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# **The Governance Grenade: Mass Privatization, State Capacity and Economic Growth in Post-communist Countries <sup>1</sup>**

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## **The Governance Grenade: Mass Privatization, State Capacity and Economic Growth in Postcommunist Countries**

Why did the transitions from state socialism to capitalism result in improved growth in some countries but significant economic declines in others? Three main arguments have been advanced: (1) the most successful countries rapidly implemented privatization, liberalization, and stabilization policies; (2) failures were unrelated to economic policies but occurred because of a poor institutional environment; and (3) the policies were counterproductive because they damaged the state. We present a state-centered theory which argues that the more radical the privatization program, the worse the subsequent performance. We agree with the second account, that institutions matter, but demonstrate that it was radical privatization itself which was a major determinant of institutional weakness. In addition, our account holds that privatization was in fact a crucial determinant of institutional failure, operating primarily through the creation of a massive shock to state revenues. We perform cross-national regressions for a sample of 30 countries between 1990 and 2000, and find that mass privatization programs negatively impacted economic growth, state capacity and property rights protection. These findings are corroborated with data from a random sample of 4,000 firms from 26 postcommunist countries. We show that in countries which implemented sizable mass-privatized programs, privatized firms were substantially less likely to engage in successful industrial restructuring but considerably more likely to engage in barter and have tax arrears than their state owned counterparts.

Between 1989 and 1991, the Soviet empire disintegrated. Western-trained neoliberal economists provided the postcommunist policy elites with a blueprint for constructing capitalism amidst the ruins of communism. These economists developed the so-called “shock therapy” policy package, consisting of rapid and extensive privatization of state-owned enterprise, liberalization of prices and trade, and adoption of fiscal austerity programs (Greskovits 1998; Murrell 1996; Sachs 1994; UNDP 1999). Although sociologists criticized these policies on a series of grounds (e.g. Stark 1992; Burawoy and Krotov 1992), there was widespread consensus among economists that rapid reforms were indeed needed. 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 (FSU). The legions of economists who have descended on the formerly Communist economists have provided advice ... [that] the three “ations” – privatization, stabilization, and liberalization –

must all be completed as soon as possible” (1994: 252-253).<sup>2</sup> By the mid-1990s, most postcommunist countries had implemented some version of the shock therapy package, although there was considerable variation in the implementation of privatization policies.

Despite the initial optimism surrounding these reforms, economic performance has been devastating in most postcommunist countries, as is evident from Figure 1. Between 1990 and 1996, per capita income in Russia, as well as many other countries of the former Soviet Union (FSU), fell by over 30% (Rosefielde 2001) – slightly less than the decline the United States experienced during the Great Depression (see Appendix A for a graphical comparison). Yet, not all FSU countries fared as poorly. Estonia’s economy, for instance, after recording 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. Central and Eastern European countries (CEE), including Poland, Hungary, Czech Republic, Slovakia, and Slovenia, experienced the lowest declines in per capita incomes, bottoming out at roughly 10% in 1992. By 1994, the CEE 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). What accounts for these substantial differences in economic performance? Before discussing the various explanations of this variation, we must review the initial theories of transition.

**[Insert Figure 1 here]**

#### THEORIES OF ECONOMIC TRANSITION

Neoliberal recommendations for transition were, above all else, grounded in the Smithian 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’s involvement in the

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<sup>2</sup> Indeed, as Kogut and Spicer (2005) show, a small subset of the debate contributions, mainly by economists at Harvard and the staff of the World Bank and IMF, were used to legitimate the neoliberal policy package (see also Wedel’s [2002] seminal account).

economy. Neoliberal policy advisors argued that rapid liberalization of prices alongside privatization of ownership and macroeconomic stabilization (the “shock therapy” package) would set free economic restructuring in the postcommunist world, leading to growth and convergence with the West (Sachs 1994: 25). The European Bank for Reconstruction and Development’s (EBRD) 1999 *Transition Report* succinctly sums up the consensus of foreign advisors and postcommunist policy 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 [sic] both internal and external incentives to restructure” (1999: 167).

Economically, neoliberal reforms would combine the advantage of “true prices” with “a fully private incentive structure,” thus promoting enterprise restructuring (EBRD 1999: 167; see also Sachs 1992a, 1996; Frydman, Gray and Rapaczynski 1996; Kosolowski 1992; Lipton and Sachs 1990a; Fischer and Gelb 1991; Blanchard et al. 1993: 10-11; Carlin, van Reenen, and Wolfe 1994: 72). Politically, these policies would destroy the strongest potential anti-reform coalition. Neoliberals expected that unless firms were privatized during the brief window of opportunity afforded by the period of “extraordinary politics” following the collapse of communism, managers and workers of state-owned enterprises would seek to halt, or even roll back, privatization and liberalization efforts in order to prevent lay-offs and other unpopular consequences of restructuring (Lipton and Sachs 1990b: 298; see also Frydman, Rapaczynski, and Turkowitz 1997: 84; Blanchard et al. 1991: xiv). As Sachs noted, “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).

The need for rapid privatization posed considerable practical challenges. While economists and policymakers have long understood how to stabilize and liberalize economies (i.e. 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 impossible at any rate. Competitive auctions were ruled out as a solution. As three senior World Bank bureaucrats involved in the implementation of mass privatization put it, “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 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, Kessides and Gobbo 2008).

The policy solution to this challenge was called “mass privatization”. Rejecting the British-style case-by-case method of privatization, mass privatization would give shares to firm insiders and citizens for nominal sums (or in many cases free of charge), legitimating the transition by giving all parties a stake in privatization while irreversibly shifting the economy toward private ownership (thus, creating a kind of “people’s capitalism”).<sup>3</sup> While most countries adopted

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<sup>3</sup> As two of the main advisors described the program’s differences from Western 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).

several different privatization strategies, as described in Appendix B, mass privatization programs were by far the most innovative, and were implemented by approximately half of the postcommunist world to varying degrees (see Appendix C).

Mass privatization still encountered obstacles in the form of the institutional environment. 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 to these questions was a kind of “political Coase Theorem”, asserting that a major benefit of rapid privatization was the creation of a multitude of private owners who would then lobby the government to establish market-supporting institutions. In what has become one of the most important neo-classical treatments of corruption, Shleifer and Vishny argue that, “Privatization then 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* “(1998: 10-11; our emphasis).

While neoliberal ideas were influential in the formulation of actual policies, they were criticized from the beginning by “gradualists” voices, sometimes with an “institutionalist” or “statist” bent, from both economists well as many prominent sociologists (e.g. Murrell 1992; Burawoy and Krotov 1992; Stark 1992).<sup>4</sup> The gradualist position was that *in the absence of a supportive institutional environment*, radical reforms could actually be damaging. Privatization, for example, might lead to asset-stripping rather than investment, and rapid reforms might create

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<sup>4</sup> Burawoy critiques gradualism on the grounds that it takes the neoliberal endpoint to be correct. In his empirical critique of neoliberal policies, however, Burawoy’s position is clearly one of many institutionalist accounts of the transition, stressing the damage caused by reforms that strip away existing institutions without replacing them with anything (thereby causing “involution”).

winner who then use their political power to engage in further predatory behavior. These scholars frequently cited the example of China as evidence of the benefits of a gradual, piecemeal approach to economic transition.

Of course, the shock therapists won the initial policy debate in most cases. However, instead of general development throughout the postcommunist region, there was great economic decline followed by massive divergence in recovery and subsequent growth. How did scholars of the transition explain this variation?

#### THE POST-MORTEM LITERATURE

Both the gradualist and the shock therapists claimed that the hindsight experience of the postcommunist transition vindicated their initial positions, with two concessions from the shock therapists, namely, that institutions and other “initial conditions” matter. As Milton Friedman put it when reflecting on what went wrong in 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 other “initial conditions” also had a role to play in explaining the variation. That is, some countries, because of their particular historical and cultural legacies, would have either an easier or more difficult time restructuring their economies to be competitive on globalized markets.

Despite these concessions, the shock therapists emphasized their original position, that faster and more extensive reforms lead to better performance, and therefore claimed that their initial theories were in no need of fundamental revision. Thus, variation in performance among the



postcommunist economies could be explained based on a combination of initial conditions and the implementation of appropriate reforms. The seminal statement of this position was the EBRD's 1999 *Transition Report: Ten Years of Transition*, which became part of a growing body of empirical evidence backing these claims (see also De Melo and Gelb 1996; Sachs 1996; De Melo, Denizer, and Gelb 1996; De Melo et al. 2001). This position tended to emphasize corruption as the primary factor in undermining reforms, especially in Russia (Åslund 1999). Other empirical work claimed that "the benefits of privatization are larger in countries with an effective legal framework and secure property rights" (IMF 2000: 105). Still, for the shock therapists, privatization is never viewed as detrimental, and countries are considered "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 recent econometric analyses claim that voucher privatization is beneficial to growth (Bennet et al. 2004; 2007). In sum, the original advocates who pushed for shock therapy would do so 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).

The gradualists also felt vindicated in their early position. The loudest voice was Nobel laureate Joseph Stiglitz. In his seminal "Wither Reform? – Ten Year of Transition" (2000), Stiglitz emphasized that prioritizing privatization over establishing a proper institutional framework created enormous opportunities for corruption, due to informational deficiencies and a lack of governance institutions. The owners of newly privatized companies thus had both the incentive and the opportunity to pursue in predatory rent-seeking and asset-stripping behavior. Stiglitz claimed that this tendency was be exacerbated by other neoliberal reforms, such as the decision to liberalize capital accounts, which made it easier to transfer money abroad, thereby

increasing the attractiveness of asset stripping. Similarly, overly strict monetary policy (in the form of very high interest rates) made owners more likely to engage in asset stripping, as they found themselves unable to invest enough to be competitive. Unless accompanied by adequate institutional reforms, privatization could thus lead to lower economic growth.

Other gradualists claimed that rapid liberalization generated supply shocks in industries that were “structurally distorted” during socialism by large subsidies and protection (Popov 2007). Rapidly eliminating subsidies and switching to market prices gave firms in these industries 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, the overall level of investment capital plummeted. Thus, a slower liberalization would have maximized the level of investment and thus led to higher growth (Popov 2007).

Prominent sociologists have advanced similar arguments, except they substituted the term “state” for “institutions.” In particular, Burawoy (1996) and Nee (2000) argued that the state’s bureaucratic capacity was a crucial factor in determining economic success or failure. In this respect, we consider their arguments to be quite close to those of institutionalists like Stiglitz and Popov. Burawoy (1996), in a seminal article comparing the transitions of China and Russia, argued that Russia performed poorly because neoliberal reforms damaged the state at the same time as the economy was being privatized, thereby creating the perverse combination of private property with soft budget-constraints. This resulted in what Burawoy termed “involution”, a process by which firms received subsidies from the state, but managers failed to use these resources to increase production, opting instead to continue asset stripping and wealth transfers

out of the economy. Crucially though, the question of why neoliberalism destroyed the state in Russia but not Central Europe is left unanswered.

A third position is that reforms did not matter at all (Stuart and Panayotopoulos 1999; Popov 2000; Ganev 2007). Instead, the only thing that mattered was the starting point. Popov, for example, argues that democracy, without the rule of law, creates massive opportunities for corruption and will therefore undermine reform efforts. Others even have emphasized the importance social structural factors, in particular, the power of the former *nomenklatura* relative to other social groups. In those 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 “castrate the state” to cover their tracks (Ganev 2007). The outcome was a form of capitalism that is driven by the “wrong agents” with an inappropriate *habitus* (Eyal et al. 1998) That is, former *nomenklatura* were incentivized to export capital instead of investing in their enterprises, especially given that much of their wealth was obtained by illegal means and they could not be sure that they would be able to hold on to their property in the future.

A variant on the social structural perspective stresses alliances between managers and foreign capital for successful firm restructuring (King 2000, 2001). Countries that managed to attract sufficient foreign direct investment (FDI) were able to compensate for the depressive effects of shock therapy on firms. Subsequent work combined this perspective with the policy argument that neoliberal policies are detrimental (King 2002; King and Szelenyi 2005; King and Sznajder 2006), arguing that in some countries (e.g. Central Europe), an alliance of technocrats and cultural 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. In this perspective, FDI, combined with statist policies that facilitated enterprise

restructuring, accounted for the success stories of the postcommunist world. Those countries where the *nomenklatura* struck a bargain with enterprise managers (e.g. Russia) effectively shut out FDI, and ultimately experienced de-modernization.

While we believe these social structural explanations have substantial merit, they are nonetheless unable to account for difference in performance among countries with similar social structural conditions. More specifically, they cannot explain intra-FSU or intra-CEE variation. In this paper, we advance a neo-Weberian theory of postcommunist economic collapse that focuses on the bureaucratic character and capacity of the state. Our account is directly at odds with neoliberal explanations, since we argue that the closer the adopted policy was to the neoliberal ideal of privatization, the worse the performance of a country. Our explanation is consistent with the institutionalist and corruption-centered perspectives, but goes beyond them by arguing that rapid privatization *itself* damaged existing institutions and increased corruption. We contribute to the sociological statist and the social structural accounts by identifying one important mechanism responsible for the deleterious outcomes in many transition societies: mass privatization leading to declining state revenues. We do not claim mass privatization explains all variation in postcommunist performance, just a substantial amount.

We argue that countries which pursued rapid privatization severely damaged their state capacity for two reasons. First, privatization removed assets from the state's hands, including the profits of state-owned enterprises, thus reducing its revenue base. Second, it established enterprises which lacked strategic owners and thereby created severe agency problems, increasing the risk of firm failure and recourse to the non-monetary economy, thus further reducing potential tax revenues. In combination, these two effects on the state's budget produced a fiscal crisis, weakening the development of the very institutions needed for governing the

private sector, and undermining morale among the post-Soviet bureaucracy. Declining state capacity – fiscally and bureaucratically – caused corruption and weak institutions, which contributed significantly to poor economic outcomes. This created a vicious circle 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]**

The remainder of this paper is structured into four parts. In the first we develop our neo-Weberian theory which forms the basis of our hypotheses. In the second and third we report the results of our country- and firm-level analyses, respectively. The final section discusses the implications of our findings for social theory and public policy.

#### WEBER'S THEORY OF THE STATE IN MODERN RATIONAL CAPITALISM

For Weber, modern rational capitalism was characterized not only by capitalist property relations, but by the presence of a *strong bureaucratic state* (Weber 1958a: 81; Weber 1958b: 221). In this view, modern states hold a 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 given 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 for their own personal gain. Weber believed that bureaucracy functioned well when there was a highly educated staff with an established *esprit de corps* and sufficient material resources at their disposal. In speaking of a “strong” state, we then mean a state that has what Mann termed “infrastructural power” (1986): the ability to realize its goals. Mann distinguishes this from

“despotic” power, or the scope of the commands the state can make. Thus, a dictatorship may have great despotic power since it can impose any law it might dream up, but nonetheless suffer from very low levels of infrastructural power. The reverse is true for most advanced industrialized nations, which are characterized by high infrastructural power but low despotic power.

A bureaucratic state is essential to modern capitalism because in its absence, individual capitalists could resort to “political capitalism” – that is, the use of personal relationships in dealing with state officers to create extra-market opportunities for profitable activity (Weber 1966: 246-247; 1978: 164-166). In this scenario, the mechanism which links capitalist production to ever-increasing efficiency (market dependence forcing constant innovation and specialization) is broken, and capitalists will attempt to pursue “political accumulation” instead (Brenner 1986). In addition, Weber recognized the essential role that strong nation-states played in supporting capitalist growth by protecting and nurturing infant industries. Many authors have emphasized the role of states, both historically and in the contemporary period, in supporting economic growth through the creation and maintenance of institutions that make modern capitalism possible (for a review see Block and Evans 2005). These include an adequate legal and regulatory framework, the provision of counter-cyclical demand stimulation, aid in the diffusion of reliable information, the promotion of a healthy and highly skilled workforce, and help in new technology development.

#### *The Direct Effects of Mass Privatization on State Capacity*

A post-socialist government’s choice to privatize its enterprise holdings quickly would immediately reduce 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. First, it was believed that socialist states had been wasting vast amounts of resources due to inefficient planning and the production of unneeded and therefore “value-subtracting” goods (in the so-called “virtual economy”) (Gaddy and Ickes 1998). Thus, it was argued, radical reforms had the potential to generate large savings for the state. Second, rising tax revenues from the superior growth of *de novo* private firms and the gradually improving performance of privatized state firms would make up for the shortfall.

### *Indirect Effects of Mass Privatization on State Capacity*

If the state was to avoid a financial crisis as a result of extensive privatization, the enterprise sector would therefore need to grow while also being taxed effectively. We argue that mass privatization accomplished the opposite: worse enterprise performance coupled with a declining capacity of the state to tax firms. In the following, we outline the mechanisms which contributed to this dual shock.

Mass privatization programs, by design, led to greatly dispersed firm ownership, and thus significantly elongated principal-agent chains. That is, the new owners would only have limited incentive to monitor firms, and more importantly lack the capacity to exercise control over managers or employees (Ellerman 1998). McDermott (2002) demonstrated through case-studies in the Czech Republic that mass privatization greatly complicated corporate governance, causing assets to go unutilized because of an inability to agree on who owned them, and that this discouraged foreign investors.<sup>5</sup> While well functioning regulatory and credit rating agencies or

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<sup>5</sup> McDermott (2002) is part of a small literature that has criticized mass privatization on the grounds that it makes governance more difficult. Ellerman (1998; 2003) was the first to provide a theoretical argument for expecting a governance disaster to develop from mass privatization because of problems of monitoring agents. Spicer, McDermott, and Kogut (2000) provided evidence from several sector case studies in Hungary, Czech Republic and

an independent business press could have mitigated the violation of shareholder rights, these institutions did not yet exist in the postcommunist world.

At least initially, newly privatized firms were cut off from state resources, such as socialist-era subsidies. Unlike firms privatized to strategic owners, however, they did not have access to crucial resources such as investment capital, new managerial talent, and marketing networks, which were needed for restructuring overstuffed and inefficient Soviet-era factories into enterprises capable of competing with western capitalist firms (King 2003). In this situation, owners, managers, and workers, unable to work cooperatively for the betterment of their firm, often pursued short-term, self-serving strategies to accumulate wealth. This typically involved substantial asset stripping (King 2003). Thus, firms that were oftentimes already technologically obsolete now faced substantial external shocks and additional 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 allocation of resources (Kornai 1980). As documented in David Woodruff's (1999) definitive treatment of the subject, *Money Unmade*, failing postcommunist firms retreated to non-market mechanisms of exchange. They bartered. They tolerated arrears from their customers and in turn did not pay their suppliers, creating chains of inter-enterprise debt. They produced goods for the black market to avoid taxation, and oftentimes fell 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. We refer to these micro-strategies as "non-market" restructuring, which we distinguish

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Slovakia, while Spicer and Kogut (2002) provided substantial elite interview data from the Czech Republic and Russia, that show that mass privatization creates governance patterns that inhibit investment due to uncertainty over asset ownership. Our theory can be seen as an extension of this work, offering systematic quantitative support for the basic proposition, and extending the theory to emphasize the fiscal effects of mass privatization.



from the “rational capitalist” strategies of innovation, specialization and accumulation via increasing investment, developing new product lines, gaining quality accreditations, and increasing sales. These are the “market-oriented” restructuring activities typical of firms in Western capitalism. Obviously, non-market transactions are much harder to tax than market-oriented strategies, which also tend to generate more economic value to be taxed in the future. Combined with non-payment of taxes, firm-level responses to mass privatization thus further strained the state’s resources.

The resulting reduction in the state’s financial capacity also meant that the state was increasingly unable to pay its own staff. Government bureaucrats, being poorly paid, were easily corrupted, and frequently used their political connections to provide advantages to businessmen in exchange for bribes or other unofficial payments. (For the seminal descriptions how this process unfolded in Russia, see Pappé [2000] and Reddaway and Glinski [2001]). This creates what Szelenyi and his collaborators have termed “patrimonial capitalism” – a situation in which personal ties between economic and political actors replace bureaucratic organization (Eyal et al. 1998; King and Szelenyi 2005).

Based on the above considerations, we specify two sets of competing hypotheses to be tested at the cross-national and firm levels. Our own neo-Weberian theory suggests:

*H<sub>1</sub>: Mass privatization reduces state capacity*

*H<sub>2</sub>: Mass privatization reduces economic growth*

*H<sub>3</sub>: Mass privatized firms are more likely to use non-monetary exchanges and owe the government tax arrears; they are less likely to have pursued market-oriented restructuring than state-owned firms.*

Conversely, the neoliberal perspective holds:

*H4: Mass privatization increases state capacity.*

*H5: Mass privatization increases economic growth.*

*H 6: Mass privatized firms are less likely to use non-monetary exchange and owe government taxes and more 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.

## QUANTITATIVE METHODS

We present statistical findings from both national- and firm-level analysis. On the national level, we report time-series and cross-sectional models using data on the social, economic, and political development of 26 postcommunist countries, drawn from the World Bank World Development Indicators Database (2008 edition). Our firm-level data are taken from the World Bank/EBRD Business Environment and Enterprise Performance Survey (BEEPS), a survey of over 4000 large and medium firms in 25 transition economies, conducted between 1999 and 2000, that examines a wide range of interactions between firms and the state.<sup>6</sup> 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.

**[Insert Table 1 here]**

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<sup>6</sup> 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 the quality of the business environment; the survey also reports a series of specific firm characteristics and firm performance measures. The survey includes about 125 firms randomly sampled in each country, with larger samples for Poland and Ukraine (over 200 firms), and an even larger sample for Russia (over 500).

Two variables require further discussion: our measures of privatization and of state capacity. The most important methodological innovation in this analysis is the creation of a dummy variable indicating whether a country implemented a sizable mass privatization program. Almost all analyses to date of privatization in the postcommunist world use the EBRD's indices of privatization progress. While we will show that our results are robust to the use of these variables, the EBRD measures do not distinguish between different privatization methods. Moreover, there is clear evidence that they are biased in the direction of growth (Stuckler, King and Patton 2009).

Our own measure is constructed to reflect as accurately as possible the actual implementation of large-scale mass privatization programs, by indicating whether a given country implemented a mass privatization covering at least 25% of its large enterprises. 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 international financial institutions made the calculation of a privatization rate impossible for many countries. According to staff members at 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 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. Appendix C reports the best estimate in each country. We confirmed the coding of our variable with the chief bureaucrat 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 postcommunist world, this assumption 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 inability of the state to collect taxes and the rise of the shadow economy (Popov 2004: 2).

## CROSS-NATIONAL EVIDENCE

### *Cross-Sectional Results*

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:

$$\text{STATECAP}_i = \alpha + \beta_1 \text{PRIV}_i + \beta_2 \text{LIB}_i + \beta_3 \text{DEM}_i + \beta_4 \text{OIL}_i + \beta_5 \text{WAR}_i + \beta_6 \text{URBAN}_i + \beta_7 \text{HIGHED}_i + \beta_8 \text{FSU}_i + \beta_9 \text{INITGDP}_i + \varepsilon_i$$

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  $\varepsilon$  is the error term.

**[Insert Table 2 here]**

Table 2 shows the results of our regressions of three subjective indicators of a strong bureaucratic state on mass privatization and the above controls. We found that the aggregated survey respondents from countries which undertook mass privatization exhibited a higher probability of believing 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) after correcting for other transition policies, resource wealth, military conflict, demographic factors, membership in the former Soviet Union and initial transition conditions.<sup>7</sup>

*Time-Series Results*

Our basic time-series models are as follows:

$$(1) \text{GOVSPEND}_{1990, i, t} = \alpha + \beta_1 \text{PRIV}_{i, t} + \beta_2 \text{LIB}_{i, t} + \beta_3 \text{DEM}_{i, t} + \beta_4 \text{OIL}_{i, t} + \beta_5 \text{WAR}_{i, t} + \beta_6 \text{INITGDP}_{i, t} + \varepsilon_{i, t}$$

$$(2) \text{GDP}_{1990, i, t} = \alpha + \beta_1 \text{PRIV}_{i, t} + \beta_2 \text{LIB}_{i, t} + \beta_3 \text{DEM}_{i, t} + \beta_4 \text{OIL}_{i, t} + \beta_5 \text{WAR}_{i, t} + \beta_6 \text{INITGDP}_{i, t} + \varepsilon_{i, t}$$

---

<sup>7</sup> Our inferences are implicitly based on the assumption that state capacity was generally much higher prior to the transition to capitalism. We cannot test this proposition for our subjective measures of state capacity with time-series data, because they only exist for one year, 1999. The World Bank provides a database of governance indicators for 1996 onwards, but these are unusable for two reasons. First, all mass privatization programs had been completed by 1996, and, second, Kurtz and Schrank (2007) have shown these measures to be invalid. Our assumption, that state capacity was higher before the transition, reflects that “a consensus has coalesced around the viewpoint that the transformative processes unleashed in 1989 precipitated a rapid and radical weakening of state structures” (Ganev 2007: 1). Popov (2004) summarizes the available statistical evidence for Russia, clearly demonstrating that state capacity collapsed during the transition. While there had been some variation in state capacity during the late-communist period, we do not believe it can account for the subsequent divergent patterns. Our measures of initial GDP and level of education most likely capture much of this difference in overall state capacity, and these are controlled for in the basic model. There are a few subjective measures of state capacity available for early points in the transition (1990), but unfortunately they are not commensurate with our 1999 measures. We analyze the 1990 data below in the section on endogeneity.

Here  $i$  is country and  $t$  is 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, and 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.

We first analyze the entire sample of countries (Table 3). However, given the historical differences between the satellite countries and the core countries of the FSU, we also analyzed the non-FSU and FSU blocks of countries separately (see Tables 4 and 5 below). We restricted our analysis to the years between 1990 and 2000. The 1990 starting point is sensible, given missing data issues 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 throughout the postcommunist world, and a new set of political and economic dynamics emerged to create what Szelenyi and Wilk (2009) have termed the “Second Transition.” While there has been substantial path-dependence in the region, this dependence is not absolute, and both political and economic change is increasingly driven by other factors – for instance, the change in relative prices after the Russia's sovereign debt default in 1998, or the strong rise in oil and other commodity prices from the late 1990s onwards. We therefore end the time series in 2000, although extending it did not affect our results. We clustered our standard errors by country to reflect non-independence of sampling, and to make statistical inferences unbiased to serial correlation in the data.

**[Insert Table 3 here]**

Table 3 reports our regression results for the full sample of countries. We can see that countries that implemented a mass privatization program, *ceteris paribus*, exhibited nearly 27% lower government spending than non-mass privatizing countries (Models 5-6). Countries that liberalized prices also displayed substantially lower levels of government spending. Did this decline have a negative effect on economic development? Because government spending is a component of GDP, we would expect to find that GDP dropped by the amount attributable to mass privatization multiplied by the fraction of government spending in GDP. We find that mass-privatizing countries experienced, on average, a more than 16% decline in GDP per capita (Models 8-9). Price liberalization had a similar negative effect, corroborating a finding by Popov (2007).

**[Insert Table 4 here]**

Table 4 presents the results of our regressions of government spending on mass privatization using the split sample. We found that in former FSU countries mass privatization was associated with a 26.3% drop in real government spending per capita during the 1992-2000 period for which comparative data were available (Model 12). Not surprisingly, oil is associated with greater government spending (this is capturing the spike in oil prices in the late 1990s). Similarly, greater democratization was associated with an increase in government spending per capita of 5.36% on average among FSU countries ( $p = 0.008$ ) but had no effect among non-FSU countries ( $\beta = -1.87$ ,  $p = 0.68$ ). We found no statistically significant effect for mass privatization in the non-FSU countries once controls were implemented (Model 15). However, price liberalization had a negative effect in the non-FSU region. Given that the average increase in the liberalization score for these countries from 1990-2000 was 1.97 (range 0-4), this is a substantial effect.

**[Insert Table 5 here]**

Table 5 shows the results of our random-effects regressions of real GDP per capita on mass privatization. We find that privatization was associated with a 13.1% drop in real GDP per capita (Model 18), which is consistent with the notion that the major negative effect of mass privatization on growth operated through a reduction in state capacity, without a simultaneous compensation in benefits to investment, consumption or exports. When we held constant trends in government spending, effectively blocking the mass privatization-state capacity-growth channel, we found no effect of mass privatization on growth among FSU countries ( $\beta=-5.01$ ,  $p=0.24$ ; 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, finding that our coefficients for mass privatization were unchanged. Third, we replicated our cross-national results using the EBRD index of privatization, with the results being consistent with the findings reported in Table 5 (Web Appendix, Table W2). Thus, the cross-national evidence supports our neo-Weberian theory linking mass privatization to declines in state capacity. We now proceed to test our hypotheses using evidence from the firm level.

FIRM-LEVEL EVIDENCE



For the micro-analysis we adopt the modeling strategy used in King (2000) and King and Sznajder (2006). That is, we consider multiple indicators of firm performance and control for variables commonly used in firm-level analysis, all of which are summarized in Table 6.

**[Insert Table 6 here]**

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 this firm 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 (see Appendix C). Firms privatized by other methods likely suffered from much less severe principle-agent problems (e.g. if they were privatized only to firm insiders), or at least had access to new capital and markets (e.g. if they had a strategic owner). We employ the following basic model:

$$\text{Firm Performance}_i = \alpha + \beta_1 \text{PRIV}_i + \beta_2 \text{FDI}_i + \beta_{3-19} [\text{controls}]_i + \varepsilon_i$$

Table 7 presents our results. It is apparent that non-foreign invested firms privatized in countries that implemented mass privatization programs were 66% more likely to engage in barter (Model 22) and 47% more likely to have overdue taxes (Model 30) than state-owned firms. They were also 39% less likely to have made an investment (Model 24), 38% less likely to develop a new product (Model 32), 28% less likely to upgrade existing products (Model 34), 47% less likely to hire new employees (Model 28), and 37% less likely to have increased sales (Model 26). Conversely, foreign-invested firms were 61% less likely to have engaged in barter (Model 22) and 52% less likely to have owed taxes (Model 30). Our micro-level findings are thus consistent with those from the cross-national analysis.

**[Insert Table 7 here]**

### *Endogeneity*

It is conceivable that our results are misleading because of a “sick patient” effect. That is, countries with weak states might have chosen mass privatization because they did not have 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.

First, even if this were true, our findings still show that mass privatization contributed to a further weakening of these states via enterprise failure and reduced tax revenue. That is, while weak states might have been more likely to use mass privatization, choosing this method inflicted further damage on their states (as can be inferred from our firm-level analysis). Second, we believe, and the leading historical accounts agree, that privatization strategies were politically motivated, and were the product of political conflict among domestic elites. Significantly, the choice to mass privatize was not predetermined by a weak state or any other structural feature (for Russia see Reddaway and Glinski 2001; Klebnikov 2000; Medvedev 2000). After all, mass privatization was adopted by countries in every region of the postcommunist world, from the authoritarian states of Central Asia, to the “managed democracies” of the European part of the former Soviet Union, to the liberal democracies of Central Europe.

A majority of scholars familiar with privatization strategies in the postcommunist world agree that the overriding motive for mass privatization was to smash the political power of the communist party and make the transition irreversible; it was not chosen because the state lacked the capacity to implement alternative privatization methods. Indeed, it surely would have been easier to leave large enterprises under state ownership until a strategic owner emerged, as

governments did in Belarus and Uzbekistan. Furthermore, notions of historical causality in which policy decisions are strictly determined by structural forces fell out of sociological favor decades ago. Virtually the entire field of political and historical sociology places a strong emphasis on contingency and agency in explaining historical outcomes (see e.g. Clemens 2007). To posit that a radical and innovative privatization program 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 Appendix D, Table D1). The only statistically significant finding relates to government transparency and points in the opposite direction. These findings are consistent with our understanding of privatization as a political decision, driven primarily by the aim of legitimizing new regimes or weakening the power base of opponents.

## DISCUSSION AND CONCLUSION

Based on country- and firm-level evidence, our analysis shows that rapid privatization negatively affected state capacity via two mechanisms. We found that mass privatization directly weakened the state’s revenue base, and that this decline was not offset by enterprise growth because, as we show, mass privatization also had negative effects on the enterprise sector, such as increasing the risk of barter, unofficial payments to public officials, government inefficiency and insecure contract and property rights. These findings contrast with the neoliberal prediction that rapid privatization would both promote firm restructuring and combat weak corporate governance, ultimately leading to stronger growth. They are, however, consistent with the leading post-mortem explanations (by both economists and sociologists) that weak institutions and poor governance were major causes of the postcommunist economic recession. Our model

goes beyond this understanding by showing that the capacity of postcommunist states, itself determined by policy choices, played a crucial role in determining economic success or failure. Thus, while we agree with sociological work emphasizing the centrality of the state, we are isolating the fiscal effects of rapid privatization as a key mechanism that brings about poor economic and political performance.

Our results also support the gradualists and statist critiques of rapid liberalization, and the social structural analyses emphasizing 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. These negative results are stronger than they might appear, since there is clear evidence that the liberalization efforts of better-performing countries were “over-coded” (Stuckler, King and Patton 2009).

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, and in non-mass privatizing countries they were more likely to make investments than their domestic-owned counterparts. 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 uncertainty. Thus, the decision to mass privatize was at the same time a decision not to rely on FDI.

The most important outlier of the postcommunist world, that is, the country that implemented mass privatization according to our definition but also had good overall performance and

managed to attract a large amount of FDI, is the Czech Republic. However, this is the exception that proves the rule. 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 legal tradition of contract and property rights, and had a privileged geographic 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 Eastern Europe. Case-study data moreover demonstrates that companies privatized through vouchers experienced substantial governance problems (McDermott 2002; King 2001), and many voucher-privatized firms were in fact renationalized before ultimately being sold to foreign investors.

As our findings show, mass privatization programs damaged the enterprise sector, and, in doing so, indirectly weakened the bureaucratic character of the state and thus its ability to support the institutions necessary for a functioning capitalist economy. “Telescoping” the formation of private property led to state withdrawal, and in fact had the opposite effect of what was intended by the advocates of mass privatization. Rather than securing a smooth transition to Western-style capitalism, it 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 former Soviet Union 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 postcommunist patrimonialism. Yet by strongly contributing to a fiscal crisis and

creating severe governance problems, mass privatization clearly provided a fertile ground for activities conducive to patrimonialism (e.g. funneling of assets, official corruption, solicitation of kick-backs, privatizing of the means of administration, etc).

Our results do not indicate that mass privatization was the only determinant of postcommunist 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 relying on 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. We do not pretend to test for the relative effects of different policies, external factors and initial conditions in any systematic way, but only to seek to provide rough controls for our variable of interest, mass privatization.

Our findings have several theoretical and policy implications. For social 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 those emphasizing 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 emerges as a risky proposition, given the postcommunist experience.

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, Kessides and Gobo 2007: 59).

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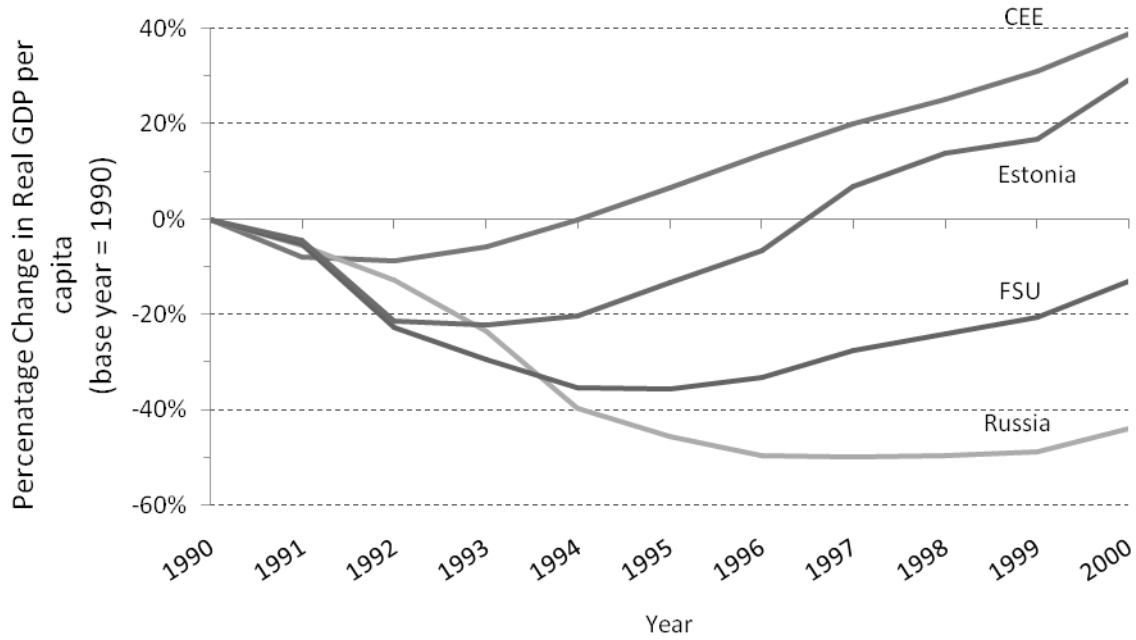
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FIGURES

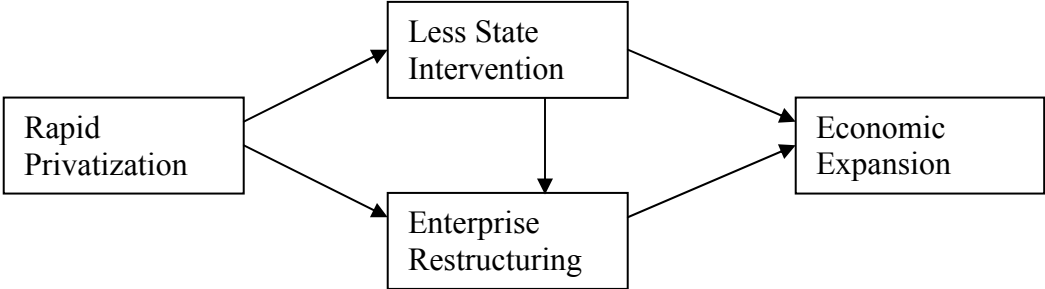
FIGURE 1. TRENDS IN POSTCOMMUNIST GROWTH, 1990-2000



Notes: 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 RAPID PRIVATIZATION ON FIRMS, THE STATE AND GROWTH

*Neoclassical-Neoliberal Framework*



*State-Centered Framework*

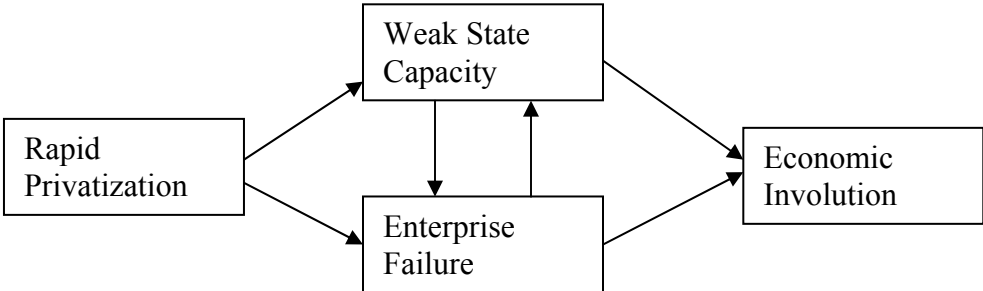


TABLE 1

VARIABLES USED IN CROSS-NATIONAL REGRESSIONS

Variable	Description	Source
<i>Response variables</i>		
Government efficiency	How would you rate the efficiency of the government in delivering services? (q48b)	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
<i>Explanatory variables</i>		
Mass privatization	Dummy variable indicating mass privatization programs covering at least 25% of large enterprises; see Appendix 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

*Notes:* 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.



TABLE 2  
EFFECT OF MASS PRIVATIZATION ON SUBJECTIVE MEASURES OF STATE CAPACITY

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

95% confidence intervals in brackets

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

TABLE 3  
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	-24.0** (7.95)	-23.2** (7.07)	-26.9** (8.19)	-13.3** (4.12)	-14.9*** (4.14)	-16.3*** (4.36)
Price liberalization		-12.5*** (3.30)	-12.3*** (3.66)		-6.28** (2.15)	-7.56*** (2.29)
Democratization		-3.69* (1.71)	-2.07 (1.98)		-1.29 (0.87)	-0.011 (0.93)
Oil		-11.5 (11.5)	12.2 (15.5)		-1.81 (7.15)	-0.62 (12.4)
War		7.18 (12.1)	-1.12 (13.0)		-6.66 (4.14)	-11.7 (6.19)
Urbanization		0.36 (0.53)	-0.28 (0.50)		0.20 (0.29)	-0.14 (0.39)
Education		1.63*** (0.29)	1.55*** (0.31)		1.10*** (0.15)	0.98*** (0.27)
Initial GDP per capita		0.00016 (0.0033)	0.0022 (0.0023)		0.00086 (0.0015)	0.0036** (0.0013)
Country-year trends	No	No	Yes	No	No	Yes
Nation-years	288	287	287	253	253	253
Nations	24	24	24	25	25	25
R <sup>2</sup>	0.094	0.373	0.352	0.108	0.453	0.407

*Notes:* 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 4  
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	-26.4** (9.39)	-21.8*** (4.99)	-26.3*** (7.00)	-13.1* (5.47)	-8.19 (16.0)	-4.66 (17.0)
Price liberalization	-	-10.7** (3.77)	-6.98 (4.65)	-	-7.80*** (2.12)	-9.26* (4.52)
Democratization	-	7.22*** (1.77)	5.36** (2.01)	-	-1.91 (4.33)	-1.87 (4.45)
Oil	-	2.96 (14.2)	109.6*** (28.6)	-	n/a	n/a
War	-	30.9*** (7.45)	6.90 (13.7)	-	-32.1 (22.0)	-29.3 (20.5)
Urbanization	-	0.12 (0.90)	9.84* (4.06)	-	-0.35 (0.51)	3.49 (3.57)
Education	-	1.72*** (0.38)	1.62** (0.53)	-	1.05** (0.35)	1.16*** (0.31)
Initial GDP per capita	-	-0.00062 (0.0095)	-0.46** (0.17)	-	0.0044 (0.0035)	-0.25 (0.48)
Country-year trends	No	No	Yes	No	No	Yes
Nation-years	175	175	175	113	112	112
Nations	15	15	15	9	9	9
$R^2$	0.002	0.514	0.807	0.049	0.281	0.632

*Notes:* 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 5  
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*** (4.13)	-11.4** (3.99)	-13.1** (4.56)	1.63 (0.89)	-0.24 (3.84)	2.36 (6.22)
Price liberalization	-	-10.2*** (1.33)	-8.49*** (2.33)	-	3.17 (3.74)	2.01 (1.84)
Democratization	-	-1.12 (0.93)	-0.16 (0.90)	-	2.80 (1.98)	3.25 (1.76)
Oil	-	5.48 (6.86)	45.5* (22.1)	-	n/a	n/a
War	-	-8.46 (5.54)	-20.2** (6.69)	-	-2.38 (5.94)	1.00 (5.38)
Urbanization	-	0.18 (0.35)	5.45* (2.78)	-	0.31 (0.37)	3.58 (2.89)
Education	-	1.11*** (0.17)	1.15*** (0.34)	-	1.03*** (0.30)	1.24** (0.48)
Initial GDP per capita	-	-0.0034 (0.0034)	-0.25* (0.11)	-	0.00025 (0.0018)	-0.067 (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 <sup>2</sup> -within	0.202	0.605	0.735	0.002	0.536	0.586

*Notes:* 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.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

TABLE 6  
VARIABLES USED IN FIRM-LEVEL LOGISTIC REGRESSIONS

Variable	Description / Survey Question	Coding
<i>Dependent variables</i>		
Barter	What share of your firm's sales are now conducted in barter, offsets or bills of exchange (money surrogates)? (q67a)	0 = No Barter 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 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 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 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 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 1 = Yes
Product upgrade	Has your company undertaken the successful upgrading of existing product line in the last three years? (q54)	0 = No 1 = Yes
<i>Explanatory variables</i>		
Privatized	Dummy variable indicating firm was established by privatization of a state-owned firm (q7).	0=not privatized 1=privatized
Foreign	Dummy variable indicating foreign ownership	0 = <100% foreign ownership 1 = 100% foreign ownership

TABLE 6 (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 1 = Access
Size	Scale of full-time employees, ranging from 1 (1-9) to 7 (500 or more) (qS.5)	Number
Size <sup>2</sup>	Squared scale of full-time employees, ranging from 1 (1-9) to 7 (500 or more)	
Large	Dummy for >200 employees	0 = <200 employees 1 = ≥200 employees
Firm receives subsidies	Does your enterprise receive subsidies (including tolerance of tax arrears) from local or national government (q65a)	0 = No 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 1 = Yes
Domestic monopoly	Dummy for whether firm has 100% of market share (q61)	0 = <100% market share 1 = 100% market share

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

TABLE 7  
FIRM-LEVEL LOGISTIC REGRESSIONS RESULTS

	Barter		Investment		Sales	
	(22) MP	(23) Non-MP	(24) MP	(25) Non-MP	(26) MP	(27) Non-MP
Privatization	1.66** (0.26)	1.07 (0.17)	0.61*** (0.079)	0.85 (0.100)	0.63*** (0.074)	0.81 (0.12)
FDI	0.39** (0.13)	0.76 (0.29)	0.90 (0.21)	1.39 (0.59)	1.57 (0.44)	1.02 (0.43)
Agriculture	4.92*** (1.13)	0.72 (0.21)	1.13 (0.46)	0.66 (0.25)	1.98 (0.80)	1.04 (0.37)
Manufacturing	1.96** (0.44)	1.00 (0.29)	1.69 (0.59)	0.75 (0.22)	1.93 (0.72)	0.88 (0.22)
Mining	2.10 (0.98)	2.14 (1.78)	0.91 (0.84)	0.31 (0.31)	0.95 (0.52)	0.16 (0.17)
Construction	3.17*** (0.93)	0.97 (0.22)	1.23 (0.58)	0.64 (0.22)	1.53 (0.63)	0.79 (0.31)
Trade	2.09** (0.48)	0.83 (0.33)	1.75* (0.46)	0.81 (0.25)	2.08** (0.58)	1.25 (0.39)
Retail	0.74 (0.18)	0.61 (0.17)	1.87 (0.74)	0.51* (0.17)	1.64 (0.59)	0.69 (0.20)
Finance	0.25 (0.22)	0.19*** (0.087)	1.69 (0.68)	0.60 (0.32)	1.94 (1.26)	1.20 (0.84)
Power/Energy	1.40 (0.99)	0.39 (0.41)	0.50 (0.69)	0.73 (0.67)	0.79 (0.75)	0.65 (0.59)
Other sector	1.01 (0.41)	0.67 (0.28)	1.56 (0.57)	0.72 (0.25)	1.77 (0.53)	0.96 (0.31)
Firm age	1.00 (0.004)	1.02** (0.007)	0.99 (0.005)	1.00 (0.003)	0.99 (0.003)	0.99* (0.003)
Technology	1.01 (0.11)	1.75* (0.45)	2.25*** (0.42)	2.06*** (0.43)	2.57*** (0.44)	1.89** (0.37)
Size	3.33*** (1.11)	1.68* (0.40)	1.11 (0.21)	1.30 (0.29)	1.16 (0.36)	1.33 (0.27)
Size <sup>2</sup>	0.89** (0.035)	0.96 (0.029)	1.00 (0.023)	0.96 (0.025)	1.00 (0.038)	0.98 (0.026)
Large	0.96 (0.24)	0.79 (0.27)	0.95 (0.17)	1.28 (0.33)	0.86 (0.18)	1.06 (0.27)
Firm subsidy	1.68* (0.38)	0.94 (0.24)	1.39 (0.29)	0.93 (0.15)	1.23 (0.16)	0.90 (0.14)
New GM	1.67** (0.33)	1.25 (0.19)	0.80 (0.11)	0.93 (0.20)	0.95 (0.15)	0.94 (0.12)
Dom. monopoly	0.76 (0.16)	0.69* (0.13)	0.76 (0.18)	0.93 (0.20)	0.76 (0.17)	0.87 (0.17)
Observations	1936	1742	1945	1723	1948	1739

Exponentiated coefficients; standard errors in parentheses.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

TABLE 7 (CONTINUED)  
FIRM-LEVEL LOGISTIC REGRESSIONS RESULTS

	Employment		Overdue taxes		Prod. development	
	(28) MP	(29) Non-MP	(30) MP	(31) Non-MP	(32) MP	(33) Non-MP
Privatization	0.43 <sup>***</sup> (0.055)	0.39 <sup>***</sup> (0.098)	1.47 <sup>**</sup> (0.20)	1.32 <sup>*</sup> (0.16)	0.62 <sup>***</sup> (0.082)	0.93 (0.20)
FDI	1.73 (0.87)	1.49 (0.60)	0.48 <sup>*</sup> (0.17)	1.75 (0.66)	0.95 (0.28)	1.40 (0.50)
Agriculture	0.97 (0.27)	0.80 (0.23)	3.40 <sup>***</sup> (1.25)	0.93 (0.28)	2.59 <sup>*</sup> (1.17)	2.26 <sup>*</sup> (0.87)
Manufacturing	1.86 (0.64)	1.20 (0.20)	1.56 <sup>*</sup> (0.34)	1.28 (0.45)	5.11 <sup>***</sup> (1.74)	2.56 <sup>**</sup> (0.73)
Mining	1.24 (0.94)	-	3.30 (3.37)	3.21 (2.93)	2.58 (1.89)	1.31 (1.04)
Construction	1.90 <sup>**</sup> (0.41)	1.11 (0.30)	1.48 (0.40)	1.59 (0.51)	2.02 (0.91)	1.11 (0.43)
Trade	1.96 <sup>*</sup> (0.59)	1.53 (0.48)	1.38 (0.34)	1.36 (0.34)	1.98 (0.72)	1.11 (0.28)
Retail	1.67 (0.55)	1.01 (0.21)	1.55 (0.47)	0.67 (0.24)	2.02 (0.88)	2.03 (1.03)
Finance	2.72 <sup>**</sup> (1.04)	3.03 <sup>**</sup> (1.10)	0.39 (0.41)	0.91 (0.35)	3.26 <sup>**</sup> (1.35)	1.38 (0.36)
Power/Energy	0.65 (0.82)	1.35 (0.85)	1.50 (1.41)	1.38 (1.53)	1.87 (0.87)	3.47 (2.58)
Other sector	1.64 (0.57)	1.51 (0.38)	0.92 (0.20)	1.15 (0.48)	2.17 (0.86)	1.49 (0.30)
Firm age	0.99 <sup>**</sup> (0.0045)	0.99 <sup>*</sup> (0.0040)	1.00 (0.0039)	1.01 <sup>*</sup> (0.0040)	0.99 <sup>*</sup> (0.0040)	1.00 (0.0036)
Technology	2.46 <sup>***</sup> (0.28)	2.28 <sup>***</sup> (0.44)	0.80 <sup>*</sup> (0.083)	0.70 (0.18)	1.77 <sup>***</sup> (0.26)	1.54 <sup>*</sup> (0.30)
Size	2.39 <sup>*</sup> (0.81)	2.00 <sup>*</sup> (0.68)	1.08 (0.37)	1.80 <sup>*</sup> (0.45)	1.12 (0.33)	0.98 (0.21)
Size <sup>2</sup>	0.92 <sup>*</sup> (0.037)	0.91 <sup>*</sup> (0.042)	1.04 (0.052)	0.92 <sup>*</sup> (0.030)	1.00 (0.039)	1.02 (0.029)
Large	1.01 (0.26)	1.31 (0.37)	0.41 (0.20)	1.37 (0.43)	1.07 (0.34)	0.69 (0.23)
Firm subsidy	0.96 (0.18)	0.86 (0.13)	1.19 (0.34)	1.86 <sup>**</sup> (0.36)	1.23 (0.34)	1.09 (0.26)
New GM	0.92 (0.073)	0.97 (0.15)	1.52 (0.48)	1.37 <sup>*</sup> (0.22)	1.23 (0.17)	0.82 (0.15)
Dom. monopoly	0.87 (0.16)	0.93 (0.17)	0.95 (0.16)	1.27 (0.36)	0.62 <sup>*</sup> (0.12)	0.91 (0.18)
Observations	1947	1710	1917	1730	1952	1771

Exponentiated coefficients; standard errors in parentheses.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$



TABLE 7 (CONTINUED)  
FIRM-LEVEL LOGISTIC REGRESSIONS RESULTS

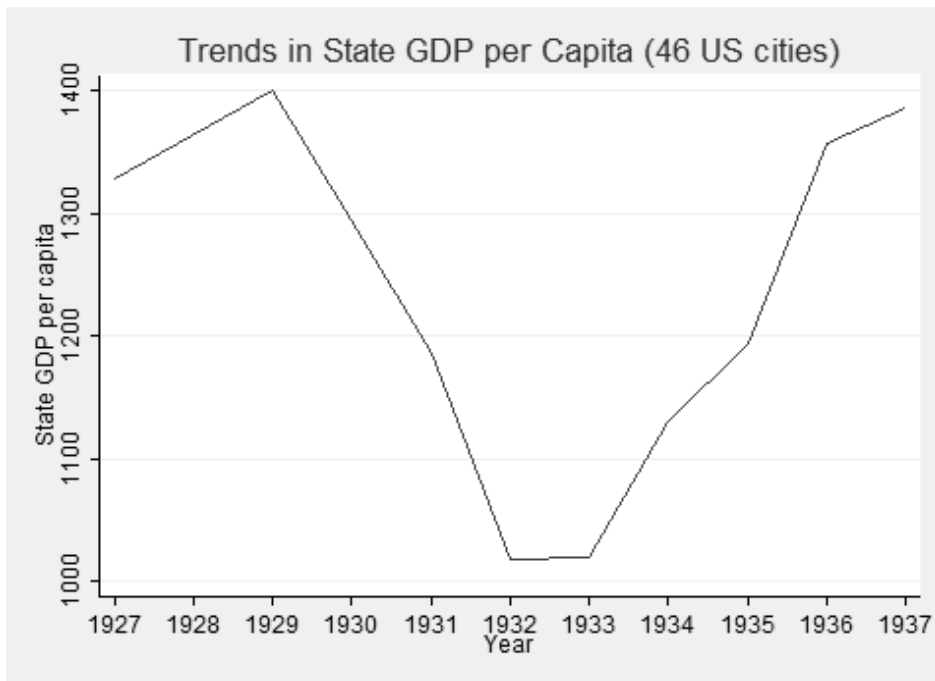
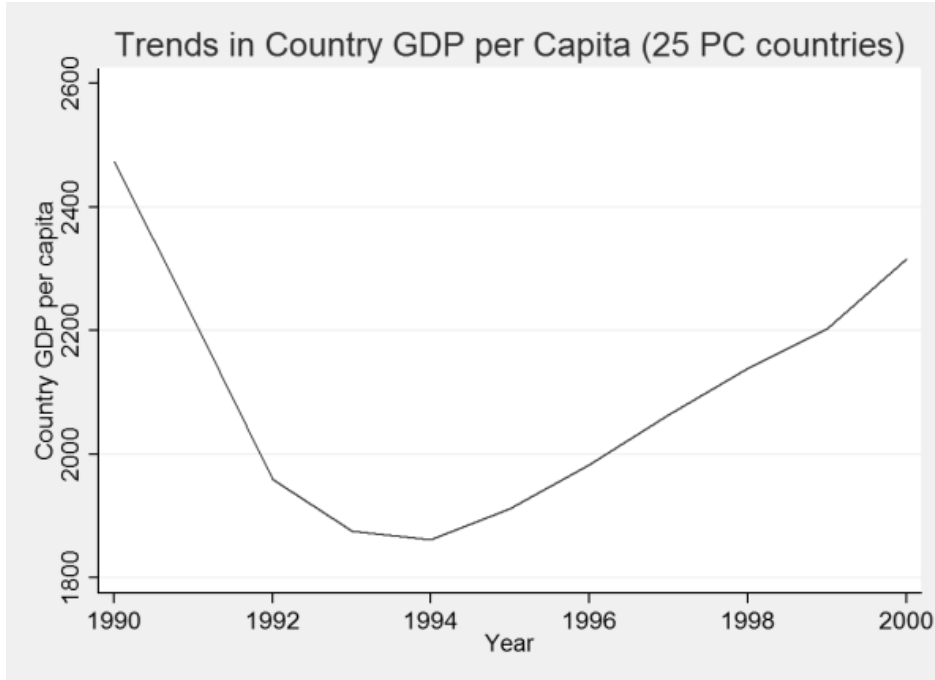
	Prod. upgrade	
	(34) MP	(35) Non-MP
Privatization	0.72*	0.82
	(0.095)	(0.11)
FDI	1.08	0.86
	(0.28)	(0.30)
Agriculture	0.92	0.73
	(0.24)	(0.25)
Manufacturing	4.18***	2.36***
	(1.01)	(0.55)
Mining	1.62	0.56
	(0.79)	(0.49)
Construction	1.26	0.95
	(0.33)	(0.28)
Trade	1.26	1.03
	(0.36)	(0.27)
Retail	2.21	1.15
	(1.00)	(0.63)
Finance	1.22	0.78
	(0.29)	(0.19)
Power/Energy	2.11	2.14
	(1.31)	(2.61)
Other sector	1.39	1.19
	(0.32)	(0.20)
Firm age	1.00	1.00
	(0.0027)	(0.0034)
Technology	2.11***	1.92***
	(0.34)	(0.30)
Size	1.45	0.77
	(0.49)	(0.26)
Size <sup>2</sup>	0.96	1.06
	(0.042)	(0.040)
Large	1.49	0.49***
	(0.50)	(0.079)
Firm subsidy	1.30	0.87
	(0.40)	(0.15)
New GM	0.78	0.89
	(0.13)	(0.094)
Dom. monopoly	0.75	0.71*
	(0.18)	(0.12)
Observations	1952	1771

Exponentiated coefficients; standard errors in parentheses.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

APPENDICES

APPENDIX A. COMPARING THE MAGNITUDE OF THE GREAT DEPRESSION AND THE POSTCOMMUNIST RECESSION



## APPENDIX B. METHODS OF PRIVATIZATION

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

- (1) **VOUCHERS OR COUPONS.** These were programs that distributed “vouchers” or “coupons” to the adult citizenry which can then be used to purchase enterprises during privatization auctions. Their face value was much greater than their cost to the public. This was the major method in Russia and the subject of this empirical analysis.
- (2) **COMPETITIVE AUCTIONS.** This 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 are able to privatize enterprises via rigged auctions. In such cases, the price paid for the enterprise is 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 overall was management and employee buyouts. There were a variety of ways of accomplishing this transfer, but it 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 there would use lease-to-own arrangements, where 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 device that centralizes the ownership and voting of the workers. This is crucial, since it guarantees actual worker control. These were very rare throughout the postcommunist world, and were mostly prohibited in practice in Russia.
- (6) **FOREIGN INVESTMENT.** Foreign investment can take the form of portfolio purchases, where by a company is listed on a foreign stock exchange as an Initial Public Offering (IPO). Most foreign investment took the form of foreign direct investment (FDI), where a foreign firm purchases a company and controls it. This is typically the outcome of fair auctions, but can also be accomplished in other ways. There can be a formal or informal preference for FI (such as in Estonia, where FI was sought as a hedge against Russian domination). There can be FDI via closed tender, where the process isn’t transparent but negotiated between the government and foreign buyer behind closed doors. FDI is the dominant method in Hungary and CEE more generally. FDI can also take the form of joint ventures with state owned enterprises (this is very common now 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 from outside owners. This was observed in the Czech Republic (King 2001).

- (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. This was a very minor method overall.
- (9) GREENFIELD PRIVATIZATION. This is the strategy of not privatizing SOEs for quite a while, but creating conditions conducive to greenfield investment and the exit of inefficient firms. In essence, this allows a private sector to grow up around a state owned sector, until the country “outgrows the plan.” This is the dominant method in China.

APPENDIX C: BEST ESTIMATE OF EXTENT OF MASS PRIVATIZATION PROGRAM

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

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

## APPENDIX D

TABLE D1  
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)
expcentr	-0.037 (0.028)
Oil	0.26 (0.49)
FSU	0.57 (1.00)
Constant	-
Observations	22

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

*Notes:* 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 more 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.

## WEB APPENDIX

TABLE W1  
DESCRIPTIVE STATISTICS OF FIRM-LEVEL MEASURES OF PERCEIVED STATE CAPACITY

Country	Likelihood of Weak State Capacity				
	Barter	Bribe	Government Inefficiency	Insecure Contracts and Property Rights	Unofficial Payments to Public Officials
Albania	0.00	0.64	0.64	0.47	0.39
Armenia	0.18	0.32	0.84	0.42	0.44
Azerbaijan	0.22	0.71	0.54	0.31	0.46
Belarus	0.68	0.28	0.48	0.55	0.24
Bosnia	0.61	0.53	0.79	0.36	0.34
Bulgaria	0.34	0.54	0.75	0.42	0.25
Croatia	0.90	0.50	0.61	0.35	0.17
Czech Rep.	0.26	0.26	0.69	0.54	0.38
Estonia	0.51	0.48	0.43	0.23	0.28
Georgia	0.28	0.57	0.59	0.40	0.72
Hungary	0.10	0.26	0.63	0.27	0.25
Kazakhstan	0.58	0.36	0.75	0.59	0.37
Kyrgyzstan	0.53	0.70	0.74	0.69	0.50
Latvia	0.38	0.65	0.66	0.58	0.19
Lithuania	0.24	0.46	0.85	0.65	0.37
Macedonia	0.43	0.45	0.73	0.52	0.31
Moldova	0.76	0.59	0.85	0.76	0.47
Poland	0.34	0.53	0.49	0.24	0.21
Serbia	0.54	0.71	0.42	0.26	0.08
Romania	0.27	0.62	0.72	0.43	0.34
Russia	0.69	0.56	0.77	0.73	0.36
Slovakia	0.41	0.52	0.72	0.36	0.40
Slovenia	0.86	0.26	0.44	0.26	0.32
Ukraine	0.68	0.60	0.77	0.74	0.57
Uzbekistan	0.32	0.30	0.43	0.23	0.54

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

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 W2  
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** (2.33)	-4.88 (2.50)	-6.82* (2.48)	4.89 (2.52)	-3.91 (2.78)	-5.14 (3.34)
Price liberalization	-	-9.39*** (1.52)	-11.0*** (2.01)	-	1.41 (1.62)	-0.46 (1.57)
Democratization	-	1.68 (1.21)	2.51* (1.07)	-	2.67 (1.37)	3.08 (1.83)
War	-	-5.90 (8.03)	4.70 (7.51)	-	1.39 (2.58)	-5.02 (2.22)
Urbanization	-	-0.24 (1.86)	-0.12 (2.25)	-	4.21 (1.96)	-0.14 (5.57)
Education	-	1.11*** (0.19)	1.11** (0.30)	-	1.30** (0.28)	0.36 (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 <sup>2</sup> -within	0.254	0.582	0.751	0.130	0.611	0.805

Notes: 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.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$