1. Introduction

Russia seems on a perpetual search for the sources of sustainable growth of its economy. As so often in the past, discussions of "modernization," "innovation," and "diversification" are popular now in Russia. The chief sponsor today is President Medvedev, who says Russia's resource-based economy is primitive and noncompetitive. Reactions to Medvedev's modernization campaign vary. Some think this is a great hope to resume serious reform of the Russian economy and politics; others are cynical and are sure it will never happen. But virtually all agree that he's correct in saying that if his modernization program were to be successful, it would be wonderful for Russia.

Our reaction is different. We think it most likely that under the specific Russian circumstances today, a modernization program would lead to negative results. This is because none of the modernization programs currently being discussed take into account the real causes of Russia's backwardness. We argue that there are two main causes. The first is the inherited production structure—both the particular kinds of physical and human capital that were accumulated in the Soviet era and the manner in which they were allocated, including their spatial allocation. The second cause of backwardness is the condition we call rent addiction, which means that there is an imperative to distribute a large share of Russia's oil and gas rents to the production enterprises that employ this inherited physical and human capital. Any "modernization" policy that fails to address the problem of addiction will simply distribute more rents to the addicts. Far from truly modernizing Russia, it will only reinforce the backwardness and inefficiency.

Herein lies the tragedy. Russia does need to move on a path towards sustainable growth. But unless the policies to achieve that goal are chosen with full recognition of the real causes of stagnation and backwardness — rent addiction and the structural legacy it helps perpetuate — the policies will likely lead to even worse problems in the future. They appear to lead to the goal but in fact lead into traps. Our purpose in this work is to warn against such mistaken

and misinformed policies by identifying and analyzing the specific conditions for Russia's backwardness. Because they are specifically Russian — rooted in Russia's geography, notably its vast size and resource abundance, and its history — we call them "Bear Traps."

Russia is a resource dependent economy, and its addiction to resource rents is the most important feature of its political economy. We have dealt at length with this issue in our book (Gaddy and Ickes, forthcoming) and in a recent article (see Appendix to this report). Hence, for the purposes of this report we will take the problem of resource dependence and addiction as a given feature of the environment as we examine the Bear Traps that Russia faces. As we examine the consequences of Russia's inherited structure on its economic future we must not forget that it is the abundance of resource rents that makes it possible to preserve these distortions. And that it is the addictive nature of Russia's relationship with these rents that provides the mechanism for its preservation.

Typically the problems of the Russian economy manifest themselves in a distorted way, via mismeasurement. In Soviet times outside analysts examined data on the economy with great caution, owing to the hurdles presented by central planning. Although central planning is dead and Russia has a market economy now, the need for caution remains. There are two primary reasons for this. First, there are Russia's specific geographical peculiarities: space and cold.¹ Second, there are legacies from the Soviet period that continue to distort our picture. In the Soviet period it was the price system that led to a distorted prism, the "circus mirror effect," where distorted relative prices made loss-making manufacturing enterprises seem productive and made the resource sectors seem like modest contributors to prosperity. The Soviet price system is history, but the legacy of decisions made in the Soviet period continues to have effects. In particular, many of these legacies lead to an overvaluation of assets and consequently to an underestimation of the returns on those assets. This is not, primarily, a statistical issue; rather it is a failure to take into account the legacy of misallocation and inherited structure.

¹Although Canada is similarly large and cold, unlike Russia, very little of its population lives and works in the very coldest parts of the country. The impact of size and cold are much less in Canada because it has adapted to its situation in a much more rational way.

This leads both to overestimation of assets and failure to recognize that legacies are the real problem. This is the ultimate Bear Trap.

The key problem in Russia is the systematic misuse of assets. The returns to investments in physical and human capital are systematically below (or appear to be below) what they should be. That is, the effective input levels of capital and labor services are below the measured levels. This leads to a misdiagnosis of Russia's maladies. By overstating the input levels one concludes that the key Russian problems are efficiency, primarily organizational, and perhaps also corruption. We argue, on the contrary, that the input levels are systematically overstated. If we used the correct levels the picture would be different. We refer to this as the τ -factor. The idea is that if measured capital and labor services are L and K, respectively, the actual effective values are $\tau_L L$ and $\tau_K K$, where $\tau_L, \tau_K < 1$. Hence these are discount factors that ought to be applied to measure the actual factor services used in Russia. Our goal in this report is to explain the causes and magnitudes of these discount factors.

The first direction of our investigation will thus focus on physical assets, capital. In chapter 2 we investigate how capital is systematically over-valued in Russia. Investment represents the sacrifice of current consumption for future benefits, but as we will demonstrate Russia receives far less future benefit than its sacrifice implies. The primary reason for this is that conventional ways to account for capital accumulation do not take into account features of space and cold. In chapter 3, we then examine how the legacy of the location policies pursed in Soviet times produce this handicap. The analysis of chapters 2 and 3 present a dilemma, however. If cold and space are such handicaps to growth, why is they not removed by investment policies? That is, why doesn't a market economy undo the location decisions of the Soviet period, and cause the distribution of population to move towards the warmer parts of Russia? We try to answer this question in chapter 4 where we focus on the implications of federalism in Russia. Our analysis shows that federalism "Russia style" leads to an immobilization of factors. There is, in fact, a political imperative to "keep the lights on" — that is, to keep factories running and people in place to man them — in what ought to become the ghost regions of Russia. We

then turn to an analysis of the other important factor for growth, human capital, in chapter 5. The problem of Russia's demography and its health crisis are well-known. The important question, however, is how important are these issues to Russia's economic future. We argue in chapter 5 that the emphasis on these problems misses the key point. As with physical capital, human capital is mismeasured in Russia. There is a τ -factor regarding labor as well, and failure to recognize this can lead to another Bear Trap, another barrier to long-term Russian growth. The real goal of Russian policy should be to eliminate the impact of the τ -factor (to bring τ closer to unity).

Bear Traps thus arise because of the failure to recognize the implications of the τ -factor. It is important to emphasize that τ is not a measure of ignorance. It is the result of a systematic overvaluation of assets. The τ -factor is not unique to Russia. But owing to the peculiarities of Russia's climate, location, and history, its impact is greater there than in other countries. The risk of misdiagnosis of Russia's maladies is correspondingly greater. The misdiagnosis leads to faulty policies which invariably waste resources and in the worst case may even make the real problems worse. A prime example is the attention given to corruption as a main cause of Russia's inefficiency. Overvaluation of assets makes total factor productivity (TFP) in Russia appear very low. This is just a feature of arithmetic. But the interpretation of low TFP is that corruption and general inefficiency are the prime culprits. This is not to argue that corruption is not an important problem in Russia, but while the emphasis stays on corruption and general inefficiency the impact of the legacies is ignored. And this leads to Bear Traps.

Not all of the special factors associated with Russia's legacy are immutable. Much is self-induced. Physical geography cannot be changed, but economic geography can be. Where you choose to locate economic activity is endogenous. Calls for modernization and diversification ignore the benefits of Russia's geography and fail to recognize how the τ -factor is going to make diversification truly difficult. In our concluding section, we argue that Russia should take advantage of its resources (whose location is part of its physical geography) but minimize the negative effects of geography by moving non-resource industries into regions that are warmer

and closer to markets.²

²Nothing illustrates the problem better than this story ("Vekselberg to Revive Soviet Oil Plant to Save Town") from Bloomberg, May 26, 21010. "Russian billionaire Viktor Vekselberg plans to renovate a moneylosing, Soviet-era synthetic oil plant as President Dmitry Medvedev demands the rich invest in towns left impoverished by dying industries." The largest oil producer in the world will make synthetic oil to save a dying one-plant town. According to a spokesman for Vekselberg: "While the Zavod Slantsy plant is the only hope for the town's economy, the potential for 'innovation and efficiency' sparked Vekselberg's interest [Vekselberg] aims to upgrade the plant and produce synthetic fuel that can compete with petroleum...."