist (that is, entered the market and survived to the time of the survey), there is an inherent problem of sample selection. Ideally, one would have liked to know the level of regulatory burden for firms which were not able to enter the market and which exited because the regulatory burden they faced was too high. This sample selection problem, however, is shared by all studies in this literature.

and 79 per cent after it. 25 per cent of new firms registered without having to visit more than one government agency for registration before liberalisation of entry, and 43 per cent after it. Lower panel of Table 1 summarises the levels of *de facto* regulations that were used to calculate the compliance dummies. On average, established firms had 0.7 sanitary inspections in 1/2 year period and 1.2 illegitimate licences before liberalisation and 0.4 sanitary inspections and 0.9 illegitimate licences after liberalisation. Startups had to visit 4 government agencies for registration on average before liberalisation and 2.7 after liberalisation.¹⁵ Importantly, these average changes in compliance with liberalisation targets and regulatory levels may not be driven by the liberalisation reform as the level of regulations can change over time with macro-economic trends and other time-varying factors. Figure 2 plots the means of the measures of enforcement of liberalisation by the rounds of the MABS survey and Figure 3 presents the dynamics of the level of respective regulations. The figures illustrate that there is no *obvious* discontinuous jump in the compliance with liberalisation targets or *obvious* discontinuous drop in the levels of regulation at the time of liberalisation; instead, we observe time trends and some fluctuations around them. This suggests that the enforcement of the liberalisation laws on average was rather poor and that it is essential to control for the overall trends in order to estimate the impact of liberalisation on the actual regulatory burden across different levels of government transparency.

3 Government transparency and the enforcement of liberalisation

3.1 Hypotheses and the measure of transparency

The incentives of bureaucrats who administer regulations at the local level are important for the actual implementation of reforms of business regulations and, in particular, liberalisation reforms. In this paper, we consider government transparency which potentially can affect incentives of bureaucrats at the local level to meet the targets of liberalisation laws.

Since the initial level of regulatory burden on firms was excessive—as reflected in the general consensus among academics, politicians, and businessmen— it is reasonable to assume that the general public as well as managers of small businesses were in favour of liberalisation. In contrast, we expect local bureaucrats to be interested in maintaining high levels of regulation and opposing liberalisation because they benefited from excessive regulations and liberalisation takes their rents away (according to the public choice theory of regulation, for example, Tullock, 1967; Shleifer and Vishny, 1993; Djankov et al., 2002). Therefore, in regions where the general public can monitor bureaucrats better, one should expect better enforcement of liberalisation.

¹⁵Note that data are missing for newly-registered firms in round 4 for 11 out of 20 regions. The reason was the resignation of Russia's cabinet of ministers leading to a situation in which nobody in the government knew where the data on the registration of firms were located; these data were needed for sampling of new firms in round 4 of the survey. Data are also missing for Altai Krai in the 3rd round due to a reorganisation of the regional survey agency that was supposed to conduct the survey.

We consider one aspect of the ease of monitoring of regional governments by the public – government transparency and expect better enforcement of liberalisation laws in regions with higher government transparency. As a measure of government transparency, we use the overall index of transparency of regional authorities constructed by an independent informational agency “Strana.ru” and an independent association of journalists “Media Soyuz.” This is a composite of indices of transparency of different branches of regional government. The results using these branch-specific indices are very similar. The indices were constructed on the basis of a survey of more than a thousand prominent regional journalists who were asked to evaluate performance of the regions along the following dimensions: accessibility and accuracy of information about decisions of a particular regional authority, impartiality and easiness of journalist accreditation rules, quickness of response on journalist inquiries, presence and quality of internet site, etc. The transparency ratings are available at www.strana.ru/print/128316.html. Our baseline measure of government transparency is summarised in Panel A of Table 2. Note that it does not vary over time and was measured in 2000, that is, before liberalisation had started.

3.2 Methodology

In this section we explore the differential impact of liberalisation laws on the attainment of liberalisation targets depending on the initial regional transparency. We use the difference-in-differences (DD) methodology to study the effect of the pre-determined (that is, pre-reform) government transparency on the local enforcement of national liberalisation reform, exogenously-mandated from the point of view of the regions. We consider each area of liberalisation, that is, inspection, licensing, and registration, separately and regress each of the three measures of meeting liberalisation targets on the interaction between the onset of liberalisation dummy and our potential institutional determinant of enforcement of liberalisation, namely, government transparency. We control for time fixed effects and region or firm fixed effects depending on whether we are looking at new startups for which we have repeated cross-sections or established firms for which we have panel data. Firm-level panel dataset on established firms contains information on licensing and inspections; repeated cross-sections of new firms contain information on licensing and registration.

Thus, for licensing and inspections in established firms, we estimate the following equation with firm and time fixed effects (ϕ_f and ρ_t):

$$L_{ft} = \alpha I_r A_t + \beta \bar{L}_{rt0} A_t + \delta' \mathbf{X}_{ft} + \mu' \mathbf{Z}_{rt} + \phi_f + \rho_t + \varepsilon_{ft}; \quad (1)$$

whereas for licensing and registration of new firms, the estimated equation has region and time fixed effects (ϕ_r and ρ_t):

$$L_{ft} = \alpha I_r A_t + \beta \bar{L}_{rt0} A_t + \delta' \mathbf{X}_{ft} + \mu' \mathbf{Z}_{rt} + \phi_r + \rho_t + \varepsilon_{ft}. \quad (2)$$

Subscript f indexes firms; subscript t indexes time periods (that is, rounds of MABS survey); and r refers to the region, where firm f is located. Dependent variable L_{ft} stands for one of the three measures of the attainment of liberalisation targets in firm f at time t (described in

Section 2.2.1 and summarised in Table 1). I_r stands for government transparency described in the previous section. A_t is the “after liberalisation” dummy (or “AFTER” for short) which takes the value of one when the respective liberalisation law takes force. Firm and region fixed effects (ϕ) control for all time-invariant characteristics of firms and regions. Time effects (ρ) control for over-time variation in the level of regulation.

The main coefficient of interest in this specification, α , is a DD estimate of the impact of government transparency on the enforcement of liberalisation. To be precise, it estimates the differential effect of the liberalisation reform, that is, the enactment of liberalisation laws, on the level of compliance with liberalisation targets in an average firm depending on the level of regional government transparency. The main assumption necessary for the validity of our estimation strategy is that in the absence of institutional variation, the average change in the attainment of liberalisation targets as a result of liberalisation would have been the same across regions conditional on the set of covariates, described below. (We discuss the validity of this assumption after the presentation of the baseline results.)

It is important to allow for differential effect of reform depending on the initial level of regulation because the institutional environment is often correlated with the initial level of regulation (that is, initial attainment of liberalisation targets). Therefore, we control for the interaction of the initial level of regulation (\bar{L}_{rt_0}) and the “after liberalisation” dummy (A_t). \bar{L}_{rt_0} is calculated as the average of L_{ft_0} across all firms for each region r at t_0 . The initial time period (t_0) refers to the first round of the survey which measures the benchmark level of regulations before any of the reform laws took effect, that is, the second half of 2001. Without the covariate $\bar{L}_{rt_0}A_t$ one could have found spurious correlation between the progress of reforms and government transparency. Indeed, in our data government transparency has a positive and significant correlation with L_{ft_0} .

In addition, we include the following variables in the list of covariates. \mathbf{X}_{ft} is a vector of controls for basic firm characteristics, that is, age, size allowing for a quadratic term, legal firm, state vs. private ownership, and industry. \mathbf{Z}_{rt} is a vector of additional regional covariates. It includes the logarithm of regional population to control for the regional size and the mean individual income to control for prosperity of the region. We correct standard errors to allow for clustering of error terms (ϵ_{ft}) within region before and after the reform to account for residual correlation among firms and overtime within region. All control variables are summarised in Table 2.

3.3 Results

The results are presented in Table 3. The upper panel presents the results for the sample of established firms; the lower panel presents the results for newly-registered firms. The first of the two columns for each outcome report results for regression with time dummies; and in the second column, we replace time dummies by *AFTER* and the linear trend. As can be seen from the estimated coefficients on the cross-terms, government transparency significantly improves the local enforcement of liberalisation in the areas of inspections, licensing, and registration. There is no difference in the direction of the effect for enforcement of liberalisation of entry

regulations and of liberalisation of regulations of established businesses. Thus, we can conclude that large incumbent firms in Russia lobby for liberalisation of entry as well as of day-to-day operations of existing firms. Using regressions presented in Table 3, we can only make inferences about the differences in the effect of reform on the level of actual regulation, as the absolute-level effect is collinear with time trend. We can, however, estimate the average impact of adoption of a liberalisation law on enforcement, by pooling data for all areas of regulations together, using the fact that different liberalisation laws took force at different points in time. Let L_{ift} denote the measure of attainment of liberalisation target in the regulatory area i , where $i \in$ (inspections, licences, registration). We estimate the following equation:

$$L_{ift} = \gamma A_{it} + \delta' X_{ft} + \mu' Z_{rt} + \phi_{ir} + \rho_t + \sum_i^3 \eta_i t d_i + \varepsilon_{ift}$$
It is a modification of equation 2 allowing for estimation of an average effect across all i . In this specification, “after liberalisation” dummy varies across regulations as well as over-time reflecting the fact that liberalisation took place at different points in time in the three regulatory areas. To control for trends in the level of regulations, we also include linear time trends specific to each regulation ($t d_i$, where t is linear trend and d_i is a dummy for regulation i). The result of the estimation of γ coefficient in this equation (which is the average impact of a liberalisation law on attainment of its target) is as follows: $L_{ift} = 0.057 A_{it} + \dots + \varepsilon_{ift}$. Combination of this result and results presented in Table 3 allow us to analyze the magnitude of the effects.

3.3.1 Magnitude: an example of Amur and Samara regions

The magnitude of the results is best understood by a comparison of a typical “good” region and a typical “bad” region in terms of government transparency. As an example of a “good” region, we take Samara region (*Samarskaya Oblast*) which is the 4th from the top (among 20 regions) in terms of government transparency. As an example of a “bad” region, we take Amur region (*Amurskaya Oblast*). It is 17th out of 20 regions in terms of government transparency. The values of our measure of government transparency for Samara and Amur regions are 10.9 and 3.3, respectively. We plug in these values into the estimated results presented in Table 3 for each regulatory area. This exercise yields that a typical “good” and a typical “bad” region attain different levels of regulatory burden following liberalisation. In particular, the level of attainment of liberalisation targets would differ by 2 percentage points for inspections, 5 percentage points for licensing, and 17 percentage points for registration in the two regions (with Samara having a better level enforcement of reforms). Using our estimate of the average effect of reform on compliance with liberalisation targets, we get that a region with government transparency at a level similar to Samara is expected to have 8 percentage point increase in the probability of attainment of liberalisation target following liberalisation reform in the area of inspections, an 13 percentage point increase in the probability of attainment of liberalisation target following delicensing, and a 30 percentage point increase in the probability of attainment of liberalisation target following registration liberalisation. In contrast, in a region similar to Amur, one expects, a 6 percentage point increase in the probability of attainment of liberalisation target following liberalisation reform in the area of inspections, 8 percentage point improvement in the level of regulation after delicensing, and 13 percentage point increase in the

probability of attainment of liberalisation target following registration liberalisation.¹⁶

To summarise, our main finding in this section is that government transparency significantly and robustly affected the enforcement of liberalisation reform.

3.4 Testing the assumption about the absence of regional trends

The main identifying assumption in regressions for the determinants of enforcement of liberalisation is the absence of a correlation between government transparency and pre-reform trends in regional regulatory burden. We perform two tests of this assumption. First, we regress the level of attainment of liberalisation targets at the firm level for the three dimensions of regulation on the time trend interacted with transparency before reform, controlling for region and time fixed effects. Second, we regress first differences in the attainment of liberalisation targets at the regional level on government transparency also prior to reform controlling for time dummies. These exercises yield 6 regressions (that is, 2 specifications x 3 areas of regulation). In none of them, we find a statistically significant (at 10 per cent level) negative relationship. In addition, the number of positive and negative coefficients is approximately the same. Thus, we conclude that this assumption is reasonable, subject to an important caveat regarding data limitations. In particular, for laws on licensing and registration, there are only two data points before reform and for the law on inspections – only two data points including the retrospective data.¹⁷

4 The outcomes of liberalisation

To test the relationship between liberalisation reforms and outcomes, we run the following regression on a panel of regions:

$$S_{rt} = \xi \bar{L}_{rt} + \zeta' \mathbf{Z}_{rt} + \phi_r + \rho_t + \varepsilon_{rt}. \quad (3)$$

The dependent variable (S_{rt}) stands for one of the following regional outcomes: diversification (measured by the employment share of the biggest four industries (C4), Herfindahl-Hirschman index (HH), and Gini coefficient (GINI) for 16 industrial sectors of regional economy, according to the “OKONH” classification), net entry into the official sector (measured by the log number of small businesses) and official small business employment share (measured by the number of employees in small business sector per capita). These variables are summarised in Panel B of

¹⁶In reality, the share of firms without illegitimate licences increased in Samara region by 11 percentage points and in Amur region it actually decreased by 3 percentage points following the delicensing law; while the shares of firms that had no more than one sanitary inspection increased by 16 and 12 percentage points in Samara and Amur regions following the liberalisation law on inspections.

¹⁷In the robustness section 5, we discuss the results of a placebo experiment, in which we vary the timing of laws. Had there been region-specific trends in regulations, the results of this placebo experiment would have been different. In addition, section 5 reports how our results change with the inclusion of the interaction of the linear trend with government transparency as an additional control variable.

Table 2. They come from the official Russian statistical agency *Rosstat*. They are available for all regions annually up until 2004 (inclusive), that is, for the period from the first to the fifth round of the survey. Note that there are no reliable data on the size of the unofficial sector. \bar{L}_{rt} stands for a *regional-level* measure of attainment of liberalisation targets. We construct regional-level measures by aggregating firm-level regulation measures across firms in the same region and round. The aggregation takes two steps. First, we partial out the effect of basic firm characteristics (\mathbf{X}_{ft}) from L_{ft} by taking residuals of the OLS regression: $L_{ft} = \lambda' \mathbf{X}_{ft} + \varepsilon_{ft}$. Second, we take simple averages of these residuals by region in each round of the survey: $\bar{L}_{rt} = \frac{1}{N} \sum_{f=1}^N \hat{L}_{ft}$, where N is the number of firms in each region and round.¹⁸ The rest of the notation is as above. In addition, as in Aghion et al. (2008), we control for the average technological level of firms with the average regional labour productivity. We also verified that the results are robust to controlling for regional averages of firm-level controls used in the firm-level analysis and for using plain regional averages of firm-level measures of attainment of liberalisation targets as regional level measures.

The first stage is an aggregation of equation 2 to the regional level:

$$\bar{L}_{rt} = \alpha I_r A_t + \mu' \mathbf{Z}_{rt} + \phi_r + \rho_t + \varepsilon_{rt}. \quad (4)$$

The results of the second stage are presented in Tables 4 (for diversification measures) and 5 (for the measure of small business growth). Table 4 presents regressions by type of liberalisation (namely, delicensing, liberalisation of inspections, and liberalisation of registration). Both 2SLS and OLS results are reported. We find that delicensing has a significant positive effect on regional concentration measured by C4 and Gini coefficients, the effect on HH index is also negative, but in IV regression, statistically insignificant. There is some weak evidence that liberalisation of inspections also increases diversification, as C4 is negatively significantly (at 10 per cent level) related to liberalisation of inspections. This results, however, is not robust to using HH or GINI as measures of concentration. We found no evidence that liberalisation of registration is associated with an increase in diversification. All 2SLS coefficients of interest are statistically insignificant (and only OLS for HH is significant with the predicted sign).

Table 5 reports the results for small business. As we expect that administrative costs of entry affect small business the most, our main focus here is on the effects of liberalising registration. We find no statistically significant effect of liberalising registration on the number of small businesses, and a large, statistically significant effect on the small business employment as a share of population. As far as the effects of liberalisation of licences and inspections is concerned, second stage estimates yield significant positive effects of liberalisation of inspections and delicensing on the number of small businesses and of liberalisation of inspections on the small business employment.

¹⁸The use of firm employment to construct regional regulation measures potentially could introduce a simultaneity problem if regional and firm employment co-vary. However, the point estimates of ξ in the second stage remain unchanged if we construct regional regulation measures as simple averages without controlling for firm characteristics. As a baseline, we control for firm characteristics because this increases power of the instruments in the first stage. In addition, the results are robust to using region*round fixed effects rather than averages of residuals to aggregate regulation measures.

Interestingly, in all regressions (with the exception of one which combines HH index and inspections' liberalisation), the bias in OLS estimates is negative. Namely, in OLS regulations are tougher in regions with more vibrant small business and more diversified economies. This provides evidence in favour of the public choice theory of regulations as predatory regulators are drawn disproportionately to regions with higher potential bribe tax: higher small business entry into the official sector and higher diversification.

4.1 Magnitude: the outcomes of liberalisation in Amur and Samara regions

Let us illustrate the magnitude of the results on the effect of liberalisation reform on outcomes using the example of Amur and Samara regions. Our results suggest that because of the differences in the enforcement of reform under different institutional environments, it lead to different effects on Russian regions. In particular, in a region similar to Samara in terms of institutional environment, the concentration of industry (measures by C4) should decrease by 1.5 percentage points following delicensing and by 2.3 percentage points following liberalisation of inspections; while in a region similar to Amur, liberalisation of inspections would lead to a decrease in the concentration of industry (C4) by less than 1 percentage point following delicensing and by 1.7 percentage points following inspections liberalisation. In the counterfactual case that the delicensing reform had been enforced perfectly in some region, it would have lead to an 11 percentage point decrease in the concentration ratio (C4) of this region. Had the inspections' liberalisation been perfectly enforced, it would have lead to a 25 percentage point decrease in the concentration ratio (C4) of that region.

In addition, our results show that in a region similar to Samara in terms of government transparency, the liberalisation of registration leads to an increase in the share of small business employment by 1 percentage point (which is approximately one quarter of its standard deviation). In contrast, in a region similar to Amur, the employment of small businesses per capita is expected to fall as a result of reform by 0.3 percentage points, because the liberalisation of registration is expected not to be properly enforced.

5 Placebo experiment

Figure 4 provides a graphical illustration to our placebo experiment by plotting the coefficients (along with their confidence intervals) on the interaction between government transparency and lags and leads of *AFTER*. On the horizontal axis, we plot the placebo timing such that zero coincides with the timing of the actual liberalisation; -1 is as if liberalisation occurred one round before the actual liberalisation; +1 is as if liberalisation occurred one round after the actually liberalisation, etc. We see that in addition to the interaction with the actual timing of liberalisation, the interaction with the lead of *AFTER* is also statistically significant, suggesting a somewhat sluggish implementation of liberalisation.

6 Conclusions

We study how a national liberalisation reform of inspections, licences, and registration in Russia affected diversification of Russia's industry and small business development. We find that liberalisation had positive effects on diversification and small business employment in regions with transparent government and no effect in regions with untransparent government. We also find that the channel for the unequal effects of liberalisation in regions with different government transparency is the differential enforcement of liberalisation. In regions with higher transparency of government, the reform was better enforced and led to a significantly higher drop in the actual regulatory burden, and as a result, better outcomes. Overall, we find that the reform was poorly enforced and better enforcement of liberalisation would have had a much stronger impact on diversification of the Russian economy. As the quality of reform's enforcement is determined by the institutional environment, the quality of institutions is the major constraint to liberalisation.

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Appendix

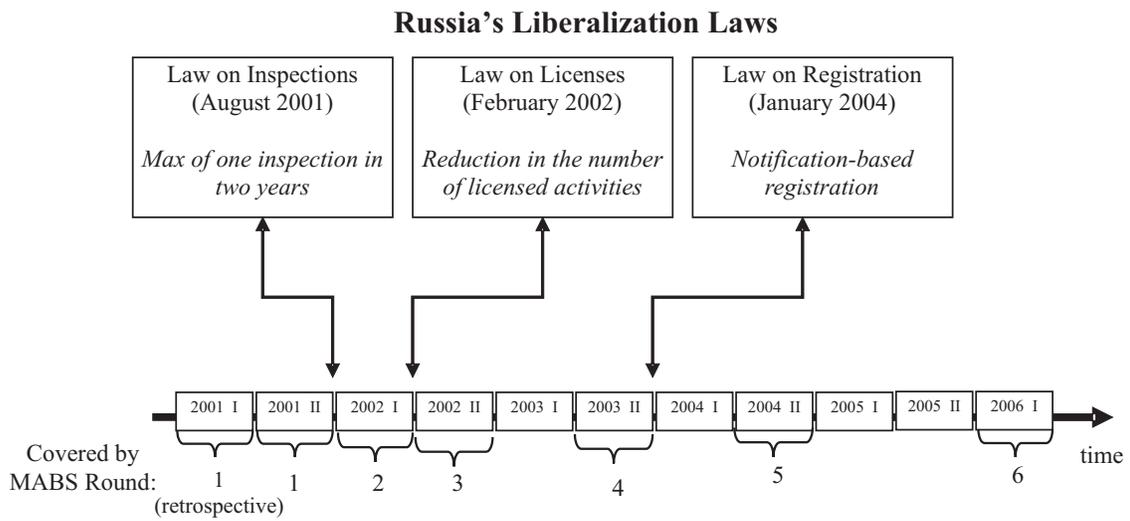
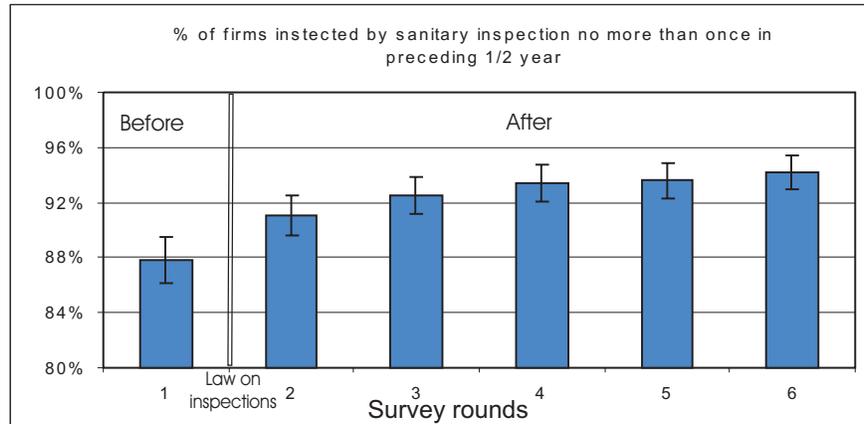
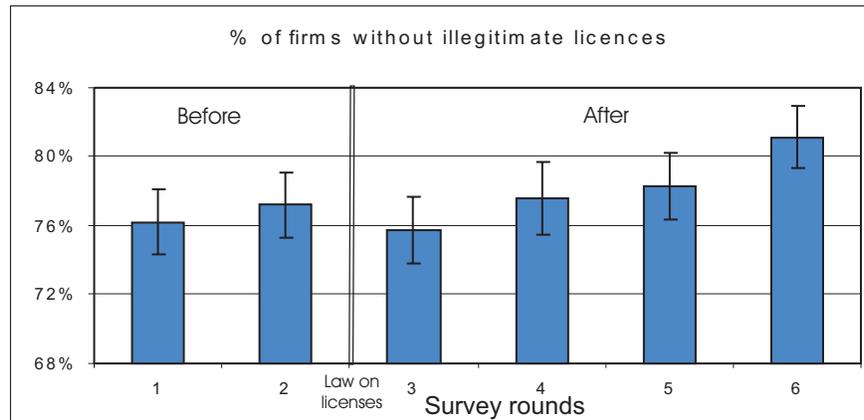


Figure 1: The timing and content of liberalisation reform and rounds of MABS survey

Inspections



Licenses



Registration

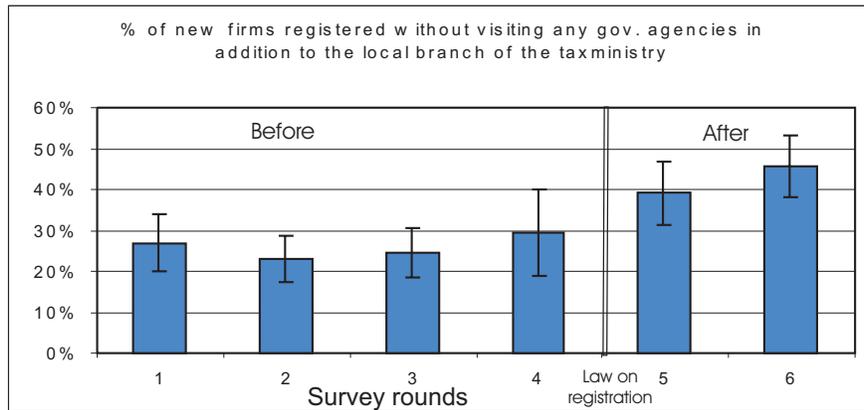
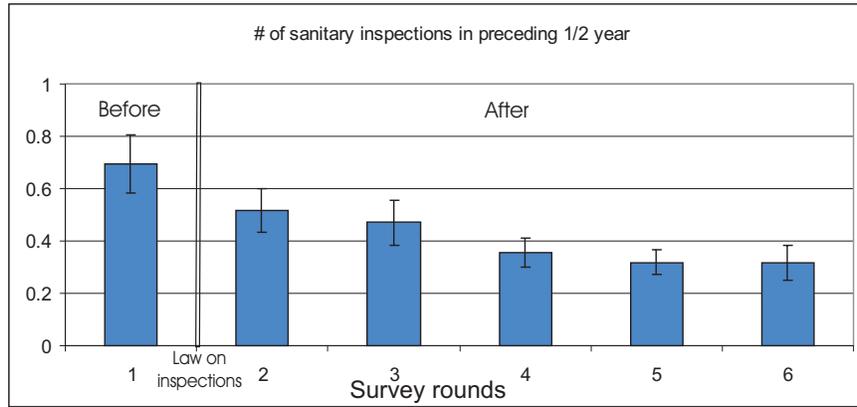
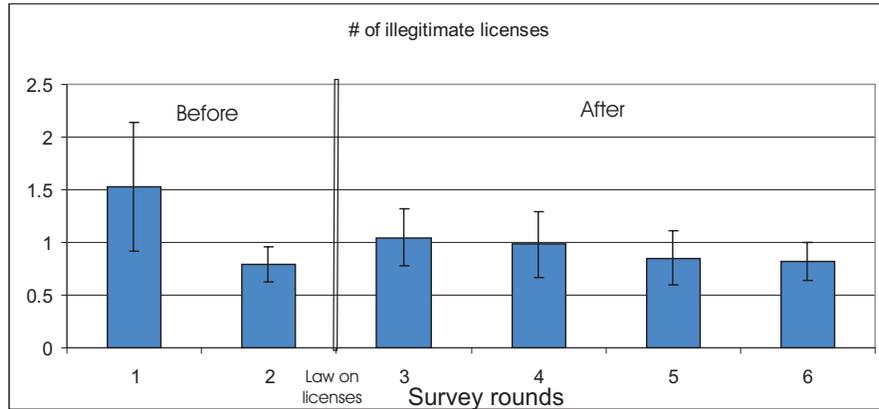


Figure 2: Attainment of reform targets before and after liberalisation

Inspections



Lincenses



Registration

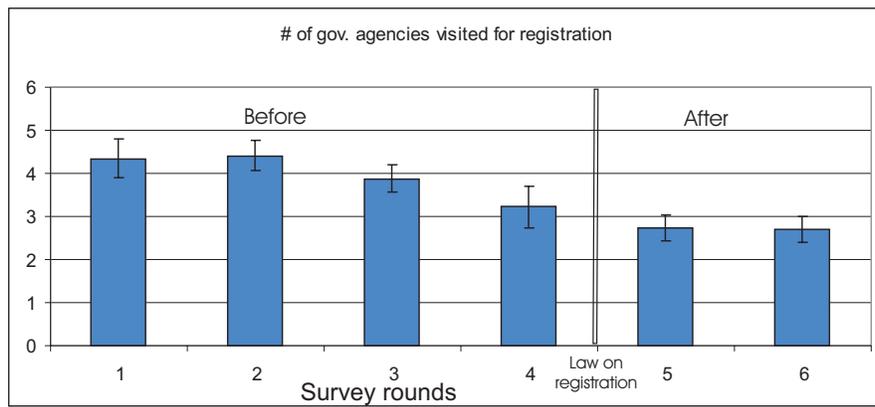


Figure 3: Regulation level before and after liberalisation

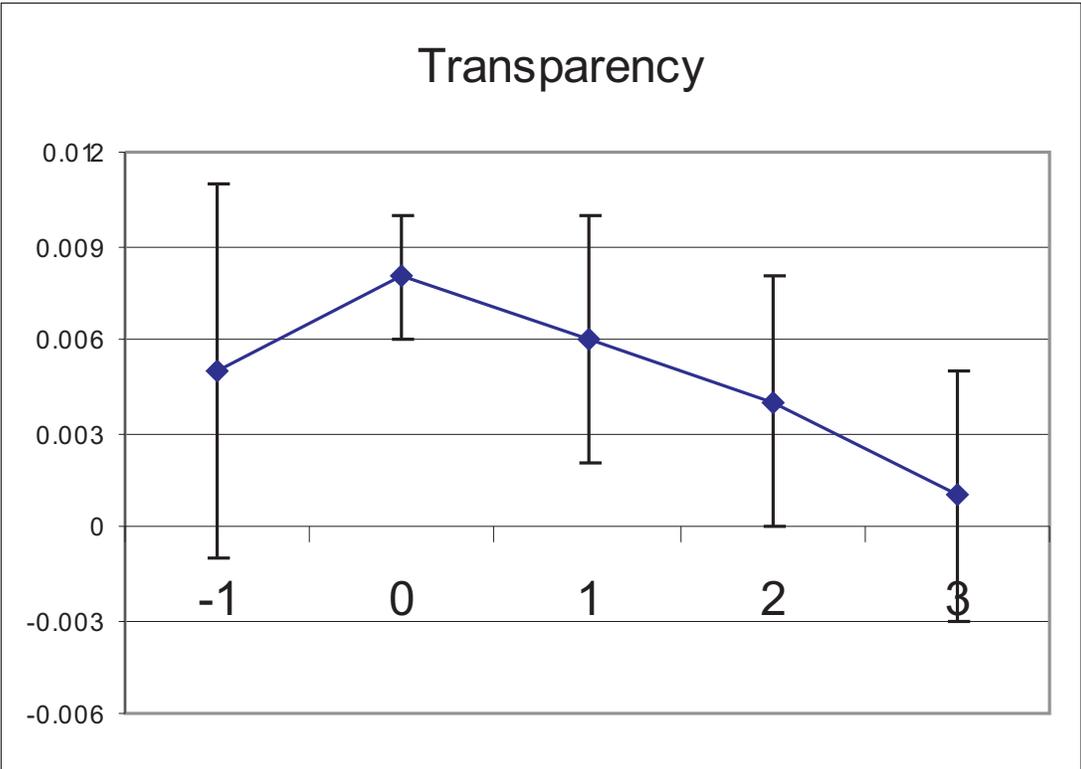


Figure 4: Interaction between lags and leads of *AFTER* with transparency

Table 1: Summary statistics for measures of compliance with liberalisation targets and the underlying regulation measures

	Before reform					After reform				
Dummies for meeting liberalisation targets:	Obs.	Mean	SD	SE	# rounds	Obs.	Mean	SD	SE	# rounds
inspections	1534	0.878	0.327	0.008	1	7512	0.929	0.257	0.003	5
licensing	3942	0.767	0.423	0.007	2	7648	0.792	0.406	0.005	4
registration	688	0.251	0.434	0.017	4	343	0.426	0.495	0.027	2

	Before reform					After reform				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
# of sanitary inspections in preceding 1/2 year	1534	0.695	2.165	0	50	7512	0.399	1.383	0	40
# of illegitimate licences firm has and applied for	3942	1.157	9.904	0	440	7648	0.924	5.443	0	170
# of agencies attended for registration	688	4.094	2.573	0	20	343	2.720	1.983	0	10

Table 2: Summary statistics for government transparency, outcomes, and controls

Panel A: Transparency									
	Obs	Mean	Std. Dev.	Min	Max				
Transparency of authorities	20	7.478	4.014	0.060	15.860				
Panel B: Outcomes						2001 (before)		2004 (after)	
	Obs	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Mean	Std. Dev.
C4x100	99	80.15	8.46	64.13	97.31	79.87	9.87	79.82	8.57
HH	99	0.253	0.105	0.139	0.629	0.255	0.109	0.24	0.104
GINI	99	0.697	0.083	0.557	0.858	0.696	0.086	0.692	0.084
Small business employment per capita	99	0.053	0.038	0.02	0.20	0.049	0.037	0.056	0.035
Log number of small businesses	99	2.559	1.133	0.88	5.28	2.541	1.116	2.608	1.164
Panel C: Controls						2001 (before)		2004 (after)	
	Obs	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Mean	Std. Dev.
New firm dummy	11245	0.184	0.388	0	1	0.194	0.396	0.197	0.398
Firm's age	11218	1.384	0.940	0	4.4067	1.367	0.900	1.420	0.959
State firm dummy	11590	0.018	0.132	0	1	0.016	0.127	0.015	0.122
Log(1+Firm's size)	11163	2.414	1.017	0	5.994	2.363	0.975	2.402	1.043
Log(1+Firm's size) squared	11163	6.860	5.558	0	35.928	6.535	5.195	6.858	5.707
Firm's size	11163	19.088	31.135	0	400	17.258	27.64	19.516	33.38
Log (population)	99	7.740	0.712	6.29	9.25	7.755	0.702	7.725	0.755
Log (mean pc income)	99	7.751	0.457	7.06	9.13	7.593	0.461	7.888	0.471
Industry dummies									
1. Manufacturing	11222	0.103	0.304	0	1	0.139	0.346	0.083	0.276
2.Services	11222	0.306	0.461	0	1	0.212	0.409	0.343	0.475
3.Commerce (retail/wholesale trade)	11222	0.297	0.457	0	1	0.289	0.453	0.304	0.460
4.Agriculture, hunting, fishing	11222	0.011	0.103	0	1	0.017	0.129	0.008	0.087
5. Construction	11222	0.106	0.308	0	1	0.112	0.315	0.085	0.280
6. Food industry	11222	0.030	0.171	0	1	0.041	0.199	0.023	0.149
7. Science intensive technologies	11222	0.060	0.238	0	1	0.077	0.267	0.061	0.239
8. Other	11222	0.087	0.282	0	1	0.113	0.317	0.094	0.291
Legal form dummies									
1. Person-entrepreneur	11243	0.012	0.109	0	1	0.015	0.121	0.014	0.116
2. Private enterprise	11243	0.026	0.160	0	1	0.025	0.155	0.021	0.142
3. Federal state enterprise	11243	0.004	0.060	0	1	0.002	0.045	0.003	0.057
4. Regional state enterprise	11243	0.002	0.043	0	1	0.002	0.039	0.002	0.047
5. Municipal state enterprise	11243	0.004	0.067	0	1	0.003	0.051	0.004	0.066
6. Partnership	11243	0.004	0.062	0	1	0.004	0.064	0.006	0.077
7. Partnership limited	11243	0.804	0.397	0	1	0.786	0.410	0.822	0.383
8. Cooperative	11243	0.009	0.095	0	1	0.010	0.098	0.007	0.081
9. Closed cooperative	11243	0.092	0.289	0	1	0.113	0.317	0.080	0.271
10. Open cooperative	11243	0.027	0.163	0	1	0.030	0.171	0.026	0.158
11. Joint venture	11243	0.000	0.019	0	1	0.001	0.023	0.000	0.000
12. Subsidiary	11243	0.000	0.009	0	1	0.000	0.000	0.000	0.000
13. Other	11243	0.015	0.121	0	1	0.011	0.103	0.016	0.127

Table 3: Enforcement of liberalisation and government transparency

Meeting the liberalisation targets for established firms				
Firm fixed effects				
	Inspections		Licensing	
Transparency x AFTER	0.003	0.002	0.007	0.007
	[0.001]*	[0.001]*	[0.002]***	[0.002]***
AFTER		0.006		-0.115
		[0.017]		[0.023]***
Initial level x AFTER	-0.781	-0.781	-0.636	-0.638
	[0.025]***	[0.025]***	[0.022]***	[0.023]***
Round FE	Yes	No	Yes	No
Linear trend	No	Yes	No	Yes
Firm and region controls	Yes	Yes	Yes	Yes
Observations	5305	5305	6594	6594
R-squared	0.65	0.65	0.57	0.56
F-stat, x-terms institutions	3.04	2.87	11.56	9.93
p-value, x-terms institutions	0.09	0.1	0	0
Meeting the liberalisation targets for new firms				
Region fixed effects				
	Registration		Licensing	
Transparency x AFTER	0.023	0.027	0.009	0.009
	[0.010]**	[0.010]***	[0.003]**	[0.004]**
AFTER		0.171		0.041
		[0.095]*		[0.027]
Initial level x AFTER	-0.844	-0.894	-0.859	-0.87
	[0.176]***	[0.182]***	[0.095]***	[0.099]***
Round FE	Yes	No	Yes	No
Linear trend	No	Yes	No	Yes
Firm and region controls	Yes	Yes	Yes	Yes
Observations	812	812	2031	2031
R-squared	0.2	0.19	0.08	0.08
F-stat	5.46	7.35	6.36	6.95
p-value	0.02	0.01	0.02	0.01

Note: Robust standard errors adjusted for clusters within region before and after liberalisation are in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%. All regressions include firm-level and regional-level controls.

Table 4: Liberalisation and diversification

Liberalisation of licensing and diversification						
	C4x100		HH		GINI	
	2SLS	OLS	2SLS	OLS	2SLS	OLS
Meeting liberalisation target, delicensing	-11.383 [4.314]***	-5.425 [2.177]**	-0.051 [0.065]	-0.039 [0.021]*	-0.08 [0.041]*	-0.043 [0.021]**
Log population	-5.384 [4.060]	-4.23 [5.172]	0.022 [0.059]	0.024 [0.066]	-0.013 [0.042]	-0.006 [0.049]
Log productivity (lag)	-1.002 [1.548]	-1.074 [1.733]	-0.007 [0.016]	-0.007 [0.019]	-0.009 [0.016]	-0.009 [0.018]
Observations	98	98	98	98	98	98
R-squared		0.98		0.97		0.98
F-stat	12.39		12.39		12.39	
Liberalisation of inspections and diversification						
	C4x100		HH		GINI	
	2SLS	OLS	2SLS	OLS	2SLS	OLS
Meeting liberalisation target, inspections	-25.601 [15.180]*	-9.503 [8.656]	0.045 [0.231]	-0.012 [0.065]	-0.164 [0.154]	-0.058 [0.073]
Log population	-4.379 [6.624]	-3.624 [7.448]	0.034 [0.070]	0.031 [0.080]	-0.005 [0.058]	0 [0.066]
Log productivity (lag)	-2.88 [1.307]**	-1.785 [1.513]	-0.004 [0.023]	-0.008 [0.020]	-0.021 [0.015]	-0.014 [0.016]
Observations	98	98	98	98	98	98
R-squared		0.97		0.97		0.98
F-stat	5.4		5.4		5.4	
Liberalisation of registration and diversification						
	C4x100		HH		GINI	
	2SLS	OLS	2SLS	OLS	2SLS	OLS
Meeting liberalisation target, registration	-3.094 [2.898]	-0.251 [0.960]	-0.032 [0.040]	-0.026 [0.012]**	-0.023 [0.026]	-0.002 [0.007]
Log population	4.86 [13.027]	1.331 [15.068]	0.142 [0.164]	0.135 [0.219]	0.061 [0.124]	0.035 [0.150]
Log productivity (lag)	-1.195 [2.063]	-1.35 [2.273]	-0.003 [0.021]	-0.003 [0.026]	-0.011 [0.022]	-0.012 [0.025]
Observations	83	83	83	83	83	83
R-squared		0.98		0.96		0.98
F-stat	8.05		8.05		8.05	

Note: Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5: Liberalisation and entry of small businesses

	Log of total number of small businesses					
	2SLS	OLS	2SLS	OLS	2SLS	OLS
Meeting liberalisation target, registration	0.295 [0.227]	-0.007 [0.069]				
Meeting liberalisation target, delicensing			0.762 [0.357]**	0.009 [0.202]		
Meeting liberalisation target, inspections					2.224 [0.774]***	0.388 [0.406]
Log (population)	0.202 [0.904]	0.544 [1.212]	0.473 [0.395]	0.326 [0.403]	0.42 [0.398]	0.341 [0.493]
Log (labour productivity)	-0.638 [0.167]***	-0.613 [0.093]***	-0.571 [0.089]***	-0.561 [0.098]***	-0.4 [0.129]***	-0.533 [0.123]***
Round and Region FE	Yes	Yes	Yes	Yes	Yes	Yes
	0.99	0.99	0.99	0.99	0.99	0.99
Observations	84	84	99	99	99	99
Number of clusters	40	40	40	40	40	40
F-stat for the instrument (1st stage)	9.86		11.97		6.64	

	Total employment in small business per capita					
	2SLS	OLS	2SLS	OLS	2SLS	OLS
Meeting liberalisation target, registration	0.017 [0.008]**	0.008 [0.003]**				
Meeting liberalisation target, delicensing			0.001 [0.027]	-0.019 [0.009]**		
Meeting liberalisation target, inspections					0.083 [0.044]*	0.035 [0.026]
Log (population)	-0.052 [0.038]	-0.042 [0.040]	-0.092 [0.027]***	-0.096 [0.031]***	-0.089 [0.041]**	-0.091 [0.051]*
Log (labour productivity)	-0.003 [0.003]	-0.002 [0.004]	-0.005 [0.004]	-0.004 [0.004]	0.001 [0.005]	-0.002 [0.005]
Round and Region FE	Yes	Yes	Yes	Yes	Yes	Yes
	0.99	0.98	0.98	0.98	0.98	0.98
Observations	84	84	99	99	99	99
Number of clusters	40	40	40	40	40	40
F-stat for the instrument (1st stage)	9.86		11.97		6.64	

Note: Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.