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# Mass Privatization, State Capacity, and Economic Growth in Post-Communist Countries

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# Mass Privatization, State Capacity and Economic Growth in Post-Communist Countries*

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ABSTRACT

Why did the transition from socialism to capitalism result in improved growth in some countries and significant economic decline in others? Three main arguments have been advanced: (1) successful countries rapidly implemented neoliberal policies; (2) failures were not due to policies but to poor institutional environments; and (3) policies were counterproductive because they damaged the state. We present a state-centered theory, and empirically demonstrate for the first time one of several possible mechanisms linking neoliberal policies to poor economic performance: mass privatization programs, where implemented, created a massive fiscal shock for post-communist governments, thereby undermining the development of private sector governance institutions and severely exacerbating the transformational recession. We perform cross-national panel regressions for a sample of 30 post-communist countries between 1990 and 2000, and find that mass privatization programs negatively affected economic growth, state capacity, and property rights protection. These findings are corroborated with firm-level data from a representative survey of managers in 3,890 companies operating in 24 post-communist countries. We show that within countries which implemented mass-privatized programs, newly privatized firms were substantially less likely to engage in industrial restructuring but considerably more likely to use barter and accumulate tax arrears than their state-owned counterparts.

Between 1989 and 1991, the Soviet empire disintegrated. Western-trained neoliberal economists provided the blueprint for constructing capitalism amidst the ruins of state socialism, advocating "shock therapy": rapid privatization, liberalization of prices and trade, and fiscal and monetary austerity (UNDP 1999). Although sociologists and economists critiqued these policies and their pace (e.g. Stark 1992; Burawoy and Krotov 1992; Kornai 1990, 1995), a group of neoclassical economists at Harvard believed that they were necessary; this perspective was also dominant among economists working for international financial institutions (Cohen 2001; Wedel 2001).[1] As Lawrence Summers put it, "Despite economists' reputation for never being able to agree on anything, there is a striking degree of unanimity in the advice that has been provided to the nations of Eastern Europe and the former Soviet Union. ... [P]rivatization, stabilization, and liberalization ... must all be completed as soon as possible" (1994: 252-253). Most post-communist countries implemented versions of the shock therapy package. Of the three major policies, privatization proved to be the most difficult to implement and yielded the greatest variance in outcomes.

Despite initial optimism, economic performance was disastrous in most post-communist countries, as shown in Figure 1. Between 1990 and 1996, per capita income in Russia and most of the former Soviet Union (FSU) fell by over 30% (Rosefielde 2001) – slightly less than the decline in the United States during the Great Depression (see Online Supplement A for a graphical comparison). Yet, not all countries fared as poorly. Estonia's economy, which recorded an initial 20.2% drop in GDP between 1990 and 1994, fully recovered by 1997 and, by 2000, achieved 29.3% higher per capita income levels than in 1990. Poland, Hungary, Czech Republic, Slovakia, and Slovenia experienced the lowest declines in per capita incomes, bottoming out at roughly 10% in 1992. By 1994, these countries surpassed pre-transition income levels, and for

the next six years, experienced balanced growth (recording a 39.8% increase in per capita income between 1990 and 2000).

**[Insert Figure 1 here]**

To evaluate the competing explanations of this variation, we first review the initial theories of transition and the leading 'post-mortem' explanations of the post-communist economic depression. We then outline the neo-Weberian theory from which we derive our own hypotheses. In the subsequent sections, we report the results of our country- and firm-level analyses and discuss the implications of our findings for sociological theory and public policy.


INITIAL THEORIES OF ECONOMIC TRANSITION

Neoliberal policy recommendations were grounded in the notion that economic development could be achieved by relying on the power of market forces and private property, unleashed by a radical curtailment of the state. Neoliberals argued that rapid liberalization of prices and trade, alongside privatization and macroeconomic stabilization, would set free economic restructuring, leading to growth and convergence with the West (Sachs 1994: 25). The European Bank for Reconstruction and Development's (EBRD) 1999 *Transition Report* summarizes the consensus of foreign advisors and post-communist elites at the start of the transition: "Private ownership would ensure profit-oriented corporate governance, while liberalization of trade and prices would set free the competitive market forces that reward profitable activities. Firms would have therefore both internal and external incentives to restructure" (1999: 167).

Economically, neoliberal reforms were expected to combine the advantage of "true prices" with "a fully private incentive structure," thus promoting enterprise restructuring (EBRD 1999: 167; see also Lipton and Sachs 1990a; Sachs 1992a, 1996; Fischer and Gelb 1991; Kosolowski

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1992; Blanchard et al. 1993: 10-11; Carlin, van Reenen, and Wolfe 1994: 72; Frydman, Gray and Rapaczynski 1996). Neoliberals also advanced a rationale of political expediency: they believed that a period of "extraordinary politics" following the collapse of communism gave elites a brief window of opportunity to implement reforms, after which managers and workers of state-owned enterprises might seek to halt, or even roll back, privatization and liberalization efforts in order to prevent lay-offs (Lipton and Sachs 1990b: 298; see also Blanchard et al. 1991: xiv; Frydman, Rapaczynski, and Turkowitz 1997: 84). As Sachs noted at the time, "The need to accelerate privatization is the paramount economic policy issue facing Eastern Europe. If there is no breakthrough in the privatization of large enterprises in the near future, the entire process could be stalled for years to come. Privatization is urgent and politically vulnerable" (Sachs 1992b: 71). Similarly, Ira Lieberman, senior official at the World Bank's mass privatization advisory program, stated that "There was a concern by Russian reformers, above all, that the communists might soon take control again; their desire, therefore was to move as rapidly as possible, i.e., to create 'facts on the ground' that made a market economy irreversible" (Lieberman, Kessides and Gobbo 2008: 61).

The need for rapid privatization posed considerable challenges. While economists and policymakers had long understood how to stabilize and liberalize economies (by raising interest rates, limiting monetary emissions, freeing prices, and opening up trade), the attempt to privatize an entire economy within a few years was unprecedented, and doing so without an existing class of private investors seemed almost impossible. According to three senior World Bank bureaucrats involved in the implementation of mass privatization, "It quickly became apparent that the 'Classical privatisation' model practiced in the UK and New Zealand and emulated by other countries such as Mexico and Argentina would simply not work in the region. ... [T]here

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were too many state-owned companies … that needed to be privatised rapidly. Implementing privatisation on a case-by-case basis over many years risked missing the 'window of opportunity' for real structural change" (Lieberman et al. 2008: 12).

One attractive option was privatization to foreign owners. It was determined, however, that foreign capital would be rejected by many local elites due to economic nationalism, and that foreigners would not purchase vast swathes of unprofitable and technologically obsolete Soviet firms. Employee Share Ownership Programs were another quick method of privatization which concentrated individual employee-owned shares and protected them from take-over attempts by outside investors, but they were considered unacceptable since entrenched labor interests might discourage foreign investment and prevent restructuring (Ellerman 2003). Management and Employee Buyouts could be equally fast, but were rejected as a standalone option. To be viable from a neoliberal policy standpoint, individual shares would have to be transferable, and sale to outside owners encouraged, so that capital markets could develop.

Thus, with foreign investment unlikely and exclusive insider ownership undesirable, the policy solution was called "mass" privatization and would give firm insiders and citizens vouchers that were redeemable for shares at nominal cost (or in many cases, free of charge). Whole sectors of the economy could be rapidly privatized using these vouchers.[2] While most countries adopted several different privatization strategies, as described in Online Supplement B, mass privatization was by far the most innovative method, and was implemented by approximately half of the post-communist world to varying degrees (see Online Supplement C).

Would privatization, implemented prior to restructuring and in the absence of capitalist institutions, be adequate to generate growth? Would there not be governance problems, information deficits, and potential market failures? The neoliberal answer resembled a political

Coase theorem: "Privatization … offers an enormous political benefit for the creation of institutions supporting private property because it creates the very private owners who then begin lobbying the government … to create market-supporting institutions… [Such] *institutions would follow private property rather than the other way around*" (Shleifer and Vishny 1998; 10-11; our emphasis).

Although neoliberal ideas dominated transition policy formation, they were criticized from the beginning by "gradualist" voices emphasizing the importance of state-guided institutional reform (e.g. Murrell 1992; Burawoy and Krotov 1992; Stark 1992). The gradualist position held that *in the absence of a supportive institutional environment*, radical reforms would be damaging: privatization might lead to asset-stripping rather than investment, and rapid reforms might create economic winners who subsequently engage in predatory behavior. China's trajectory is frequently cited as evidence for the benefits of gradual reform (e.g. Burawoy 1996).

Shock therapy advocates won the policy debate in most countries. However, instead of improved performance throughout the post-communist region, there ensued great economic decline followed by considerable divergence in subsequent recovery. How did scholars explain this variation in outcomes?

THE POST-MORTEM LITERATURE – MAIN EXPLANATIONS OF POST-COMMUNIST ECONOMIC PERFORMANCE

Both gradualists and shock therapy advocates claimed that the facts vindicated their original positions. The shock therapists, however, made one important concession: institutions and other "initial conditions" mattered more than they had previously acknowledged. As Milton Friedman put it when reflecting on post-communist Russia, "It turns out that the rule of law is probably

more basic than privatization. Privatization is meaningless if you don't have the rule of law. What does it mean to privatize if you do not have security of property, if you can't use your property as you want to?" (Friedman 2002: xviii). Shock therapy advocates now agreed with gradualists that various "initial conditions" played a role in explaining the variation in economic performance. That is, some countries were predisposed to restructuring their economies more effectively and achieving competitiveness on globalized markets because of their particular historical and cultural legacies.

*Proposition 1: Faster and more extensive privatization led to better performance*

Despite this concession, shock therapists continued to assert that faster and more extensive reforms lead to better performance, and therefore claimed that their initial theories were not in need of fundamental revision. Instead, they argued that variation in performance could be explained by a combination of initial conditions and insufficient implementation of reforms. The seminal statement of this position can be found in the EBRD's 1999 *Transition Report: Ten Years of Transition*, which became part of a growing body of empirical studies supporting these claims (see also De Melo and Gelb 1996; Sachs 1996; De Melo, Denizer, and Gelb 1996; De Melo et al. 2001). This view emphasized corruption as a key factor in undermining reforms, especially in the case of Russia (e.g. Åslund 1999). Although it was acknowledged that "the benefits of privatization are larger in countries with an effective legal framework and secure property rights" (IMF 2000: 105), the shock therapists never considered privatization detrimental, and argued that countries are "better off after the flawed privatizations they carried out than they would have been had they avoided or delayed divestiture" (Nellis 2008: 81). Supporting this position, two econometric analyses claim that voucher privatization has been

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beneficial to growth (Bennet et al. 2004; 2007). In sum, the original proponents of shock therapy would advocate the same strategy again: "No country has suffered from too radical reforms. Things have gone wrong because the move to the market was not radical enough" (Åslund 2002: 445).

*Proposition 2: Privatization failed to create necessary governance institutions*

Gradualist scholars felt equally vindicated. Nobel laureate Joseph Stiglitz's seminal paper "Whither Reform? – Ten Year of the Transition" (2000), for example, argued that prioritizing privatization over establishing a proper institutional framework promoted widespread corruption. Due to information asymmetries and lack of an effective governance framework, the new private owners had both incentive and opportunity to pursue rent-seeking and asset-stripping; Stiglitz claimed that these tendencies were exacerbated by the liberalization of capital accounts, which facilitated transferring money abroad. Strict monetary policy further encouraged predatory behavior, as high interest rates prevented new firm owners from attracting the capital needed for restructuring. Unless accompanied by adequate institutional reforms, privatization would therefore lead to lower economic growth.

Other gradualists claimed that rapid liberalization generated supply shocks in "structurally distorted" industries that had received subsidies and protection under socialism (Popov 2007). Rapidly eliminating subsidies and deregulating prices left firms in these sectors with insufficient time to restructure, thus driving them out of business or into the barter economy. Because some investment capital would have been generated by the savings of these non-competitive firms had they remained protected, overall investment levels plummeted. Slower liberalization would have limited this decline, thus mitigating the severity of the economic downturn (Popov 2007).

Several sociologists have advanced similar arguments, substituting the term "state" for "institutions." Burawoy (1996) and Nee (2000) argued that the state's bureaucratic capacity was a crucial factor in determining economic success or failure. Burawoy (1996), in a seminal article comparing the transitions of China and Russia, argued that Russia performed poorly because neoliberal reforms damaged the state right when the economy was being privatized, thereby creating the perverse combination of private property with soft budget-constraints. This resulted in "economic involution," a process in which firm managers failed to utilize state subsidies to increase production, opting instead to pursue asset-stripping and transfer wealth out of the economy. In China, conversely, the state was able to decentralize property relations to the local administrative level, thereby hardening budget constraints (Walder 1995). Nee (2000) advances the broader argument that China's evolutionary transition strategy permitted reformers to utilize preexisting state structures to build a market economy, whereas Russia's attempt to simultaneously reform economic and political institutions deprived policymakers of their governance tools.

*Proposition 3: Initial conditions, rather than reform paths, were main determinants of economic outcomes*

One group of authors claimed that the only relevant factor in explaining performance was the respective starting point of different countries (Stuart and Panayotopoulos 1999; Popov 2000; Ganev 2007). Popov (2000), for example, argued that democracy without the rule of law creates massive opportunities for corruption, thereby undermining subsequent reform efforts. Fish (2005) contended that Russia's natural resource wealth, coupled with its weak legislature and delayed economic reforms, further spurred corruption and prevented the emergence of viable

governance institutions. Other scholars have emphasized the importance of social structural factors, particularly the power of the former *nomenklatura*. In countries where the *nomenklatura* were sufficiently powerful, they were able to convert their social and political capital into private economic wealth (Eyal et al. 1998; King 2003), and in the process, deliberately destroy the institutions that prevent economic crimes (Ganev 2007). The outcome was a form of capitalism driven by agents with an inappropriate *habitus*: since their wealth had largely been obtained by illegal means and might be subject to future dispossession, former *nomenklatura* were incentivized to transfer capital abroad instead of investing it in their enterprises.

A variant of the social structural perspective stresses the importance of alliances between firm managers and foreign capital in facilitating successful firm restructuring (King 2000; 2001a; 2001b; 2002). Countries that managed to attract sufficient foreign direct investment (FDI) were able to compensate for the depressive effects of shock therapy. Subsequent work combined this assessment with the view that neoliberal policies were detrimental, arguing that countries in which the *nomenklatura* struck a bargain with enterprise managers (e.g. Russia) effectively discouraged FDI, and ultimately experienced de-industrialization (King 2003; King and Szelényi 2005). In other countries (mostly in Central Europe), an alliance of technocrats and dissidents was able to block the *nomenklatura*'s bid to gain ownership of the means of production, and instead created the political and social conditions for large-scale foreign investment (King 2002; King and Szelényi 2005; King and Sznajder 2006). This perspective argues that FDI, combined with state-guided enterprise restructuring, accounts for the success stories of post-communist development. While these social structural explanations have substantial merit, they nonetheless cannot account for differences in performance among countries with *similar* social structural conditions. In particular, they cannot explain intra-FSU or intra-CEE variation.

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In this paper, we advance a neo-Weberian theory of post-communist economic collapse that focuses on the bureaucratic character and capacity of the state. For Weber, modern rational capitalism was characterized not only by capitalist property relations (private ownership of the major means of production), but also by the presence of a *strong bureaucratic state* (Weber 1958a: 81; Weber 1958b: 221). In this view, modern states hold the monopoly on legitimate violence within their territories, a monopoly on issuing money, and a monopoly on taxing the population. The bureaucratic nature of modern states is created by the separation of the office from the officeholder and the use of formal rules in decision-making (Weber 1978). Therefore, the rights of the office as well as the material goods it commands cannot be used at the discretion of the officeholder, especially not for their personal gain. Weber believed that bureaucracies functioned well when they had an educated staff with an *esprit de corps* and sufficient material resources. When we speak of a "strong" state in this paper, we then mean a state that has what Mann termed "infrastructural power" (1986): the ability to penetrate society and realize its objectives.

A bureaucratic state is essential to modern capitalism because in its absence, individual capitalists might resort to "political capitalism" – the use of personal relationships with state officials to create extra-market opportunities for profitable activity (Weber 1966: 246-247; 1978: 164-166). In this scenario, sustained innovation and specialization are neglected, as capitalists circumvent market competition by pursuing "political accumulation" and strengthening their ties to government officials instead of carrying out productive investments. In addition, Weber recognized the essential role of strong nation-states in supporting capitalist growth by protecting

and nurturing infant industries. Many other authors have emphasized the importance of states in providing fertile conditions for economic growth through the creation and maintenance of institutions, including an adequate legal and regulatory framework, counter-cyclical demand stimulation, reliable information diffusion, a skilled and healthy workforce, and new technology development (for a review see Block and Evans 2005).

Our theoretical account is directly at odds with neoliberal explanations, since we argue that the closer a given country's policies approximated the neoliberal goal of mass privatization, the worse its subsequent economic performance. This explanation is consistent with the institutionalist and corruption-centered perspectives, but goes beyond them by arguing that mass privatization *itself* damaged existing state institutions and increased corruption. We contribute to the (sociological) statist and social structural accounts by identifying an important mechanism responsible for the deleterious outcomes experienced by many transition societies: mass privatization leading to declining state revenues.

Countries which pursued mass privatization severely damaged their state capacity in two ways. First, privatization eliminated the profits of state-owned enterprises as a source of state revenue. Second, it created enterprises lacking strategic owners, which prompted severe agency problems, increasing the risk of firm failure, recourse to the non-monetary economy, and non-payment of taxes. The combined impact on the state's budget led to a fiscal crisis, which weakened the development of the very institutions needed for governing the private sector, and undermined morale among the post-Soviet bureaucracy. Declining state capacity – fiscally and bureaucratically – promoted corruption and weak institutions, both of which contributed significantly to poor economic outcomes. The result was a vicious cycle of mutual reinforcement

between a failing state and a failing economy. We contrast this theoretical logic with the neoliberal account in Figure 2.

**[Insert Figure 2 here]**

Our theoretical framework implies that mass privatization programs exert both direct and indirect effects on post-communist state capacity. In the following section, we develop specific hypotheses concerning each causal pathway and contrast them with competing predictions.


*The Direct Effects of Mass Privatization on State Capacity*

We argue that a post-socialist country's choice to rapidly privatize its enterprise holdings immediately reduced that state's financial capacity, due to the high budgetary dependence on the earnings of state-owned firms. Advocates of neoliberal policies did not expect this fiscal shock to be particularly devastating for two reasons. First, it was believed that socialist states had been engaging in "value-subtracting" behavior by expending vast amounts of resources to prop up inefficient firms producing unneeded goods (Gaddy and Ickes 2002). Radical privatization therefore had the potential to generate huge savings for the state. Second, rising tax revenues from the superior growth of *de novo* private firms and the improving performance of privatized state enterprises were expected to compensate for revenue shortfalls.


*Indirect Effects of Mass Privatization on State Capacity*

In order to avoid a state fiscal crisis as a result of mass privatization, the enterprise sector would have to grow and be taxed effectively. We argue that mass privatization accomplished

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precisely the opposite: worse enterprise performance coupled with a declining capacity of the state to tax firms.

Mass privatization programs, by design, led to greatly dispersed firm ownership. The new owners had only limited incentive to monitor firms, and more importantly, lacked the capacity to exercise control over managers and employees (Ellerman 1998). McDermott (2002) demonstrated that in the Czech Republic mass privatization greatly complicated corporate governance, causing assets to go unutilized because of ambiguous ownership situations, which discouraged foreigners from investing.[3] Well-functioning regulatory and credit rating agencies or an independent business press may have mitigated the violation of shareholder rights, yet these institutions did not exist.

In most cases, newly mass privatized firms were cut off from state subsidies. Unlike firms privatized to strategic owners, however, they did not have access to resources such as investment capital, new managerial talent, and marketing networks, which would have been crucial for restructuring overstaffed and inefficient Soviet-era factories into globally competitive firms (King 2003). Faced with this situation, owners, managers, and workers, unable to work cooperatively for the betterment of their firms, tended to pursue short-term parasitic strategies to accumulate wealth, such as asset stripping. Thus, firms that were oftentimes already technologically obsolete now faced substantial external shocks and major internal problems.

One way in which firms responded to these multiple crises was by reviving the practice of barter, which had evolved under the planning system to rectify deficiencies in the central allocation of resources (Kornai 1980). Failing post-communist firms retreated to non-market mechanisms of exchange. They bartered and tolerated arrears from their customers, in turn failing to pay their suppliers and creating chains of inter-enterprise debt. They produced goods

for the black market to avoid taxation, oftentimes falling behind on tax payments for legally produced goods. Some firms even started using non-official money printed up by local governments. In effect, firms began to flout the government's monopoly on the creation of money and the taxation of the economy (Woodruff 2000). We refer to these micro-strategies as "non-market" restructuring, which we distinguish from market-oriented strategies of developing new product lines, gaining quality accreditations, and increasing sales. These latter are typical of firms in Western capitalism and generate more economic value for future taxation than non-market activities. Furthermore, non-market transactions are much harder to tax than normal monetary transactions. Firm-level responses to mass privatization thus further strained the state's resources.

The resulting fiscal crisis meant that the state was increasingly unable to pay its own staff. Undercompensated government bureaucrats were easily corrupted, providing favors and advantages to businessmen in exchange for bribes or other unofficial payments (Pappe 2000; Reddaway and Glinski 2001). In "patrimonial capitalism", as Szelényi and his collaborators called it, personal ties between economic and political actors replace bureaucratic organization (Eyal et al. 1998; King 2002; King 2003; King and Szelényi 2005).

Based on the above considerations, we specify the following:

$H_1$: *Mass privatization reduces state capacity.*

$H_2$: *Mass privatization reduces economic growth.*

$H_3$: *Mass privatized firms are more likely to use non-monetary exchanges and owe the government tax arrears.*

H4: *Mass privatized firms are less likely to have pursued market-oriented restructuring than state-owned firms.*

All hypotheses are single-tailed. In each case, the null hypothesis is specified as mass privatization having no effect on the response variable.

METHODS

Our analysis uses a multi-level approach, incorporating both country- and firm-level data. This enables us to address fallacies that could arise both from the analysis of national-level data (overlooking mechanisms) and individual-level data (overlooking system-wide processes). Simultaneously, it allows us to model the causal mechanisms by which the effects of privatization on firms affect the state, and the effects of privatization on the state affect firms.

*Cross-national data:* On the national level, we report time-series and cross-sectional models using data on the social, economic, and political development of 26 post-communist countries, drawn from the World Bank World Development Indicators Database (2008 edition). In addition, we generated a novel measure of mass privatization based on historical records, including those reported in the *Transition Report* series (EBRD 1994-2005). Table 1 summarizes the variables used in the cross-national models. We first analyze the entire sample of countries (Tables 3 and 4). However, given the historical differences between the satellite countries and the core republics of the FSU, we also provide separate analyses for the non-FSU and FSU blocks of countries (see Online Supplement E). We restricted our study to the period between 1990 and 2000. The starting point is justifiable in view of missing data for many countries in 1989 (several post-Soviet countries also did not yet exist). By the late 1990s, the transitional recession was over in all countries of the post-communist world, and a new set of political and economic dynamics had emerged to create what Szelényi and Wilk (2009) termed the "Second Transition" (involving the reform of social institutions such as the education and health sectors). Moreover,

while there has been substantial path-dependence in the region, this dependence is not absolute, and both political and economic developments are increasingly driven by other factors – for instance, the change in relative prices following Russia's sovereign debt default and devaluation in 1998, the strong rise in oil and other commodity prices from the late 1990s onwards, or the most recent global financial meltdown, which affected the post-communist economies very unevenly. We therefore end our time series in 2000 (although extending it did not affect our statistical findings).

Two variables require further discussion: our measures of privatization and of state capacity. Almost all existing analyses of privatization in the post-communist world use the EBRD's indices of privatization progress. While we show that our results are robust to the use of these variables, we note that the EBRD measures are of limited analytical value since they do not distinguish between different privatization methods. Moreover, as demonstrated by Stuckler, King and Patton (2009), the residuals of a regression of these indicators on growth are non-random, and are predicted by prior economic growth (implying that EBRD bureaucrats coded economically successful countries as being more effective privatizers than they actually were).

Therefore, in addition to investigating the commonly used EBRD indices, we construct a measure to reflect as accurately as possible the actual implementation of large-scale mass privatization programs, by specifying whether a given country implemented a mass privatization program covering at least 25% of its large enterprise sector.[4] Ideally, we would have used data on the rate of privatization for each country, as both the number of existing firms (denominator) and the number of privatized firms (numerator) were changing. However, inconsistencies in government reporting of privatization and firm data to the international financial institutions made the calculation of such a rate impossible for many countries. According to staff members at

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the EBRD, the texts of its *Transition Report* series provide the entirety of the organization's data on privatization, reporting the public and private sector shares in several different ways: total assets of firms, total number of firms, and percent of total employment. All of these measures have advantages and disadvantages, but they are not commensurate. Online Supplement C reports our own best estimates of post-communist privatization, along with our coding decisions for each country. We confirmed the coding of our variable with the senior official overseeing mass privatization implementation at the World Bank, Ira Lieberman, who agreed with our coding of countries' privatization programs with the possible exception of Romania.

Constructing valid and reliable measures of the bureaucratic nature of the state or of state capacity is notoriously difficult. We use a variety of subjective measures of state capacity aggregated from firm-level survey data (perception of government efficiency, property rights enforcement and contract security, and prevalence of corruption), as well as an objective measure for the time-series analysis (total government spending). Comparative studies frequently measure state capacity by expressing government spending as a percentage of GDP. This is sensible, but it assumes that there are no significant changes in the denominator during the period under investigation; given the significant economic contraction experienced by most countries in the post-communist world, this approach is not reasonable for the purpose of our study. In Russia, for instance, changes in the ratio of government spending to GDP were driven partially by deliberate attempts to reduce the size of government, but primarily by the rise of the shadow economy and the inability of the state to collect taxes (Popov 2004: 2). Given these complications, we followed existing literature in measuring state fiscal capacity by considering changes in total government spending over the course of the transition.

*Firm-level data:* Our firm-level data are taken from the World Bank/EBRD Business

Environment and Enterprise Performance Survey (BEEPS) of 4,106 large and medium firms in

26 transition economies. Conducted between 1999 and 2000, it examines key aspects of

governance and institutional support provided by the state; areas covered by the survey include

business regulation and taxation, the legal and judicial system, infrastructure, and financial

services (World Bank 2011). Specifically, BEEPS assesses how "the growth of firms, including

their decisions to invest and to innovate, and the growth of firms' revenues and productivity are

affected by the functioning of government institutions, financial markets, and physical

infrastructure (ibid.). The survey is based on face-to-face interviews with firm managers and

owners. It was designed to generate comparative measurements in areas such as corruption, state

capture, lobbying, and quality of the business environment, and also reports a series of specific

firm characteristics and performance measures. One strength of the survey in measuring

corruption is its emphasis on the experience of service-users and managers, rather than the

perceptions of experts and households. (The latter two have been found to generate a significant

positive growth bias in studies of economic performance [see Kurtz and Schrank 2007, Knack

2007]). The survey includes about 125 randomly sampled firms from each country, with larger

samples for Poland and Ukraine (over 200 firms), and an even larger sample for Russia (over

500). Of the firms surveyed, 16% were privatized, 14 % were state-owned, and the remaining

70% were new private firms (World Bank 2011). Serbia and Turkey were excluded from our

study, leaving a sample of 3,891 firms, of which 3,550 had complete data on the factors of

interest.

  If a firm was privatized in a country that we coded as having implemented a mass

privatization program and this firm reported no foreign investment, we treat it as having been

privatized via mass privatization. This creates a conservative bias in the variable, as many such firms were not in fact privatized by this method in mass-privatizing countries (see Online Supplements B and C). Firms privatized by other methods likely suffered from much less severe principal-agent problems (e.g. if they were privatized directly to firm insiders), or at least had access to new capital and markets (e.g. if they were acquired by a strategic owner) (King 2001b).

Tables 1 and 2 describe the variables used in the cross-national and firm-level regressions; all equations and further details about our modeling framework are provided in Online Supplement D.

**[Insert Tables 1 and 2 here]**

RESULTS OF THE CROSS-NATIONAL ANALYSIS

Table 3 shows the results of our regressions of three subjective indicators of a strong bureaucratic state on mass privatization and several controls (transition policies, resource wealth, military conflict, demographic factors, membership in the FSU and initial transition conditions). We found that the aggregated survey respondents from countries undertaking mass privatization were more likely to believe that the government was inefficient (Model 1), would not protect property rights or contracts (Model 2), and would be more prone to rely on unofficial payments to public officials (Model 3).

**[Insert Table 3 here]**

*Comparing Satellite and Core countries of the Former Soviet Union*

Table 4 reports our regression results for the full sample of countries over time. We can see that countries which underwent mass privatization, *ceteris paribus*, exhibited about 20% lower government spending than those that did not (Models 5-6). Countries which liberalized prices also displayed substantially lower levels of government spending. Because government spending

is a component of GDP, we would expect that GDP declined by the amount attributable to mass privatization multiplied by the fraction of government spending in GDP. We found that mass-privatizing countries experienced, on average, a greater than 16% decrease in GDP per capita (Models 8-9). Price liberalization had a similar-sized negative effect, corroborating a finding by Popov (2007).

**[Insert Table 4 here]**

Online Supplement E (Table E1) presents the results of our regressions of government spending on mass privatization using the split sample. We find that in FSU countries mass privatization was associated with a 22.8% drop in real government spending per capita during the 1992-2000 period (Model 12). Not surprisingly, oil is linked to greater government spending (capturing the spike in oil prices during the late 1990s). Similarly, greater democratization implied an average increase in government spending per capita of 4.82% among FSU countries ($p = 0.008$) but had no effect among non-FSU countries ($\beta = -4.31$, $p = 0.39$). We found no statistically significant effect for mass privatization in the non-FSU countries once controls were implemented (Model 15). Price liberalization, however, did have a negative effect in this region. Given that the average increase in the EBRD liberalization score for non-FSU countries was 1.97 (range 0-4), this is substantial.

Online Supplement E further presents the results of our random-effects regressions of real GDP per capita on mass privatization (Table E2). We find that privatization was associated with a 13.1% drop in real GDP per capita (Model 18), supporting the notion that mass privatization negatively affected growth through a reduction in state fiscal capacity, without a simultaneous compensation in benefits to investment, consumption, or exports. When holding constant trends in government spending, thus effectively blocking the mass privatization-state capacity-growth

channel, we found no effect of mass privatization on growth among FSU countries ($\beta$=-5.01, p=0.24; full results not reported).

*Robustness Checks*

We performed a series of robustness checks on our cross-national findings. First, we removed potential outliers according to a liberal definition of standard deviations in the residuals of greater than |2| (dropping Armenia in 1992, 1993, and 2000; Azerbaijan in 1992; Georgia in 1991 and 1994; and Tajikistan in 1991), finding that the coefficients for mass privatization increased ($\beta$=-17.2, p<0.001). Second, we introduced a set of country dummies, which left our coefficients for mass privatization unchanged. Third, we replicated our cross-national results using the EBRD index of privatization, producing results consistent with the findings reported in Online Supplement F, Table F1. In light of these robustness checks, the cross-national evidence supports our neo-Weberian theory linking mass privatization to declines in state capacity and growth.

RESULTS OF THE FIRM-LEVEL ANALYSIS

For the micro-analysis we adopt the modeling strategy used in King and Sznajder (2006). We consider multiple indicators of firm performance and control for variables commonly used in firm-level analysis, all of which are summarized in Table 2.

Table 5 presents our firm-level results. Enterprises privatized to domestic owners in countries that implemented mass privatization programs were 78% more likely to engage in barter than state-owned firms (Model 22), and 56% more likely to have overdue taxes (Model 30). They were also 41% less likely to have invested (Model 24), 36% less likely to have increased sales (Model 26), 58% less likely to have hired new employees (Model 28), 36% less likely to have

developed a new product line (Model 32), and 26% less likely to have upgraded existing products (Model 34). Conversely, foreign-invested firms were 62% less likely to have engaged in barter (Model 22), and 53% less likely to have owed taxes (Model 30). Our micro-level findings are thus consistent with the results from the cross-national analysis, indicating that adverse outcomes were significantly more prevalent among the firms we treat as having been mass privatized, whereas privatization to foreign owners (likely strategic investors) had positive effects on firm performance.

**[Insert Table 5 here]**


*The Political Economy of Mass Privatization and Potential Endogeneity*

It is conceivable that our country- and firm-level results are misleading because of a "sick patient" effect. That is, countries with weak states might have chosen mass privatization because they lacked the capacity to implement any other method of privatization. If these countries were going to suffer negative consequences regardless of their privatization strategy, the detrimental effects we attribute to mass privatization might simply be the result of an underlying lack of state capacity and thus be unrelated to the method of privatization.

We assessed the possibility of a "sick-patient" effect by reviewing the existing literature on the political economy of mass privatization. The leading historical accounts of property reform in the post-socialist world, as well as a large body of single-country case-study research, indicate that privatization strategies were politically motivated outcomes of conflicts among elites and, sometimes, other interest groups. Significantly, the choice to mass privatize was not predetermined by a weak state or any other structural feature (for Russia see Klebnikov 2000; Medvedev 2000; Reddaway and Glinski 2001). A glance at the regional diversity of privatization

strategies supports this claim, as mass privatization was adopted by countries in every region of the post-communist world, from the authoritarian states of Central Asia, to the "managed democracies" of the European FSU, to the liberal democracies of Central Europe.

While space does not permit a detailed discussion of the political economy of mass privatization for all cases, we cite analyses for ten post-socialist countries that implemented mass privatization programs, which consistently suggest that privatization was driven by political motives (including ethnic, fiscal, anti-Russian, and interest group politics). We also provide a detailed discussion of the Russian case, given that country's regional importance and former political centrality. These materials can be found in Online Supplement G.

Thus, the majority of scholars familiar with privatization strategies in the post-communist world agree that mass privatization was chosen not because the state lacked the capacity to implement alternative methods, but because of political motives – in particular, the desire to break the power of anti-reform coalitions and make the transition irreversible.[5] Indeed, it surely would have been easier to leave large enterprises under state ownership indefinitely, until an acceptable strategic owner emerged, as governments did in Belarus, Slovenia, Uzbekistan and Poland.

Although policy choices do partially depend on initial circumstances, notions of historical causality in which such decisions are strictly determined by structural forces fell out of sociological favor decades ago. Virtually the entire field of political and historical sociology has strongly rejected structural analysis that has no place for contingency and agency in explaining historical outcomes (see e.g. Moore Jr. 1978; Zeitlin 1984; for a review of trends in historical sociology, see Clemens 2007). Therefore, positing that a certain radical and innovative

privatization program which was controversial and fiercely contested was inevitable strikes us as implausible.

Nonetheless, we investigated this possibility statistically by testing whether a range of commonly used "initial conditions", including four measures of state capacity, are associated with the adoption of mass privatization programs (see Online Supplement H, Table H1). The only statistically significant finding relates to government transparency and points in the opposite direction (i.e. more transparent states were more likely to adopt mass privatization programs).

Next, we turned to evaluating a series of common hypotheses proposed in the literature to explain underlying causes of why some countries adopted mass privatization but others did not: regional diffusion, ethnic politicking, and pressure from international creditors. As shown in the probit model reproduced in Online Supplement H (Table H2), countries were more likely to pursue mass privatization if they were members of the FSU (about three times more likely – a regional diffusion effect); displayed greater degrees of ethno-linguistic fractionalization (both undermining civil society resistance and incentivizing domestic elites to use mass privatization to oust ethnic Russians from privileged managerial positions); had greater levels of democratic participation (used to legitimate the new regime and to consolidate democracy); and had borrowed from the IMF in the previous year (pressure from external actors).

Overall, these findings are consistent with our understanding of privatization as a political decision, driven by domestic reformers aiming to legitimate new regimes or weaken political opponents, and in part facilitated by foreign actors.

Based on these models we construct a new variable assessing the "hazard of implementing mass privatization". This approach captures both the observable factors which increased the likelihood of pursuing this policy (described above), as well as unobservable factors (obtained

from the error term). In a second step, we added this control to our main equations for estimating the effect of mass privatization on GDP. As shown in Online Supplement I, the effect we recorded was even larger than our original estimates (-42.7%, $p < 0.001$), indicating that those factors which predisposed countries to implement mass privatization would have been associated with higher GDP if mass privatization had not been implemented.

In sum, we found there to be neither historical nor statistical evidence indicating a greater propensity among weak states to adopt mass privatization as a property reform strategy. Even if this hypothesis were true, our findings would still demonstrate that mass privatization contributed to a further weakening of state capacity via enterprise failure and reduced tax revenue. Even if weak states had been more likely to rely on mass privatization, choosing this method inflicted further damage on their state capacity (as can be inferred from our firm-level findings).

*Political Economy of Firm Selection for Privatization*

There is also potential for a selection bias acting at the firm-level. Countries implementing mass privatization programs may have selectively privatized weak and underperforming firms. As a result, any effect associated with privatization may simply reflect that bias. To address this possibility, we review evidence showing that: i) valid information on firm performance was unavailable, making firm selection based on performance very unlikely; ii) as a corollary, comparative firm-level data on pre-privatization conditions do not exist across countries; iii) to the extent firm selection may have occurred, there is evidence that firms were chosen on a sector-wide basis rather than firm-specific one; and iv) in the limited cases where within-sector firm selection occurred, better performing firms tended to be privatized first.

First, to our knowledge, no firm-level dataset in existence contains the information on pre-privatization conditions needed to address the issue of potential endogeneity of firm selection on a cross-national basis. For the theoretical and empirical reasons described below, we also believe that it would be very difficult, if not altogether impossible, to construct such a dataset.

In theory, to capture initial firm conditions, one must accurately assess the value of fixed capital for individual firms, which could be used to predict a firm's competitiveness in a liberalized market. In practice, however, accurate and detailed firm-by-firm data did not exist prior to privatization, as socialist central planners were generally not well-informed about the resources of individual enterprises (see Szelényi, Beckett and King 1994 for a review of the literature). Bauer (1983) describes the "plan bargain" – a system of organizational arrangements in which managers had economic incentives to stockpile resources and conceal information from central planners (see the seminal work of Kornai 1980). In the period leading up to privatization, the partial marketization of the *perestroika* reforms engendered further information asymmetries, as managers began to set up separate corporate vehicles for the purpose of asset-stripping (e.g. Medvedev 2000; Ganev 2007). In some cases, managers and firm insiders undervalued firms by falsifying records, permitting them to buy the firm via privatization at a bargain price. Given this combination of factors, it is thus highly unlikely that states would have been able to use detailed information on firm performance as a criterion for firm selection. The Czech Center for Coupon Privatization, for example, published information on the firms to be included in mass privatization with the explicit caveat that "much of the data [are] of dubious quality and may not be relevant in a rapidly changing economic situation" (Shafik 1995: 1144).

The greatest obstacle to constructing a suitable dataset, however, is the inherent difficulty in using market economy performance evaluation criteria to measure the performance of firms prior

to privatization. Although accounting records of late-socialist state enterprises included metrics of revenues, costs, profit, and productivity, these data cannot be analyzed through the "performance" lens used to evaluate firms in a free-market economy. As Held and Hill (1989) note in a study of the Soviet economy, "[s]tate-owned firms realise a money surplus only when the relation between the state-decreed purchase and sales prices allows for it. They are not free to employ the techniques of competition vis-à-vis sellers and buyers" (31).

Given these inherent limitations in the available data, few existing firm-level studies have attempted to statistically address potential endogeneity of performance-based selection for privatization. Djankov and Murrell (2002), who conducted a meta-analysis of the existing research on privatization and firm restructuring, report that half of the more than one hundred studies surveyed do not mention the issue of endogeneity at all. Hanousek et al. (2007) – who represent, to our knowledge, the first dataset designed to control for endogeneity, using firm-level initial (pre-privatization) conditions in a study of the Czech Republic – also note in their literature review that many studies "have not been able to control adequately for endogeneity of ownership [firms not being selected for privatization at random]", and that of those which do, "many treat the issue in a relatively haphazard way" (2-3).

Since we cannot address firm selection statistically, endogeneity remains a logical possibility, albeit we believe an unlikely one. Mass privatization, by design, did not occur on a case-by-case basis but instead followed a sectoral strategy. As Lieberman (1997) explains in the introduction to a World Bank volume on the experience of mass privatization in transition economies:

> Mass privatization is largely a systems approach to privatization. ... The programs usually start with a selection process – for example, all medium-size and large enterprises in the tradables sector except very large or 'strategic' enterprises … (2).

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Studies evaluating the determinants of privatization confirm that mass privatization was typically carried out on a sectoral basis. In a study of Russian mass privatization, for example, Nureev and Runov (2002) compare lists of enterprises not subject to voucher privatization (by industry) at different points in time and infer from changes in these lists a desire of officials to privatize the most "delicate" enterprises last (i.e. assets in the oil, energy, chemical and petrochemical, aviation, and nuclear sectors).[6] To the extent that sequencing occurred, a bias would have thus operated *across* sectors (e.g. privatizing agriculture early, but delaying manufacturing), for which we are able to control in our analysis by using firm-sector dummy variables.

To the extent there was variation in privatization *within sectors*, existing research indicates suggests that "better" firms were privatized first. That is, some countries selectively delayed privatization of the largest, most interlinked state-owned enterprises (considered "too big to fail") but rapidly privatized smaller and more dynamic firms (King 2000). Gupta et al. (2008), in a recent analysis of government priorities and firm sequencing in the Czech mass privatization program, report "strong evidence that the Czech government privatized first firms that were more profitable" (204). Szentpéteri and Telegdy (2010) report similar results in a study of Romanian mass privatization, though they note that an overarching objective of the government in selecting firms was employment preservation, outweighing even potential efficiency gains from privatization. To our knowledge, no existing research or data have suggested that the firms with the least potential were selectively privatized under mass privatization programs.

As a final robustness check, we used the statistical method of constructing a measure of the "hazard of privatization" described above but applied to the firm-level. Again, we use a two-step procedure: first we estimate the probability that a firm was privatized based on a set of observed characteristics of the firm, including its performance. Then, we use this model to combine both

observed and unobserved characteristics into a new variable, the hazard of privatization, and incorporate it into the models assessing the relationship between privatization and firm performance. As shown in Online Supplement J, none of our earlier results were qualitatively altered and, in the case of barter, became stronger, as those firms with greater underlying hazard of privatization were found to have lower risks of negative outcomes. This finding is consistent with existing scholarship on firm selection and further suggests that any unobserved firm-selection bias was in the opposite direction of our hypothesis.

DISCUSSION AND LIMITATIONS

Based on country- and firm-level evidence, our analysis indicates that mass privatization negatively affected state capacity via two central mechanisms. Mass privatization directly weakened the state's revenue base, and that this decline was not offset by enterprise growth because, as we demonstrate, mass privatization also had negative effects on the business environment. While the available data on state capacity are limited, we employed six different measures in our analysis. Using cross-national longitudinal data, we show that mass privatization created a fiscal shock to the state that significantly diminished government revenues and spending. We also determined on the basis of firm-level data that mass privatization negatively affected state capacity in three areas: government inefficiency, unofficial payments/bribery, and weakened protection of property rights. Finally, we present evidence that privatized firms were more likely to rely on barter and accumulate tax arrears, both of which indicate a weakened capacity of the state to maintain control of its own fiscal and monetary system.

These findings contrast with the neoliberal prediction that mass privatization would both promote firm restructuring and combat weak corporate governance, ultimately leading to

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stronger growth. They are, however, consistent with the leading post-mortem explanations (by both economists and sociologists) insofar as weak institutions and poor governance were major causes of the post-communist economic recession. Our model goes beyond this understanding by showing that the capacity of post-communist states, itself contingent on domestic policy choices, played a crucial role in determining subsequent economic performance. Thus, while we agree with sociological work emphasizing the centrality of the state, we are isolating the fiscal effects of mass privatization as a key mechanism producing poor economic and political performance.

Our results also support the gradualist and statist critiques of rapid liberalization, as well as social structural analyses emphasizing the importance of FDI. Though not a central focus of this paper, in many of our models, the EBRD liberalization index had a large negative effect on both government spending and GDP growth. There also seems to be some evidence for the beneficial effects of FDI in the micro-data: foreign-invested firms bartered less and paid their taxes more promptly than domestic-owned companies. Including FDI as a percent of GDP into the regression models had no effect (results not reported), as foreign investment was simply not prevalent enough in mass-privatizing countries to make a difference. Indeed, mass privatization was viewed by its designers as an alternative to waiting for foreign investors, who were expected to be hesitant to invest in gigantic Soviet-era combines during a time of considerable political and economic uncertainty. Thus, the decision to mass privatize was at the same time a decision not to rely on FDI.

One limitation of our study is that, while we have documented the effects of mass privatization on a variety of measures of state capacity at the national and firm levels, we did not further model the causal chain to demonstrate the effect of state capacity on economic growth (beyond a direct effect on lower government spending, which, by design, is a substantial

component of GDP). However, as noted above, there has been a growing recognition among both social scientists and policy-makers that state capacity is a crucial determinant of, and precondition for, balanced economic growth – a trend also reflected in recent policy reports of the World Bank (1997, 2002). Additionally, corroborating our firm-level insights, our macro-level path analysis supports the hypothesis that the effect of mass privatization on growth operated principally through a reduction in state capacity (as measured by per capita spending); there is also preliminary evidence from this region that government spending has had economically stimulating effects (see endnote).[7] Although we used six indicators of state capacity, the enterprise- and country-level measures are limited (especially the fiscal indicators). Further studies should attempt to better assess bureaucratic capacity and its variations across countries and over time.

Still, it is conceivable that there exists a potential unobserved "third" factor that accounts for the observed link between mass privatization and weakened state capacity. If this hypothesis were correct, however, this factor would arguably constitute no more than a distant determinant on the causal chain. Given that mass privatization was implemented across sub-regions with divergent historical trajectories, it is unlikely that a single underlying factor simultaneously affected state capacity and the privatization strategy chosen by different post-socialist governments. Our models and a detailed comparative review of the historical cases indicate that domestic intra-elite competition, ethnic politics, and regional diffusion all played significant roles in determining the method of privatization. At the firm-level, there is also potential for selection based on performance, leading to spurious estimates of the effects of privatization. However, just as data were unavailable to policy-makers in assessing pre-privatization performance and market values of firms (and thus unlikely to have been a major component of

selection), so, too, is this information not accessible to researchers today. Where information was available, its validity is dubious, as managers and firm insiders with vested interests made deliberate attempts to falsify records and undervalue firms in order to purchase them at bargain prices. Moreover, mass privatization programs were designed to privatize entire sectors (Lieberman 1997) (which we control for using firm-sector dummy variables); to the extent that within-sector selection occurred, better-performing firms tended to be privatized earlier in the process. Nevertheless, as with nearly any statistical analysis, there is a possibility that both our cross-national time series and our firm-level results are subject to endogeneity – in the former case due to spurious causality (ecological fallacy), and in the latter case due to selection biases. Future research should attempt to refine our understanding of the political economy of mass privatization and, in particular, the issue of firm selection. While we do not suggest mass privatization was the only factor reducing state capacity, we are confident overall that we have demonstrated that it was a key factor undermining state capacity and, as a result, economic growth.

Finally, two unusual country cases merit a brief discussion. The most important outlier of the post-communist world, that is, the country that implemented mass privatization according to our definition but nonetheless had good overall performance and managed to attract a large amount of FDI, is the Czech Republic. The Czech Republic was the second-richest country in the region, owed little external debt, had a long and celebrated history of industrial production stemming from its time as the economic powerhouse of the Austro-Hungarian Empire, had a ready-made pre-communist legal tradition of contract and property rights, and a privileged location bordering Germany. Still, by 1999, the Czech Republic recorded the worst scores on the protection of property rights, government effectiveness, and the rate of growth within Central and Eastern

Europe. Case-study data moreover demonstrates that companies privatized through vouchers experienced substantial governance problems (King 2001a, 2001b; McDermott 2002), and many voucher-privatized firms were in fact renationalized before ultimately being sold to foreign investors.

Another, perhaps less obvious, outlier is China. Although some Chinese reformers did consider mass privatization as a policy option in the period leading up to 1989, systematic efforts to privatize the country's medium- and large-scale state enterprises did not begin until about 1995. We opted to exclude China from our analysis of mass privatization programs but including it would have invariably strengthened our statistical findings, given our coding method and the fact that China has been the fastest-growing economy in the world and is widely acknowledged to have a better-performing state than most other post-Soviet countries (see Burawoy 1996). Nonetheless, we include a brief overview of Chinese privatization in Online Supplement G, as we believe that it constitutes an illustrative comparative case.

CONCLUSION

As our findings show, mass privatization programs directly undermined state fiscal capability. They also damaged the enterprise sector, and thus indirectly contributed to a further weakening of the bureaucratic capacity of the state and its ability to support the institutions necessary for a functioning capitalist economy. Rather than accelerating the formation of private property and securing a smooth transition to Western-style capitalism, as was intended by advocates of mass privatization, these programs precipitated state withdrawal and pushed countries in the direction of "crony" or "political" capitalism. A large and growing body of empirical evidence shows that a different type of capitalism, emphasizing patron-client ties and a

non-bureaucratic state, emerged in parts of the FSU and Eastern Europe. Meanwhile, countries that proceeded more gradually in creating a private sector, such as Poland and Slovenia, are now much closer to the Western capitalist ideal, with a relative separation of politics and economics (for details, see the literature review in King and Szelényi 2005). To be sure, we are not claiming that mass privatization is the only path to post-communist patrimonialism (Bulgaria, for instance, constitutes a clear case of patrimonial capitalism but did not implement a mass privatization program). Yet by contributing to a fiscal crisis and creating severe governance problems, mass privatization certainly provided a fertile ground for activities conducive to patrimonialism (funneling of assets, official corruption, solicitation of kick-backs, privatizing of the means of administration, etc.).

Of course, there was widespread *horizontal* corruption during the Soviet era (e.g. gifts or informal payments made to service providers), which occurred as a rational response to the shortage economy. Prior to privatization, however, it was extremely rare to see *vertical* corruption, such as bribing of police officers (see Reddaway and Glinski 2001). Post-transition, the state and the enterprise sector became riddled with patron-client relationships (see King and Szelenyi [2005] and Ganev [2007] for a review). Further, while reliable comparative data on corruption levels is hard to obtain (given the unobservable nature of successful corruption), Popov (2004) finds that various proxy measures (e.g. unofficial payments, barter, homicide and crime rates) have recorded dramatic increases since the beginning of the transition. Our analysis begins to explain how this further deterioration in governance occurred.

Our results do not indicate that mass privatization was the only determinant of post-communist economic performance. We are, however, claiming that it explains a substantial amount of the variation in performance. Future analysis might arrive at a more differentiated

picture by employing improved measures of other types of transition policies (e.g. price and trade liberalization). Undoubtedly, external factors, such as relative prices, are causally important as well. Finally, as sociologists we never doubted that "initial conditions" are important, and our Hausman-Taylor tests indicate that we have statistically accounted for the most relevant ones in our models that were disaggregated into former Soviet core and satellite countries.

Our findings have several theoretical and policy implications. For sociological theory, our analysis supports the position that states and markets are not antagonistic entities as maintained by the neoliberal perspective (Block 1994; Evans 1995; Fligstein 2001; Block and Evans 2005). It also supports the traditional sociological thesis of the importance of a bureaucratic state for successful capitalist development (e.g., Weber 1978; Evans 1995; Evans and Rauch 1999). Regarding public policy, our analysis suggests that when designing major economic reforms, particularly in the area of private sector development, safe-guarding government revenues and state capacity ought to be a high priority. Counting on a future burst of productivity from a "restructured" private economy to compensate for declining tax revenues appears a risky proposition, given the post-communist experience.

Our analysis cannot resolve whether neoliberal predictions about privatization in Eastern Europe were logically faulty per se or whether their implementation – the privatization process – crucially modified its outcomes. Two central predictions of the theory of mass privatization as a property reform strategy, that the state's fiscal shock would be compensated by i) savings from overcoming inefficient planning and ii) additional revenues raised from the superior growth of *de novo* private firms, are not borne out in available data. As Kogut and Spicer's (2002) qualitative study of mass privatization in Russia and the Czech Republic found, privatization had adverse

effects on governance and restructuring. Our data corroborate this finding across the region and further show that tax collection was more difficult among newly privatized firms.

Privatization is likely to remain a salient issue in coming years. As three senior World Bank officials note in a recent volume on privatization in transition economies, "What still amazes many of us who worked on privatization throughout this period in the transition countries is how quickly the transformation happened. However, there is more to do with respect to privatization in many countries in the region and transition economies elsewhere in the world" (Lieberman et al. 2008: 59). As recently as 2008, Egypt considered implementing a mass privatization program, distributing public company shares to some 40 million Egyptian citizens (Saif and Choucair 2008). Similar policies had been contemplated in Syria and Tunisia prior to the 2011 Arab Spring, with the EBRD being invited to consult on the process. Whenever such large-scale economic restructurings take place, there is potential for unintended consequences that can fundamentally alter the program's implementation and outcomes. Only if we carefully measure the economic, political and social consequences of past reform strategies will we be able to avoid repeating their mistakes in the future.

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FIGURE 1. TRENDS IN POST-COMMUNIST GROWTH, 1990-2000
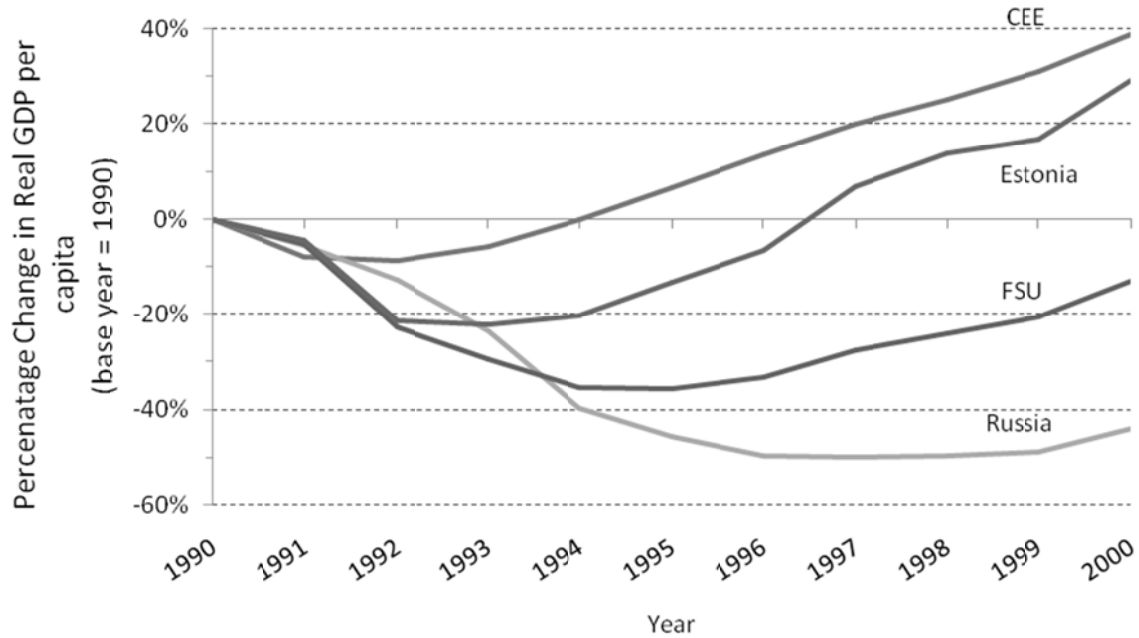


*Note:* Central and Eastern European countries (CEE) include Czech Republic, Hungary, Poland, Slovakia and Slovenia. Former Soviet countries (FSU) for which data are available since 1990 include Armenia, Azerbaijan, Belarus, Estonia, Georgia, Latvia, Lithuania, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine, and Uzbekistan. Percentage changes are scaled to GDP per capita in 1990 using constant 2000 international dollars as reported in the April 2008 edition of the World Bank World Development Indicators database.

FIGURE 2. EFFECTS OF MASS PRIVATIZATION ON FIRMS, THE STATE AND GROWTH

*Neoclassical-Neoliberal Framework*

```
                    ┌─────────────────┐
                    │ Less State      │
                    │ Intervention    │
                    └─────────────────┘
┌─────────────┐            │              ┌─────────────┐
│ Mass        │            ▼              │ Economic    │
│ Privatization│    ┌─────────────────┐   │ Expansion   │
└─────────────┘    │ Enterprise      │    └─────────────┘
                    │ Restructuring   │
                    └─────────────────┘
```
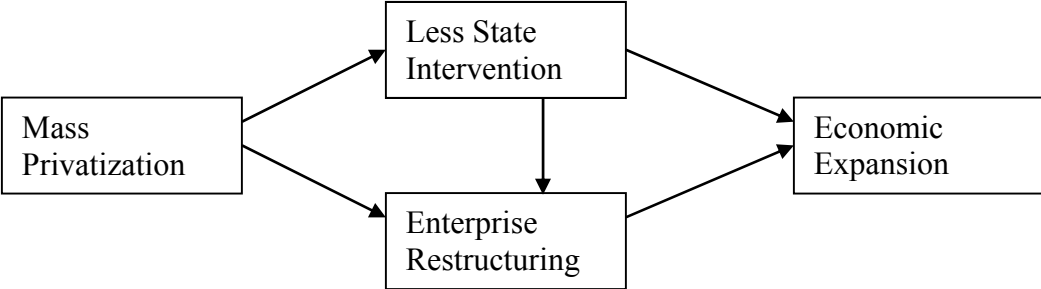
*State-Centered Framework*

```
                    ┌─────────────────┐
                    │ Weak State      │
                    │ Capacity        │
                    └─────────────────┘
┌─────────────┐            │   ▲          ┌─────────────┐
│ Mass        │            ▼   │          │ Economic    │
│ Privatization│    ┌─────────────────┐   │ Involution  │
└─────────────┘    │ Enterprise      │    └─────────────┘
                    │ Failure         │
                    └─────────────────┘
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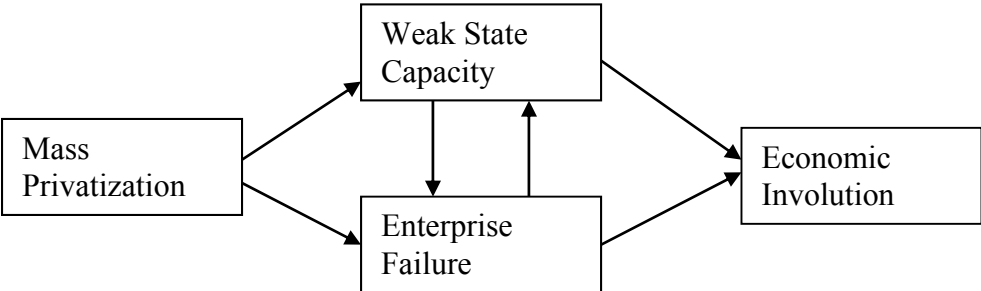
TABLE 1

VARIABLES USED IN CROSS-NATIONAL REGRESSIONS

| Variable | Description | Source |
|---|---|---|
| *Response variables* | | |
| Government efficiency | How would you rate the efficiency of the government in delivering services? (q48b), reverse coded | BEEPS |
| Weak contracts | To what degree do you agree with this statement? "I am confident that the legal system will uphold my contract and property rights in business disputes". (q23a) | BEEPS |
| Unofficial payments | On average, what percent of revenues do firms like yours typically pay per annum in unofficial payments to public officials? (q27) | BEEPS |
| Real government spending | Government spending in constant 2000 dollars, expressed as a percentage of 1992 spending | WDI |
| Real GDP per capita | GDP per capita in constant 2000 dollars, expressed as a percentage of 1990 GDP per capita | WDI |
| *Explanatory variables* | | |
| Mass privatization | Dummy variable indicating mass privatization programs covering at least 25% of large enterprises (see Online Supplement C for coding) | Authors' coding |
| Price liberalization | EBRD index of price liberalization | EBRD |
| Democratization | Cumulative civil liberties and political rights score | Freedom House |
| Oil | Presence of oil | Authors' coding |
| War | Military or ethnic conflict | Authors' coding |
| Urbanization | Urban population as a percentage of total population | WDI |
| Education | Tertiary education gross enrollment rate | WDI |
| Former Soviet Union | Dummy indicating whether a country was part of the Former Soviet Union | Authors' coding |
| Initial GDP per capita | Level of GDP in 1990 | WDI |

*Note:* EBRD is the European Bank for Reconstruction and Development; WDI is the World Bank World Development Indicators database (2005 and 2008 editions); BEEPS is the World Bank/EBRD Business Environment and Enterprise Performance Survey, 1999-2000.

TABLE 2

VARIABLES USED IN FIRM-LEVEL LOGISTIC REGRESSIONS

| Variable | Description / Survey Question | Coding |
|---|---|---|
| *Dependent variables* | | |
| Barter | What share of your firm's sales are now conducted in barter, offsets or bills of exchange (money surrogates)? (q67a) | 0 = No Barter <br> 1 = Barter |
| Investment Increased | By what percentage has your investment increased/decreased over the past three years? (q50c/q50d) | 0 = Investment Decreased/Stayed the Same <br> 1 = Investment Increased |
| Sales Increased | By what percentage have your sales increased/decreased over the past three years? (q50c/q50d) | 0 = Sales Decreased/Stayed the Same <br> 1 = Sales Increased |
| Employment Increased | By what percentage has your employment increased/decreased over the past three years? (q50c/q50d) | 0 = Employment Decreased or Stayed the Same <br> 1 = Employment Increased |
| Overdue taxes | Is the amount of payments overdue (by more than 90 days) by your company to government taxes substantial, manageable, modest or non-existent? (q53a) | 0 = non-existent <br> 1 = substantial. manageable, or modest |
| New Product development | Has your company undertaken the successful development of major new product line in the last three years? (q54) | 0 = No <br> 1 = Yes |
| Product upgrade | Has your company undertaken the successful upgrading of existing product line in the last three years? (q54) | 0 = No <br> 1 = Yes |
| *Explanatory variables* | | |
| Privatized | Dummy variable indicating firm was established by privatization of a state-owned firm (q7). | 0=not privatized <br> 1=privatized |
| Foreign | Dummy variable indicating foreign ownership | 0 = <100% foreign ownership <br> 1 = 100% foreign ownership |

TABLE 2 (CONTINUED)
VARIABLES USED IN FIRM-LEVEL LOGISTIC REGRESSIONS

| Variable | Description / Survey Question | Coding |
|---|---|---|
| Sector Dummies | Dummy for firm sector, including agriculture, manufacturing, mining, construction, trade, retail, transport, finance, power and other sectors. | 0/1 |
| Firm age | In what year was your firm founded? (q6) | Age |
| Technology | Dummy for whether firm has internet access (qS.17) | 0 = No access<br>1= Access |
| Size | Scale of full-time employees, ranging from 1 (1-9) to 7 (500 or more) (qS.5) | Number |
| Size$^2$ | Squared scale of full-time employees, ranging from 1 (1-9) to 7 (500 or more) | |
| Large | Dummy for >200 employees | 0 = <200 employees<br>1 = ≥200 employees |
| Firm trades with the state sector | Does your company trade with the state sector | 0 = No<br>1 = Yes |
| Firm receives subsidies | Does your enterprise receive subsidies (including tolerance of tax arrears) from local or national government (q65a) | 0 = No<br>1 = Yes |
| New General Manager | Dummy for whether there had been a change in the general manager within the last three years (q8). | 0 = No<br>1 = Yes |
| Domestic monopoly | Dummy for whether firm has 100% of market share (q61) | 0 = <100% market share<br>1 = 100% market share |

*Source*: World Bank/EBRD Business Enterprise and Environment Performance Survey, 1999/2000.

TABLE 3

EFFECT OF MASS PRIVATIZATION ON SUBJECTIVE MEASURES OF STATE CAPACITY

| | (1) | (2) | (3) |
|---|---|---|---|
| | Govt. inefficiency | Poor Property Rights | Unofficial payments |
| Mass privatization | 0.19[*] | 0.27[**] | 0.073[*] |
| | [0.035,0.34] | [0.098,0.45] | [0.010,0.14] |
| Price liberalization | -0.0026 | -0.063 | 0.066 |
| | [-0.15,0.15] | [-0.31,0.18] | [-0.039,0.17] |
| Democratization | -0.016 | 0.014 | 0.012 |
| | [-0.052,0.020] | [-0.048,0.077] | [-0.015,0.039] |
| Presence of oil | 0.055 | 0.0051 | -0.098 |
| | [-0.12,0.23] | [-0.25,0.26] | [-0.27,0.070] |
| Military conflict | -0.0017 | -0.019 | 0.0048 |
| | [-0.033,0.029] | [-0.058,0.020] | [-0.040,0.049] |
| Urbanization | 0.0015 | 0.0013 | -0.0029 |
| | [-0.0033,0.0063] | [-0.0067,0.0093] | [-0.0076,0.0017] |
| Education | -0.0026 | 0.0021 | -0.0035 |
| | [-0.0100,0.0047] | [-0.0058,0.0099] | [-0.0087,0.0018] |
| Former Soviet Union | -0.063 | -0.077 | 0.099 |
| | [-0.27,0.15] | [-0.30,0.15] | [-0.0062,0.20] |
| Initial GDP per capita | -0.000027 | -0.0000065 | 0.000013 |
| | [-0.00011,0.000051] | [-0.000092,0.000079] | [-0.000027,0.000052] |
| Constant | 0.78 | 0.43 | 0.19 |
| | [-0.24,1.81] | [-1.43,2.28] | [-0.53,0.92] |
| Observations | 23 | 23 | 23 |
| $R^2$ | 0.644 | 0.663 | 0.589 |

*Note:* 95% confidence intervals in brackets
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

TABLE 4

EFFECT OF MASS PRIVATIZATION ON REAL GOVERNMENT SPENDING PER CAPITA AND REAL GDP PER CAPITA, 1990-2000 (FULL SAMPLE)

| | Government spending | | | GDP per capita | | |
|---|---|---|---|---|---|---|
| | (4) | (5) | (6) | (7) | (8) | (9) |
| Mass privatization | -25.0** | -19.9** | -21.1* | -13.3** | -14.9*** | -16.3*** |
| | (7.61) | (6.93) | (8.78) | (4.12) | (4.14) | (4.36) |
| Price liberalization | | -13.3*** | -7.82* | | -6.28** | -7.56*** |
| | | (3.59) | (3.97) | | (2.15) | (2.29) |
| Democratization | | -2.76 | -0.80 | | -1.29 | -0.011 |
| | | (1.89) | (2.12) | | (0.87) | (0.93) |
| Oil | | -14.4 | 14.1 | | -1.81 | -0.62 |
| | | (11.1) | (17.3) | | (7.15) | (12.4) |
| War | | 6.68 | -5.46 | | -6.66 | -11.7 |
| | | (12.3) | (13.2) | | (4.14) | (6.19) |
| Urbanization | | 0.18 | -0.48 | | 0.20 | -0.14 |
| | | (0.47) | (0.50) | | (0.29) | (0.39) |
| Education | | 1.62*** | 2.04*** | | 1.10*** | 0.98*** |
| | | (0.36) | (0.42) | | (0.15) | (0.27) |
| Initial GDP per capita | | 0.0016 | 0.0021 | | 0.00086 | 0.0036** |
| | | (0.0037) | (0.0025) | | (0.0015) | (0.0013) |
| Country-year trends | No | No | Yes | No | No | Yes |
| Nation-years | 242 | 242 | 242 | 253 | 253 | 253 |
| Nations | 24 | 24 | 24 | 25 | 25 | 25 |
| $R^2$ | 0.036 | 0.397 | 0.723 | 0.117 | 0.365 | 0.782 |

*Note:* Robust standard errors in parentheses are clustered by country to reflect non-independence of sampling; random effects models presented, controls for country-specific fixed effects do not change the coefficient on mass privatization (Hausman-Taylor $\chi^2(1) = 1.18$, p=0.28). Real government spending per capita is expressed as a percentage of 1992 government spending. Real GDP per capita is expressed as a percentage of 1990 GDP.
* p<0.05, ** p<0.01, *** p<0.001

TABLE 5
FIRM-LEVEL LOGISTIC REGRESSIONS RESULTS

| | Barter | | Investment | | Sales | | Employment | |
|---|---|---|---|---|---|---|---|---|
| | (22) | (23) | (24) | (25) | (26) | (27) | (28) | (29) |
| | MP | Non-MP | MP | Non-MP | MP | Non-MP | MP | Non-MP |
| Privatization | 1.78*** | 1.09 | 0.59*** | 0.86 | 0.64*** | 0.82 | 0.42*** | 0.39*** |
| | (0.26) | (0.18) | (0.071) | (0.10) | (0.070) | (0.13) | (0.051) | (0.10) |
| FDI | 0.38*** | 0.83 | 0.96 | 1.43 | 1.74* | 1.03 | 1.86 | 1.50 |
| | (0.11) | (0.31) | (0.22) | (0.60) | (0.49) | (0.42) | (0.92) | (0.60) |
| Agriculture | 4.32*** | 0.61 | 1.17 | 0.65 | 1.99 | 1.04 | 0.97 | 0.78 |
| | (1.06) | (0.18) | (0.50) | (0.24) | (0.85) | (0.37) | (0.24) | (0.22) |
| Manufacturing | 1.85* | 0.96 | 1.76 | 0.74 | 1.89 | 0.87 | 1.93 | 1.15 |
| | (0.48) | (0.26) | (0.67) | (0.21) | (0.78) | (0.22) | (0.65) | (0.19) |
| Mining | 1.67 | 1.54 | 0.93 | 0.23 | 0.95 | 0.087 | 1.22 | — |
| | (0.85) | (1.37) | (0.88) | (0.24) | (0.54) | (0.11) | (0.91) | |
| Construction | 3.24*** | 0.90 | 1.17 | 0.66 | 1.49 | 0.83 | 1.79** | 1.09 |
| | (1.00) | (0.19) | (0.58) | (0.23) | (0.63) | (0.33) | (0.39) | (0.29) |
| Trade | 1.91* | 0.75 | 1.70 | 0.83 | 2.16* | 1.25 | 1.92* | 1.48 |
| | (0.48) | (0.28) | (0.51) | (0.26) | (0.67) | (0.41) | (0.54) | (0.47) |
| Retail | 0.86 | 0.57* | 2.01 | 0.51 | 1.83 | 0.71 | 1.86 | 1.00 |
| | (0.20) | (0.15) | (0.81) | (0.18) | (0.72) | (0.22) | (0.60) | (0.20) |
| Finance | 0.26 | 0.16*** | 1.93 | 0.60 | 1.88 | 1.20 | 2.61** | 2.88** |
| | (0.22) | (0.072) | (0.67) | (0.33) | (1.33) | (0.88) | (0.88) | (1.02) |
| Power/Energy | 1.01 | 0.28 | 0.52 | 0.70 | 0.77 | 0.59 | 0.61 | 1.21 |
| | (0.65) | (0.29) | (0.73) | (0.64) | (0.74) | (0.55) | (0.79) | (0.78) |
| Other sector | 0.96 | 0.63 | 1.58 | 0.71 | 1.81 | 0.97 | 1.69 | 1.49 |
| | (0.36) | (0.24) | (0.70) | (0.25) | (0.65) | (0.34) | (0.62) | (0.40) |
| Firm age | 1.00 | 1.02* | 0.99 | 1.00 | 0.99 | 0.99** | 0.99* | 0.99* |
| | (0.0044) | (0.0071) | (0.0054) | (0.0027) | (0.0030) | (0.0031) | (0.0047) | (0.0040) |
| Technology | 0.89 | 1.71* | 2.26*** | 2.07*** | 2.43*** | 1.90*** | 2.34*** | 2.27*** |
| | (0.094) | (0.46) | (0.49) | (0.41) | (0.44) | (0.36) | (0.29) | (0.43) |
| Size | 2.58* | 1.46 | 1.10 | 1.27 | 1.13 | 1.32 | 2.21* | 2.08 |
| | (1.03) | (0.40) | (0.23) | (0.34) | (0.32) | (0.34) | (0.73) | (0.80) |
| Size$^2$ | 0.92 | 0.97 | 1.00 | 0.97 | 1.00 | 0.98 | 0.92 | 0.90* |
| | (0.041) | (0.033) | (0.027) | (0.028) | (0.035) | (0.030) | (0.037) | (0.045) |
| Large | 0.93 | 0.90 | 0.91 | 1.20 | 0.87 | 1.15 | 0.96 | 1.44 |
| | (0.25) | (0.32) | (0.20) | (0.30) | (0.19) | (0.29) | (0.25) | (0.41) |
| Firm subsidy | 1.61* | 0.91 | 1.36 | 0.97 | 1.22 | 0.91 | 0.93 | 0.84 |
| | (0.37) | (0.26) | (0.29) | (0.17) | (0.18) | (0.15) | (0.18) | (0.14) |
| State trade | 2.53*** | 2.34*** | 1.10 | 1.19 | 1.34** | 1.22 | 1.30* | 1.31 |
| | (0.34) | (0.31) | (0.23) | (0.18) | (0.15) | (0.23) | (0.16) | (0.26) |
| New GM | 1.68* | 1.19 | 0.86 | 0.90 | 0.98 | 0.92 | 0.93 | 0.93 |
| | (0.34) | (0.18) | (0.11) | (0.20) | (0.14) | (0.12) | (0.096) | (0.16) |
| Dom. monopoly | 0.80 | 0.74 | 0.69 | 0.93 | 0.70 | 0.89 | 0.85 | 0.93 |
| | (0.20) | (0.13) | (0.19) | (0.21) | (0.17) | (0.18) | (0.17) | (0.16) |
| Observations | 1823 | 1684 | 1834 | 1664 | 1836 | 1680 | 1836 | 1653 |

*Note:* Exponentiated coefficients; standard errors in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

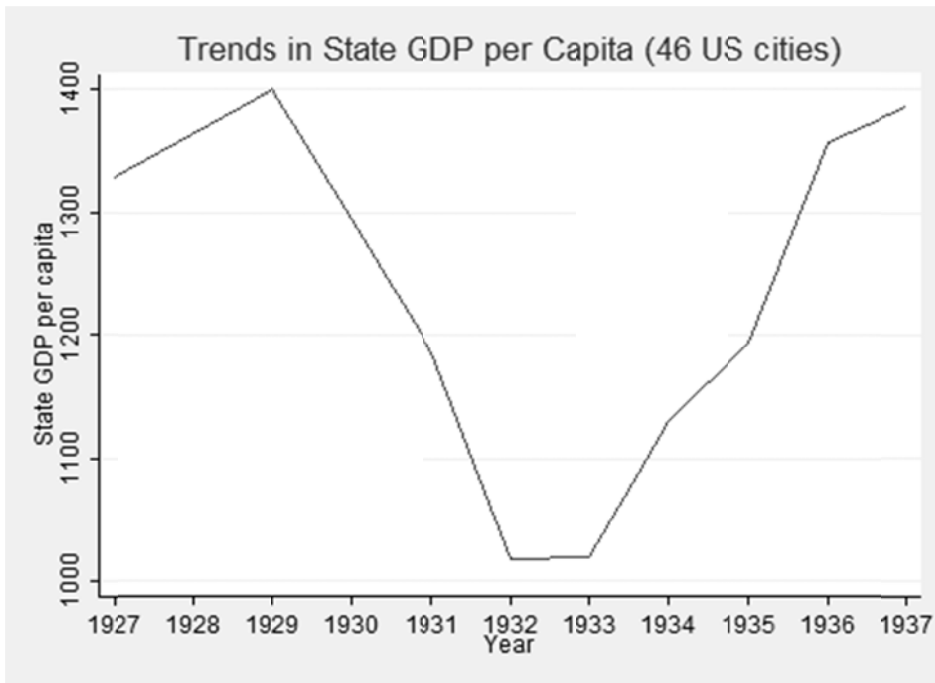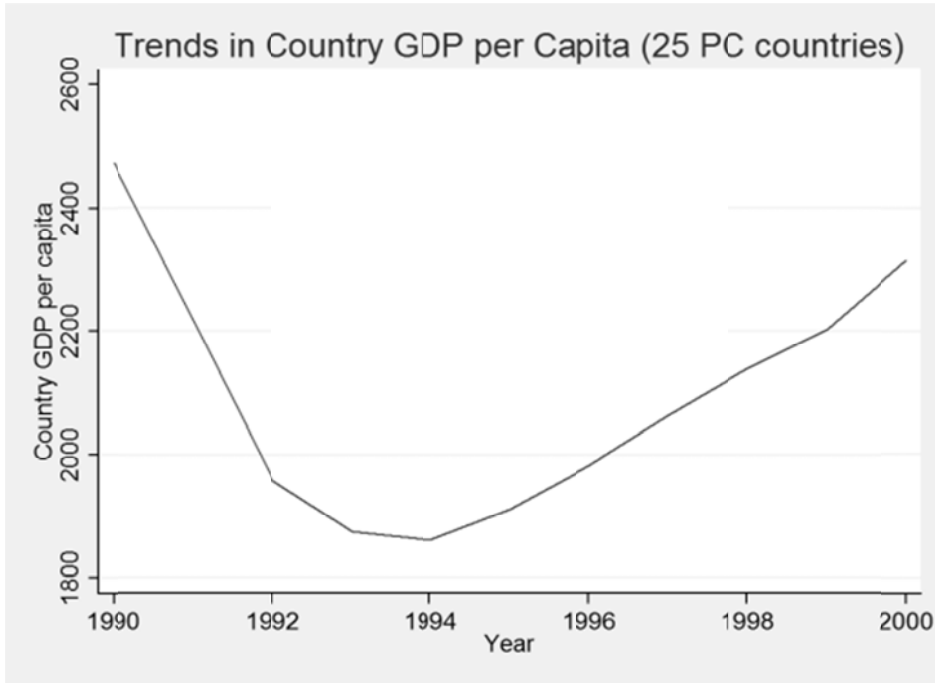TABLE 5 (CONTINUED)
FIRM-LEVEL LOGISTIC REGRESSIONS RESULTS

| | Overdue taxes | | Prod. development | | Prod. upgrade | |
|---|---|---|---|---|---|---|
| | (30) | (31) | (32) | (33) | (34) | (35) |
| | MP | Non-MP | MP | Non-MP | MP | Non-MP |
| Privatization | 1.56** | 1.39** | 0.64** | 0.93 | 0.74* | 0.86 |
| | (0.22) | (0.17) | (0.087) | (0.20) | (0.100) | (0.11) |
| FDI | 0.47* | 1.70 | 1.14 | 1.42 | 1.16 | 0.87 |
| | (0.15) | (0.61) | (0.32) | (0.49) | (0.31) | (0.31) |
| Agriculture | 3.13** | 0.91 | 2.44 | 2.28* | 0.93 | 0.71 |
| | (1.17) | (0.28) | (1.16) | (0.88) | (0.29) | (0.26) |
| Manufacturing | 1.41 | 1.29 | 4.75*** | 2.49** | 4.07*** | 2.35*** |
| | (0.31) | (0.44) | (1.78) | (0.74) | (1.12) | (0.57) |
| Mining | 2.93 | 3.18 | 2.42 | 0.95 | 1.67 | 0.41 |
| | (3.08) | (2.87) | (1.74) | (0.90) | (0.87) | (0.39) |
| Construction | 1.43 | 1.67 | 1.80 | 1.07 | 1.24 | 0.98 |
| | (0.37) | (0.54) | (0.85) | (0.41) | (0.36) | (0.29) |
| Trade | 1.27 | 1.32 | 3.04* | 1.37 | 1.21 | 0.80 |
| | (0.29) | (0.33) | (1.45) | (0.36) | (0.38) | (0.21) |
| Retail | 1.60 | 0.67 | 2.01 | 1.14 | 1.33 | 1.12 |
| | (0.50) | (0.22) | (0.84) | (0.28) | (0.43) | (0.28) |
| Finance | 0.40 | 0.93 | 2.14 | 1.94 | 2.06 | 1.15 |
| | (0.43) | (0.34) | (0.95) | (1.00) | (0.88) | (0.66) |
| Power/Energy | 1.27 | 1.41 | 1.74 | 3.10 | 2.16 | 1.97 |
| | (1.16) | (1.58) | (0.82) | (2.23) | (1.39) | (2.37) |
| Other sector | 0.86 | 1.17 | 1.96 | 1.46 | 1.31 | 1.21 |
| | (0.19) | (0.49) | (0.92) | (0.30) | (0.38) | (0.20) |
| Firm age | 1.00 | 1.01* | 0.99* | 1.00 | 1.00 | 1.00 |
| | (0.0039) | (0.0039) | (0.0043) | (0.0037) | (0.0027) | (0.0036) |
| Technology | 0.82 | 0.70 | 1.68*** | 1.57* | 2.11*** | 1.86*** |
| | (0.086) | (0.18) | (0.26) | (0.31) | (0.32) | (0.30) |
| Size | 1.00 | 1.81* | 1.03 | 0.90 | 1.51 | 0.76 |
| | (0.33) | (0.46) | (0.29) | (0.17) | (0.45) | (0.27) |
| Size$^2$ | 1.05 | 0.92* | 1.01 | 1.03 | 0.96 | 1.06 |
| | (0.052) | (0.031) | (0.037) | (0.026) | (0.038) | (0.042) |
| Large | 0.43 | 1.45 | 1.01 | 0.73 | 1.50 | 0.52*** |
| | (0.22) | (0.47) | (0.31) | (0.23) | (0.54) | (0.095) |
| Firm subsidy | 1.17 | 1.85** | 1.21 | 1.04 | 1.36 | 0.86 |
| | (0.35) | (0.36) | (0.35) | (0.25) | (0.44) | (0.14) |
| State trade | 1.33* | 0.86 | 1.28 | 1.33 | 1.04 | 1.27 |
| | (0.18) | (0.17) | (0.17) | (0.23) | (0.14) | (0.25) |
| New GM | 1.45 | 1.38* | 1.23 | 0.77 | 0.77 | 0.87 |
| | (0.41) | (0.22) | (0.16) | (0.13) | (0.15) | (0.083) |
| Dom. monopoly | 1.08 | 1.30 | 0.58** | 0.94 | 0.68 | 0.73 |
| | (0.19) | (0.36) | (0.098) | (0.18) | (0.17) | (0.13) |
| Observations | 1804 | 1672 | 1839 | 1711 | 1839 | 1711 |

*Note:* Exponentiated coefficients; standard errors in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

ONLINE SUPPLEMENT A: COMPARING THE MAGNITUDE OF THE GREAT DEPRESSION AND THE POST-COMMUNIST RECESSION

There were eight different ways in which this privatization was actually accomplished. All countries employed a combination of these methods.

(1) VOUCHERS OR COUPONS. These were programs that offered adult citizens "vouchers" or "coupons", which could then be used to purchase enterprises during privatization auctions. Their face value was much greater than their cost to the public. This was the dominant method of privatization in Russia and constitutes the subject of this empirical analysis.

(2) COMPETITIVE AUCTIONS. These typically occurred after a period of active restructuring. Some form of foreign ownership was often a natural outcome of this method (since they would be expected to win a large percentage of fair auctions because of their capital and experience). This was the modal form employed in Hungary and Poland (see King and Sznajder 2006).

(3) NON-COMPETITIVE AUCTIONS. In many instances, politically connected businessmen were able to privatize enterprises via rigged auctions. In such cases, the price paid for the enterprise was incredibly low. This was the modal form of Russia's raw materials sector in the now infamous "Loans for Shares" program in which the crown-jewels of the Russian economy, its oil and metals firms, were privatized by oligarchs in exchange for media and political support for Boris Yeltsin's 1996 re-election bid (see King and Treskow 2006 for details).

(4) MANAGEMENT AND EMPLOYEE BUYOUTS (MEBO). Perhaps the most common form of privatization, management and employee buyouts were accomplished in a variety of ways, but almost always involved substantial discounts to enterprise insiders. In most cases, management or some outside owners would centralize the shares of the workers by slowly buying them up. Sometimes they would use lease-to-own arrangements, in which managers and employees would lease the enterprise from the state until they paid an amount that made them its owners.

(5) EMPLOYEE-SHARE OWNERSHIP PROGRAMS (ESOP). These are employee shared ownership schemes in which the employees gain ownership of the firm. Unlike ordinary management and employee buyouts, however, there is a legal devise that centralizes the ownership and voting of the workers. This is crucial, since it guarantees actual worker control. These were very rare throughout the post-communist world, and were largely prohibited in Russia.

(6) FOREIGN INVESTMENT. Foreign investment can take the form of portfolio purchases, whereby a company is listed on a foreign stock exchange as an initial public offering (IPO). Most foreign investment in post-socialist countries took the form of *direct* investment (FDI), where a foreign firm purchased and controlled a company. It was typically the outcome of "fair" auctions, but was also accomplished in other ways. There could be a formal or informal preference for FDI (such as in Estonia, where FDI was sought as a hedge against Russian domination). In some cases, FDI operated via closed tenders, where the process is non-transparent and negotiated directly between the government and foreign buyers. FDI was the dominant privatization method in Hungary

and CEE more generally. FDI can also take the form of joint ventures with state owned enterprises (as is common in China).

(7) CROSS-OWNERSHIP. Here, firms are allowed to purchase the shares of other firms, which in turn purchase the shares of their new owners. The result is a system of cross-institutional ownership where a group of firms own themselves. This in practice means the upper management of these firms controls them through outside owners. This was observed in the Czech Republic (King 2001a, 2001b).

(8) RESTITUTION. In some cases the legal title of some enterprises that had been nationalized by the Communist regime was returned to their original family of ownership. Another variant was to give vouchers to compensate for nationalized property that could be used to purchase other stocks. Overall, restitution vouchers accounted only for a small percentage of state assets included in privatization (King 2007).

(9) GREENFIELD PRIVATIZATION. This strategy consists of delaying privatization while creating the conditions for greenfield investment and preparing the exit of inefficient firms. In essence, it allows a private economy to emerge in the presence of an increasingly marketized state sector, until the country "grows out of the plan". This is the dominant method in China.

| Country | Mass privatization scheme | Coding |
|---|---|---|
| Albania | Never implemented | No |
| Armenia | 75% medium and large enterprises | Yes |
| Azerbaijan | Less than 10% of firms by assets | No |
| Belarus | Never implemented | No |
| Bulgaria | Never implemented | No |
| Croatia | Very small program (225,000 people) in residual state holdings in 15% of enterprises | No |
| Czech Republic | 33% of assets of all firms | Yes |
| Estonia | Never implemented | No |
| Georgia | 50% of medium and large enterprises | Yes |
| Hungary | Never implemented | No |
| Kazakhstan | 60% of large enterprises | Yes |
| Kyrgyz Rep | 50% of medium and large enterprises | Yes |
| Latvia | About 40% of large or medium enterprises | Yes |
| Lithuania | About 45% of all enterprise assets | Yes |
| Macedonia | Never implemented | No |
| Moldova | 40-50% of assets | Yes |
| Poland | About 10% of assets | No |
| Romania | About 38% of medium and large enterprises | Yes |
| Russia | More than 80% of the industrial workforce | Yes |
| Slovakia | About 10-15% (all while part of Czechoslovakia) | No |
| Slovenia | Never implemented | No |
| Tajikistan | Never implemented | No |
| Turkmenistan | Never implemented | No |
| Ukraine | About 44% of medium and large enterprises | Yes |
| Uzbekistan | Never implemented | No |

*Source*: Country descriptions, all years of *Transition Report* (EBRD 1994-2005).
*Note*: Mass privatization = privatization by vouchers alone or in combination with management and employee buyouts (see Online Supplement B for descriptions).

*Cross-National*

We first tested the effects of mass privatization on a series of state capacity indicators at the country level using cross-sectional survey data. Our basic model is as follows:

STATECAP $_i$ = α + $β_1$PRIV$_i$ + $β_2$LIB$_i$ + $β_3$DEM $_i$ + $β_4$OIL$_i$ + $β_5$WAR $_i$ + $β_6$URBAN$_i$ +

$β_7$HIGHED$_i$ + $β_8$FSU$_i$ + $β_9$INITGDP$_i$ + $ε_i$

STATECAP refers to our subjective state capacity indicators; PRIV is our measure of privatization; LIB is the EBRD index of price liberalization; DEM is the Freedom House index of democratization; OIL is the dummy for the presence of oil; URBAN is the rate of urbanization; HIGHED is the tertiary education enrollment rate; WAR is a dummy for the occurrence of military or ethnic conflict; INITGDP is the level of GDP at the start of transition; and ε is the error term.

Our basic models for the time-series analysis are as follows:

(1) GOVSPEND1990 $_{i,t}$ = α + $β_1$PRIV$_{i,t}$ + $β_2$LIB$_{i,t}$ + $β_3$DEM$_{i,t}$ + $β_4$OIL$_{i,t}$ + $β_5$WAR$_{i,t}$ + $β_6$URBAN$_{i,t}$ + $β_7$HIGHED$_{i,t}$ + $β_8$INITGDP$_{i,t}$ + $ε_{i,t}$

(2) GDP1990$_{i,t}$ = α + $β_1$PRIV$_{i,t}$ + $β_2$LIB$_{i,t}$ + $β_3$DEM$_{i,t}$ + $β_4$OIL$_{i,t}$ + $β_5$WAR$_{i,t}$ + $β_6$URBAN$_{i,t}$ + $β_7$HIGHED$_{i,t}$ + $β_8$INITGDP$_{i,t}$ + $ε_{i,t}$

Here, *i* refers to country and *t* refers to year. GDP1990 [GOVSPEND1990] is the current year's GDP in constant 2000 US dollars [government spending in constant 2000 dollars], expressed as a percentage of the 1990 level of GDP per capita [the 1992 level of government spending]; PRIV is our measure of privatization; LIB is the EBRD index of price liberalization; DEM is the Freedom House index of democratization; OIL is the dummy for the present of oil; URBAN is the rate of urbanization; HIGHED is the tertiary education enrollment rate; WAR is a dummy for

the occurrence of military or ethnic conflict; INITGDP is the level of GDP at the start of

transition; and $\varepsilon$ is the error term. Models were estimated using random effects, as Hausman-

Taylor tests indicated that unobserved country-fixed effects added no significant explanatory

power (or affected coefficient estimates) after taking the main factors of the model into account.

Our approach uses a weighted average of variation within countries (assessing outcomes before

and after the effects of mass privatization), and between countries (evaluating longer-term

divergences between post-communist countries during the transition). Standard errors were

clustered by country to reflect non-independence of sampling, and to make statistical inferences

unbiased to serial correlation in the data.


*Firm-Level*

We employ the following basic model:

Firm Performance $_i = \alpha + \beta_1 PRIV_i + \beta_2 FDI_i + \beta_{3\text{-}20} [\text{controls}]_i + \varepsilon_i$

PRIV is a dummy variable indicating if the firm ws established by privatization of a state-owned

firm. FDI is a dummy variable indicating full foreign ownership. Models are also adjusted for

two broad sets of controls: sector dummies (including agriculture, manufacturing, mining,

construction, trade, retail, transport, finance, power, and other sectors), and firm and market

characteristics (including firm age, access to technology, firm size, state trade, and presence of a

domestic monopoly). Table 2 further describes the explanatory and response variables used in

our model.

TABLE E1
EFFECT OF MASS PRIVATIZATION ON REAL GOVERNMENT SPENDING PER CAPITA, 1990-2000 (SPLIT SAMPLE)

| | FSU | | | non-FSU | | |
|---|---|---|---|---|---|---|
| | (10) | (11) | (12) | (13) | (14) | (15) |
| Mass privatization | -27.0** | -19.8*** | -22.8** | -14.4* | -0.58 | 4.09 |
| | (8.98) | (5.00) | (7.59) | (5.79) | (17.5) | (21.7) |
| Price liberalization | - | -11.1** | -3.07 | - | -9.63** | -6.38 |
| | | (3.91) | (5.25) | | (2.97) | (3.96) |
| Democratization | - | 6.95*** | 4.82** | - | -4.51 | -4.31 |
| | | (1.68) | (1.83) | | (3.93) | (4.99) |
| Oil | - | 1.90 | 126.9*** | - | n/a | n/a |
| | | (13.9) | (30.4) | | | |
| War | - | 31.2*** | 4.83 | - | -29.8 | -24.7 |
| | | (8.09) | (13.1) | | (20.3) | (20.6) |
| Urbanization | - | -0.074 | 11.6** | - | -0.65 | 3.30 |
| | | (0.83) | (4.37) | | (0.53) | (4.37) |
| Education | - | 1.70*** | 1.91** | - | 1.13* | 1.12 |
| | | (0.44) | (0.65) | | (0.45) | (1.17) |
| Initial GDP per capita | - | 0.0010 | -0.53** | - | 0.0061 | -1.30 |
| | | (0.0086) | (0.18) | | (0.0041) | (1.59) |
| Country-year trends | No | No | Yes | No | No | Yes |
| Nation-years | 147 | 147 | 147 | 95 | 95 | 95 |
| Nations | 15 | 15 | 15 | 9 | 9 | 9 |
| $R^2$ | 0.004 | 0.472 | 0.779 | 0.047 | 0.369 | 0.607 |

*Note:* Robust standard errors in parentheses are clustered by country to reflect non-independence of sampling; random effects models presented, controls for country-specific fixed effects do not change the coefficient on mass privatization (Hausman-Taylor $\chi^2(1) = 1.18$, p=0.28). Real government spending per capita is expressed as a percentage of 1992 government spending.
* p<0.05, ** p<0.01, *** p<0.001

TABLE E2

EFFECT OF MASS PRIVATIZATION ON REAL GDP PER CAPITA, 1990-2000 (SPLIT SAMPLE)

| | FSU | | | non-FSU | | |
|---|---|---|---|---|---|---|
| | (16) | (17) | (18) | (19) | (20) | (21) |
| Mass privatization | -15.7*** | -11.4** | -13.1** | 1.63 | -0.24 | 2.36 |
| | (4.13) | (3.99) | (4.56) | (0.89) | (3.84) | (6.22) |
| Price liberalization | - | -10.2*** | -8.49*** | - | 3.17 | 2.01 |
| | | (1.33) | (2.33) | | (3.74) | (1.84) |
| Democratization | - | -1.12 | -0.16 | - | 2.80 | 3.25 |
| | | (0.93) | (0.90) | | (1.98) | (1.76) |
| Oil | - | 5.48 | 45.5* | - | n/a | n/a |
| | | (6.86) | (22.1) | | | |
| War | - | -8.46 | -20.2** | - | -2.38 | 1.00 |
| | | (5.54) | (6.69) | | (5.94) | (5.38) |
| Urbanization | - | 0.18 | 5.45* | - | 0.31 | 3.58 |
| | | (0.35) | (2.78) | | (0.37) | (2.89) |
| Education | - | 1.11*** | 1.15*** | - | 1.03*** | 1.24** |
| | | (0.17) | (0.34) | | (0.30) | (0.48) |
| Initial GDP per capita | - | -0.0034 | -0.25* | - | 0.00025 | -0.067 |
| | | (0.0034) | (0.11) | | (0.0018) | (0.68) |
| Country-year trends | No | No | Yes | No | No | Yes |
| Nation-years | 150 | 150 | 150 | 103 | 103 | 103 |
| Nations | 15 | 15 | 15 | 10 | 10 | 10 |
| $R^2$ | 0.081 | 0.426 | 0.735 | <0.001 | 0.189 | 0.777 |

*Note:* Robust standard errors in parentheses clustered by country to reflect non-independence of sampling; random effects models presented, controls for country-specific fixed effects do not change the coefficient on mass privatization (Hausman-Taylor $\chi^2(1) = 1.18$, p=0.28). Real GDP per capita is expressed as a percentage of 1990 GDP.
* p<0.05, ** p<0.01, *** p<0.001

ONLINE SUPPLEMENT F: REPLICATION USING EBRD AVERAGE PRIVATIZATION INDEX

As a robustness check to our basic findings, we also evaluated the effects of the EBRD's subjective indices on progress in privatization drawn from the EBRD *Transition Indicator* database. These EBRD indicators range from 1 (planned) to 4.3 (advanced market). Because their small- and large-scale indices are so highly correlated ($r > 0.97$ in most countries) as to be statistically indistinguishable, following Godoy and Stiglitz (2006) we used an average of these indices to reduce measurement errors.

TABLE F1
EFFECT OF MASS PRIVATIZATION ON REAL GDP PER CAPITA, 1990-2000

| | FSU | | | non-FSU | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| EBRD average privatization index | -7.91** | -4.88 | -6.82* | 4.89 | -3.91 | -5.14 |
| | (2.33) | (2.50) | (2.48) | (2.52) | (2.78) | (3.34) |
| Price liberalization | - | -9.39*** | -11.0*** | - | 1.41 | -0.46 |
| | | (1.52) | (2.01) | | (1.62) | (1.57) |
| Democratization | - | 1.68 | 2.51* | - | 2.67 | 3.08 |
| | | (1.21) | (1.07) | | (1.37) | (1.83) |
| War | - | -5.90 | 4.70 | - | 1.39 | -5.02 |
| | | (8.03) | (7.51) | | (2.58) | (2.22) |
| Urbanization | - | -0.24 | -0.12 | - | 4.21 | -0.14 |
| | | (1.86) | (2.25) | | (1.96) | (5.57) |
| Education | - | 1.11*** | 1.11** | - | 1.30** | 0.36 |
| | | (0.19) | (0.30) | | (0.28) | (0.59) |
| Country-year trends | No | No | Yes | No | No | Yes |
| Nation-years | 150 | 150 | 150 | 103 | 103 | 103 |
| Nations | 15 | 15 | 15 | 10 | 10 | 10 |
| $R^2$-within | 0.254 | 0.582 | 0.751 | 0.130 | 0.611 | 0.805 |

*Note:* Robust standard errors in parentheses clustered by country to reflect non-independence of sampling; fixed effects models presented, as unobserved country fixed effects cannot be assumed to be exogenous to the mass privatization-growth relationship (Hausman-Taylor $\chi^2(1) = 46.89$, $p<0.0001$). These fixed effects correct for the effects of oil and initial GDP. Real GDP per capita is expressed as a percentage of 1990 GDP.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

The following studies of the ten post-socialist countries which implemented mass privatization programs consistently suggest that privatization policy was driven by political motives of various kinds (including ethnic, fiscal, anti-Russian, and interest group politics). A separate, detailed discussion of the Russian case is provided below; for illustrative purposes, we also include a short overview of China's alternative path to property reform.

Armenia: Arakelyan (2005: 195-288); Roth-Alecandro (1997)
Czech Republic: Schwartz (2006: 85-156); Desai and Plockovà (1997)
Georgia: Bell (1997); Silagadze and Beridze (1996: 354-356)
Kazakhstan: Olcott 2010: (136-143); Haghayeghi (1997: 321-328); Lorch and Karlova (1997)
Kyrgyzstan: Abazov (1999: 207-210); Fine (1997); Jermakowicz and Pańków (1995)
Latvia: Mygind (1999)
Lithuania: Morkunaite (1999); Lee (1997); Samonis (1995)
Moldova: Gutsu (1996); Stolojan (1997)
Romania: Shen (1997: 121-138); Earle and Telegdy (1998); Tardy (1997)
Ukraine: Åslund (2009: 78-83); Drum (1997)

*Privatization in the Russian Federation*

Privatization in Russia was the political project of an alliance of domestic elites and foreign policy advisors. In July 1991, the government issued preliminary privatization laws, and then charged the State Committee for Management of State Property (GKI) under the chairmanship of Anatoli Chubais with developing a national privatization strategy (Shleifer and Treisman 2001: 22-23). The GKI was advised by a team of Western economists and received considerable financial support from international donors such as USAID (Cohen 2001; Wedel 2001). The voucher privatization program developed by the GKI and advanced by the Yeltsin government encountered significant political resistance, however; the debate initially focused on whether privatization should proceed at all, and subsequently on the form the privatization program would take (Barnes 2006: 70-75).

The mass privatization program ultimately adopted by the Russian parliament was the outcome of a political compromise, in which the reformers allied themselves with the firm managers, while simultaneously mobilizing popular support for the voucher program (Barnes 2006: 74-75). Mass privatization was thus a purposeful project of the Russian authorities. This point is further supported by Reddaway and Glinski (2001) who highlight that "counterfactual opportunities" (5) remained available in the form of alternative privatization models proposed by the domestic political opposition. In the fall of 1992, the Yeltsin government's future course of action was contingent on its "choice of allies in society at large and coalition partners" (13), and it opted for the "commercialized nomenklatura" and its "sympathizers in the West" (13).

The *economic* objective of mass privatization was neither the practical implementation of neoliberal ideology (i.e. the creation of private owners who rationally maximize their self-interest), nor a mere populist measure to produce a "millions of owners rather than a handful of millionaires" by distributing company shares to all citizens. Rather, in the words of Anatoli Chubais:

A number of people would be unsatisfied with the outcome, but the fundamental problem was, will [privatization] happen or not? From an economic point of view, voucher privatization – the voucher itself was not the best way to achieve privatization. More to the point, it was clear that the voucher was a substitute for money, and if you issue a voucher, you will not get money from privatization by selling state properties, but that was the price. It was the only way to make it doable. ... *No one said that the goal of voucher privatization was to restructure private property, to restructure companies, to attract investments, to speed up economic growth, or to increase the standard of living because it was clear that the process would require several stages. Voucher privatization was just asset distribution, leading to the next stage of property concentration, resulting in new investments, finally leading to enterprise restructuring. There are at least four or five stages* (quoted in Desai [2006: 89]; our emphasis).

The central *political* objective of mass privatization was to make the reform process and the distribution of assets to private owners irreversible, and thereby quell ongoing resistance from anti-reform political factions, especially in the Congress of People's Deputies, which was dominated by the communists in late 1992 when mass privatization was launched (Barnes 2006; Desai 2006; Lieberman, Nestor, and Desai 1997; Boycko, Shleifer and Vishny 1995). Chubais, the main architect of the program, confirmed this assessment in an interview in 1999:

INTERVIEWER: You emerged as a reformer explicitly in 1992 with your privatization program, voucher privatization in particular, and I believe that this move was motivated by ideological considerations. You wanted Russian industry removed from state ownership and control, converting industrial units into joint stock companies with diversified ownership. Would you agree with that view?

CHUBAIS: Absolutely.
(Desai 2006: 88)

*Privatization in the People's Republic of China*

China, as Naughton (1994) points out, represents the unusual case of an economy "that has made a transition to a primarily market economy, but in which publicly owned enterprises still produce the bulk of manufacturing output" (266). Indeed, by 1995, the state-owned sector (excluding collectively-owned firms) still accounted for 34% of China's gross industrial output, down from 78% in 1978 (NBS 1996, Table 12-3). During the same period, the contribution of *de novo* private firms and of rural collective enterprises grew from virtually zero to nearly 50%.

Plans for a systematic privatization of the state enterprises were first considered in 1994, when a reform and restructuring program under the slogan of "grasping the large and letting go the small" (*zhuada fangxiao*) was announced by the Chinese government (Cao, Qian, and Weingast 1999). By 1996, most small state and collective enterprises had been given up by contracting them out, by leasing or selling them, and, increasingly, by letting them go bankrupt (CASS 1996: 18-19). Privatization of large firms proceeded at a more gradual pace, as reformers emphasized the construction of globally competitive firms over the privatization of individual plants (or even segments thereof). Instead of outright divestment, the Chinese government pursued a strategy of ownership diversification by restructuring state enterprises as joint-stock companies with a corporate shareholding structure. During this process, only a tiny fraction of large state firms were actually transferred into the hands of private individuals, while the bulk of large firm ownership has gradually spread among a variety of public institutions (Nolan and

Wang 1999, 190-191). By now, some state enterprises have even carried out limited initial public offerings on domestic and global stock exchanges.

Necessitated by the restructuring of the state-owned sector and the growth of the private sector economy, a variety of new ownership categories were introduced to the Chinese statistical reporting system in 1998 (shareholding enterprises, joint-stock corporations, private businesses, etc.). Many enterprises that had been previously labeled state-owned were re-classified under the new system, thus impeding the comparability of subsequent statistics. The OECD estimated on the basis of government statistics that the total state sector share in the economy (including firms owned through state-holding companies and other forms of indirect ownership) was 29.7% in 2006 (OECD 2009: 6). Thus, even today, China differs significantly from the successor economies of the FSU, where state ownership typically occurs only in sectors that represent national security interests (e.g. energy, defense).

TABLE H1
INITIAL CONDITIONS AND MASS PRIVATIZATION

|  | Mass privatization |
|---|---|
| Transparency | $0.28^*$ |
|  | (0.12) |
| Rule of law | -0.045 |
|  | (0.058) |
| Quality of bureaucracy | -0.23 |
|  | (0.19) |
| Civil society | 0.019 |
|  | (0.096) |
| Defense spending | 0.054 |
|  | (0.037) |
| Industrial distortion | -0.026 |
|  | (0.028) |
| Trade distortion | -0.0097 |
|  | (0.016) |
| Black market | 0.0076 |
|  | (0.0087) |
| Years of central planning | -0.037 |
|  | (0.028) |
| Oil | 0.26 |
|  | (0.49) |
| FSU | 0.57 |
|  | (1.00) |
| Constant | - |
| Observations | 22 |

*Note:* The first four institutional indices measure transparency of policymaking and accountability of the executive, quality of law enforcement, quality of the local bureaucracy, civil liberties, political rights and the influence of civic organizations based on Campos and Nugent (1999). See Godoy and Stiglitz (2006) for additional details. Black market exchange measures the difference between black market exchange rates and official exchange rates in 1990. Defense spending is defense expenditure as a percentage of GDP in the late 1980s. Industrial distortion is the sum of distortions in agriculture, industry and services sectors. Distortion was measured as the deviation from the share of GDP in these sectors versus the average share for market economies with comparable GDP per capita in purchasing-power-parity. Trade distortion is the distortion from expected trade/GDP in market economies minus the sum of external trade/GDP, external trade within FSU as a share of GDP and external trade with socialist countries as a share of GDP. Both trade and industry distortion measures were calculated by Popov (2000) for 1990.
$^*p < 0.05,$ $^{**}p < 0.01,$ $^{***}p < 0.001$

TABLE H2

DETERMINANTS OF MASS PRIVATIZATION

| | Probability of implementing mass privatization |
|---|---|
| EBRD price liberalization index | 3.11*** |
| | (0.61) |
| Democratization index | 1.40*** |
| | (0.096) |
| Presence of oil | 2.31* |
| | (0.79) |
| Military conflict | 0.29 |
| | (0.22) |
| Urbanization | 1.04*** |
| | (0.013) |
| Tertiary education rates | 0.92*** |
| | (0.018) |
| Member of the Former Soviet Union | 4.75*** |
| | (1.47) |
| Ethno-linguistic fractionalization | 21.9*** |
| | (17.1) |
| Lag of IMF Credit (log) | 1.04** |
| | (0.015) |
| Initial GDP per capita | 1.00 |
| | (0.00011) |
| Nation-years | 253 |
| Pseudo-$R^2$ | 0.48 |

*Note:* Exponentiated coefficients; standard errors in parentheses; data on ethno-linguistic fractionalization from Alesina and Spolaore (2003), and Alesina and La Ferrara (2005).
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE I1

ENDOGENEITY-ADJUSTED CROSS-NATIONAL ESTIMATES

| | GDP | Government spending |
|---|---|---|
| Mass privatization | -42.7$^{***}$ | -12.3 |
| | (4.21) | (9.63) |
| Hazard of mass privatization | 20.2$^{***}$ | -1.97 |
| | (2.69) | (5.43) |
| Nation-years | 253 | 242 |

*Note:* Bootstrapped standard errors in parentheses based on 50 replications.
$^{*}$ $p < 0.05$, $^{**}$ $p < 0.01$, $^{***}$ $p < 0.001$

ONLINE SUPPLEMENT J: FIRM-LEVEL ENDOGENEITY

TABLE J1

REPLICATION OF TABLE 5 (ADJUSTED FOR ENDOGENOUS FIRM SELECTION)

| | Barter | | Investment | | Sales | | Employment | |
|---|---|---|---|---|---|---|---|---|
| | MP | Non-MP | MP | Non-MP | MP | Non-MP | MP | Non-MP |
| Privatization | 2.41*** | 1.21 | 0.73 | 0.58** | 0.84 | 1.09 | 0.58** | 0.76 |
| | (0.45) | (0.27) | (0.13) | (0.10) | (0.16) | (0.26) | (0.10) | (0.17) |
| Hazard of | 0.64*** | 0.91 | 1.14 | 1.26* | 1.05 | 0.93 | 1.26* | 1.07 |
| privatization | (0.068) | (0.11) | (0.12) | (0.13) | (0.11) | (0.13) | (0.13) | (0.14) |
| Observations | 1823 | 1684 | 1834 | 1836 | 1836 | 1680 | 1836 | 1661 |

*Note:* Exponentiated coefficients; standard errors in parentheses. Treatment effects models estimated using a two-step modelling framework:
(1) Firm Performance $_i = \alpha + \beta_1 PRIV_i + \beta_2 FDI_i + \beta_{3\text{-}20}[\text{controls}]_i + \beta_{21}\sigma_i + \varepsilon_i$
(2) Firm Privatization$_o = \Phi(\alpha + \beta_1 PRIV_i + \beta_2 FDI_i + \beta_{3\text{-}20}[\text{controls}]_i + \varepsilon_i)$
Here the $\sigma$ is the inverse-mills ratio, the hazard of privatization, constructed from the first-stage probit model.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE J1 (CONTINUED)

| | Overdue Taxes | | Product Upgrade | | Product Development | |
|---|---|---|---|---|---|---|
| | MP | Non-MP | MP | Non-MP | MP | Non-MP |
| Privatization | 1.07 | 1.08 | 0.71* | 1.08 | 0.77 | 1.06 |
| | (0.19) | (0.22) | (0.13) | (0.24) | (0.13) | (0.22) |
| Hazard of privatization | 1.02 | 0.99 | 1.19 | 0.94 | 1.11 | 0.96 |
| | (0.11) | (0.12) | (0.12) | (0.12) | (0.11) | (0.12) |
| Observations | 1804 | 1672 | 1839 | 1711 | 1839 | 1711 |

*Note:* Exponentiated coefficients; standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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[1] Using a network analysis of citation patterns, Kogut and Spicer (2005) demonstrate how a small subset of contributions to the debate over transition policies, primarily by Harvard economists and staff members at the World Bank and IMF, served to shape and legitimate the neoliberal policy package.

[2] As two of the principal advisors described the program's differences from prior (Western) instances of privatization: "We are advocating the rapid conversion of state enterprises into corporate form and the distribution of tranches of shares to various groups in the population, including workers, commercial banks, pension funds, and mutual funds. This strategy differs substantially from the standard methods of privatisation that have been used in the West: the sale of shares in an initial public offering and private placements to investor groups. The free distribution of shares helps to sidestep the difficult, costly, and time-consuming process of enterprise valuation, as well as the scarcity of financial capital in private hands in Eastern Europe. More importantly, corporatization combined with the free distribution of shares can occur quickly. Rapid privatisation is needed to combat the inevitable social, political, and economic problems associated with the lack of corporate governance" (Lipton and Sachs 1990b: 333).

[3] McDermott (2002) is part of a small group of scholars who criticized mass privatization for its potential to obstruct governance. Ellerman (1998; 2003) was the first to provide a theoretical argument for expecting a governance disaster following mass privatization due to inevitable principal-agent problems. Spicer, McDermott, and Kogut (2000) reported supporting evidence from several sectoral case studies in Hungary, Czech Republic and Slovakia, while Kogut and Spicer (2002) provided extensive elite interview data from the Czech Republic and Russia, showing that mass privatization created governance patterns that inhibited investment due to uncertainty over asset ownership. King showed further case study evidence for the Czech Republic (2001b) and Russia (2003), linking firm failure to the diffused ownership structures resulting from mass privatization. Our own theory can be seen as an extension of this body of work, offering systematic quantitative support for the basic proposition, and extending the theory to emphasize the fiscal effects of mass privatization.

[4] For a country to be coded as having implemented a mass privatization program, the government had to have formally declared such a program. In some countries, there were announcements but the actual program was never implemented, or not implemented among large enterprises (e.g. in the case of Polish mass privatization [see King and Sznajder 2006]). In practice, all mass privatization programs that were implemented combined vouchers with different management and employee ownership programs (see King 2001a, 2001b, 2002, 2003; Hanley, King, and Toth 2002; King and Sznajder 2006).

[5] In fact, existing scholarship indicates that state capacity was generally much higher prior to the transition to capitalism. As Ganev (2007) points out, "a consensus has coalesced around the viewpoint that the transformative processes ... precipitated a rapid and radical weakening of state structures" (1). Popov (2004) summarizes the available statistical evidence for Russia, demonstrating that state capacity collapsed during the transition. While there had been some

variation in state capacity during the late socialist period, we do not believe that it can account for the sharp divergence in subsequent performance. To the extent that variation existed, we expect to capture it in our statistical analysis controlling for initial GDP and level of education.

[6] For country-specific evidence suggesting that firm selection for mass privatization was largely sector-based, please refer to Arakelyan (2005) for Armenia, Shafik (1995) for the Czech Republic, Bell (1997) for Georgia, Zhandossov (2011) for Kazakhstan, Jermakowicz and Pańków (1995) for Kyrgyzstan, Mygind (1999) for Latvia, Terterov and Reuvid (2005) for Lithuania, Gutsu (1996) for Moldova, Shen (1997) for Romania, and Pivovarsky (2001) for Ukraine.

[7] This relationship is best investigated by calculating the "Keynesian multiplier" (i.e. the additional growth associated with $1 of government spending). Government spending is considered a stimulus when $1 of additional government spending is associated with >$1 of economic growth. When evaluating this relationship cross-nationally using our fixed-effects model, the coefficient describing this relationship is 1.55, indicating that each $1 of government spending is associated with a $1.55 increase in overall growth. Stated alternatively, after subtracting government spending from GDP, each $1 of government spending is associated with a $0.55 increase in investment, consumption and/or net exports.