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**THE ADOPTION OF COSTLY VET PRACTICES
IN RUSSIA'S REGIONS**

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How and when are governments able to set up institutionally complex, costly forms of public-private partnerships (PPP) with firms in order to develop skill in the absence of strong civil society organizations, such as trade unions and business associations? In much of the literature on professional education, credible commitment is the key to co-investment between different firms, between capital and labor, and between the broader business community and the state. This is generally achieved through the joint efforts of civil society – employers’ associations and labor unions – and the state, resulting in institutionally complex, cooperative forms of Vocational Education and Training (VET). Russia’s regions present a paradox for this literature. On the one hand, many regions are characterized by institutionally complex, costly forms of PPP that require close cooperation between firms and schools. On the other hand, civil society is weak in Russia and the lack of high quality institutions make firms more vulnerable to co-investment losses due to unwillingness of lower level officials – particularly school officials – to exert effort to fulfill their PPP responsibilities. This paper tests two theories that might explain the emergence of costly forms of PPP in Russia’s regions – state capacity and political accountability. We test these theories using unique data on all PPP in VET undertaken by over 1,654 secondary vocational education schools across Russia’s regions. We find that state capacity is strongly associated with the emergence of costly forms of PPP, as are both political competition and integration of business people into regional legislatures.

Key words: Skill Formation, Vocational Education and Training (VET), Business-State Relations, Institutional Quality, State Capacity

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How and when are governments able to set up institutionally complex, costly forms of public-private partnerships (PPP) with firms in order to develop skill in the absence of strong civil society organizations, such as trade unions and business associations? In much of the literature on professional education, credible commitment is the key to co-investment between different firms, between capital and labor, and between the broader business community and the state [Thelen, 2004; Iversen, Soskice, 2001; Acemoglu, Pischke, 1998; Stevens, 1996]. Broadly, the political economy literature suggests that credible commitments from the state are particularly important. It emphasizes that investment requires commitments from the state itself to not act opportunistically to the detriment of investors (*c.f.* [North, Weingast, 1989, North et al., 2009], etc.) and to prevent lower level officials from doing the same [Beazer, 2012]. Both of these concerns are exacerbated in PPP, when the state is a direct party to co-investment agreements. In much of the literature on vocational education and training (VET), civil society – particularly business associations and labor unions – hold the state accountable for its commitments to VET and PPP [Finegold, Soskice, 1988; Crouch, Finegold, Sako, 1999]. Associations also insure the commitment of firms to each other, since they can monitor their members to insure none underinvest in training in favor of poaching workers trained by others (*c.f.* [Streeck, 1992; Estevez-Abe et al., 2001]). Absent these associations and the constraints they impose, existing work would predict low levels of business co-investment with state institutions in VET (*c.f.* [Streeck, Schmitter, 1985; Martin, Swank, 2008]).¹

At first glance, VET in many of Russia's regions conforms to the expectations of existing work. Many schools only cooperate with firms via one-off interactions, such as organizing career fairs, field trips or internships to observe the work-place (*praktika*). Such cooperation requires little investment of time or money on the part of firms and does little to further skill acquisition. Deeper inspection suggests, however, that despite historically weak civil society and employer associations, more complex PPP thrive in many of Russia's regions. In some regions, complex forms of PPP such as guaranteed vacancies for students, student stipends, and material or equipment investments have emerged that require firms to invest directly in skill acquisition at the schools. In many, firms also play a role in the establishment of standards or the administration of qualification exams, both of which require many man-hours and a great deal of

¹ We should note that institutionally complex forms of cooperation are also organizationally costly, insofar as firms and schools must expend substantial time on coordination. Adoption of new cooperative programs also upsets existing allocations of human resources and administrative routine.

expertise. Indeed, some regions even approach the institutionally complex (and quite costly) German dual-education system, in which firms and schools fully co-administer VET and provide roughly half of instruction each (*c.f.* [Thelen, 2004]). All of these forms of PPP represent ways in which firms directly encourage skill acquisition in local schools.

In this paper, we explore regional variation in PPP, focusing specifically on regional adoption of forms that require substantial direct investments (in time or money) from firms. We do so by taking advantage of a cross-sectional dataset of PPP in 1654 Russian secondary vocational education facilities for the year 2012. We aggregate these reports to the regional level in order to identify the number of costly forms of VET partnership that exist in each of Russia's regions. We distinguish such forms by the extent to which they require firms to invest considerable efforts, whether in time or treasure, and contrast them with more traditional forms of public-private cooperation that occur as one-off events and require minimal effort by firms. We argue that the number of costly forms is a good, if imperfect, proxy for the complexity of VET PPP in a region. Although not perfect, this measure allows us to analyze the extent to which regions differ in how VET is organized and the investment practices firms are comfortable with. By contrast, existing work on VET has primarily relied on qualitative measures that classify cases into one of two categories: Coordinated Market Economies versus Liberal Market Economies (*c.f.* [Hall, Soskice, 2001; Culpepper, 2000; Thelen, 2004; Busemeyer, Trampusch, 2012; Busemeyer, 2015]). Although invaluable, this operationalization of VET institutions is not conducive to quantitative analysis, particularly since much of the literature recognizes (and exploits) the extent of variation within the broader categories.

Although our design is necessarily limited by its cross-sectional nature, our data allow us to understand the adoption of various types of costly PPP practices in Russia's regions and to test various hypotheses about the conditions that promote such co-investment. Building on previous work [Remington, Marques, 2015], we specifically examine the role of state capacity in promoting the adoption of more costly forms of VET investment in Russia's regions. We argue that the structure of Russian PPP, in which firms partner with specific state-run schools, creates unique commitment problems. Firms must be sure that their investments will be used properly by school officials to produce workers with the appropriate skills. Regions with a greater capacity for monitoring lower-level officials are therefore less vulnerable to the principle-agent problems that can create disconnects between the intentions of the state and actual policy implementation

on the ground [McNollGast, 1987; Weingast, Moran 1983]. In this case, greater monitoring capacity enables the state to insure school officials produce students with the proper skills and insure credible commitments between firms and the state. We contrast these hypotheses with more traditional ones from the literature on investment, which emphasize institutional constraints and political competition as the key enablers of investment.

The next section briefly outlines the key problems of investment in VET and the hypotheses that will be tested in this paper. Section three introduces the dataset and discusses our empirical strategy. Section four presents the results of our analysis. Section five presents robustness checks and section six concludes.

Hypotheses

As noted above, VET is partially characterized by a fundamental commitment problem between firms, on the one hand, and between the broader business community and the state, on the other. Firms fear that any costly investments made to train workers will put them at a competitive disadvantage vis-à-vis competitors willing to poach already trained workers rather than invest in training themselves. The state, in turn, can render investments in VET unprofitable through opportunistic policy shifts or general unwillingness to properly enforce existing policy [Kydland, 1977; Frye, 2010]. The returns to VET are regarded as particularly vulnerable to policy drift in the literature, since VET institutions are constantly challenged and modified by collective actors – mainly unions and employer associations – looking to maximize their returns from VET policy [Hall, Thelen, 2009].

A less well explored danger posed by state actors for PPP, specifically, stems from the need of employers to work hand-in-hand with lower level state officials in partner schools. Work on bureaucratic accountability has long argued that absent pressure from above, lower level officials often take advantage of information asymmetries to carve out discretion and shirk their responsibilities [McNollGast, 1987; Weingast, Moran, 1983], with negative implications for investment [Beazer, 2010]. For PPP in VET, specifically, this danger can manifest in the unwillingness of school officials to uphold their end of PPP agreements and produce students with the skills needed by employers. Meeting the needs of employers for skill in a highly competitive, rapidly changing global economy is no simple tasks. Evidence from Germany, which features some of the most advanced forms of VET suggests not only that schools must

work closely with firms, but they must constantly update their curricula, install new equipment, hire or retrain instructors, etc. (*c.f.* [Culpepper, Thelen, 2008; Andersen, Hassel, 2013]). Such efforts are costly and are precisely the sorts of work that lower level officials can be expected to shirk without incentives from higher level officials. By cleaving to older methods and traditions, the schools can decrease their effort. In doing so, they nullify firms' gains from VET investment and render the state's commitments to PPP non-credible.

Work on VET in Western Europe emphasizes the importance of civil society – specifically business associations – in helping to overcome issues of commitment (*c.f.* [Culpepper, 2000; Swenson, 2002; Busemeyer, Trampusch, 2012; Busemeyer, 2015]). On the one hand, business associations render agreements among firms credible by providing information, monitoring compliance, and sanctioning members. On the other hand, associations render the state's commitments credible by providing the basis for businesses to mobilize in the face of adverse policy changes, weak or improper legal enforcement, or other actions that prejudice investment in skills training. For PPP, associations would be expected to help firms hold school officials accountable for the quality of training by alerting and pressuring higher level state officials to solve issues. Where both of these conditions prevail – and unions provide credible commitment on behalf of, and protect, labor – firms are able to invest in highly complex, costly, and cooperative institutions to provide VET.

In our previous work on VET in Russia [Remington, Marques, 2015], we argue that many of the functions performed by business associations can potentially be performed by the state. With a strong enough capacity, the state can credibly promise to monitor and sanction firms, thus performing the role that business associations do in Western European settings. More importantly for PPP, however, given strong enough state capacity, the state can also credibly promise to ensure that local officials cooperate with firms and properly honor cooperative agreements by producing students with the necessary skills. In such a model, the willingness of firms to invest therefore hinges in part on their beliefs about the ability of the government to protect their investments. This suggests two hypotheses related to PPP in VET:

H₁: As state capacity rises, costly forms of PPP in VET are likely to proliferate.

Having the state take the place of business associations may resolve commitment problems between firms and schools and within the business community, but it does little to resolve fundamental commitment problems between the business community and the state itself.

Although investments in VET are not vulnerable to direct predation or expropriation, per se, they are still vulnerable to shifts in policy or an unwillingness by the state to expend effort monitoring policy implementation by lower level (here school level) officials. One means by which regional officials can provide credible commitments to firms is by appealing to a higher level authority to oversee PPP agreements, in this case the federal government. Intuitively, where the central government holds regional governments accountable for their commitments to firms – whether through promotion incentives, access to federal policy making, rents, or other inducements – the business community is more likely to be secure in investment. Critically, however, the central government must be clear that it will defend investments. In previous work, we have shown that the federal government was keenly interested in promoting PPP in Russia’s regions and played a role in the timing of initial regional efforts to forge PPP agreements with regional firms [Remington, Marques, 2016]. Thus, it is plausible to argue that:

H₂: Regions with higher federal state capacity are more likely to adopt costly forms of PPPs in VET.

Appeals to higher authority are not the only means by which regional governments might have rendered their commitments to PPP with firms credible. Traditionally, work on investment has highlighted the importance of institutional constraints as a key means by which the state ties its own hands and reassures firms of the safety of their investment (*c.f.* [North et al., 2009], etc.). Competition is also important to ensuring that local level officials are not able to abuse discretion and information asymmetries in ways prejudicial to investment (Beazer 2012). Democratic elections and political competition more broadly, are usually regarded as among the most important institutional constraints in this literature. This suggests:

H₃: As political competition increases, costly forms of PPPs in VET are likely to proliferate.

In a non-democratic regime such as Russia, however, political competition is potentially problematic explanatory variable. Perhaps more pertinent is the ability of elites to make use of competitive authoritarian institutions in order to defend their interests. Recent studies suggest that the presence of legislatures in single party regimes significantly increases investment [Gehlbach, Keefer, 2011, 2012]. Likewise, recent work indicates that business people derive concrete benefits for their firms when they are elected to legislatures in even non-competitive settings [Szakonyi, 2015]. We posit that the greater the representation of business people to

regional legislatures, the easier it is for businesses to monitor and constrain state institutions and to forge credible commitments between business and the state.

H₄: As business people make up a larger share of legislative institutions, costly forms of PPPs in VET are likely to proliferate.

At the same time, political competition for formal institutions may only relate part of the story. If regional elites are able to act coherently and cohesively, they can mobilize jointly in order to oppose opportunistic state policies [Weingast, 1997]. The ability to act cohesively is likely to increase the confidence of the business community at large in the state's commitments if political power is sufficiently diffuse across regional power centers to insure that a wide variety of interests are considered. The wider the array of interests encompassed by regional elite coalitions, the more likely they are to safeguard the broader business community. This suggests:

H₅: As the ability of dispersed political elites to act cohesively increases, costly forms of PPPs in VET are more likely to be adopted.

Data and Empirical Strategy

In order to examine the spread of PPP in VET between public and private actors, we take advantage of a unique dataset of 1654 Russian secondary vocational education facilities. We focus on secondary education facilities, because these schools are most relevant to VET for entry level workers in most profession. Each year, Russia's secondary vocational education institutions are required to publish reports on their official websites by order of the federal Ministry of Education and Science.² The format and composition of reports varies by region and institution, but typically includes information on the activities of the institution, its management, the quality and composition of the student body, its curricula and education processes, equipment and facilities, and its educational outcomes. In addition, institutions are encouraged to include data on the social partnerships with firms and the nature of these partnerships, including agreements on co-investment and joint-educational activities.

Using reports published by all of Russia's secondary vocational education facilities in 2013, we constructed a database of social partnerships between firms and schools related to

² Приказ Министерства образования и науки Российской Федерации (Минобрнауки России) от 14 июня 2013 г. N 462 г. Москва «Об утверждении Порядка проведения самообследования образовательной организацией». Зарегистрирован в Минюсте РФ 27 июня 2013 г. Регистрационный N 28908 // <http://minjust.consultant.ru/page.aspx?1052610>

education. For each of the over 33,000 firm-school relationships in the dataset, we code the nature of the partnership using a series of dummy variables that represent different types of possible cooperation. The types of partnerships coded range from sending students to firms temporarily to learn skills (*praktika*) to more costly forms, such as guaranteed work places for students after graduation or equipment donations.³

In this paper, we are primarily interested in explaining the variety of VET PPP practices in Russia's regions. For our purposes, the theoretically most important forms are those that require firms to engage in repeated interactions with the schools or that require large investments in time or money. A form of PPP that requires repeated interactions and a large investment in time, for example, is participation by firms in the development of new training standards. Such PPP not only requires firms to articulate the specific skills that they need students to learn, but also to invest time in developing curricula to meet these standards and regulatory or legislative approval from regional authorities.⁴ We also consider firms' contributions to the design and evaluation of qualification exams to be a costly investment in terms of time. With respect to monetarily costly forms of PPP, we consider agreements by the firm to provide stipend supplements to students, guaranteed workplaces after graduation, monetary investments in the physical plant of schools, and equipment donations. In all of these cases, costly forms are potentially problematic for firms, because receiving ample returns on investment require students to be adequately skilled upon graduation. By contrast, our database also includes a number of forms of cooperation between firms and schools that require little time or money, such as participation in career fairs, short term field trips to firms, and unpaid internships. Not only are firms not investing much into these forms, but their value for skill development is dubious.

To construct our measure, we create a set of region-level dummy variables equal to one for each of the PPP forms that we consider to be costly investments, so long as at least one firm participates in the practice. Again, these practices are: equipment donations, monetary investments, guaranteed workplaces for graduates, stipends or wages for current students, assistance in setting professional standards, and assistance in evaluating qualification exam. Figure 1 shows the relative prevalence of these different forms of high-cost PPP in our sample, summing the number of regions in which each practice is present. As the figure indicates,

³ The full codebook for the dataset is available upon request or from the data section of author's website: israelmarques.com.

⁴ Interviews with firm representatives and school officials in the Kaluga (06/23/2016).

participation in setting standards and in overseeing qualification exams where the most common forms of high-cost partnerships in the sample, being present in 53 and 59 regions, respectively. The least popular forms were wages for students and student stipends, which were present in 20 and 25 regions respectively. Overall, however, costly PPPs were less common than traditional relationships like hold-over, soviet-era praktika, in which students spend a few weeks in a firm observing or doing menial tasks.

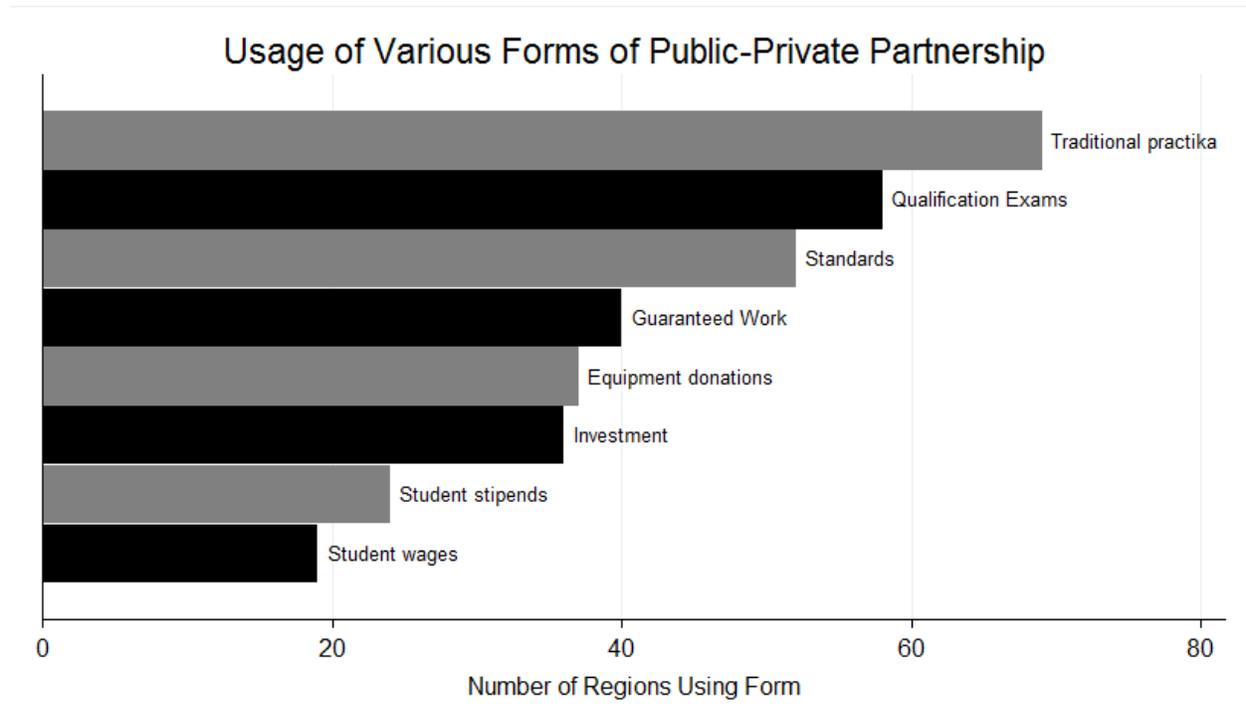


Figure 1: Usage of Various Forms of Public-Private Partnership

We then sum these dummy variables to create our main dependent variable, which captures the number of different forms of costly VET cooperation present in each region.¹ We argue that this measure is appropriate, because it captures the spread of specific forms of costly VET cooperation, while still allowing us to rank regions by the extent to which they have adopted these costly practices. We argue that the higher the value of the measure, the more intensive is the VET regime.² Figure 2 illustrates the distribution of this measure, by indicating

¹ It is worth reiterating that this variable does not represent the total number of such relationships in each region, only whether such relationships are present in the partnership between at least one school-firm pair. [this is not clear]

² An alternative to this measure would have been to attempt to sum all costly investment in a given region and weight by number of schools or firms. This would provide a better measure of the spread of costly forms of VET

in how many regions (*X*-axis) various numbers of costly practices are observed (*Y*-axis). As it indicates, a plurality of regions (21) feature no forms of costly PPPs, while the majority of regions feature somewhere between 2 and 5 different costly forms. It is worth noting that slightly less than 10% of regions take on the maximum value of our measure (7), which is somewhat surprising.

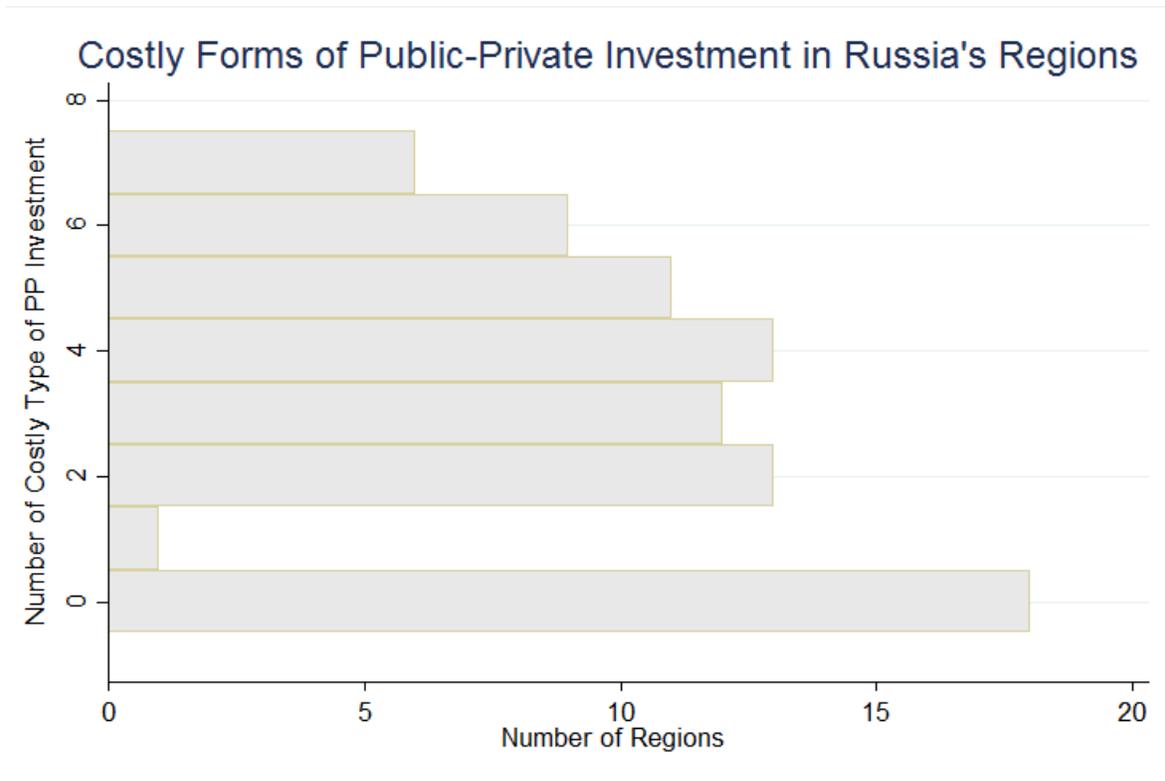


Figure 2: Costly Forms of Public-Private Investment in Russia’s Regions

Since our main variable of interest is the number of costly PPP practices in VET adopted by each region, we test our hypotheses using a Poisson regression model with robust sandwich standard errors.³ Our primary data comes from the International Center for the Study of Institutions and Development’s Socio-Economic Database of Russia’s Regions, which is a collection of data from official Russian government sources. As our dataset of PPPs covers

cooperation within a region. In this paper, we do not pursue this avenue of inquiry, because our main interest is the spread of costly forms of cooperation between regions, rather than intra-regional dispersion of such practices. The latter question requires a more careful model of the demand of firms for VET cooperation with the state, whereas the former is primarily concerned with whether practices can emerge in regions in the first place.

³ Despite Figure 2, diagnostic tests suggest that our data is not overdispersed, so we prefer a Poisson model to a Negative Binomial one.

reports issued in 2013, we use the 2012 values of our variables unless otherwise indicated. Table A1 provides descriptions of the data and their sources.

Our first variable of interest in these models is a measure of state capacity, which we predict will lead to the adoption of a larger numbers of costly practices (H_1). An important component of state-capacity is the structure of tax receipts and the sources of state finance. Where state capacity is low, the state is more likely to depend on revenue sources that require little monitoring or effort to collect [Easter, 2002; Gehlbach, 2008]. In Russia, the easiest revenue source available to all regions is transfers from the federal government, which are assigned to the regions and automatically transferred each year.⁴ The larger the proportion of federal transfers to regional GRP, we argue, the weaker the region's state capacity and the fewer forms of costly PPPs it should be able to promote. Because monitoring is so central to our theoretical story, we also include a second measure of state capacity: the number of public education employees in the region per 1000 members of the regional population. Straightforwardly, the more education employees per capita in the region, the more difficult it should be for regional authorities to monitor their performance. In such cases, we would expect firms to be more wary of PPP co-investments, since it would be harder for regional authorities to detect shirking by school officials and the higher the probability that students will emerge from VET without the skills desired by firms.

We also expect that the greater the number of federal officials in a region, the stronger the capacity of the federal center to monitor regional authorities and the greater the latter's ability to make credible commitments on federal priorities. Given that VET in general, and more costly forms of PPP specifically, are a federal priority, this should increase the types of costly forms of PPPs in a given region (H_2). We capture the ability of the federal government to monitor regional authorities using a measure of the number of federal executive and judicial officials in each of Russia's regions per capita.

To capture political competition, we use a simple measure of the vote margin between the first and second place parties in the regional legislative election closest to 2012. Although Russia is a competitive authoritarian regime, there is a great deal of variation in political competition across its regions and in the extent to which regional elite politics is cohesive. Vote margins in

⁴ As a robustness check, we also examine the ratio of transfers to tax receipts in the regions, which also gets at fiscal dependency. Results are largely the same and available on request.

regional elections capture this variable somewhat, as it explains the extent to which the regional branch of Russia's dominant party, United Russia, is able to monopolize regional politics. Where the margin is lower, there is a more serious regional counterweight to United Russia and we would expect a greater adoption of regional VET practices (H₃). To capture access of business to policy-making institutions, we make use of data on the business connections of sitting members of regional legislatures in the convocation prior to 2012 (*c.f.* [Szakonyi, 2015]). We aggregate this data to the regional level to construct the percentage of business people in the legislature. We argue that the higher this percentage is in a given region, the greater the number of types of costly VET PPPs we should observe (H₄).

Finally, in order to capture the ability of elites to act cohesively, we make use of the Carnegie Moscow Center's "democracy" index. Although originally designed to capture the extent of democracy in Russia's regions, it is difficult to interpret it this way in Putin's Russia. In previous work, Remington (2011) has argued that the measure instead captures both the relative dispersion of power across multiple sectors within a region as well as the capacity for these actors to act cohesively. As such, it serves as a reasonable measure of elite consensus or integration similar to the concept of high quality regional governance espoused by Stoner-Weiss (1997) in her work on Russian regional elites' responses to crisis and public demands in the 1990's. It is also consistent with the "embedded autonomy" concept advanced by Peter Evans as characteristic of state-business relations in developmental states (1995), which highlights the importance of balance between state autonomy and its links to local business networks that ensure implementation of development strategies. We argue that a higher score on the democracy index indicates higher levels of elite cohesion and state capacity, making regions more likely to have varied types of costly VET PPPs (H₅).

In our main specifications, we also include a number of controls for regional economic characteristics that might drive the adoption of larger numbers of costly PPPs in VET. These include the log of regional GRP, the share of the secondary sector in total regional GRP, the percentage of individuals with tertiary education in the workforce, the log of the urban population, the level of unemployment, and the share of the population below the federal subsistence minimum. In unreported regressions, we also introduce additional controls for regions that benefited from a federally sponsored competition to promote VET in 2010 and for the level of federal transfers to the regions. While the former recognized regions with

outstanding VET systems and promising plans to expand them, it offered few material incentives or rewards. Nonetheless, recognition might have driven the spread of VET in those regions. The latter (along with GRP) may proxy for the ability of regions to invest in VET in the first place. Neither was significant or changed the results reported below.

Results

Table 1 presents the main results of our preliminary analysis. For ease of interpretation, the table reports coefficients as incidence rate ratios, which can be interpreted as the percentage change one would expect in the count variable for a unit change in the independent variable represented by the co-efficient. Values greater than one are positively associated with the dependent variable, while values less than one are negatively associated. Like log-odds ratios, one calculates this percentage by subtracting one from the reported co-efficient.

Model 1 presents a baseline model that only takes into account economic factors that may have led to greater adoption of costly VET practices in the regions. Of these factors, only urbanization (log of urban population) is statistically significant at conventional levels. It is intuitively plausible that the greater the urban population in a region, the larger the number of costly VET practices are adopted. The magnitude of the effect is also substantively quite large, with a one unit increase in the log urban population resulting in a 67% increase in the expected number of costly forms of PPP. Although not significant at conventional levels, the signs on some controls are surprising. In particular, high levels of GRP per capita are negatively associated with the adoption of costly PPPs in VET.

Moving to our main specifications of interest, Model 2 introduces our first variable of interest: share of transfers in GDP. This variable is negative, as expected, and significant at conventional levels. Substantively, the effect is smaller than the effects of many of the economic predictors in the model but a one unit change in the percentage of regional GRP that federal transfers account for results in 7.5% increase the expected number of costly forms of GRP. Thus, as regional fiscal dependence on the federal center increases, and state capacity declines, fewer costly forms of VET PPP are adopted. Model 3 introduces our alternative measure of state capacity, the number of public educational employees per thousand regional residents. Again, the measure is both negative and significant at conventional levels, as expected. For every additional educational employee per thousand hired, the number of costly forms of PPP in VET decline by

about 2%. This finding is consistent with our hypotheses about the relationship of state capacity to VET, since regions with a larger numbers of educational employees per capita should have more difficulty monitoring the quality of outcomes produced by employees. For firms, this decreases the likelihood that students will emerge with the skills required by the labor market and increases the risks of investment in VET. Model 4 introduces our final measure of state capacity, albeit at the federal rather than regional level: the number of federal executive and judicial officials working in the region per thousand residents. The sign on this variable is negative, unexpectedly, indicating that as levels of federal employees rise, regions are less likely to have large numbers of costly forms of PPPs. The sign on the variable does not reach significance at conventional levels, however.

Model 5 introduces our first measure of political competition, the vote margin for the dominant United Russia party in the most recent regional legislative election. The co-efficient is negative and statistically significant, indicating that greater United Russia dominance of regional elections is associated with smaller numbers of costly forms of VET PPPs. For each percentage point increase in United Russia's vote margin, the number of costly forms of PPP in VET is expected to decrease by about 2%. Model 6 introduces an alternative measure that instead captures the dispersion of regional power among elites and their ability to act cohesively: the Moscow Carnegie Center's Democracy Index. The sign on the co-efficient is positive, as expected, but not significant at conventional levels. This would suggest that political competition, rather than elite cohesion, is more directly related to the factors leading regions to adopt costly forms of VET PPPs.

Finally, Model 7 examines the relationship between the percentage of legislatures who are businessmen in the regions and the number of costly types of PPP observed. The co-efficient is positive and significant at the 10% level, which suggests that greater representation of regional businesses in the legislature is correlated with more varied forms of public-private VET partnership. For each percentage point increase in the number of business people in the regional legislature, one would expect an increase in the number of costly forms of VET PPP of about 1%. It is worth noting, however, that there is the strong potential for an ecological inference fallacy with this measure. Greater business representation in regional legislatures may lead to the adoption of costly forms of VET cooperation due to the ability of businesses to more easily constrain the state and to take policy as credible. Alternatively, however, it may create credible

commitments for those firms represented in the legislature, thus only leading these firms to adopt costly forms of VET cooperation. Future micro-level work will need to disentangle the mechanism behind the observed relationship.

Robustness Checks

The major issue with the cross-sectional research design of this paper is that it significantly problematizes causal inference. In particular, one would worry about the possibility of both omitted variables and of reverse causality. Unfortunately, in this version of this paper, we are unable to provide instruments that would enable us to put such fears to rest. Instead, in unreported regressions, we have attempted to add additional control for the most plausible forms of omitted variable bias that could be present in our main specifications.⁵ In particular, we include additional controls for direct federal influence on the adoption of costly forms of VET practices by directly controlling for the level of federal transfers in additional specifications. We also included a dummy variable equal to one if the region benefitted from one from one of the federal VET competitions sponsored by the Russian Agency for Strategic Initiatives. Although these programs did not provide funding to the regions, the winners received a great deal of prestige and federal recognition for their proposals and subsequent efforts.⁶ Neither of these variables altered our results.

Another potential source of omitted variable bias in our main specifications has to do with the characteristics of firms adopting VET in each region. It could be that the variation that we detect is not due to variation *between* regions in our variables of interest, but *within* them in the composition of the regional economy or the firms that actually participate in VET PPP. In this version of our paper, we do not have sufficient micro-level data to control directly for the characteristics of firms participating in PPP across regions. It is worth noting that, to some extent, the nature of our dependent variable protects against this concern, as we care about *how many* different types of high-cost PPP practices are present in a region, rather than *which* ones or *the number of firms that practice them*. Thus, our variable should not be sensitive to variation in the sectoral composition or size of firms across regions that participate in VET, so long as most sectors and firm sizes are represented. Indeed, we would argue that much of the *within* region

⁵ Results of all of these tests are available upon request.

⁶ For more on this program *c.f.* [Remington, 2016; Remington, Marques, 2016].

variation in the types of firms that participate in PPP VET across regions is likely accounted for by variation in the industrial structure of the regions themselves. If we control for these characteristics and our results remain, they likely characterize important variation *between* regions. We test this with a battery of additional controls for the industrial structure of each region. In addition to our control variable measuring the share of regional economy accounted for by the secondary sector, in unreported regressions we also introduce a group of additional controls for regional industrial structure. These include aggregated shares of primary and tertiary sector in regional GRP, the individual share of top-level sectors according to the official OKVED classification system (similar to level ICIS classifications), a Herfindahl index of industrial production constructed from disaggregated top-level OKVED sectors, the log of the absolute number of small firms in each region, and the share of small firms in total firms for each region. We also included an index constructed by ICSID of business group activity in regional economies, which assigns regions a value along a 5 point ordinal scale ranging no dominant business group (0) to having a single, large dominant business group (5).⁷ None of these inclusions altered our main result.

Finally, it could be that the relationships we have identified in this paper have little to do with investments in PPP but with broader willingness of firms to work with schools. If this is the case, then much of our theoretical framework is wrong and the relationships observed in the previous section are likely spurious or underpinned by a different set of mechanisms than those we propose. To test this proposition, Table 2 reproduces the analysis presented in Table 1, but uses an alternative dependent variable as a placebo test: the number of types of school-firm relationships that do not require investment on the part of the firm. This variable is constructed in the same way as our main dependent variable, but instead sums dummy variables equal to one if any firm in a given region does one of the following: participates in the school's career fair, organizes field trips to the firm, provides unpaid internships, or engages in Soviet style Praktika, where students go to firms for short periods to observe. All of these forms of partnership require little to no effort in time or money from firms and therefore should not be subject to the commitment problems we identify in the second section of this paper. As Table 2 indicates, though, none of our main independent variables of interest are significant at conventional levels. This suggests that our main analysis is indeed identifying a relationship between various

⁷ For more on this measure, *see* [Zubarevitch, 2005].

measures of state capacity and accountability and costly forms of co-investment by firms and regional governments in VET specifically. It is also consistent with our theoretical framework based on credible commitment problems, since such problems should not exist in those forms of school-firm cooperation that require little to no investment.

Conclusion

Our analysis provides support for two sets of hypotheses explaining the variety of different forms of costly PPPs in VET can be observed in Russia's regions. The more efficient regional governments are, measured by both their fiscal dependence on federal transfers and by the number of budget sector employees per capita, the more likely that a large number of costly forms of VET PPP are adopted. Similarly, political competition also appears to play a role in generating credible commitment, with regions that are less thoroughly electorally dominated by United Russia also being more likely to adopt a variety of costly VET practices. Our analysis provides little support for arguments revolving around state capacity (independent of efficiency), elite cohesion, or the capacity of federal officials in the regions to monitor VET. This may be in part due to imprecision in the data, as the measures for these theories are necessarily imperfect on both the conceptual and measurement level. Federal employment, in particular, is difficult to measure due to the classified nature of employment levels for many of Russia's law enforcement organs.

While this paper has attempted to explain why some regions have more diverse portfolios of costly PPPs, it leaves open a number of important questions. First, the cross-sectional nature of the data does not allow us to make inferences about the adoption of such practices, only about their presence. Second, this paper has largely ignored the question of intensity of PPPs. That is, our data indicates that some regions have been more successful than others not only in introducing costly forms of VET somewhere in the region, but in getting larger numbers of firms and schools to use them. Although we have deferred it here, regional diffusion is obviously an important topic for scholarly theory and policy-making. Finally, this paper largely considers macro-level introduction of costly VET practices. Future work with this dataset needs to consider the micro-level determinants of the adoption of these practices at both the firm and school level.

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Table 1: Predictors of the Number of High Cost Forms of PPP in VET Adopted

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	State Capacity	Efficiency	Federal Capacity	Political Competition	Elite Cohesion	Business Representation
Log GRP (per capita)	0.875 (0.152)	0.640** (0.128)	0.970 (0.187)	0.881 (0.149)	0.932 (0.161)	0.873 (0.152)	0.883 (0.150)
Share of FDI in GRP	1.019 (0.018)	1.056** (0.027)	1.022 (0.017)	1.020 (0.018)	1.028 (0.019)	1.018 (0.018)	1.032 (0.021)
Share of Secondary Sector Sector in GRP	1.012 (0.008)	1.004 (0.008)	1.010 (0.009)	1.010 (0.009)	1.011 (0.008)	1.012 (0.008)	1.013 (0.009)
Percentage of Employed College Degree Holders	1.000 (0.014)	1.018 (0.014)	1.002 (0.014)	1.000 (0.014)	1.001 (0.014)	1.002 (0.015)	1.011 (0.014)
Log Urban Population	1.670*** (0.150)	1.429*** (0.137)	1.576*** (0.147)	1.555*** (0.177)	1.709*** (0.155)	1.639*** (0.153)	1.621*** (0.141)
Level of Unemployment	0.963 (0.025)	0.948** (0.022)	0.957 (0.026)	0.972 (0.026)	0.948** (0.025)	0.960 (0.025)	0.968 (0.023)
Share of Population Below Subsistence Minimum	0.993 (0.026)	1.006 (0.024)	1.003 (0.027)	0.998 (0.026)	0.988 (0.025)	0.991 (0.027)	0.996 (0.025)
Share of Transfers in GRP		0.925*** (0.023)					
Number of Education Workers (per 1000)			0.980** (0.009)				
Federal Workers (per thousand)				0.941 (0.071)			
UR Vote Margin in Most Recent Regional Election					0.992*** (0.003)		
Carnegie Democracy Index						1.007 (0.011)	
Percentage of Businessmen in Regional Legislature							1.010* (0.006)
Constant	0.111 (0.229)	130.714* (361.303)	0.215 (0.391)	0.211 (0.458)	0.147 (0.277)	0.149 (0.335)	0.052 (0.104)
Observations	76	76	75	76	76	76	75
Chi2	85.92	78.25	106.7	87.57	95.53	86.28	91.05
Log Likelihood	-141.2	-137.3	-138.1	-140.8	-139.3	-141.1	-138.1
Pseudo-R2	0.166	0.189	0.177	0.168	0.177	0.167	0.177

Sandwich Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variable Descriptions can be found in Table A1

Table 2: Predictors of the Number of Low Cost Forms of PPP in VET Adopted

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	State Capacity	Efficiency	Federal Capacity	Political Competition	Elite Cohesion	Business Representation
Log GRP (per capita)	0.885 (0.171)	0.850 (0.173)	0.884 (0.181)	0.880 (0.165)	0.911 (0.181)	0.873 (0.168)	0.881 (0.167)
Share of FDI in GRP	1.015 (0.022)	1.020 (0.024)	1.017 (0.022)	1.015 (0.022)	1.020 (0.024)	1.012 (0.023)	1.019 (0.023)
Share of Secondary Sector Sector in GRP	1.006 (0.008)	1.005 (0.008)	1.004 (0.008)	1.005 (0.009)	1.006 (0.008)	1.006 (0.008)	1.005 (0.009)
Percentage of Employed College Degree Holders	1.018 (0.016)	1.021 (0.018)	1.016 (0.016)	1.018 (0.016)	1.019 (0.016)	1.024 (0.016)	1.018 (0.017)
Log Urban Population	1.328*** (0.120)	1.294** (0.147)	1.340*** (0.130)	1.284** (0.143)	1.333*** (0.119)	1.257** (0.120)	1.336*** (0.120)
Level of Unemployment	0.993 (0.023)	0.992 (0.023)	0.992 (0.023)	0.998 (0.027)	0.986 (0.024)	0.985 (0.022)	0.993 (0.022)
Share of Population Below Subsistence Minimum	1.013 (0.023)	1.015 (0.024)	1.014 (0.025)	1.015 (0.024)	1.011 (0.023)	1.008 (0.024)	1.015 (0.023)
Share of Transfers in GRP		0.991 (0.019)					
Number of Education Workers (per 1000)			0.999 (0.011)				
Federal Workers (per thousand)				0.976 (0.052)			
UR Vote Margin in Most Recent Regional Election					0.995 (0.004)		
Carnegie Democracy Index						1.018 (0.013)	
Percentage of Businessmen in Regional Legislature							1.002 (0.005)
Constant	0.138 (0.322)	0.331 (0.999)	0.151 (0.341)	0.190 (0.433)	0.164 (0.362)	0.300 (0.741)	0.127 (0.308)
Observations	76	76	75	76	76	76	75
Chi2	29.35	30.13	29.82	29.29	36.85	34.54	31.06
Log Likelihood	-121.9	-121.8	-120.5	-121.8	-121.5	-121.3	-120.5
Pseudo-R2	0.0645	0.0651	0.0643	0.0649	0.0675	0.0689	0.0646

Sandwich Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variable Descriptions can be found in Table A1

Table A1: Summary Statistics and Variable Description

	Variable Description	Original Source	Concept Measured	Predicted Direction	Mean	SD	Min.	Max.
Number of Costly forms of public-private VET cooperation	Sum of dummy variables indicating the following in each region: equipment donations, monetary investments, guaranteed workplaces for graduates, stipends or wages for current students, assistance in setting professional standards, and assistance evaluating qualification exam.	ICSID VET Contract Database			3.1	2.3	0.0	7.0
Number of Low Cost forms of public-private VET cooperation	Sum of dummy variables indicating the following in each region: participation in career fairs, organizing field trips, traditional praktika, and unpaid internships.	ICSID VET Contract Database	Placebo Dependent Variable		2.1	1.4	0.0	4.0
Log GRP (per capita)	Log of regional GRP (2012)		Control		12.5	0.7	11.3	15.1
Share of FDI in GRP	Share of FDI in regional GRP (2012)	Rosstat	Control		0.0	0.0	0.0	0.2
Share of Secondary Sector in GRP	Share of secondary sector in regional GRP (2012)	Rosstat	Control		29.7	10.2	9.7	52.2
Percentage of College Degree Holders Among Employed	Percentage of employed individuals with tertiary (or higher) education (2012)	Rosstat	Control		27.7	5.1	17.7	49.3
Log Urban Population	Log of regional, non-migratory urban population (2012)	Rosstat	Control		13.6	1.1	10.3	16.3
Level of Unemployment	Unemployment level (2011)	Rosstat	Control		62.8	6.0	35.2	78.3
Share of Population Below Subsistence Minimum	Percentage of population living below subsistence minimum (2012)	Rosstat	Control		13.2	4.3	6.4	30.7

Share of Transfers in GRP	Share of federal transfers in regional GRP (2011)	Regional Consolidated Budgets	State Capacity/ Efficiency	-	9.2	11.9	0.7	79.2
Education Workers per 1000 residents	Number of workers in education sector per 1000 people in the regional population.	Rosstat	State Capacity/ Efficiency	+ (sc) - (eff.)	25.3	9.3	25.3	82.1
UR Vote Margin	Vote margin of United Russia over the runner-up party in the regional legislative election closest to 2012 (various years)	Russian Central Election Commission	Political Competition	-	38.0	17.9	-12.8	88.1
Carnegie Democracy Index	Moscow Carnegie Center Index of Democracy (see Petrov and Manning 2001)	Moscow Carnegie Center	Elite Cohesion	+	29.6	6.1	16.0	43.0
Federal Workers	Number of federal executive and judicial branch officials in the region per 1000	Rosstat	Federal Capacity	+	5.1	2.6	2.6	18.6

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Внедрение практики создания дорогостоящих форм СПО в российских регионах : препринт WP1/2016/05 [Электронный ресурс] / И. Маркес II, Т. Ремингтон, В. Базавлюк ; Нац. исслед. ун-т «Высшая школа экономики». – Электрон. текст. дан. (500 Кб). – М. : Изд. дом Высшей школы экономики, 2016. – (Серия WP1 «Институциональные проблемы экономики»). – 28 с. (на англ. яз.).

Как и когда правительства могут устанавливать с компаниями институционально сложные дорогостоящие формы частно-государственных партнерских отношений (ГЧП) в целях подготовки кадров в условиях отсутствия сильных организаций гражданского общества, таких как профсоюзы и деловые ассоциации? В целом ряде научных исследований, посвященных профессиональному образованию, заслуживающие доверия обязательства играют ключевую роль в сотрудничестве в области инвестиций между разными компаниями, между капиталом и профсоюзами и между более широким деловым сообществом и государством. Это, как правило, достигается за счет совместных усилий гражданского общества – ассоциаций работодателей и профсоюзов – и государства, результатом которых становятся организационно сложные совместные формы среднего профессионального образования (СПО). В этих научных исследованиях российские регионы оказались в парадоксальной ситуации. С одной стороны, многим регионам присущи организационно сложные дорогостоящие формы ГЧП, которые требуют наличия тесного сотрудничества между компаниями и учебными заведениями. С другой стороны, слабость гражданского общества в России и отсутствие высококвалифицированных институтов делает компании более уязвимыми для инвестиционных убытков из-за нежелания чиновников более низкого уровня – в частности, администрации школ – прилагать усилия для выполнения своих обязанностей в рамках ГЧП. В настоящем исследовании апробируются две теории, которые могли объяснить появление дорогостоящих форм ГЧП в российских регионах, – государственный потенциал и политическая подотчетность. Мы тестируем эти теории, используя уникальные данные о всех ГЧП в сфере СПО, созданные более чем 1654 учреждениями среднего профессионального образования во всех регионах России. Мы приходим к выводу, что появление дорогостоящих форм ГЧП тесно связано с государственным потенциалом, а также с политической конкуренцией и интеграцией представителей бизнеса в региональные законодательные органы власти.

Ключевые слова: подготовка кадров, среднее профессиональное образование (СПО), отношения между бизнесом и государством, институциональное качество, государственный потенциал

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Препринт WP1/2016/05
Серия WP1
Институциональные проблемы российской экономики

Маркес П Израэл, Ремингтон Томас, Базавлюк Владимир

**Внедрение практики создания дорогостоящих
форм СПО в российских регионах**
(на английском языке)

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