The Hard Budget Constraint as the Pillar of the Economy

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1 Introduction

The transition from bureaucratic socialism to the market is a matter of the past, yet the past has left its marks on the economies that made this transition. An important lesson of this transition is the major effect of the hardness of the budget constraint (BC) on the process, on the resulting economy, and even the state as a whole.

The hard budget constraint (HBC) may seem too technical a concept to attract much attention, but closer examination reveals its central importance to the economy in particular and to the state in general. Neither should one overlook its ethical import: an HBC means that you receive the fruits of your own labor, that you earn what you have contributed, and that your punishment fits your crime. To be constrained by your budget means that you are protected from the fangs of predators and that others need not fear that you may deprive them of what is theirs. To be hard,
however, your BC needs protection, and to grant this protection is the task of the state.

The vital role of the state can be seen in the extreme differences in the success of transition in countries that had very similar economic structures under socialism. The countries of Eastern Europe that joined the European Union in 2004 were much more successful in transforming their economies from the centralized socialist mode to the market paradigm than were the successor states of the former Soviet Union (fSU), headed by the Russian Federation. Even the EU joiners, however, are a disparate group in their religion, history, and success in creating a well-functioning economy. Thus Bulgaria is by far the least successful of the EU joiners in subduing corruption (see Sect. 5 below). The fSU countries, however, are in a different league altogether: they plunged into a morass of corrupt kleptocracy, from which they have not yet managed to extricate themselves. The different paths of these two groups of countries may be blamed on extreme differences in the kind of state that emerged from the collapse of the communist regimes.

The explanation lies in the success that governments had in instituting an environment that supports capitalist entrepreneurship, i.e., one that eradicates the obstacles that socialism places on the path to private entrepreneurship. Socialism, as the term is used in this paper, is a system that prohibits private ownership of means of production, or of productive organizations, i.e., totally forbids the founding, nay, the very existence of non-state firms and allows private enterprise to play no role. The end of socialism therefore meant that private entrepreneurship was henceforth permitted. The success of private entrepreneurship, however, requires the protection of property and contract, i.e., the safe ownership and transfer of assets by non-state legal persons. The extent to which this radical change occurred took on very different guises in the countries discussed:

In some of the East European countries, the old communist regime was swept out of power and its apparatchiks were replaced by new elites that aimed at radical market reforms. This group of countries intended to join the EU and the latter’s accession requirements accelerated the change in their polity. These were the first states to emerge from the transformational recession, as the post-communist decline in output was called by Kornai (1993, 1994) and their income slump was the gentlest

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1 Hopefully Ukraine under Zelensky may be on its way to a cure, despite the best efforts to Trump it.
(see Sect. 5). Yet even here there were laggards, vis. Bulgaria, where corruption was too deep to even try to suppress. Bulgaria was slower than the others to defeat this scourge and is still hampered in its often half-hearted fight against it. Some countries that were initially successful, e.g., Poland and Hungary, are backsliding. Here history is to blame (Economist 2019b).

When the Soviet Union collapsed, weak new states had to sink roots in its ruins. The major successor countries, Russia and Ukraine, were slow to rebound to their pre-transition income levels. Where growth has taken root in fSU countries, usually it has been thanks to commodity exports, mainly oil. The only exceptions are the three Baltic states, which joined the EU.

As a point of reference, it may be instructive to bring two countries in eastern Asia, China and Vietnam, into the picture. Although the Communist Party remains in power in both, socialism in the sense defined above was given up by Deng some four decades ago and somewhat later in Vietnam, and private entrepreneurship was allowed to enter and flourish. Many state-owned enterprises (SOEs) were sold to private interests and the symbiosis of private firms and SOEs that now exists has achieved remarkable growth. These East Asian tigers highlight the opportunity that Eastern Europe squandered.

To sum up, one can find many differences among these four groupings of formerly socialist economies. Some trace to history and others to religion, and each of these features has its influences. The most important characteristic, however, is the nature of government that arose in each country—which, of course, was affected by some of the historical factors. An efficient private market requires hard budget constraints, freedom of entry, and, obviously, some degree of assurance of ownership. Accession to the EU, even its very promise, was highly effective in advancing real reforms (Pinto et al. 1993). Most countries that did not join the EU and had no prospect of joining have not yet managed to achieve the assurance of property and competition. The affaire Yukos is a case in point; it shows that under Putin there can be no rule of law; instead it is replaced by the law of the ruler and his whims.

It is the relations that exist among the state, private ownership, and entrepreneurship (with special emphasis on incentives for entrepreneurs) that explain why weak states, or arbitrary states, find it hard to transition to efficiently-run capitalist economies. Section 2 examines the incentives of bureaucrats and Sect. 3 probes the motivation of the socialist manager.
The following Sect. 4, argues why the state cannot be constrained by a hard BC. Section 5 compares the different growth experiences of the countries of Eastern Europe as against those of the fSU. The final section, “The lessons of the transition,” concludes.

2 Bureaucratic Incentives

To appreciate why a real change in the bureaucratic state’s behavior could be initiated only upon the transition, we must first understand the roots of bureaucratic behavior. The first point to stress is that momentary income is not at the top of bureaucrats’ priorities. Bureaucrats are concerned with their lifetime careers and select their strategies in reference to this long-term goal. Those who determine their progress are their superiors. Therefore, managers have to remain in the good graces of their bosses, who shape their career and reputation. In a market economy, outsiders who may offer them alternative employment would also base their bids on a reputation determined by superiors. They would usually be concerned with profits or, to be more precise, with their firms’ success in the market. This is what counts: falling behind competitors may sound an alarm ahead of a possible takeover or even bankruptcy, endangering the actors’ incumbency. Therefore, a capitalist manager always has to take profitability and market position very seriously. Comparisons with Hungary and Poland show similar attractions for the ideas of Mises (1920, 1970) and Hayek (1945, 1978), but also a developing recognition in those countries that their critique of socialism was not enough for a reform strategy.

In socialism, no alternative employers exist. Superiors in the industrial ministry and the Party are the sole arbiters of careers and it is to their interests that the manager must cater. To the socialist superior, today’s profits are of secondary importance at best and have scanty influence on a manager’s lifelong career; they count for little in his incentives. What counts for the socialist manager is adherence to the (ever changing) plan and its spirit (Sect. 3).

One of Kornai’s greatest insights is his recognition of the close relation between socialism and the soft budget constraint (SBC). In fact, the SBC is the obverse of the inability to close down loss-making firms and the need to supply them with liquidity to enable them to stay alive. The reason for this is that decisions to found or wind down firms in a socialist economy are political in nature, taken by political authorities for whom, again, profitability plays a very minor role. Given the arbitrary
price system, this is perhaps sensible. The SBC allows enterprises to disregard the market and keep risky innovation at arm's length. Hence the first task in transitioning to the market is to harden the budget constraint.

3 Socialist Managers

Socialist managers, as we have seen above, aim at pleasing their superiors and, as a corollary, refraining from annoying them. How do they accomplish the latter and what, in turn, is their derived maximand? It is often taken for granted with regard to any manager of any productive or even administrative unit that profits are their concern. This, however, does not hold for many classes of firms, even in market economies. Consider government-owned firms, SOEs, in market economies: managers of public firms are often judged by criteria that have little to do with profits. They sometimes have to supply, say, electricity, without even being sure that the consumers will pay for its use, as the Indian example shows (BBC 2006; Economist 2005). At other times, their political bosses are interested in maximizing employment and abhor any dismissals that profit-seeking would require. For others, what counts is “jobs for the boys.” In all these cases, profitability has very low priority.

Public utilities, even when private, are assured of their basic profits and often strive for an easy life that will not endanger their continued incumbency as sole suppliers. The same applies to monopolists, who are sure of their protection against competition. For managers in socialist Soviet-type economies (STEs), in contrast, profit-seeking is not a priority goal and profits themselves are of low priority, as noted. Whatever their true incentives may have been, it is arguable that the primary task in the transition was to change these socialist incentives into profit-seeking ones.

First, however, we have to understand what really drove these socialist SOE managers. To do this, we first have to identify the environment in

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2 A personal anecdote regarding AT&T in the 1960s may be in place here. I had an appointment in western Massachusetts with a friend who lived in its far east when my grandmother died in New York and I had to stay for her funeral. I knew only my friend’s first name, the initial of his surname, and the name of his (big) university, but not his college. With this meager information, I called AT&T and asked for assistance. It took over two hours to locate our friend, and the friendly operator helped me patiently. I doubt that this would have occurred in the competitive environment of today’s phone industry.
which they functioned. The core of a socialist economy is public ownership of all means of production, i.e., firms. Such was the case in most East European economies or in most sectors of all of them.\textsuperscript{3,4} In a socialist economy, there can be no entry or exit of enterprises unless it is initiated by the state. There is no trade in the ownership of firms, and, thus, no capital market. As a result, a competitive socialist market cannot function effectively and cannot support a scarcity-based price system (Keren 1993).

To sum up: In an STE, all enterprises are bureaucratically run as parts of one huge \textit{monafirm}, as Western researchers call it. Enterprise managers and higher-ups operate in one huge bureaucracy drawn from the Party-approved \textit{Nomenklatura} and are responsible for resource allocation, each in his or her allotted purview. What should a bureaucrat avoid so as not to displease her superiors? Consider the following examples: missed deliveries that disrupt supplies to consumers’ markets and lead to demonstrations and strikes; production stoppages triggered by missing inputs that the enterprise should have delivered. Such events, which can be blamed on the enterprise, have to be avoided. Hence the manager has to endeavor to fulfill plans of the sort that may change with changing circumstances. Profits are of interest, if at all, to the ministry of finance, which has little influence on the careers of enterprise managers.

\textbf{4 THE STATE AND THE HARD BUDGET CONSTRAINT}

How can a hard budget constraint be imposed on economic agents in a socialist state apparatus that is transitioning to a market economy, i.e., undergoing quite a revolutionary change (Ivlevs et al. 2019)? Socialist bureaucrats need much discretion to be able to soften the budget constraint; thus the bureaucracy is easily corruptible. Managers of weak firms can and do make use of bribery to ensure their enterprise’s continued existence and their own incumbency (Berliner 1959). Depriving the bureaucrats of this discretion would reduce their ability to trade favors.

The importance of privatization lies in its being a step that helps impose an HBC. It is clearly neither a necessary nor a sufficient step.

\textsuperscript{3}The GDR had a significant private industrial sector for most of its existence and Poland allowed private retail trade in agriculture.

\textsuperscript{4}This has not been the case in China since Deng allowed non-state firms to enter.
That it is not necessary we learn from the evidence of Pinto et al. for Poland, where the very threat of an HBC prompted managers to behave entrepreneurially (Pinto et al. 1993). We also have examples from Russia, where private bodies continued to receive cash infusions from the Central Bank almost until 1998. The reason privatization conduces to the imposition of HBCs is only indirectly linked to the change in ownership. To force an SOE to go out of business, an explicit decision is needed; with a private firm, it is the infusion of funds that requires such a decision. To impose controls over the central bank, the state-owned banks, the taxman, and local authorities—all of which served during the transition as conduits of liquidity to loss-making firms, both private and public—a strong state is needed.

Another priority in the transition is war on corruption. Corruption, as said above, is endemic in communist societies because of the bureaucrats’ extensive discretion and the blanket prohibition of private activities. These provide both demand for and supply of protection, krysha (“roof”) in Soviet parlance (Economist 2004). The Czech tunneling misadventures, in which managers found ways of gutting a firm of all valuable assets, leaving behind a debt-laden empty shell (Friedman et al. 2003; Atanasov et al. 2006; Coffee 1999; Johnson et al. 1990; Svitak 2002; Mertlik 1997; Kotrba 1994) demonstrate how corruption can soften the BC. Another example is the way oligarchs take control over public assets; yet another is the way losing enterprises manage to survive by tax arrears and questionable barter operations (Ivanova and Wyplosz 1999; Brana and Maurel 1999; Guriev et al. 2002; Guriev and Ickes 2000; Keren 2000b; Marin and Schnitzer 2002). Thus it takes a strong state to control corruption, carry out a “clean” privatization process, and stanch unauthorized leaks of liquidity.

A strong state, while clearly necessary, is not a sufficient condition. But what is meant by a strong state? It is a state whose governing organs are capable of imposing their policy on the state bureaucracy. In particular, its government should be able to defang the bureaucracy and render it unable to dispense favors and exercise arbitrary powers. This is not a costless strategy because it may mean that powers that Western market economies consider necessary for the protection of the public, such as sanitation and firefighting regulations, may have to be given up or weakened because burdensome inspections by the controlling organs are often used to impose “protection” rackets on resisting firms. The temporary
removal of such powers, until the relevant departments are cleaned up, may be unavoidable.

The next section, using governance indices and the growth record of various transition countries, illustrates what has come to be called the Great Divide between successful and unsuccessful transitions and advances various factors that trace these different paths to differences in efficacy among the post-communist states.

5 The Great Divide

Table 1 below shows remarkable consistency among countries—Belarus is the sole outlier—in rankings by diverse indicators supplied by different institutions and based on diverse criteria. The former STEs may be divided into three groups. Estonia, representing the Baltic states, may be considered part of Western Europe. All East European countries, from Poland to Bulgaria, comprise the second group, and the fSU countries—the third grouping—rank far below the others by all indicators. The first two groups benefited from the institutional requirements of EU accession. The need to legislate and enforce the _acquis communautaire_ forced these countries to endeavor to adopt the institutions of the established capitalist market states. In this effort, they received technical aid from the veteran EU member states.

The change over time is displayed in Table 2, which shows the development of the CPI, Transparency International’s widely used corruption index. Two countries, Belarus and the Czech Republic, show remarkable improvement over time. The latter took the path of privatizing by Investment Privatization Funds that were poorly supervised and enabled tunneling, i.e., “[the] undesirable transfer of assets and profits out of enterprises for the benefit of controlling shareholders” (Svitek 2002, p. 88) and the low corruption score of 49 in 2002—rising to a more respectable 59 by 2018—may have been earned by that episode (Table 2). The present events in Belarus may prove that the fairly consistent improvement in its CPI may have been a sham.

Several countries, Romania and Bulgaria among them, show hardly any change in their corruption scores. Poland opens with a slow advance until 2015, followed by a retreat. Hungary is fairly stable and high until 2014 but then starts a fairly steep decline. (Is this a product of its incumbent “illiberal democracy?”) Ukraine, the lowest ranked in 2012, starts climbing after the recent elections.
Table 1  Governance indices in selected countries

| Country       | CPI Score 2018 | Bertelsmann Foundation Transformation Index | Economist Intelligence Unit Country Ratings | Freedom House in Transit Ratings | Global Insight Country Risk Ratings | IMD World Competitiveness Yearbook | PRS International Country Risk Guide | World Economic Forum EOS | World Justice Project Rule of Law Index | Varieties of Democracy Project |
|---------------|----------------|--------------------------------------------|-------------------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|---------------------|----------------------------------------|-------------------------------|
| Estonia       | 73             | 77                                         | 72                                        | 77                               | 71                               | 65                                | 67                                 | 71                  | 73                                     | 75                            |
| Poland        | 60             | 65                                         | 55                                        | 62                               | 59                               | 60                                | 59                                 | 53                  | 63                                     | 69                            |
| Czech Rep.    | 59             | 65                                         | 55                                        | 62                               | 71                               | 53                                | 50                                 | 47                  | 61                                     | 60                            |
| Romania       | 47             | 65                                         | 37                                        | 59                               | 47                               | 31                                | 41                                 | 48                  | 51                                     | 39                            |
| Hungary       | 46             | 45                                         | 55                                        | 47                               | 59                               | 38                                | 50                                 | 35                  | 39                                     | 54                            |
| Belarus       | 44             | 37                                         | 55                                        | 33                               | 47                               | 33                                | 32                                 | 48                  | 17                                     | 39                            |
| Bulgaria      | 42             | 53                                         | 37                                        | 53                               | 35                               | 33                                | 50                                 | 37                  | 36                                     | 43                            |
| China         | 39             | 37                                         | 37                                        | 37                               | 47                               | 49                                | 32                                 | 39                  | 35                                     | 35                            |
| Ukraine       | 32             | 41                                         | 20                                        | 36                               | 35                               | 29                                | 32                                 | 34                  | 36                                     | 22                            |
| Russia        | 28             | 33                                         | 20                                        | 24                               | 22                               | 34                                | 24                                 | 42                  | 33                                     | 21                            |

Governance Indices, Selected Countries
Source WDIEXCEL.xlsx, 2018–2019.
Table 2  Corruption perceptions, selected countries, 2012–2018

| Country       | Corruption perceptions score |
|---------------|-----------------------------|
|               | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 |
| Estonia       | 73   | 71   | 70   | 70   | 69   | 68   | 64   |
| Poland        | 60   | 60   | 62   | 63   | 61   | 60   | 58   |
| Czech Rep.    | 59   | 57   | 55   | 56   | 51   | 48   | 49   |
| Romania       | 47   | 48   | 48   | 46   | 43   | 43   | 44   |
| Hungary       | 46   | 45   | 48   | 51   | 54   | 54   | 55   |
| Belarus       | 44   | 44   | 40   | 32   | 31   | 29   | 31   |
| Bulgaria      | 42   | 43   | 41   | 41   | 43   | 41   | 41   |
| China         | 39   | 41   | 40   | 37   | 36   | 40   | 39   |
| Ukraine       | 32   | 30   | 29   | 27   | 26   | 25   | 26   |
| Russia        | 28   | 29   | 29   | 29   | 27   | 28   | 28   |

Source: WDIEXCEL.xlsx, 2018–19.

Figure 1 provides empirical data that test the thesis. We can see three groupings of countries in the figure: China, marked by spectacular growth; several East European countries that enjoyed intermediate growth; and then Russia and Ukraine, which have not yet rebounded to their 1990 output levels. Of the latter two, Ukraine is the weaker because it has not had full control of its territory—thanks to Russia—and only recently elected a president who seems to be fighting in earnest the kleptocratic oligarchy that has run the country to date. Russia, still ruled by Putin and the old KGB-FSB siloviki, has not yet established a reliable rule of law. Both countries have been growing since 1998, but Russia has pulled ahead on account of the sharp rise (until the arrival of the corona virus) of energy prices.

Clearly, there are many alternative ways of explaining the different experiences of these three groups of countries. The need for a strong state, I believe, is the most convincing: it is a necessary (but, as said above, not sufficient) condition for an effective transition. Yet all the alternative explanations are grounded in history, from the distant past to recent and very recent times:

5The recent arrest of an Israeli who was allegedly caught with a small amount of marijuana, and at this writing is being held as a hostage to keep a Russian hacker from being handed over to the United States, is a recent case in point.
Religious differences have been advanced as an explanation: the successful European transition countries are mainly Catholic and the failures are either Eastern Orthodox or Moslem. One should remember, however, that in the past it was thought that Protestantism or Jewishness were necessary conditions for capitalist development.

Many East European countries were once ruled by the Austro-Hungarian Empire, whereas the former Soviet Union’s roots are in Russian Tsardom. Concepts such as the rule of law were quite foreign to the latter but not to the former (Figes 1996).

Soviet Russia had been under socialist rule since 1917 and Eastern Europe had been so only since 1945 (and the Baltic states since 1940). While a few East Europeans remain who lived as adults before the advent of communism, nobody in Russia who experienced life under the Tsars survives.
• The transition process in Eastern Europe was greeted by many as liberation from foreign domination (Economist 2019b) though there are those who hanker after the good old safe days of the socialist past (Economist 2019a), whereas in Russia many saw it as the end of the empire and the diminution of the stature of one of the two Great Powers—relegation to a lower league on the international stage.

These historical accounts doubtless have weighty explanatory power. But the conduit, the medium through which they acted, is the differing efficacies of government in the fSU and the East European countries. This is certainly true with respect to both the behavior of the bureaucracy and the concept of the state held by the citizenry and the very different ideas about the division of powers and limits on the state’s authority in the Habsburg and the Romanov empires. Yet the third factor, the events surrounding the transition and the manner in which the transition was ushered in, are the most telling.

The Soviet Union collapsed in the midst of a power struggle between Mikhail Gorbachev and Boris Yeltsin. The strong centralized Soviet state disappeared and on its ruins appeared new states that had not been independent states before, if ever. Even the Russian Federation was previously a mere province of the central state and had a very subsidiary role as a governing entity. Although it did inherit many of the Soviet ministries upon the disintegration of the USSR, it was essentially a new weak state. Corruption was rife, with the police often in its snare. Law and order was privatized to the mafia and property, private and public, was prey to the oligarchs. None of the needed institutional reforms could be introduced under Yeltsin; they had to await Putin’s rise to power (Mohácsi Nagy 1997; Keren 2000a). The situation of the other members of the Commonwealth of Independent States (CIS) was no better. Only the Baltic states, whose history strongly resembles that of the East European countries, fared better, for reasons mentioned in the previous paragraph.

Have things changed since Putin took over? In many respects they have. Lawlessness has declined and the enforcement of the central government’s fiat has improved. In particular, the haphazard operations of the tax authorities and inter-enterprise arrears and barter have been eliminated, and enterprise budget constraints have been hardened. The Yukos affair, however, shows that the separation of powers that is so important
for the protection of property did not exist and that the judiciary remains weak, unprofessional, and under the ruler’s thumb.⁶

6  The Lessons of Transition

The simplest standard model of an economy has two sets of actors: firms and households. Government is omitted; the economy reaches its efficient equilibrium without it. The reason is simple: ownership and contract are assumed to be secure. Property, it is presumed, cannot be alienated without the owner’s consent and needs no institutions and organizations for its protection. The transition has shown that these matters cannot be taken for granted and that the main distinction between countries that transitioned more successfully and those that have not managed to restart their growth lies in the efficacy of the state and its policies.

The breakdown of rule of law in Russia and the “spontaneous privatization” period were the first indications that the state, as the agent that defines and protects property and contract, has a key role in the economy and must not be left out of the analysis. They inspired a flood of theoretical studies on corruption that use the insights gained through the development of the new institutional economics and advances in game theory. They also yielded descriptive data. Transparency International, the creators of the Corruption Perception Index; Daniel Kaufmann and his associates at the World Bank, who developed governance indexes; Friedrich Schneider and associates, who measured the shadow economy; and the Institute for Management Development and their World Competitiveness Yearbooks all made their first appearance in the 1990s. The measures of the shadow or underground economy have deeper roots, going back to research by Gregory Grossman and Vlad Treml in the 1970s. In these respects too, however, global statistics were introduced after the start of the transition (e.g., Schneider 2006; Medina and Schneider 2018). These developments and others like them make it possible to do quantitative research that embodies institutional variables, as could not have been done before transition.

Much of this research was inspired by the events of transition, especially in Russia, which took researchers of the field by surprise. I doubt whether these areas of study and the databases related to them would exist in the

⁶Source: IMF, World Economic Outlook, September 2006. Missing data for 1989–1992 or 1993 are supplemented from UN sources.
absence of the collapse of the “planned economies.” They are lessons of the transition.

REFERENCES

Atanasov, V., Black, B., Ciccotello, C., & Gyoshev, S. (2006). *The Anatomy of Financial Tunneling in an Emerging Market*. www.eu-financial-system.org/Berlin2006_Papers/Atanasov.pdf.

BBC. BBC News. (2006). *India Struggles with Power Theft*. http://news.bbc.co.uk/go/pr/fr/-/2/hi/business/4802248.stm.

Berliner, J. S. (1959). Managerial Incentives and Decision Making: A Comparison of the United States and the Soviet Union. In *Comparisons of the United States and Soviet Economies: A Compendium of Papers Submitted to the Joint Economic Committee of the Congress of the United States*, 349–376.

Brana, S., & Maurel, M. (1999). *Barter in Russia: Liquidity Shortage Versus Lack of Restructuring*. http://www.wdi.umich.edu/files/Publications/WorkingPapers/wp271.pdf.

Coffee, J. C. (1999). Privatization and Corporate Governance: The Lessons from Securities Market Failure. *Journal of Corporation Law*, 25, 1–39.

Economist. (2004). The Economist, Jan. 22, 2004. Meet the Oleagarchs. Russia’s Power-Brokers Must Now Fawn at the Feet of Capricious Officialdom.

Economist. (2005). The Economist, Sept. 22, 2005. India’s Electricity Reforms.

Economist. (2019a). The Economist, Oct. 31, 2019. Thirty Years After the Berlin Wall Fell Germans Still Don’t Agree on What Reunification Meant.

Economist. (2019b). The Economist, Oct. 31, 2019. Freedom, Warts and All: Central and Eastern Europeans are Mostly Happy with Progress Since 1989.

Figes, O. (1996). *A People’s Tragedy: The Russian Revolution: 1891–1924*, 923. London: Jonathan Cape.

Friedman, E., Johnson, S., & Mitton, T. (2003). Propping and Tunneling. *Journal of Comparative Economics*, 31, 732–750.

Guriev, S., & Ickes, B. (2000). Barter in Russian Firms. In P. Seabright (Ed.), *The Vanishing Ruble: Barter and Currency Substitution in Postcommunist Economies*. Cambridge: Cambridge University Press.

Guriev, S., Makarov, I., & Maurel, M. (2002). Debt Overhang and Barter in Russia. *Journal of Comparative Economics*, 30(4), 635–656.

Hayek, Friedrich von. (1945, September). The Use of Knowledge in Society. *American Economic Review*, 35(4), 519–530.

Hayek, Friedrich A. (1978). Competition as a Discovery Procedure. In *New Studies in Philosophy, politics, Economics and the History of Ideas*. Chicago: The University of Chicago Press.
IMF. (2006, September). World Economic Outlook Database. http://www.imf.org/external/pubs/ft/weo/2006/02/data/WEOSep2006all.xls.

Ivanova, N., & Wyplosz, C. (1999, March). Arrears: The Tide That Is Drowning Russia. Russian Economic Trends, 8(1), 24–35.

Ivlevs, A., Nikolova, M., & Popova, O. (2019, November). Former Communist Party Membership and Present-Day Entrepreneurship in Central and Eastern Europe. IZA DP No. 12761.

Johnson, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (1990). Tunneling. American Economic Review, 90(2), 22–27.

Keren, M. (1993). On the (Im)possibility of Market Socialism. Eastern Economic Journal, 19(3 Summer), 333–344.

Keren, M. (2000a). An Essay on the Political Economy of Transition: How the Collapse of the Russian State Led to Russian Non-Transition. The Soviet and Post-Soviet Review, 27(1), 7–16.

Keren, M. (2000b). Barter and Arrears, Soft Budget Constraints and Transformation in Russia, Unpublished ms.

Kornai, J. (1993). Transformational Recession: A General Phenomenon Examined Through the Example of Hungary. Économie Appliquée, 46(2), 181–227.

Kornai, J. (1994). Transformational Recession: The Main Causes. Journal of Comparative Economics, 19(1), 39–63.

Kotrba, J. (1994). Czech Privatization: Players and Winners. CERGE-EI and University of Pittsburgh, April.

Marin, D., & Schnitzer, M. (2002). The Economic Institution of International Barter. The Economic Journal, 112, 293–316.

Medina, L., & Schneider, F. (2018, January). Shadow Economies Around the World: What Did We Learn Over the Last 20 years? IMF WP/18/17.

Mertlik, P. (1997, March–April). Czech Privatization: From Public Ownership to Public Ownership in Five Years? Eastern European Economics, 35(2), 64–83.

Mohácsi Nagy, P. (1997, April). The Meltdown of the Russian State. Paper presented at the Bar-Ilan Conference, The Changing Role of Government in an Integrated World, 13–14.

Pinto, B., Belka, M., & Krajewski, S. (1993). Transforming State Enterprises in Poland: Evidence on Adjustment by Manufacturing Firms. Brookings Papers on Economic Activity, 1, 213–270.

Schneider, F. (2006). Shadow Economies and Corruption All Over the World: What Do We Really Know? http://ssrn.com/abstract=936127.

Svitek, L. (2002, June). Privatization in the Czech Republic During the Transition Years: Success or Failure? Master of Science thesis in International Resource Planning and Management, Naval Postgraduate School, US Navy.

von Mises, L. (1936). Economic Calculation in the Socialist Commonwealth. American Economic Review (1936 Supplement). Reprinted in von Mises, L. (1975/1920). Economic Calculation in the Socialist Commonwealth. In S.
Adler (Trans.), F. A. Hayek (Ed.), *Collectivist Economic Planning* (pp. 87–130). Clifton, NJ: Augustus M. Kelley.

von Mises, L. (1990). *Economic Calculation in the Socialist Commonwealth*. Ludwig von Mises Institute. Kindle.