Estimating the Productivity Cost of Crony Capitalism

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Crony capitalism defines a system in which close relationships with public officials—used to secure government contracts, tax breaks, permits, or loans—are a *sine qua non* of commercial success. It is strongly suspected that such cronyism, by assigning commercial success to the politically connected rather than the entrepreneurially talented, inhibits the efficient deployment of capital and labor, reducing macro-economic productivity and retarding growth. Studies have repeatedly shown that connected firms enjoy superior stock market performance due to improved market power and/or preferential access to capital.[2] Yet estimating the macroeconomic effects reliably is difficult; the only two papers to have done so (Khwaja and Mian 2005, Claessens, Feijen, and Laeven 2008) have focused solely on capital misallocation and have arrived at starkly different magnitudes. We provide quantitative evidence on the magnitude of misallocation due to political connections in Russia including both capital and output frictions.

We focus on Russia because it is the modern paragon of crony capitalism. We choose this worst-case scenario because the identification and quantification of corruption is bedeviling and we have surely shone the spotlight on only one small piece of the entire system. Specifically, we compare the performance of firms with and without political connections. Our dataset includes hundreds of thousands of firms comprising an outright majority of GDP. Nonetheless, we can only identify a connection when the same person simultaneously holds both political office and a key role at the firm. We thus miss all sorts of connections due to friendships and other forms of acquaintance. Moreover, we observe only a very few individuals at each firm and only the most visible elected government officials. The majority of the bureaucracy and upper management remain unobserved. We are also, by focusing solely on the differential between connected and unconnected firms, not quantifying any of the frictions of corruption incumbent on

all firms who navigate the system. We are simply focusing on the net effect of these highly visible transactions on the productivity and allocation of capital across firms. Because they are likely a small part of the overall cost of corruption, it behooves us to focus first on where these costs might be large. Further work might then focus on the ratio between this visible tip and the extent of the rest of the iceberg.

From a private data provider (SKRIN) which sources official government statistics, we have data on an enormous unbalanced panel of Russian firms from 2003 to 2011, including balance sheets and income statements as well as lists of executives, board members, and large shareholders. The panel averages roughly 60,000 usable firms per year covering, on average, an estimated 62% of GDP per year.[3] Our panel includes public and private firms and spans all industries. We use Benford digit tests to confirm the data are not warped by widespread fraudulent reporting and drop firms identified as fraudulent by Mironov (2006). We document connections between firms and multiple levels of government: regional parliaments, the federal parliament, the cabinet, and Putin's personal network. We find an average of just over 900 connected firms per year, comprising an average estimated 7% of GDP.

We use Hsieh and Klenow's (2009) (henceforth HK) model of monopolistic competition with heterogeneous firms to calculate firm-level TFP from data contained on the balance sheets and income statements. The model allows for firm-specific distortions that drive wedges between the marginal products of capital and labor across firms. We then relate a firm's TFP to its political connections.

We define politically connected firms as those where a chief officer, director, or large shareholder (which we collectively term *stakeholders*) is simultaneously holding office in the state duma, a regional parliament, a member of the executive cabinet, or is a member of Putin's personal network of family, friends, and allies as documented by Ledeneva (2013). Standard panel regressions with controls for firm-characteristics including charter type, ownership, geographic region, and industry deliver the familiar result. Connected firms are significantly less productive (9.5%), stemming from lower marginal revenue productivity of capital (10.7%) suggesting that such firms enjoy easier access to capital and perhaps output subsidies such as public procurement contracts. Due to the sample size, these results carry t-statistics in excess of 4.

But connections are not formed randomly. It is plausible that unobserved characteristics of the firm affect both firm productivity and the ability to attract board members. These could include deliberate strategies such as an embattled firm seeking political cover (low productivity precipitates high connections) or a dynamic firm culture attracting political allies (high productivity begets connections). To address this issue, we make use of the fact that the outcome of a close election, and thus the assignment of the resulting political connection, is nearly random. (We employ methods from McCrary 2008 and Lee and Lemieux 2010 to check the validity of this assumption.) We gathered data on candidates for regional and federal parliamentary seats between 2006-2011, their existing corporate connections, and their electoral fortunes. We can thus compare firms whose stakeholders won election to those whose stakeholders failed to win election. We estimate the treatment effect under a variety of regression discontinuity designs. In each of these additional analyses, the initial result is reconfirmed.

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[3] We do not have firm-specific data on value added. To estimate GDP coverage, we aggregate firm-level data on payments to labor (wages plus benefits). We then calculate the total payments to labor using data on real GDP and labor share from FRED. Thus our estimated coverage for a single year is: $\sum_{firms \in SKRIN} wL_{firm,t} \Big/ (1-\alpha_t)Y_t$

Finally, we use the HK model to calculate the GDP effects of removing the connections. We suppose that each connected firm raises its TFPR by our estimates of the effects of a connection and then calculate the overall effect on GDP. For 2010 and 2011, the two years with widespread data on both connections and TFPR, we estimate the GDP effect of these connections to be 17.6% and 9.4% respectively. This suggests that politically induced frictions can be a large factor in misallocation and a significant retardant to GDP.

This paper proceeds with a short review of prior results about the firm-specific effects of connections. In section 3 we introduce and characterize our novel data sets, including measures of firm-specific productivity and political connections. Section 4 contains the panel and regression discontinuity analyses. We comment briefly on the macroeconomic effects in Section 5 before final remarks in section 6.