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After State Socialism: The Political Origins of Transitional Recessions

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Abstract

Transitions from state socialism created a startling range of initial economic outcomes, from renewed growth to deep economic crises. Debates about the causes have largely ignored the political disruptions due to regime change that coincided with sudden initial recessions, and they have defined the problem as relative growth rates over time rather than abrupt short-run collapse. Political disruptions were severe when states broke apart into newly independent units, leading to hyperinflation, armed warfare, or both. Even absent these disruptions, the disintegration of communist parties inherently undermined economic activity by creating uncertainty about the ownership of state assets. The protracted deterioration of the party-state prior to the breakup of the Soviet Union generated widespread conflict over control of assets, which crippled economic activity across the Soviet successor states. A more rapid path to regime change was less disruptive in other post-communist states, and the problem was absent in surviving communist regimes. Comparative accounts of regime change frame an analysis of panel data from 31 countries after 1989 that distinguishes the early 1990s from subsequent years. A wide range of variables associated with alternative explanations have little evident impact in accounting for the onset and severity of the early 1990s recessions.

Keywords

regime change, state socialism, transitional economies, post-communism, market transition

The worldwide transformation of state socialism during the 1990s yielded a series of surprises, generating widespread controversy and an enduring intellectual puzzle. The distortions typical of Soviet-style economies led most analysts to expect short-run hardship as manufacturing was restructured to correct decades of overinvestment in heavy industry, and as a shift to market pricing in economies of shortage led to price inflation and lowered living standards (Clague 1992; Kornai 1994; Leitzel 1995; Winiecki 1991). All but one of 28 post-communist nations suffered immediate economic downturns, but the severity and depth of these recessions usually went far beyond prior expectations (Ericson 1998; Hanson 1998). Sharp recessions in the first states to emerge from the revolutions of 1989 were followed by much deeper economic crises in new states that emerged from the

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breakup of the Soviet Union. In contrast, the few surviving communist autocracies that restructured their economies avoided recessions and grew more rapidly, despite once being considered the least promising setting for market reform.

Among more than 30 transitional economies there are two groups of outliers. The first is the three surviving communist autocracies (China, Laos, and Vietnam), which doubled their real per capita gross domestic product (GDP) from 1990 to 2007. The second group is the 15 successor states of the former Soviet Union, whose economies collapsed in the early 1990s, finally regaining prior levels of GDP per capita in 2005. Between these two extremes is a diverse group of post-communist states that suffered shorter and less severe recessions, regaining 1990 levels of GDP per capita by 1999 (World Bank 2012).

An extensive literature has reached little consensus about why these three groups diverged so dramatically (Orenstein 2009). There are three competing explanations. The first is policy choice—the extent, timing, and pace of foreign trade, and price liberalization, financial deregulation, and privatization—and there are strong disagreements about the impact of different approaches. A second concerns initial economic circumstances: basic economic endowments, regional location, initial levels of urbanization and industrialization, and accumulated distortions due to socialist development. A third centers on political institutions: the evolving features of new governments and their capacities to formulate and enforce effective economic policies.

We propose a new explanation that draws a sharp distinction—rarely made in the literature—between the causes of higher or lower growth over time and the causes of early recessions. Most explanations for post-socialist economic performance are about conditions favorable to higher growth rates over time, or recovery from initial recessions, rather than explanations for initial economic crises. In many cases—particularly policy choice and new political institutions—the proposed causes occurred after the worst recessions had already passed.

We argue that initial recessions are a direct expression of the political disruption that accompanies regime change, and that state socialist economies were particularly vulnerable to the collapse of communist parties. The most obvious disruptions occur when a national state breaks up into newly independent units—often leading to hyperinflation and at times to civil war or armed conflict over national borders. Our primary interest, however, is in a feature of state socialism whose implications are less obvious. The political organization of state socialism made its economies unusually vulnerable to regime change. Communist parties played a central role in defining and enforcing the state's property rights over assets—especially important because almost all assets were the property of the state. When a communist party's capacity to perform this role declined for a prolonged period before its eventual collapse, economic activity was undermined by economy-wide uncertainty over ownership claims. This was a problem in all communist regimes that collapsed shortly after 1988, but the political decline of the Soviet Union in its final years was far more protracted and severe than in other communist regimes, where regime change was much more abrupt.

Our explanation reorients efforts to understand these initial outcomes in several ways. It shifts attention from the course of market reform to developments in the immediately prior period; from initial economic conditions to prior political developments; and from questions about the speed and extent of privatization to the more fundamental question of a state's capacity to enforce property rights of any kind.

SPECIFYING THE PROBLEM

To appreciate the importance of distinguishing the determinants of growth over time from the causes of immediate and sharp economic downturns, we make clear the timing and magnitude of initial recessions. Figure 1

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Figure 1. Annual Percent Change in Real Per Capita GDP, by Country Group, 1989 to 2007
Source: World Bank (2012) and European Bank (1999).

displays the annual change in real GDP per capita in these three groups of countries. Growth rates in surviving communist states dipped on two occasions but they never went into recession. Almost all of the post-communist states, by contrast, experienced sharp contractions that coincided closely with regime change.[1] The decline began in 1990 in the Soviet Union and worsened in its successor states until 1992, when the economies of the entire group shrank by over 20 percent in a single year. These economies finally began to grow again in 1996, but not before their output had shrunk by an average of 50.3 percent (World Bank 2012). Economic crises in the other post-communist states began at the same time and reached their low point two years earlier. By 1994, these states were growing once again, but not before their economies had contracted by an average of 20.1 percent (World Bank 2012). After 1996, growth rates rapidly converged, and after 2000 the highest growth rates were in the former Soviet republics. The large differences in cumulative trends are almost exclusively due to the magnitude of the pre-1996 recessions. Efforts to explain the differences across these three groups should therefore focus on understanding the causes of these recessions.

THREE POLITICAL TRAJECTORIES

The fact that steep economic declines coincided closely with regime change suggests one should look for their causes in events that coincided closely in time with the onset of regime change. Retrospective histories of the decline of the Soviet Union highlight two features of that state's deterioration that stand in marked contrast with all other states that experienced regime change. The first feature is a set of ill-conceived economic reforms that undermined the communist party's control over state assets several years before the regime's collapse. A reform decree in early 1988, designed to overcome bureaucratic resistance, withdrew party organizations from oversight of state enterprises and their managers. Retrospective analyses mark this

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decision as the turning point that threw the Soviet economy onto a sharp downward trajectory (Ellman and Kontorovich 1998; Gregory 2004). This is reflected in Figure 1, which shows that the Soviet economy began its rapid decline two years before the end of the Soviet Union.

The second distinctive feature is the prolonged and severe deterioration of the Soviet party-state. By 1989 the party was already disintegrating, as competitive elections were held, regional republics declared sovereignty over their assets and populations, and separatist movements gained momentum in the Baltics and the Caucasus (Beissinger 2002; Brown 1996:155–211, 2007:197–206; Gill 1994:78–173). During this period, ownership claims over state assets became unclear, contract enforcement and related expectations suffered, de facto control over state assets was seized by a range of new actors, and the capacity to collect taxes declined.

The Soviet decline was far more prolonged and pronounced than in all of the other states where communist parties eventually surrendered power. On the surface, this highly diverse group—ranging from Poland and Albania in the west to Mongolia and Cambodia in the east—seem to share little in common. Their political transformations took a variety of forms. But their varied paths to regime change shared two crucial characteristics that distinguished them from the Soviet Union. Their communist parties all maintained their cohesion until the eve of regime change, which took place much more abruptly than in the Soviet Union. Moreover, none of these states experienced a prior attempt to pull apart the planned economy analogous to Gorbachev's post-1986 reforms in the Soviet Union. These regimes all approached regime change with party structures and party control over state assets still largely intact.

This was true despite wide differences in the way regime change occurred. Some new governments were formed through negotiations that involved cooperation between incumbents and challengers. In Poland, Czechoslovakia, and Hungary, the transfer of power was negotiated beforehand and power passed quickly through elections (Bruszt 1990; Bruszt and Stark 1992; Gross 1992; Judt 1992). In Romania and Bulgaria, internal party factions ousted entrenched leaders and held multiparty elections in less than a year (Bell 1997; Tismaneanu 1997; Verdery and Kligman 1992). In Albania and Mongolia, large street protests led rapidly to regime capitulation and multiparty elections (Biberaj 1992; Pano 1997; Rossabi 2005). In Yugoslavia, the heads of the Slovenian and Croatian parties abruptly withdrew from federal institutions, precipitating a rapid breakup into separate states that held competitive elections and declared independence (Banac 1992; Miller 1997). In Cambodia, the Vietnamese-installed communist party negotiated an international agreement to subject itself to internationally supervised elections, placing its government under United Nations authority during the transitional period and receiving massive financial subsidies (Chandler 2008; Gottesman 2002). In none of these cases did new governments form more than one year from the point when it became clear that the party's dictatorship would soon end.[2] With ownership claims, contract enforcement, and fiscal capacity intact until shortly before the handover to a post-communist government, these regimes did not enter their period of post-communist reform with economies and taxation systems as severely disrupted as in the Soviet Union.

The surviving communist states that embarked on market reform did so with their party structures intact, relinquishing their economic role gradually. Initial concessions to household farming, small-scale private enterprise, and modest price and profit incentives for state firms yielded positive results. More radical reforms followed in the 1990s; state firms were rapidly restructured or closed and the vast majority were privatized (Naughton 2008, 2012). None experienced recessions; all experienced gradually rising rates of growth, with the exception of two years of much slower growth in China in 1989 and 1990, the result of nationwide

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protests during the spring of 1989 that led to a draconian military crackdown and the imposition of martial law.

ALTERNATIVE EXPLANATIONS

We argue that initial recessions were an immediate product of the disruptive effects of regime change. This possibility has been all but ignored in the vast literature on the subject, which has been preoccupied with debates about reform policy. Analysts do acknowledge the impact of armed warfare and the worse fate of the former Soviet republics, expressed as dummy variables intended to control for factors that mask the true underlying causes of different trajectories. Econometric analyses typically model long-term growth rates by treating the entire period after 1989 as a continuous time series, taking little note of the sharply discontinuous nature of the trends in the first and last half of the 1990s. Causal arguments are dominated by standard ideas about growth rather than the causes of sudden and deep economic downturns. The literature contains three types of explanations, which focus on policy choice, initial economic circumstances, and features of political institutions in the reform era.

Policy Choice

The long debate about reform policy reflects a conviction that the impact of policy choice was large. One early view held that rapid and coordinated changes—price liberalization, deregulation of foreign trade, market entry by private enterprise, and privatization of state assets—would be painful in the short run but was essential for sustained recovery (Sachs 1993, 1994; Summers 1994). Other scholars objected strongly, arguing that such policies were unnecessarily radical (Murrell 1991, 1995; Stark 1991). As economic crises in the region deepened, they were frequently attributed to these policies (Amsden, Kochanowicz, and Taylor 1994; Burawoy 2001; Cohen 1998; Nolan 1995; Reddaway and Glinski 2001). Burawoy (1996, 2001) argued that Russia's neoliberal economic policies destroyed state capacity to regulate the economy and led to its downward economic spiral, whereas China's gradual reforms and continued reliance on state direction led to rapid growth. Hamm, King, and Stuckler (2012) further developed this argument in a cross-national analysis of 25 post-communist economies during the 1990s that found a negative impact of mass privatization and rapid liberalization on state capacity, corporate restructuring, and long-run growth rates. They argued that these policies deeply eroded the state capacity that sociological accounts emphasize as an important foundation of economic development (Block and Evans 2005; Campbell 1993; Campbell and Lindberg 1990; Carruthers and Ariovich 2004; Evans 1995; Evans and Rauch 1999).

The main problem with this explanation is timing. Whatever the merits or flaws of neoliberal policies, post-communist governments began to carry them out only after severe recessions were already well underway. This was particularly true for mass privatization, a controversial approach that was often carried out haltingly after an additional period of delay and resistance. Hamm and colleagues (2012) found that the 11 countries that carried out mass privatization during the 1990s had significantly lower growth rates. Nine of them were in the former Soviet Union. Only one (Russia) began to implement mass privatization by the end of 1992, two began in 1993, five in 1994, and one in 1995. By the time these countries initiated mass privatization, virtually all of them were already in deep recession, in most cases at or near the bottom. Russia's economy had already shrunk by almost 30 percent, and other countries had suffered prior declines ranging from 25 to 70 percent (see Table 1). Given the timing of implementation, the only real question is whether these policies slowed recovery. Not surprisingly, the econometric literature has found it difficult to demonstrate any clear positive or negative impact of different policy packages, sparking debate about whether

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Table 1. Dates of Mass Privatization Programs

Country	Dates for Onset and Implementation	Prior Net Change after 1989, GDP per Capita
Armenia	October 1994 to March 1995	−46.8%
Czech Republic	May to December 1992 (first wave); December 1993 to November 1994	−11.7%
Georgia	June 1995 to July 1996	−70.8%
Kazakhstan	April 1994 to January 1996	−32.1%
Kyrgyzstan	March 1994	−32.3%
Latvia	1994	−46.1%
Lithuania	1993 to 1995	−25.8%
Moldova	March 1993 to November 1995	−40.3%
Romania	October 1992 to June 1995	−23.9%
Russia	August 1992 to July 1994	−28.5%
Ukraine	Year end 1994	−48.9%

Source: Lieberman, Nestor, and Desai (1997:10–13, 98, and 174); GDP per capita (purchasing power parity) calculated from World Bank (2012).

policies mattered at all (Babecky and Campos 2011; Campos and Coricelli 2002; de Melo et al. 2001; Falcetti, Lysenko, and Sanfey 2006).

Initial Economic Circumstances

Other scholars argue that initial economic circumstances, such as prior levels of industrial development, were decisive. More agrarian economies—especially China, Laos, and Vietnam—generated growth more easily by moving labor from agriculture to industry. Standard theory predicts higher growth rates at lower levels of industrialization (Barro 1998; Kuznets 1973). It follows that these states should have higher growth rates, *ceteris paribus* (Sachs and Woo 1994; Woo 1994). More industrialized socialist economies also faced a heavier burden of readjustment. These economies had larger welfare states and more extensive subsidies to unproductive enterprises that were propped up to maintain employment and deliver social services. This implies a more painful process of restructuring (Åslund 1989; de Melo et al. 2001; Popov 2000; Sachs and Woo 1994). Sachs and Woo (1994) argue that the structure of advanced socialist economies in Russia and Poland made them more difficult to reform than an agrarian economy like China's, requiring a different policy approach.

Whatever the merits of this argument, it does not address the magnitude of the collapse of the Russian economy, which shrank by 44 percent before beginning to recover in 1998, nor does it address the reasons why Poland's similarly advanced economy suffered only a mild and very brief initial recession. A more plausible comparative argument would introduce counterfactuals that do not focus solely on economic structure. From our perspective, more relevant *ceteris paribus* conditions would be a Soviet Union that remained politically stable and did not experience a downward spiral toward collapse and dismemberment, or a Chinese regime that was battered by nationwide protests, leading eventually to the dismemberment of the state into newly independent units. After nationwide protests in the spring of 1989 and the subsequent military crackdown and imposition of martial law, China's growth rate dropped from 9.5 percent to an average of 2.4 percent in 1989 and 1990 (World Bank 2012). Had the Chinese regime collapsed like the USSR, China would likely have experienced a severe and prolonged recession, whatever the reputed advantages of a large agrarian sector.

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Geographic location is also a factor. Countries that bordered the European Union had clear advantages in market access, investment, credit, and technical assistance from prosperous market economies; they also had historical legacies favorable to the revival of stable democracy and the rule of law (Böröcz 2012; Fish 1997; Kopstein and Reilly 2000; Pop-Eleches 2007). Similarly, reform regimes in East Asia reaped advantages from their location in a rapidly developing region that provided export markets, foreign investment, and alternative models of regulation, corporate governance, and state-led industrial policy. With the exception of the Baltic region, former Soviet republics lacked these advantages (de Melo et al. 2001; Popov 2007). These circumstances could plausibly have helped shorten initial recessions, but arguments about geographic location appear to take recessions largely as given.

Reform-Era Political Institutions

A third explanation focuses on political processes during the course of reform and the evolving features of the governments that carry them out. The analysis hinges on a political system's capacity to formulate a consensus about reform measures and to overcome resistance by powerful vested interests and large social constituencies (Murphy, Shleifer, and Vishny 1992; Roland 2002). Much of this work focuses on the features of post-communist electoral systems, which face the problem of implementing socially unpopular policies. This research emphasizes the impact of early elections, dynamics of reform coalitions, barriers presented by vested interests, and the perils of political polarization (Fish 1997; Frye 2002; Hellman 1998; Orenstein 2001; Przeworski 1991). These issues are relevant in altered form in non-electoral systems (Lau, Qian, and Roland 2000; Shirk 1993). The sociological branch of this literature emphasizes the relative strength of communist-era elites versus technocrats and dissident outsiders in formulating post-communist economic policy. One argument is that the lingering power of old regime elites steered a country toward policies that diverted assets into their hands and blocked beneficial restructuring, whereas states where this path was blocked by coalitions of technocrats and dissident challengers fared better (King 2002; King and Szelényi 2005; King and Sznajder 2006). Whatever their merits as explanations for recovery from initial recessions and prospects for future growth, the processes at the core of these explanations occur too late to explain recessions that began in 1989 and 1990.

POLITICAL ORIGINS OF INITIAL RECESSIONS

The role of communist parties in integrating economic activity under state socialism is widely recognized. Most analysts view this as the feature that needs to change during a shift toward market mechanisms and private property. Microeconomic theories about enterprise reform place the definition and enforcement of property rights at the center of attention, but their focus is on incentives for managers and firms (e.g., Shleifer and Vishny 1998). A focus on the incentive features of property rights leads to a preoccupation with institutional design, and inevitably to questions about the speed of privatization and safeguards against government predation (Brown, Earle, and Gehlbach 2009; Shleifer and Vishny 1998). Such an analysis rests on the assumption that a state has the capacity to define and enforce property rights. Our analysis relaxes this assumption and considers the consequences of an erosion of this capacity that coincides with or precedes an attempt at economic transformation.

It seems counter-intuitive that a reform that involves a reduction in communist party control could be undermined by that party's disintegration, but this is precisely the point. Under state socialism, communist parties enforced state property rights and ensured compliance with contracts. In so doing, they ensured the delivery of tax revenues that funded the state. When the party's capacity to

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perform this function deteriorated for a prolonged period before its eventual collapse, asset ownership became unclear throughout the economy, with a range of actors competing for control over them. Under these circumstances, successor states faced a more protracted struggle to rebuild their capacity to define and enforce property rights and collect taxes.

Much-analyzed experiments with internal subcontracting within firms (Stark 1986, 1989), the spread of "second economies" (Róna-Tas 1995), and forms of decentralization that granted significant control to employees (Rusinow 1977) represent partial departures from standard socialist property forms, but they do not represent the loss of party control over assets. This occurs only when the communist party disintegrates as a coherent political organization, or through political events that raise the likelihood that the party will soon be out of power. Under such circumstances, ownership claims become uncertain, because it is no longer clear that the party has the ability or will to enforce its claims. This prompts enterprise managers, local officials, and other actors to advance new claims—ranging from novel rearrangement of firm boundaries by incumbent managers (Stark 1991, 1996); to de facto insider privatization (Åslund 2007; Blasi, Kroumova, and Kruse 1997); competition among local, regional, and central governments to assert ownership claims and the associated rights to tax revenues (Barnes 2006; Gehlbach 2008; Treisman 1999); and moves by violent entrepreneurs to seize control through organized coercion (Varese 2005; Volkov 2002). Post-communist governments that proceed with economic reforms after a prolonged decline and a large window of opportunity for asset appropriation by various actors face a more difficult task of clarifying, codifying, and enforcing ownership under new circumstances (Walder 2003). Where communist parties fall from power relatively rapidly, especially when this occurs through orderly negotiations with an opposition, the window of opportunity for asset appropriation and related actions is shorter, and conflicts over the control of assets much less severe.

A large literature explores the impact of state breakdown, civil strife, and transitions to and from authoritarian rule on economic growth (Alesina et al. 1996; Przeworski and Limongi 1993; Rodrik and Wacziarg 2005). Most post-communist states experienced some form of state breakdown, and all represent transitions from a certain kind of authoritarian rule. Moreover, one-third of the new states that emerged from the breakup of Yugoslavia and the Soviet Union went through interstate warfare or civil war as national boundaries were redrawn. Even if all the countries we are examining already had well-established market economies and did not break apart, we would still expect large economic costs due to political disruption. Disruptive political change in established market economies creates economic uncertainty, negatively affecting business environments and undermining foreign investment and the purchasing and investment decisions of firms and households.

Regime change in communist states, however, was more deeply disruptive, because communist parties integrated economic activity. These states claimed ownership over almost all productive assets and enterprises—and decided which alternative forms to tolerate—and the primary instrument for enforcing these rights was the communist party hierarchy, which linked central and regional governments directly with local governments and economic enterprises. State enterprises were directly integrated into the fiscal structure of the socialist state (Ellman 1989; Kornai 1992; Walder 1992). Tax collection occurred through mandated transfers out of enterprise accounts in the state banking system. Party committees were organized in every office and enterprise. Their superiors at the next higher level appointed and fired managers, controlled budgets and bank transfers, and prevented the private expropriation of state assets. Party officials enforced state plans, guaranteed product deliveries and payments, and ensured the transfer of revenues to state coffers. These

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arrangements stripped enterprise managers of autonomy and incentives and undermined firm performance. But these parties did effectively exercise control over managers, enterprises, and assets, ensuring the flow of revenue to the state. As communist states began to unravel, what mattered was how long the party's capacity to perform its economic role was disrupted. This implies there were sources of severe short-run economic disruption in these states, in addition to the costs associated with the breakup of national states in established market economies.

ECONOMIC CONSEQUENCES OF PROTRACTED POLITICAL DECLINE

The impact of the prolonged Soviet decline is extensively documented in the retrospective literature on Russia. When the Soviet Union finally disintegrated at the end of 1991, enterprise managers had been freed of party supervision and control for several years, exercising widespread if insecure control over their firms. A form of "spontaneous privatization" occurred through much of the Soviet Union in the late 1980s, setting the stage for later rounds of asset stripping, diversion of company resources to related private entities owned by managers, and capital flight (Åslund 2007; Blasi et al. 1997; Stoner-Weiss 2006; Varese 2005; Woodruff 1999).

The Russian mass privatization program of the early 1990s was an attempt by a badly crippled state to provide a clear legal basis for the de facto insider privatization that had already occurred. The intention was to prevent further asset stripping and capital flight by reducing uncertainty over ownership (Shleifer and Treisman 2001; Stoner-Weiss 2006). The program failed to achieve its objectives, and instead spurred a new round of struggle over assets, pitting incumbent managers and employees against former bureaucrats in ministries (who wanted to consolidate firms into holding companies or corporations that they controlled), local governments, foreign investors, private bankers, and mafia-connected entrepreneurs in a contest for control (Barnes 2006; Blasi et al. 1997). Mass privatization permitted greater extraction of income at the expense of minority shareholders (Stoner-Weiss 2006). The law granted majority shares to employees, enabling managers, in the absence of effective unions, to reinforce insider control and prevent the restructurings and layoffs that outside investors would require (Blasi et al. 1997; Varese 2005). This blocked restructuring, limited layoffs (Brown, Earle, and Telegdy 2010; Brown, Earle, and Vakhitov 2006), and created wage arrears (Gerber 2006; Gustafson 1999).

The barter trade that originated in the last years of the Soviet Union became more widespread, growing from 10 percent of all payments in 1991 to an estimated 50 percent in 1997 (Burawoy and Krotov 1992; Gustafson 1999; Woodruff 1999:146–76). Payments in kind did not go through bank accounts, hampering tax assessments. Local governments helped firms evade taxes to the central government. Enterprises provided many of the social services and infrastructure for local residents. Toleration of tax evasion kept firms in operation, permitting them to pay at least some of the salaries owed workers, and helping to maintain the sewage systems, water supplies, and heating for homes and offices (Woodruff 1999). The competition between government jurisdictions over taxation led to arbitrary and punitive approaches to tax assessment, overlapping tax jurisdictions, and confiscatory approaches to recouping back taxes (Gustafson 1999; Shleifer and Treisman 2001). Under these circumstances, the state's role as an impartial protector of property rights was undermined and it became "an erratic, predatory, and non-impartial supplier of protection" (Varese 2005:7). Among the symptoms were an increased demand for private protection services (Frye 2000; Varese 2005; Volkov 2002) and a wave of assassinations of leading business executives (Blasi et al. 1997; Volkov 2002). The legacy in former Soviet republics was tax systems that relied on large firms,

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whereas states in Eastern Europe created new tax systems that focused more on individual income (Easter 2012; Gehlbach 2008).

The weakened capacity of former Soviet republics to enforce property rights—in contrast to other post-communist states—was documented in surveys of enterprise managers in 1,500 firms across five states in 1997. Enterprise managers were asked to report whether they found it necessary to make extralegal payments for licensing, protection, business registration, tax inspections, or safety inspections—measures of the extent to which property rights are secure from predation. The contrast between the post-Soviet states of Russia and Ukraine and the others—Poland, Romania, and Slovakia—were extreme. The average across the five items ranged from 6.2 to 15.2 percent in Poland, Slovakia, and Romania; it ranged from 81.6 to 85.9 percent in Russia and Ukraine (Johnson, McMillan, and Woodruff 2002).

CROSS-NATIONAL EVIDENCE

Our theory about the political origins of transitional recessions is based on a threefold contrast between surviving communist states, former Soviet republics, and other post-communist states. All 15 of the Soviet successor states were exposed to the same long process of political decline in the late 1980s prior to their emergence as independent regimes; the remaining 13 post-communist states underwent a more abrupt and less disruptive regime change. None of the three reform communist states experienced these disruptions. Given the nature of the argument, which is about legacies of prior patterns of political change, we have little choice but to treat these groups as fixed categories. The only conceivable variation is in the "other" post-communist group, whose political transitions ranged from barely more than one month to close to one year. Because the post-Soviet regimes experienced a much more prolonged and extensive prior decline of party-state capacity and the surviving states experienced much less, the threefold distinction is both unavoidable and defensible on theoretical grounds.

The core of the argument, however, cannot be tested definitively with cross-national panel data. The primary problem is that this threefold distinction also captures variation along many other potentially relevant dimensions, including those at the core of alternative explanations: policy choice, post-communist political institutions, geographic location, economic structure, level of prior industrialization, and basic economic endowments. Even if we were to control for an entire range of these dimensions, there would always remain suspicion that unobserved heterogeneity across these categories "really" explains any group differences that survive these controls. Moreover, the statistical models cannot test directly the mechanisms at the core of our theory—the extent of decline in a communist state's capacity to enforce property rights in the period immediately prior to regime change. Because the level of disruption is fixed prior to the period of observation after 1989, it is not possible to disentangle the effects of political disruption as we specified them with other possible confounding causes.

However, we can subject our theory to a preliminary and partial test by introducing controls for a range of variables that represent alternative arguments, and by including controls for other variables associated with political disruption, like hyperinflation and armed warfare. If differences across these three groups are reduced to the point where they are small or no longer statistically significant, there is little case to be made for the plausibility of our theory. Given the strong claims made in the past for policy choice, political institutions, and initial economic circumstances, one might expect that introducing such controls would have this effect. But if large group differences survive a wide range of plausible controls, our qualitative comparative argument cannot be rejected out of hand and should be considered at least as credible as the existing alternatives. Without further tests with more precise measures or detailed case comparisons, confidence that we have correctly specified the mechanisms is based on the comparative case histories offered here, not on the statistical models.

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It is widely understood that the surviving reform communist regimes fared much better economically than almost all of the others, and the former Soviet republics generally fared much worse. In econometric analyses, this is often expressed by a dummy variable that controls for "former Soviet Union." A dummy variable of this kind is based on empirical observation rather than theory—it essentially represents an effect that is not justified theoretically or interpreted. The dummy variable is assumed to cover whatever unspecified processes might be going on, potentially masking the impact of policy choice or initial economic circumstances. Based on retrospective political histories and reasoning about the political structure of state socialist economies, we argue that this dummy variable represents a severe level of political disruption, and the surviving regime category its absence.

To put our proposed theory to a preliminary test, we assembled a dataset for 31 former state socialist economies for 1989 through 2007. Our primary data source is the World Development Indicators Database (World Bank 2012).[3] For some newly independent states, the World Bank did not provide data for the years 1989, 1990, and 1991. For these cases, we supplemented the series with data provided by the European Bank for Reconstruction and Development (European Bank 1999). We obtained variables indicating features of political institutions from the Polity IV database (Marshall, Gurr, and Jaggers 2010; Polity IV 2013). We adapted measures of initial economic circumstances and policy choice from published studies, sometimes supplemented by additional coding decisions as indicated below (see Table A1 in the Appendix).

We compare countries over the same time period to ensure they all face the same international economic environment. This raises the question of how to date the onset of a country's transition. Some scholars claim that the surviving communist states began market reform much earlier, and their comparable period is the 1980s. Vietnam and Laos, however, did not begin market reforms until 1988. In China, household agriculture did not become national policy until 1983, modest state-sector reforms began in 1985, the first steps toward market prices were in 1988, and systematic liberalization and privatization of the state sector did not begin until the 1990s (Naughton 2008, 2012). The intensification of reform in the 1990s makes these countries directly comparable to the post-communist economies.

The absence of regime change does not give a country high growth rates—it simply permits them to avoid sharp transitional recessions. The surviving communist regimes entered this period with much higher growth rates, widely attributed to their location in East Asia, lower initial levels of industrialization, and prior tentative steps toward market reform. To use annual growth rates of real GDP per capita as our dependent variable would exaggerate the advantages of the surviving regimes and confound the reasons for their better performance in the early 1990s with economic structure and regional advantages. Our interest is in the causes of initial sharp recessions, so the dependent variable in our models is the *difference* in a country's annual growth rate from a baseline rate at the outset of the period.[4] We calculate this baseline for each of our three groups as the average growth rate of countries in that group in 1989. For the surviving regimes the baseline growth rate is 6.2 percent; for the Soviet Union it is .9 percent; and for the other post-communist states it is .3 percent.

Some scholars note that official data probably overstate the true extent of economic collapse, because drastic declines in officially measured output did not create mass unemployment, plant closings, or corresponding drops in electricity consumption.[5] Official figures were surely biased downward by the spread of barter trade and the collapse of the tax system (Åslund 2007). We recognize this, but no one has argued that the differences in the cumulative decline in official GDP between countries like Ukraine (57 percent) and Georgia (71 percent) on the one hand, and Slovenia (13.8 percent) and Poland (7.3 percent) on the other, were not large and very real.

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Measures of Political Disruption

Our three groups of countries essentially represent different levels of a treatment—political disruption—immediately prior to the period of observation. Surviving regimes did not receive the treatment; the former Soviet republics experienced high levels of disruption (a long period of deep political decline); and the other post-communist states experienced low levels (an abrupt political transition). Two dimensions of political disruption are correlated with these categories and can be measured directly. Hyperinflation is one product of state breakdown; many of these economies experienced hyperinflation in the early 1990s. Most of the former Soviet republics maintained the ruble as a common currency, leading to the issuance of ruble credits by 15 new central banks, 12 of which continued to use the ruble until mid-1993. The long delay in establishing separate currencies led to hyperinflation in 10 of the 12 states still in the ruble zone during 1993 (Åslund 2007). Average annual inflation in the Soviet zone from 1991 to 1996 was 873 percent; in 13 other post-communist states it was 277 percent; and in the surviving communist states it was 23 percent. *Hyperinflation* is indicated by a variable coded 1 for a year the inflation rate exceeded 1,000 percent, a total of 32 country-years prior to 1997.[6] Armed warfare is another byproduct of the division of a national state. Five of the 15 Soviet successor states experienced interstate warfare or civil war during the early 1990s, as did Croatia and Serbia. The variable *armed conflict* is coded 1 for any year in which a country experienced a major interstate or civil war, and 0 otherwise.[7]

Measures of Initial Economic Circumstances

Three variables represent the initial structure of the economy. Because our dependent variable is the deviation from an initial baseline growth rate, these variables are not needed as controls for the tendency for growth rates to be higher at lower levels of industrialization. Instead, they account for the argument that more industrialized socialist economies faced a more difficult process of restructuring. The first measure is initial GDP per capita; the second, highly correlated with the first, is the initial percentage of GDP derived from agriculture.[8] An index for over-industrialization, developed by the World Bank, gauges deviation from the expected industry share of GDP based on total population, per capita GDP, and level of urbanization (de Melo, Denizer, and Gelb 1996; de Melo et al. 2001). Higher values represent prior distortions due to socialist industrialization. Cambodia and Vietnam had the lowest values (–7); Bulgaria and Slovakia had the highest (+23). All three measures are fixed constants.

Geographic advantages are indicated by a dummy variable coded 1 for states that had ready access to the European Union or were located in East Asia. We adopt the coding in de Melo and colleagues (2001), except for Russia (see Table A1 in the Appendix for details). Five Soviet successor states—Azerbaijan, Kazakhstan, Russia, Turkmenistan, and Uzbekistan—had major petroleum reserves that strongly influenced their economies; China, Romania, and Vietnam had more modest domestic oil industries. To control for the influence of oil revenues on the exporting economies, we include the annual per capita value of oil production in our equations.

Measures of Policy Choice

Policy choices are typically defined along two dimensions. *Liberalization* refers to the freeing of price and foreign exchange controls, openings to external markets, ease of private sector entry, and the curtailment of subsidies to state enterprise. Liberalization indices vary according to the weight assigned to different dimensions. We use an index adapted from Popov (2000), which ranges from 0 to 5 and scores the reform communist economies as relatively liberalized compared to former Soviet republics. A second index, derived from de Melo and colleagues (2001), is more heavily weighted toward liberalization of

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domestic prices, foreign trade, and foreign exchange, and gives surviving reform communist states low scores (see Table A2 in the Appendix).[9] We report the results for the Popov index (the de Melo index did not alter the findings). These indexes are fixed averages that indicate the cumulative stock of liberalization carried out prior to 1996. Some scholars are understandably skeptical about the subjective judgments on which these indices are based (Stubbs, King, and Stuckler 2014). Hamm and colleagues (2012) constructed a less ambiguous measure that is directly relevant to our emphasis on property rights—the speed with which state enterprises were privatized. We adopt this measure, which defines *mass privatization* as covering at least 25 percent of large enterprises. This is a dummy variable, constant through time.[10]

Measures of Reform-Era Political Institutions

Other indices quantify levels of political and economic freedom, procedural democracy, and rule of law. We use two common measures that are available through websites or published studies. The first is a scale for democracy-autocracy adapted from the Polity IV database. The index combines qualitative judgments about institutions through which citizens can express preferences about alternative policies and leaders; institutionalized constraints on executive power; and the guarantee of civil liberties to all citizens (Marshall et al. 2010). The variable *Polity 2* is a combined index that ranges from +10 (full democracy) to −9 (full autocracy), which we transform into a 100-point democracy scale. We treat *democracy* as a fixed variable, an average score over the first four years after the transition to a post-communist government, or the four years after 1988 for the surviving communist regimes.[11]

A separate index for rule of law is adapted from Popov (2000). This is a subjective measure of the predictability and stability of procedures that govern property and contracts.[12] It is a fixed average for the period before 1997, on a 100-point scale, with a high of 88 for Slovenia and a low of 30 for Armenia. One feature is that the average score for reform communist states is higher on average than that for the former Soviet republics and close to the score for other post-communist states. This fits with our understanding that property rights enforcement was more stable and predictable in surviving communist regimes than in severely disrupted states in the early years of reform. Table A1 in the Appendix contains variable definitions and their sources; Table A2 displays mean values across country categories.

ANALYTIC STRATEGY

Our interest is in the determinants of initial recessions—not higher or lower growth rates over time—so we focus on the early 1990s. We expect that levels of political disruption corresponding to our dummy variables will sharply differentiate economies during the early 1990s, but not afterward. The effect should be large even after taking into account the large impact of armed warfare and hyperinflation. Alternative explanations all imply that differences across country categories are a spurious expression of unobserved heterogeneity in initial economic circumstances, policy choices, and reform-era political economies. Our strategy, therefore, is to include in our equations as many plausible measures for these features as possible in an effort to reduce or eliminate the effect of our country group dummies in the early period.

We generate period-specific estimates of annual deviations from baseline GDP per capita. We report estimates for the early period during which recessions took place and the subsequent period of recovery. Random-effects models are inappropriate: Hausman tests conducted on random-effects models with this set of variables indicate serious violations of the model assumptions. An additional concern is that random-effects models do not properly control for time-varying covariates. A variety of estimation techniques incorporate information for time-invariant

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variables alongside a fixed-effects component in the model (Halaby 2004). To obtain more confident estimates of coefficients, we use a hybrid method proposed by Allison (2009) that centers values of time-varying covariates by their means, and then estimates the impact of deviations from their means. We estimate the models with a multilevel mixed-effects linear regression, which is implemented in Stata as the *xtmixed* command. The equation for the mixed-effects model is as follows: $y = X\beta + Z\upsilon + \varepsilon$, where y is a vector of dependent outcomes; β is a vector of fixed effects; υ is a vector of random effects; ε is the error term, a vector of white noise with mean 0; and X and Z are matrices of regressors (constant or stochastic) associated with β and υ, respectively. We use group mean centering (by country) to transform the time-varying covariates included in the fixed-effects part of the model as recommended by Allison (2009), so that $X\beta = \bar{X}\gamma + \Delta X\delta$, where $\bar{X}$ is the mean of regressors in matrix X, and ΔX is the deviation from the mean for each regressor value. In Table 2, we are mainly interested in interpreting the effects of deviations from the mean (i.e., δ), because the mean is a constant whereas the deviation is a random variable.

In Table 2, the full model in column 3 is as follows:

$$\begin{aligned} Y_t = {} & \beta_0 + I_{year\ >1994}\beta_1 + I_{surviving\ regime}\beta_2 \\ & + I_{former\ USSR}\beta_3 + I_{surviving\ regime}I_{year\ >1994}\beta_4 \\ & + I_{former\ USSR}I_{year\ >1994}\beta_5 + \Delta I_{milconflict}\beta_6 \\ & + \Delta I_{hyperinflation}\beta_7 + controls + \varepsilon_t \end{aligned}$$

Where $I_{year\ >1994}$ is an indicator function that takes the value 1 if a given year is greater than 1994 and 0 otherwise. $I_{surviving\ regime}$ and $I_{former\ USSR}$ are indicator functions for surviving communist regimes and former Soviet republics, and $I_{surviving\ regime}\ I_{year\ >1994}$ and $I_{former\ USSR}\ I_{year\ >1994}$ are interaction terms between the year and country-type indicators. Note that the variables for military conflict and hyperinflation are demeaned following the method recommend by Allison (2009), for example, $\Delta X_{hyperinflation} = X_{hyperinflation} - \bar{X}_{hyperinflation}$. The term for controls is a vector of variables that represent initial economic conditions, policy choice, and political institutions in the early 1990s. All time-varying control variables are expressed as deviations from country means. The vector of controls also includes coefficients for the country mean of the time-varying covariates. They have no substantive interpretation and are not reported.

FINDINGS

Table 2 reports estimates for nested mixed models in columns 1 through 3, and a trimmed model in column 4 that eliminates the severe multicollinearity in Model 3. The first block of variables is designed to capture the period-specific effects of political disruption; the estimates for the other covariates are an averaged overall effect for both periods. The coefficients for surviving regimes and former USSR are estimated differences from the excluded category (other post-communist states) in the average annual deviation from the baseline growth rate in GDP per capita for the initial period, 1989 to 1994. The *year >1994* indicator captures the contrast in main and interaction effects for estimated deviation from baseline growth rates for 1995 to 2007 compared to the earlier period.

Estimates in all models are consistent with our expectations. The effects for the surviving regimes are positive across all models and unaffected by the inclusion of any of the control variables. In the early period, the estimated gap between the surviving regimes and other post-communist states ranged from 2.7 to 4.8 percent annually. The negative coefficients for the interaction term between surviving regime and year >1994 indicate that this gap reversed almost completely, and in this latter period the other post-communist economies performed considerably better relative to their baseline than did the surviving regimes (although, as seen in Figure 1, their growth rates were still somewhat lower). The negative coefficients for former USSR indicate that in the initial period these economies declined at an annual average rate ranging from 3.7 to 4.9 percent more than other post-communist states. The large and positive

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Table 2. Mixed Model Estimates of Period Contrasts, Annual Deviation from Baseline Growth Rates of Real per Capita GDP, 1989 to 2007

	(1)	(2)	(3)	(4)
Political Disruption				
Year > 1994	.076***	.076***	.075***	.077***
	(.004)	(.004)	(.004)	(.005)
Surviving regime	.036***	.027**	.048***	.048***
	(.011)	(.008)	(.008)	(.013)
Surviving regime × year > 1994	−.070***	−.072***	−.070***	−.073***
	(.005)	(.005)	(.005)	(.005)
Former Soviet Union	−.049***	−.038***	−.040***	−.037**
	(.013)	(.011)	(.011)	(.011)
Former Soviet × year > 1994	.049***	.046***	.048***	.045***
	(.011)	(.011)	(.011)	(.011)
Armed conflict	−.091***	−.089**	−.089**	−.088**
	(.022)	(.028)	(.028)	(.029)
Hyperinflation	−.057**	−.044**	−.044**	−.044**
	(.017)	(.017)	(.017)	(.017)
Economic Circumstances				
Favorable geographic location		.046***	.040***	
		(.008)	(.006)	
Per capita petroleum output (US$ × 1,000)		.104***	.104***	.105***
		(.028)	(.028)	(.028)
Initial percent agriculture		−.001	−.001**	
		(.000)	(.000)	
Initial per capita GDP (US$ × 1,000)		−.007**	−.004*	.002
		(.002)	(.002)	(.002)
Over-industrialization		.001**	.001**	.001*
		(.000)	(.000)	(.000)
Policy and Political Economy				
Liberalization			−.010***	
			(.003)	
Mass privatization			−.014**	−.015*
			(.005)	(.007)
Democratization			.000	
			(.000)	
Rule of law			.000	
			(.000)	
Constant	−.037***	−.046***	−.037**	−.048***
	(.005)	(.011)	(.011)	(.010)
Observations (country-years)	571	552	539	552
Number of groups (countries)	31	30	29	30
BIC	−1540	−1528	−1481	−1516

Note: Robust standard errors in parentheses. Excluded category is other post-communist states. The reported coefficients for time-varying covariates are for deviations from country mean; the coefficients for country mean are not shown. Cambodia is missing in columns 2, 3, and 4; Serbia is missing in column 3. All models are estimated with robust standard errors. BIC (Bayesian information criterion) is calculated with number of observations set at the number of groups (countries) in the estimation.
*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed test).

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coefficients for the interaction term with year >1994 indicate that the contrast with the other post-communist states was erased and perhaps reversed. The coefficients are all positive and equal to or larger than the negative coefficients for the USSR dummy in the initial period.

The other measures of political disruption also had large negative effects. The impact of armed conflict was very large and hovered around an annual economic contraction of some 9 percent during a year in which it occurred. Hyperinflation also had a strong negative impact across all models.[13]

Column 3 in Table 2 represents the most challenging test of our argument about the impact of political disruption because it includes a long list of controls that represent alternative explanations and are also correlated with our country dummies. These controls, however, are highly correlated with one another, and the model estimated in column 3 suffers from severe multicollinearity.[14] The model estimated in column 4 eliminates the variables that are the source of the problem in column 3.[15] This trimmed model yields a positive estimate for the impact of petroleum exports, as expected, and a positive impact for over-industrialization, the reverse of what explanations based on initial economic circumstances would expect. Interestingly, mass privatization has the same negative and statistically significant coefficient as in Model 3—a country that carried out mass privatization grew over the entire period of observation at an annual rate 1.5 percent lower than countries that did not carry out mass privatization. This is similar to Hamm and colleagues' (2012) main finding, and it suggests their argument about the negative impact of that policy may have some merit, even if it does not account for the large initial recessions (given the timing of implementation relative to the onset of recession—recall Table 1).

One striking feature of these models is that the long list of control variables has virtually no impact on the large period-specific estimates for our country categories. The Bayesian information criterion (BIC) statistics indicate that the model estimated in column 1, which includes only indicators for regime change and period interactions, is the best fit with the data (the BIC statistic penalizes the number of parameters included in a model). Considerations of model fit are distinctly secondary to the fact that the estimates for the country categories in the early period appear to be completely unaffected by the inclusion of all manner of controls.

Figure 2 is a visual representation of the period-specific estimates in column 3 of Table 2. The figure displays the average predicted deviation from the baseline growth rate, by country category, for each of the two time periods. The differences across the three groups are large in the early period, with a much larger predicted decline in the former USSR than in the other post-communist states. In the second period, these differences are reversed, with much higher growth relative to the initial baseline in the former Soviet and other post-communist states relative to the surviving regimes. The apparent impact of political disruption, in other words, is massive, and limited to the initial period. The net group differences are highly robust across different model specifications. These results are not sensitive to different starting dates, ending dates, or the year that divides the two periods, or by the exclusion of any one country from the sample.[16]

CONCLUSIONS

Our theory about the political origins of post-communist recessions alters the definition of the problem in three ways. First, we note that the large group differences in average growth rates are almost exclusively an expression of the relative magnitude of early-1990s recessions. To define the question as one of growth rates over time is to obscure the nature of the problem. Second, we shift attention from institutional design and institution building in the post-communist period to the short-run institutional collapse in the immediately prior period. Finally, we identified a key institution whose collapse inherently disrupts economic activity—paradoxically, the communist

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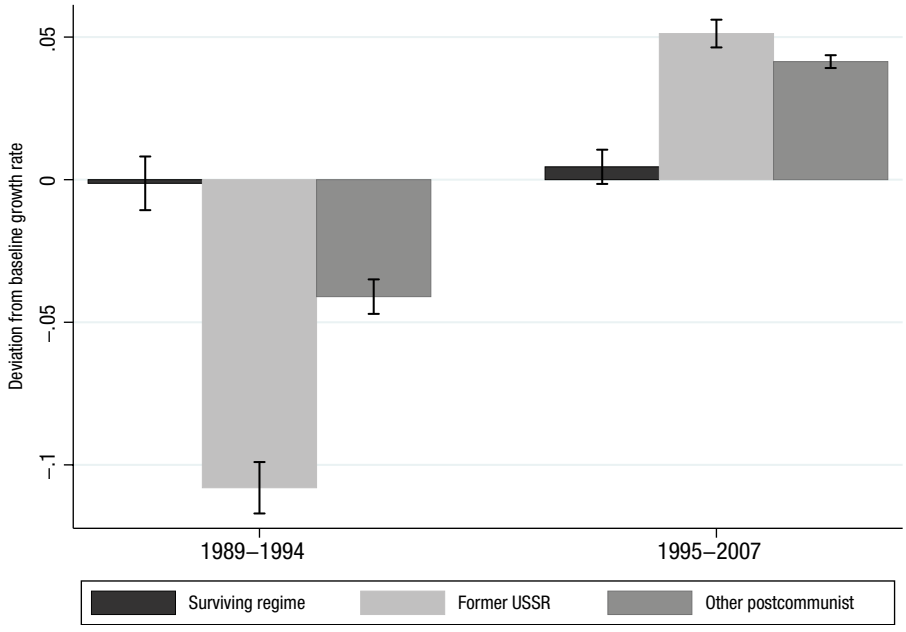

Figure 2. Predicted Deviation from Baseline Growth Rates, by Country Group and Period
Note: Calculated from model estimates in column 3, Table 2. Brackets are 95 percent confidence intervals.

party—and identified the prolonged decay in this institution that made the subsequent economic problems in the former USSR so much more severe.

We argued that explanations for post-communist economic outcomes that ignore the political shocks due to regime change are myopic, as are econometric models that treat the entire post-communist period as a continuous time series and do not differentiate the early 1990s from subsequent years. The causes of initial recessions are not the same as the causes of recovery and subsequent growth. Most alternative explanations are actually about recovery from recession or long-run growth. Arguments based on policy choice or post-communist political economy usually designate causes that occurred only after these initial recessions were well advanced. Further efforts to gauge the relative roles of policy choice and initial economic circumstances would be well advised to distinguish the early years from subsequent ones, and to explicitly take into account the legacies of countries' varied paths to regime change.

From the standpoint of econometric practice, a model based on three time-invariant dummy variables is far from satisfactory. Despite our effort to include measures for the most plausible alternative arguments in our models, there may still be unobserved heterogeneity across these three groups of countries that is captured by dummy variables that correspond to different levels of political disruption. The evidence for our argument is indirect, based primarily on qualitative case comparisons. The fact that large group differences are unaffected by controls derived from a range of alternative explanations suggests our explanation should be taken as seriously as the proposed alternatives. It is entirely possible, however, that there are other consequences of political disruption—besides hyperinflation and armed conflict—that are driving the group differences that we attribute to uncertainty about property rights. If so, there are alternate mechanisms, or perhaps additional ones, that serve to link political disruption with transitional recessions.

One of the strongest pieces of evidence in favor of our analysis comes from the close

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correspondence in time between regime change and the onset of recessions. Recessions only occurred where there was regime change, and they began immediately on the heels of regime change or, in the Soviet Union, two years prior. To be relevant to the problem at hand, any unobserved heterogeneity would have to be of a nature that could plausibly explain the onset of recessions at the time they occurred. These recessions began before post-communist governments were consolidated, and they were already near bottom when post-communist governments began to implement new economic policies. After 1996, there are no significant cross-group differences in growth rates to explain. The search for unobserved heterogeneity that might drive differences across these three groups of countries must be for variables that would have a similarly sudden impact confined to the early 1990s. This would be a much smaller set of plausible alternative causes than those taken seriously in the past.

We concur with sociologists' emphasis on the key role of states in regulating market economies and enforcing property rights, and in particular the importance of strong state capacity in the course of a market transition. However, the relevant decline in state capacity began well before post-communist economic policies that are so often blamed for this decline. Reform policies were adopted too late to have created the recessions, which began across the region, including the USSR, in 1989. We attribute the collapse of state capacity—and the unusually deep crises observed across the former Soviet Union—to a prior deterioration of the communist party. This decline was much more severe and prolonged in the Soviet Union than elsewhere. Policy choices made by new governments during the 1990s may have promoted or hindered subsequent recovery at the margins. But the ultimate causes of the severe recessions that plagued so many post-communist economies, we argue, were prior trajectories of political change. The surviving communist regimes avoided recessions by avoiding regime change, in some cases through the application of brutal repression. The lesson for these survivors is that any future transition from single-party dictatorship will be less economically damaging if it is rapid, especially if it occurs through negotiations initiated by communist parties themselves.

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APPENDIX

Table A1. Variable Definitions and Sources

Name	Definition	Type	Source
Annual deviation from baseline growth rate	Net difference in annual percentage change in real GDP per capita, constant 2000 US$, from average growth rate in country group in 1989	Scaled, time-varying	World Bank (2012), supplemented by European Bank (1999)
Year > 1994	Dummy variable indicator for period from 1995 to 2007	Dummy, constant	
Initial GDP per capita	GDP per capita, constant US$, 1990	Scaled, constant	World Bank (2012), supplemented by European Bank (1999)
Surviving regime	Transition economies that did not experience regime change	Dummy, constant	China, Laos, and Vietnam = 1
Former USSR	Successor states of the Soviet Union	Dummy, constant	Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan = 1
Other post-communist	Neither surviving regime nor former USSR	Dummy, constant	Albania, Bulgaria, Cambodia, Croatia, Czech Republic, Hungary, Macedonia, Mongolia, Poland, Romania, Serbia, Slovenia, and Slovakia = 1
Initial percent agriculture	Percent GDP from agriculture, 1989 or earliest available year	Scaled, constant	World Bank (2012)
Over-industrialization	Index of overconcentration in industrial sector	Scaled, constant	de Melo et al. (2001), with additions (see text)
Location	Geographic location bordering dynamic market economies	Dummy, constant	de Melo et al. (2001), with modifications (see text)
Per capita petroleum output value	Per capita value of annual oil production	Scaled, time-varying	Annual population from World Bank (2012); annual oil production from BP Statistical Review of World Energy, June 2012: http://www.bp.com/statisticalreview; Annual oil price year end: U.S. Energy Information Administration: http://www.eia.gov/dnav/pet/pet_pri_rac2_dcu_nus_a.htm
Mass privatization	State that carried out mass privatization in the 1990s	Dummy, constant	Hamm et al. (2012), with additional coding of six national cases, all coded 0: Cambodia (Hughes 2003), China (Naughton 2008), Laos (Stuart-Fox 2005), Mongolia (Rossabi 2005), Serbia (Vujačić and Vujačić 2011), and Vietnam (Dollar 1999)
Liberalization	Index of market liberalization, early 1990s	Scaled, constant	de Melo et al. (2001), Popov (2000). Cambodia and Serbia are missing; Laos was coded to be the same as Vietnam
Democratization	Democracy index, average score for 1990 to 1995	Scaled, constant	Marshall et al. (2010) and Polity IV (2013); 20-point scale converted to 100-point scale
Rule of law	Index of property rights protection, early 1990s	Scaled, constant	Popov (2000)
Armed conflict	Year in which state experienced interstate conflict or civil war	Dummy, time-varying	Authors' coding—see note 7
Hyperinflation	Year in which annual inflation exceeded 1,000 percent	Dummy, time-varying	Coded from data in World Bank (2012), supplemented by European Bank (1999) and Uvalic (2010) for Serbia

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Table A2. Mean Values of Variables, by Country Category

	Former USSR	Other Post-Communist	Surviving Communist
A. Political Disruption			
Military conflict (country-years)	18	12	0
Hyperinflation (country-years)	24	9	0
B. Initial Economic Conditions			
Initial percent agriculture	24.8	15.8	41.0
Initial GDP per capita (US$)	1816.0	3144.1	281.4
Over-industrialization index	5.87	9.42	−1.78
Favorable geographic location (proportion of cases)	0	.65	1.0
Per capita oil revenue (constant US$)	133.3	4.45	19.2
C. Policy Choice			
Liberalization index (Popov)	1.53	3.40	3.07
Liberalization index (de Melo)	5.09	6.38	2.67
Mass privatization (proportion of cases)	.60	.16	0
D. Reform-Era Political Economy			
Democracy index	43.7	69.9	17.0
Law index	46.9	65.4	60.6

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Notes

1. The sole exception is Cambodia, whose political transformation had exceptional features that virtually eliminated sources of disruption, as we will describe. The mildest post-communist recession was in Poland, where the economy shrank by 7.3 percent before growing again after one year.
2. The shortest period was in Czechoslovakia, where the transfer of power took only one month (Judt 1992). The longest was in Serbia, where competitive elections occurred 11 months after the collapse of Yugoslav federal institutions (Miller 1997). The Geneva agreements to hold monitored elections in Cambodia preceded the elections by almost two years, but the institutional support and massive foreign aid provided by the United Nations ensured the country was the only post-communist state that did not experience an initial recession (Hughes 2003).
3. We excluded Bosnia-Herzegovina from the analysis because data for its economy are not available. Cuba and North Korea did not embark on reform in the 1990s and do not release economic data to the World Bank. Cambodia does not enter the dataset until 1993, the first year of its new U.N.-sponsored government.
4. In previous versions of this article the dependent variable was annual percent change in GDP per capita. This yields the same overall pattern of group differences reported here, but with a much larger gap between the surviving regimes and post-communist regimes. The model provoked objections from reviewers that growth rates are higher in the surviving regimes for reasons entirely unrelated to political disruptions, and that are not fully accounted for by our control variables. It also undercut our effort to distinguish conceptually the causes of growth through time from the causes of sharp initial recessions of varying depth. We concluded that deviation from baseline growth rates more closely corresponds to our verbal arguments—which are about initial recessions rather than growth rates per se—and is a more appropriate test of our theory.
5. Some researchers suggest that electricity consumption is a better measure of economic activity, but data on usage and pricing are even more distorted than data on output and are less comparable.
6. There is no fixed definition for hyperinflation, but the most common is a month during which the

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inflation rate is 50 percent. Because our data are annualized, our dummy variable is simply an indicator of the most extreme levels of inflation in our database. Other indicators of inflation—for example, the log of annual inflation—perform essentially the same function in our equations; they do not alter the findings presented here when substituted for our measure of hyperinflation or when included in the same equation.

7. Armenia and Azerbaijan fought over national boundaries from 1990 to 1994 (Dudwick 1997; Hunter 1997); Serbia and Croatia did so from 1991 to 1995 (Cohen 1997; Miller 1997); and Serbia fought another war over Kosovo in 1998 and 1999. Georgia was embroiled in civil war almost continuously from 1990 to 1994 (Jones 1997). Moldova faced two simultaneous separatist movements that controlled over 20 percent of its territory, leading to brief hostilities in 1992 (Crowther 1997). A coup in Tajikistan ignited a bloody civil war in 1992 and 1993 (Atkin 1997). Russia conducted military operations against a separatist insurgency in Chechnya from 1994 to 1996 and again in 1999 and 2000, but we did not code Russia as 1 during these years because of the restricted geographic scope of the insurgency and the huge imbalance in the combatants' capacities.
8. We record the value for 1989, or the first year thereafter for three cases where the figure was unavailable.
9. We converted this to a 100-point scale. Hamm and colleagues (2012) use a measure provided by the European Bank (1999), which is not available for our Asian cases.
10. We adopted the country codes in Hamm and colleagues (2012, online supplement, Table C1). We coded values for six additional countries based on published studies (see Table A1 in the Appendix).
11. These scores are highly correlated with those used in other published studies, whose procedures are less clearly articulated. The correlation with that used in de Melo and colleagues (2001) is .84 and with Popov (2000) it is .88.
12. Popov expanded an index developed by economists at the World Bank by adding scores for China, Mongolia, and Vietnam from the International Country Risk Guide (see Popov 2000:51–52). We added an estimated score for Laos, assuming it was equal to that for Vietnam, and for Serbia, assuming it was equal to that for Croatia. Cambodia is coded as missing.
13. Results are the same for log annual inflation or the raw annual inflation rate.
14. A random-effects model estimated with this set of variables has a mean vif score of 9.6, and 10 of the variables in the model had vif scores well in excess of 5, with some scores well above 20.
15. A random-effects model estimated with this set of variables has a mean vif score of 3.1, with no score for any individual variable higher than 6.5.
16. The country group contrasts remain statistically significant whether the first year for the second period is set at 1995, 1996, 1997, or 1998, and when starting dates are set at 1990 or 1991. The coefficient for surviving regimes is no longer statistically significant for starting dates after 1991. When the last year of observation is set earlier, we obtain the same results for every year after 1999; with earlier ending dates, the coefficient for former USSR is no longer statistically significant. A jackknife procedure that re-estimated the models by excluding, in turn, each of the countries in our sample indicated that the findings in Table 2 are not altered by the exclusion of any single country.

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