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The Privatization of Large and Small-Scale Firms and Their Differential Impacts on the
Macroeconomy Under Transition

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ABSTRACT

After the fall of the USSR, the process of privatizing state-owned firms was accelerated. Large
and small firm sizes entail different frameworks for individual decisions. Privatization of each
resulted in differential impacts on economic growth. This is shown using a dynamic panel data
model with time lags of privatization measures.

INTRODUCTION

There isn't much that characterizes a firm better than the size of its employment. This measure
of a firm's size is also an accurate indicator of the type of market that the firm is operating
within. Very rarely do firms of different sizes operate within the same market. If they did, the
market shares would be highly unequal. It's also rare for a large firm to be operating in a market
which is not highly concentrated. Likewise, small firms operate in markets that are less
concentrated and more competitive. Moreover, these small competitive firms are treated as the
most efficient way to allocate goods and services as in a Walrasian general equilibrium. They
are also seen as having the greatest incentive to innovate and thus promote long run growth in
their pursuit of temporary economic profits. In a free-market system, profit incentives often drive
such differentiated market structures leading to varying levels of profit and competition (Curry
and George, 1983). In the more competitive markets, the economic profits are only temporary.
In the more concentrated markets, profits may be permanent due to a firm's ability to influence
market price leading to fewer incentives to innovate.

On the other hand, large firms operating in concentrated markets are not merely profitable due
to their abilities to garner market power. Many are often successful due to the efficiency gains
coming from economies of scale. Beyond this, and more pertinent to the study at hand, there
are both gains due to forward and backward supply linkages à la Coase's "internalization"
(Williamson, 1971; Williamson 1981) along with the advantages to innovation as in the classic
work of Joseph Schumpeter (Schumpeter, 1942).

In the Coasian "internalization" case of large firms, transaction costs make it so that firms find it
profitable to produce a portion of their inputs on their own, or expand into distribution and retail
on the side of forward integration. Larger firms then gain efficiency and find it easier to compete.
This leads to greater market concentration, but with productivity gains, not losses. In the second
case, Schumpeter sees reasons for both greater firm size and concentration to result in higher

levels of research, development, and innovation (Archibugi et al, 1995). This is hypothesized due to various reasons: 1) much R&D requires high startup costs, 2) larger firms can diversify their R&D endeavors, 3) larger firms have easier access to finance, and 4) firms with more market power can more easily profit from the new technology through their influence on market price.

Arguments backing the efficiency of small-scale firms are more commonly found in neo-classical (mainstream) economics while the Coasian and Schumpterian theories are considered to be part of the institutionalist field of economics. These two schools of thought motivate an examination of how firm size may affect the economy. If small firms lead to efficiency, then an economy with greater proportions of small business would grow at a faster rate than economies with more large-scale firms present.

A test involving the impact of national-level firm concentration would be limited by the number of countries or regions being examined. The easiest sample to obtain would be purely cross-sectional, as opposed to including a time-varying component as in a panel. Under normal circumstances, using a time component would not give much additional information unless there were drastic changes in the shares of large and small scale firms over time. Without this change, growth rates would simply be higher and stay that way as long as the proportion of small (or large) firms is relatively constant over time. In this everyday case, the variation to study would be between economies, not over time.

However, there are events in which economies undergo radical change. The transition from communism to capitalism is such an instance. The initial proportion of large and small scale firms represent a change which will have a subsequent impact on macroeconomic growth. Ideally, the event to study would be one in which there was a rapid shift from large to small-scale firms (or vice-versa). But even an active anti-trust policy will affect only a small number of firms over a long period of time. So, the transition is a next-best option to study firm size in this way. The firms, both large and small, are newly privatized and the impacts on growth should be seen over time. This allows for both a cross-section and a time component to analyze.

Privatization itself represents institutional change. It involves a radical change in the property rights of the economic decision-makers and thus a radical change in incentives, along with any lingering problems due to incompatibility with old institutions which may stick around. For example, large firms may be privatized, but the financial system may remain largely public. This would create the possibility for easy financing, no matter the risk associated with the loan. For this reason, it is hypothesized that large-scale firms will be more likely to have a negative impact on macroeconomic performance.

This paper proceeds by first looking at the existing literature, including the work done in the vein of economic growth and institutions along with that which examines the post-Soviet transition to capitalism. Theory is then developed and explained in order to motivate the empirical model. The data and estimation strategies are discussed, estimates are presented and then finally the paper offers some conclusions, explanations, and interpretations.

LITERATURE REVIEW

Previous work (North, 1991; North 1997; Williamson, 2000; Acemoglu and Johnson, 2005) focuses on the long-run nature of institutions. It is extremely difficult to conduct a straight-forward comparative static analysis on institutions because of the specific ways in which they

determine economic outcomes. Institutions determine the "rules of the game," which anyone can recognize as being extremely important, but changes to the rules occur extremely infrequently and when they do there is usually so much other calamity occurring at the same time that empirical analysis is rendered difficult. Acemoglu, Johnson, and Robinson (2005) address these problems by choosing an extremely long time period over which to analyze the impact of various colonization methods on modern economic growth. The lessons learned from this work have helped elaborate the ways in which institutions work within the economy. The simple yet powerful framework which emerged is coined the "hierarchy of institutions." It is within this framework that we can now use such methods to peer into the short-run operations occurring within the "black box" which represents the precise yet unseen ways in which institutions affect economic outcomes.

The recent work of Falcetti et al. (2006), and Eicher and Schreiber (2010) calls attention to the fact that there are instances where institutional change has a significant and immediate impact on economic growth. These impacts can be thought of as a type of institutional short-run in the sense that they occur as a country transitions to a new state with new initial conditions. While Acemoglu et al. (2005) studied the differential impacts of initial legal and environmental conditions, this paper and Eicher and Schreiber (2010) study the change that occurs on the way to *new* initial conditions, in the sense that new parameters of economic growth are being set. Interestingly, the hierarchy of institutions model can be applied to both the transitional period and the stable period as it includes both long and short-run factors. This fact indicates that what is seen in the short-run may also be indicative of the long-run impact that the new initial conditions will have. While this paper cannot compare the different short-run and long-run institutional impacts coming from a single event or definitively show that long-run gains are or are not the result of short-run pains, the available theory used to explain the results is certainly commensurable with long-run institutional explanations.

This paper uses available data on the differential rates of the privatization of large and small-scale firms during and shortly following the break-up of the Soviet Union. Various estimations show that small-scale firms allow for greater immediate economic growth while large-scale firms are significantly correlated with negative economic growth, even several years after their privatization. The timing and nature of these impacts can be explained by the efficiency of small-scale firms in a competitive market and the lack of competition and efficiency associated with large firms. This evidence lends credence to the importance of competiveness in establishing productivity, as opposed to the notions that large-scale firms could be more important to efficiency and levels of production. Existing literature also examines the institutions of ownership in the transition to capitalism (Eicher and Schreiber, 2010), but this current work breaks the analysis up into firm size. It is by using the differential impacts of small-scale and large-scale privatization to explain the importance of these institutions to growth that this paper makes a unique contribution to the literature.

Literature Review of the Estimation Methods

Estimation of the model poses several problems. The first is that of a dynamic panel model with a lagged dependent variable. As with any panel, it is important to control for the cross-sectional effects by incorporating the unobserved heterogeneity through the use of "within estimation." However, doing this in the presence of a lagged dependent variable will result in biased coefficient estimates (Nickel, 1981). In most circumstances, the inclusion of a lagged dependent variable is handled with a form of GMM estimation which uses all available lags of both the dependent and independent variables (Arellano and Bover, 1995; Blundell and Bond, 1998).

Such models require additional assumptions about the relationship of the independent variables to the unobserved (cross-sectional) effect.

However, in this present work, the data is characterized with more cross-sections than time series, but the cross-sections only amount to the 26 transition economies. This limits the number of instruments which can be used in the GMM estimator and the problem of a "proliferation" of instruments quickly becomes a concern (Roodman, 2009). Thus, in order to ensure unbiased estimation of the coefficients, this paper uses quasi-maximum likelihood following the work of Bhargava and Sargan (1983) and Hsiao, Pesaran, and Tahmiscioglu (2002). The estimation of the dynamic panel is implemented using the recent work of Sebastian Kripfganz (2015), who has made his programs publically available. In this way, the issue of dynamic panel bias, or Nickel bias, is addressed and the model is considered to be identified (excluding other possible sources of endogeneity).

THEORETICAL JUSTIFICATION FOR THE EMPIRCAL MODEL

Traditionally, much of the strength of institutions came from their embeddedness into culture and society (Polanyi, 1957; Williamson, 2000). Acemoglu's theory of the *hierarchy of institutions* seems to draw heavily upon the concept of embeddedness by assuming that economic outcomes will be dependent upon social and political institutions. The hierarchy illustrates this by showing that economic performance is an outcome of economic institutions which are in turn an outcome of political power, itself determined by existing political institutions.

Diagrammatically, Acemoglu represents a simplified and concise version of the theory as seen in Figure 1.

Figure 1: The Hierarchy of Institutions
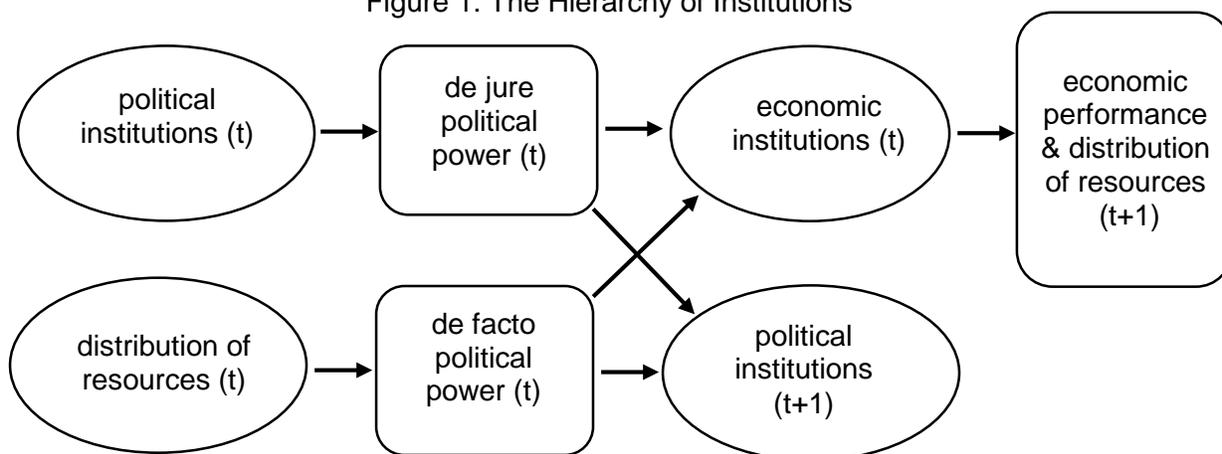
The theory explicitly states from where endogeneity will emerge if one wants to test the relationship between economic institutions and economic outcomes. If there is an omitted variable which comes from the earlier stages of the above system, such a problem could occur. If political institutions and past economic outcomes are omitted from the analysis, it is likely that any measure of economic institutions will be correlated with the error term as the error will have absorbed any unobserved variation due to past political and economic outcomes. These past political and economic outcomes will affect the current economic outcomes through the recursive framework illustrated above, but if omitted, they will be found in the error term thus

making identification impossible. In his work, Daron Acemoglu typically uses past measures of political and environmental conditions as instrumental variables in a two-stage OLS setting. Recent advances in dynamic GMM estimation incorporate this method into a more complete and general dynamic setting, as in Eicher and Schreiber (2010) and Falcetti et al. (2006). This paper does not use instruments to incorporate the hierarchy of institutions but instead uses lags of the measures of privatization in the regression model itself.

Daron Acemoglu describes "good institutions" as those that "provide security of property rights and relatively equal access to economic resources to a broad cross-section of society" (Acemoglu et al., 2005). Given the conditions of perfect competition, and the violations which may occur during the transition process, large-scale firms which represent a large share of the market may not be representative of "good institutions" and property rights. They may manage some price control through imperfect competition, construct barriers to entry and obtain easy financing through personal linkages to central banks. The hypothesis here is that large-scale firms will not be conducive to competitive markets and economic growth:

H1: Higher levels of large-scale privatization during the transition process will be associated with lower growth rates.

Conversely, small-scale firms are less complex and are less likely to encounter soft budget constraints. Thus, privatization of small firms should be more likely to be associated with faster economic growth. It's likely these firms will be able to simply take privatized property rights and behave competitively among themselves. Therefore, the second hypothesis that this paper is interested in is given by:

H2: Higher levels of small-scale privatization during the transition process will be associated with higher growth rates.

These hypotheses can be tested using a linear regression model. The particular empirical specification used herein is a dynamic panel model with the following structure:

$$\%\widehat{\Delta GDP}_{i,t} = \beta_0 + \beta_1 \%\Delta GDP_{i,t-1} + \sum_{j=0}^{2} \beta_j Lpriv_{i,t-j} + \sum_{j=0}^{1} \beta_j Spriv_{i,t-j} + controls + \mu_i + \varepsilon_{i,t}$$

Here, $Lpriv_{i,t-j}$ and $Spriv_{i,t-j}$ are the measures of large-scale and small-scale privatization over $t-j$ yearly lags and $\%\Delta GDP_{i,t}$ is the percentage change in real GDP. Also, the μ_i represent the fixed effects due to the i country cross-sections, and could be resolved using only fixed effects estimation, if this was a normal panel. However, given the dynamic and recursive nature of the variables, dynamic panel bias is likely to emerge. Also, the hierarchy of institutions indicates that an estimation of economic growth on economic institutions would omit much of a feedback loop which would be caught up in a correlation between $\varepsilon_{i,t}$ and $\%\Delta GDP_{i,t-1}$, $Lpriv_{i,t-j}$, and $Spriv_{i,t-j}$. Thus, quasi maximum likelihood is used as the preferred method of estimation. Ordinary least squares (OLS) and fixed effects (FE) estimation is used for comparison.

DATA AND INITIAL RESULTS

The data were assembled from various sources and represent 26 transition countries over the period of 1989-2006. What resulted is an unbalanced panel data set with fewer observations from the earlier periods, but with all 26 countries contained in the last year. The main data sources are from the European Bank for Reconstruction and Development (EBRD), The World Bank's World Development Indicators (WDI), The PolityIV Project, and the World Institute for Development Economics Research (WIDER).

The rate of transition among the ex-Soviet economies was quite varied. The EBRD indices are initially on a scale of 1-4 with 0.33 increments. The indices are normalized to a scale of 0-1 for the empirical estimation. In the initial scale, a level of 1 for the large-scale privatization index signifies that less than 25% of the large-scale industries are privatized. A level of 4+ is indicative of 75% or more of the industries being privatized which is comparable to OECD countries. The small-scale privatization index works along the same lines except without specific percentages associated with each level of privatization. Large-scale firms are generally ones with over 500 employees, although in smaller countries they are defined as firms having over 250 employees.

The WDIs provide estimates of real per capita GDP in 2005 international dollars adjusted for PPP. This is then converted into a percent change using logs. Gross fixed capital formation was also from the WDIs and converted into terms of percent change. Inflation came from the EBRD database and represents the annual average. The EBRD small-scale and large-scale privatization indices were normalized to a scale of 0 to 1 so that all the variables have the same scale and changes can be interpreted as, say, a 10% change in privatization. For instance, if the coefficient of one of the indices is 0.50, then a 10% change in that index would result in a 5 percentage point change in GDP, the dependent variable of percent change in per capita real GDP.

Overview of the Measures of Transition

The most essential component of the data comes from the European Bank for Reconstruction and Development (EBRD). These are the EBRD Transition Indicators (EBRD, 2010). In order to test whether privatization has differential impacts on economic growth, these measures of privatization and liberalization are employed. The indicators have been continuously collected and updated since the unofficial start of the transition in 1989. The EBRD produces separate indices for large and small-scale privatization, price liberalization, forex liberalization, and banking liberalization among other measures of institutional change. Jeffrey Sachs (1996) produced some of the first estimates of the EBRD indices' correlations to economic growth and others followed. Havrylyshyn and Rooden (2003) use a cumulative index to explain growth, as does Hernández-Catá (1997). These earlier studies often show a negative relationship between a cumulative EBRD index and the transition-period growth which can be explained by the U-shaped transitional recession and expansion. Because of this U-shaped pattern of growth during the first decade of transition, Popov (2007) uses a cumulative index to divide the relationship into a pre- and post-1996 periods. He shows that before 1996 the relationship is negative among transition countries but turns positive once economies adjust to their new-found economic freedoms. In fact, what Popov illustrates is that the timing in which studies of these kind are conducted is important and will affect the available data and results. Radulescu and Barlow (2002) find that this pattern makes it difficult to find robust results using a cumulative index over the 1991 to 1999 period. This current research appears to be the first to use an annual set of measures to test the impact of institutional change on long-run economic growth

by using the separate measures of large and small-scale privatization. Eicher and Schrieber (2010) use a combined index to make inferences. This present work extends those results.

The transition economies included in the sample are given on the next page in Table 1: Transition Economics by Region. The majority of the economies are former Soviet Union economies, while others such as Romania and Poland, had been nominally independent but were clearly with the USSR sphere of influence.

Table 1: Transition Economies by Region			
Region	**Countries**		
Baltic States	Latvia	Lithuania	Estonia
Central and Eastern Europe	Belarus	Bulgaria	Croatia
	Czech Republic	Hungary	Moldova
	Romania	Poland	Russia
	Slovakia	Slovenia	Ukraine
Southeastern Europe and Anatolia	Albania	Bulgaria	Macedonia
	Montenegro	Moldova	Serbia
Caucuses	Armenia	Azerbaijan	Georgia
Central Asia	Kazakhstan	Kyrgyzstan	Tajikistan
	Turkmenistan		

The above economies can be represented by the data over various years following the beginning of the transition from communism to capitalism. The transition began in earnest starting in 1989, but data is not available for all the economies. Due to these constraints, the panel data is unbalanced over the 1989-2006 period of transition.

EMPIRICAL RESULTS

The availability of panel data permits experimentation with different lags in the regression specification. As the data is yearly, and the impact of policy may take years to have an impact on the macroeconomy, it is worth exploring which lags contain significant relationships with the growth in real GDP. These initial trials are given in the following section.

Initial Results

In order to determine *when* the impact of privatization upon per capita real GDP is the strongest, the following regressions were run. The results in Table 2 are more for exploratory purposes and to help choose the number of lags to include, however, the noticeable pattern is one in which lags of the small-scale privatization index soon become insignificant while the large-scale index sees a negative coefficient become more significant with deeper lags up to the 4th lag, which is then insignificant. This indicates that small-scale firms can have an immediate positive impact on growth while large-scale firms reduce the growth rate 2 years later. Such a result may

not be all that surprising if large-scale firms take time to become efficient after their initial privatization. Inflation ($Infl_{t-1}$) is used to control for the severe bouts of hyperinflation experienced by the transition economies during this time period. There is a possibility that the hyperinflation was severe enough to have an impact on the real economy and would show up in real GDP despite already having been adjusted for inflation. $GFCF_{t-1}$ is the year-to-year percent change in gross fixed capital formation and is used as a proxy for investment and a control for other sources of economic growth. Time dummies are included, but their coefficient estimates are not presented.

Table 2: Exploratory OLS regressions									
	No lags			1 lag			2 lags		
	coeff.	*s.e.*	*p-val*	*coeff.*	*s.e.*	*p-val*	*coeff.*	*s.e.*	*p-val*
$\%\Delta GDP_{t-1}$	0.881	0.025	0.000	0.880	0.026	0.000	0.910	0.026	0.000
$Lpriv_{i,t}$	-0.014	0.011	0.000	0.018	0.015	0.206	0.031	0.015	0.039
$Lpriv_{i,t-1}$	na	na	na	-0.047	0.013	0.000	-0.009	0.016	0.585
$Lpriv_{i,t-2}$	na	na	na	na	na	na	-0.048	0.012	0.000
$Spriv_{i,t}$	0.082	0.011	0.001	0.072	0.015	0.000	0.072	0.016	0.000
$Spriv_{i,t-1}$	na	na	na	0.024	0.001	0.004	0.008	0.019	0.683
$Spriv_{i,t-2}$	na	na	na	na	na	na	0.009	0.015	0.520
$Infl_{i,t-1}$	0.001	0.001	0.001	0.001	0.001	0.004	0.000	0.000	0.030
$GFCF_{i,t-1}$	-0.028	0.014	0.045	-0.027	0.014	0.049	-0.050	0.014	0.000
$constant$	-0.046	0.006	0.000	-0.047	0.006	0.000	-0.044	0.007	0.000

The EBRD privatization indexes were normalized to a scale of 0-1 for ease of interpretation. In the first regression, with "No lags," the coefficient of $Lpriv_{i,t}$ is -0.014 which indicates that a 10% increase in the level of privatization results in a 0.14 percentage point decline in the growth rate of per capita real GDP. This may seem small, however, the average growth rate in per capita real GDP for the sample is only 1.2% per year. Thus, a 10% increase in large-scale privatization would reduce a 1.2% growth rate to 1.06% which is an 11.6% decline in the growth rate. The coefficients on $Spriv_{i,t}$ can be interpreted the same way. The set of regressions indicate that lags for large scale privatization should go up to 2 years and the lag for small scale privation may go back one year. Inflation seems to have a very small yet significantly negative impact on real GDP. The coefficient on gross fixed capital formation is a bit unexpected. One would expect capital investments to grow the economy, but these economies are in transition and could possibly be still in a condition of over-investment into government-favored areas of production which have been experiencing diminishing returns.

Final Results

In what follows, $GFCF_{i,t-1}$, the change in gross fixed capital formation, has been smoothed by using an HP-filter and then log-differences of the filtered data were computed. The growth in per capita real GDP, $\%\Delta GDP_{t-1}$, has also been filtered and then log-differenced. A Fisher panel unit root test is also run and the null of a unit root is rejected for all variables. In what follows, OLS and fixed effects are reported for comparison, but the quasi-maximum likelihood (QML) estimator is considered to be the consistent and minimum variance estimator among the three. Otherwise, dynamic panel bias won't be accounted for and it's likely a there would be a country-specific effect which would have lasting effects through a feedback effect between the

endogenous regressors and the error term even after the fixed effect had been purged by differencing.

Table 3: Main Results			
$\%\Delta GDP_t$	OLS	$Fixed\ Effects$	QML
$\%\Delta GDP_{t-1}$	0.9780***	0.9407***	0.9609***
	(0.0238)	(0.0279)	(0.0264)
$Lpriv_t$	0.0236**	0.0237*	0.0376**
	(0.0126)	(0.0149)	(0.0149)
$Lpriv_{t-1}$	−0.0105	−0.0123	0.0014
	(0.0156)	(0.0153)	(0.0165)
$Lpriv_{t-2}$	−0.0381***	−0.0437***	−0.0489***
	(0.0112)	(0.0437)	(0.0117)
$Spriv_t$	0.0430***	0.0634***	0.0472***
	(0.0138)	(0.0150)	(0.0184)
$Spriv_{t-1}$	−0.0240*	−0.0086	0.0018
	(0.0140)	(0.0147)	(0.0167)
$Inflation_{t-1}$	0.0032***	0.0002**	0.0002*
	0.0001	0.0001	0.0001
$GFCF_{t-1}$	−0.0393***	−0.0458***	−0.0730***
	(0.1111)	(0.0129)	(0.0130)
$Constant$	−0.1333*	−0.0215*	−0.0229***
	(0.0058)	(0.01167)	(0.0088)

The quasi maximum likelihood results are preferred and it's easy to see why. The OLS estimate on the lagged value of GDP has an upward bias while the fixed effect estimation, with its dynamic panel bias, is biased downward. The QML estimate of 0.9609 falls between the two, a good sign that it is identifying the statistical relationship.

These results employ some of the most widely used and accepted measures of privatization in a dynamic panel setting, and tell a more complicated story than the one presented by the testable hypotheses. This is due to the fact that while the short-run relationship is unambiguous, the long-run relationship depends on the time period. This gives us the conditional evidence that large-scale privatization is correlated with economic growth in the year of the sale of the public enterprise, but not thereafter. The first year in which large-scale firms are privatized is significantly associated with positive growth and is seen to increase growth by an amount of 0.38% for every 10% increase in privatization. This may be due to the improvement in government balances due to a one-time sale. Privatization is known for having these initial one-time benefits. A possibly more important result is that in the subsequent years of large-firm privatization there is a negative association with economic growth as was hypothesized. One-year lags were also tested, yet the two-year lag is the most significant, indicating that large-scale firms can deteriorate a transition economy over time rather than recover from an initial drop. The amount of the decline in the growth rate more than offsets the initial gains. This would be expected if access to easy capital and poor finance decisions are being made. Such a context is described as a "soft budget constraint" by former Harvard professor, János Kornai (1980). Small-scale firms on-the-other hand, are correlated only with significant and immediate

economic growth. There are no lags in which small-scale firm estimations become negative. It simply becomes insignificant in later lags.

In addition to lingering soft budget constraints, there are two other explanations for the results. The first is Blanchard and Kremer's (1997) concept of disorganization in supply chain. In fact, if you assume production linkages and Williamsonian assets-specific investments of large-scale firms are more complex and found on a larger scale, then this explanation may be preferred to one emphasizing the lack of competitiveness in sectors dominated by large industries. It is believed that once the linkages are formed, then the production process will be more organized and associated with positive growth, although if this is true its hasn't occurred yet in this sample. The theory itself supports a notion of laissez faire institutional transition. That is, if you simply leave things alone, eventually capital will be used to its potential and forward and backward linkages between firms will form. No other institutional adjustment is supposed to be required; however, the results may indicate otherwise.

There may be additional complications in using the above theory of asset specificity as an explanation. First-of-all, supply linkages have traditionally been treated as a reason for smaller firms to merge into larger firms - that is to avoid the transaction costs of forming contracts with vendors (Coase, 1950; Williamson, 2000). The fact that smaller firms appear to being doing so well would appear to contradict this incentive to merge (and also explain large firms' negative impact on the economy during transition. That is, these linkages are of smaller importance in general even though the contracting costs are lower in large-scale firms). Secondly, a laissez faire style of privatization and transition isn't what happened. Linkages simple didn't occur on their own. The transition was characterized by the sudden realization that time was needed for the transitional economies to develop an adequate level of competitiveness via laws and regulations (Murrell, 1992). That is, the transition itself was planned and interventionist, which brings us to the second possible explanation of the results: the large scale firms were simply inefficient. This second explanation is simpler and has important implications. The explanation highlights two separate impacts of creating the economic institutions of privatization. These newly privatized firms will have an initial impact on the economy while going through the process of privatization, but once privatized, they will continue to have an impact on the economy long after the change. To see this, a privatized firms needs to be seen for the institution that it is. It isn't a firm but a legal arrangement which has been established by political wrangling. As the economy adjusts to this new legal arrangement, the effects of the new institutions are clear, but this may be the only time that the impact of legal arrangement itself can be recognized. Afterwards it is a type of initial condition, a level-effect, guiding growth at a constrained speed depending upon the quality to the legal arrangement. But, this highlights a unique behavior of institutions in the economy: they are likely the only variable which has an impact whether it is undergoing change. This is especially true of privatization.

CONCLUSION

The results provide evidence that the privatization of large-scale firms (those with typically more than 500 employees) has the result of providing a one-time initial benefit to economic growth followed by an even larger in scale, yet negative impact on economic growth several years later. Small-scale firms are associated with only positive economic growth in the initial period of privatization. It's worth noting that these are changes in growth rates, thus the one-time impacts represent permanent acceleration (or deceleration) of economic growth. That is, the result is higher (or lower) rates of growth which, on average, will remain over the subsequent years. These results come after controlling for inflation and gross fixed capital formation.

Moreover, it's likely small-scale firms are great in number within their respective markets and, in general, large-scale firms are typically less numerous. Therefore, these results may be interpreted as the outcome of transitioning more efficient small-scale firms into efficient markets while transitioning less efficient large-scale firms into less-efficient markets. That is, these results are what you would see if large-scale firms in the sample violated the standard Walrasian general equilibrium assumptions by occupying large shares of their respective markets or if they were associated with institutional problems unique to them, such as disorganized supply chains and soft budget constraints.

At the very least, these results fail to reject such theories of large-scale firm privatization and may be seen as the expected outcome of mainstream economic theory and its views on firm size. As such, this interpretation also calls to attention the routine misapplication of standard economic theory during a process of transition. If large-scale firms are not efficient to begin with, there should be no pressing need or economic justification to privatize them before addressing the poor institutions surrounding them. If efforts to adapt the institutions aren't undertaken, there may be a cost to privatizing large-scale firms which is not found in the privatization of small-scale firms. In contrast, small-scale firms need not be "prepped" for privatization. They may be ready to go on their own without any overhaul in their supply chain and access to finance.

These results and the interpretation of these results extend the development and institutional growth literature in the following ways. First, these results confirm and find additional support for the short-run impact of changing institutions on economic growth as is described in Eicher and Schrieber (2010). Secondly, these results and the interpretation of the results begin to help define Acemoglu's notion of good institutions by testing for and finding significant differences in the impact that firm size has upon economic growth. While the interpretations necessitate further research, the results help open up the black box when it comes to determining the channels through which institutional differences can affect growth.

These results also highlight the fact that privatization itself is not a road to efficient institutions. In fact, privatization may only serve to create extractive institutions should the property be concentrated into large-scale firms. This is simply another type of concentrated power and illustrates a point of tangency between mainstream economic theory and theories of institutional growth. To carry out this line of research, a more detailed examination of market structure and market power during transition should be conducted. The central question coming out of these results asks whether large-scale firms were simply more costly to transition or is the associated fall in real GDP due to true and permanent efficiency losses? The answer to this question would be of concern to all economies and businesses, not only those in transition.

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