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Five Known Unknowns about the Next Generation Global Political Economy

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About the Project on International Order and Strategy

The purpose of the Project on International Order and Strategy (IOS) is to understand the changing power dynamics in the international system and the implications for U.S. strategy and international cooperation.

The Foreign Policy program at Brookings created the project in 2007, then called the Project on Managing Global Order, to address the burgeoning debate in the United States on the future of power, the international order, and U.S. strategy. This is being driven by numerous factors including: the rise of new great powers, the diffusion of military and political power, economic difficulties in the Western order, challenges to the regional order in the Middle East, and the re-emergence of territorial disputes in Asia. These challenges to the order, and threats to state and human security, are evolving rapidly, while the United States is grappling with new constraints—as well as new opportunities. IOS examines these developments in their totality and not just as individual issues, and assess the implications for U.S. strategy.

IOS is a unique project, offering sustained research and policy engagement on the questions of international order and strategy, and features many leading thinkers on the subject, including staff members Thomas Wright, Bruce Jones, Robert Kagan, Ted Piccone, and Tanvi Madan; Non-resident Senior Fellows Daniel Drezner (Tufts), Rory Medcalf (Lowy Institute), and Jean-Marie Guéhenno (Columbia); Distinguished Fellow Javier Solana (ESADE); and Post-Doctoral Visiting Fellow Iskander Rehman. Research Assistant Laura Daniels supports the project. The project's key research topics include the future of America's global role, the behavior of the emerging powers, geopolitical competition in an interdependent world, and the revitalization of the West.

IOS promotes sustained dialogue with the emerging powers; convenes the emerging powers and foreign policy officials and experts from the United States and the Western allies, and engages key U.S. decision-makers on the challenge of adapting U.S. leadership and strategy to changing international realities.

Introduction

Rich and powerful actors believe that predicting the future will make them more rich and powerful. Great powers and international organizations have invested significant resources into crafting an accurate sketch of the next generation global economy. The U.S. National Intelligence Council (NIC) has devoted considerable efforts to predicting what the world will look like twenty or thirty years from now. A key part of the NIC's current exercise is to map out what the distribution of economic power will look like in 2036. International financial institutions and budget planners in the developed world furiously debate demographic and economic trends to assess the future liabilities of governments. In theory, sovereign wealth funds are superior long-term investors because of their ability to ride out short-term reverses. In practice, these funds still need quality long-term projections to exploit that comparative advantage.¹ Central bankers have a strong incentive to develop accurate forecasts about their country's economic future. Rising powers must assess whether their strategic ambitions are worth the economic fallout of heightened tensions with neighbors and the developed world. The future of global economic growth is a critical input into the Intergovernmental Panel on Climate Change's scenarios for the future global warming.

Within the private sector, multinational corporations and financial consultants have strong profit motives to predict the contours of the future global economy. Energy companies have a strong incentive to forecast the future of hydrocarbon resources and environmen-

tal regulations. Any company planning significant outlays in research and development or foreign direct investment would like to reduce their uncertainty about the future state of the world. Consultants at McKinsey, Goldman Sachs, and Credit Suisse are in the business of identifying the key drivers for the next generation economy. Bond investors must calculate whether the advanced industrialized democracies will revert to their mean rate of economic growth that they delivered prior to the 2008 financial crisis, or whether we have entered a "new normal" of secular stagnation and low interest rates. Geopolitical risk advisors at Eurasia Group, Stratfor, and Maplecroft would gain a comparative advantage in their field if they could proffer an accurate take on the next-generation geopolitical trends.

Despite the bevy of powerful actors invested in knowing what the future of the global economy will look like, the quality of such forecasts has been extremely problematic. As Philip Tetlock recently noted, "many have become wealthy peddling forecasting of untested value to corporate executives, government officials, and ordinary people who would never think of swallowing medicine of unknown efficacy and safety but who routinely pay for forecasts that are as dubious as elixirs sold from the back of a wagon."² Even over the short run, both economic and geopolitical predictions have been far from perfect. The quality of long-range projections has been even worse. The result is a market for lemons in predictions: an inadequate supply of low quality forecasts.³ Despite a strong demand for thinking about the next generation's global economy, the supply has been insubstantial in every meaning of that word.

This paper examines why the ability to forecast the next generation global economy is so difficult, and offers up a different lens to think about the global economy for 2036. Far-range economic forecasting suffers from multiple flaws: the cognitive tendency to extrapolate from recent trends, the incentive to exaggerate the accuracy of predictions, and the failure to consider the possibility of discontinuous shocks. The deeper problem, however, is that many of the key drivers of generational economic change have little to do with neoclassical economics. Long-range projections require some evaluation of non-economic factors. In thinking about what the global economy will look like a generation from now, we need to consider factors that economists take as “given”—such as the global distribution of power and ideas—as well as the interplay between economics and the grand strategy of great powers.

With so many uncertainties, accurate predictions about the contours of the global economy circa 2036 are impossible to develop in 2016. What can be done,

however, is to catalog the known unknowns that will frame the way the world looks a generation from now. Five significant political economy questions stand out: the uncertain pace of technological innovation, the severity of the middle-income trap for developing economies, the resiliency of constraints on great power wars, the depth and political effects of economic inequality, and the durability of free-market democracy’s appeal to the world’s governments. The combined effect of these known unknowns will determine whether the 2036 world economy looks brighter or darker than the world today.

This paper is divided into six sections. The next section considers the poverty of current global forecasting. The third section explains the reasons why making generational predictions is so difficult. The fourth section considers the proper way to frame thinking about the global political economy of 2036. The fifth section discusses the known unknowns about the next generation economy. The final section concludes.

The Poverty of Forecasting

Economic forecasting is a difficult enterprise in the best of times,⁴ and the recent past has not been the best of times. At the beginning of this century, the Bush administration overestimated projected federal budget surpluses to justify a series of large tax cuts. As a result, federal budget deficits mushroomed. Upon taking office, the Obama administration underestimated the depths of the Great Recession to justify a more modest fiscal stimulus. As a result, the recovery from the 2008 financial crisis was widely perceived as lackluster. In both cases, errors in forecasting led to suboptimal macroeconomic policies.

These errors in forecasting are not limited to the White House. The years since the 2008 financial crisis have not been kind to economic forecasters of any stripe. The Federal Reserve has persistently overestimated economic growth since the collapse of Lehman Brothers. Since the start of the Great Recession, the International Monetary Fund's economic forecasters have had to continually revise downward their short-term projections for global economic growth. The failure rate has been so bad that the IMF devoted a chapter to the problem in its April 2015 *World Economic Outlook*. Its authors acknowledged that "repeated downward revisions to medium-term growth forecasts highlight the uncertainties surrounding prospects for the growth rate of potential output."⁵

Some of these errors could be due to the political pressures within these organizations to slant their forecasts.⁶ Understandably, official institutions like the World Bank or U.S. Office of Management and Budget might be inclined to project rosy scenarios.⁷ It would be understandable to argue that private sector economists do a better job. However, multiple studies suggest that the international financial institutions' short-run and medium-run forecasts are similar to private-sector efforts.⁸ Neither private sector nor public sector efforts at forecasting have been particularly good at predicting recessions.⁹ And neither group of forecasters foresaw the magnitude of the 2008 financial crisis. As FiveThirtyEight founder Nate Silver noted "the best way to view the financial crisis is as a failure of judgment—a catastrophic failure of prediction."¹⁰

The flaws listed above are only for short-range projections—i.e., how the global economy or national economies would be predicted to perform over the next eighteen months. Moving to long-term predictions, the results are even more depressing. One study of private sector efforts concluded that "survey forecasts do not have much value when the horizon goes beyond 18 months."¹¹ Official long-range projections are no better. A profound "optimism bias" exists in both IMF and World Bank projections. On average, a ten-year IMF or World Bank macroeconomic forecast

overestimates a country's annual GDP growth by 1.1 percent a year. Twenty-year projections have an even deeper degree of optimism bias. OECD economic forecasts suffer from similar biases.¹² Two IMF staff economists conclude "forecasters seem to overestimate the persistence of rapid economic growth and to give much greater weight to a country's recent past performance than would be warranted on the basis of the estimated ex-post persistence of economic growth in large samples of countries."¹³

Unfortunately, the forecasting power of international relations appears to be at least as dismal as economics. As Philip Tetlock demonstrated a decade ago, the short-term predictive abilities of political scientists have been lackluster.¹⁴ Interest in geopolitical risks have increased, and methods for developing better geopolitical forecasting have improved.¹⁵ The *Economist's* predictions in their *The World In ___* series has been hit or miss.¹⁶ Nevertheless, the poverty of geopolitical forecasting has also recently been on display. Geopolitical risk analysts who have used the "fiscal breakeven oil price" to predict instability in Russia or OPEC economies have been largely wrong over the past few years.¹⁷ In late 2013, the World Economic Forum asked more than 700 decision-makers, "to nominate their risks of highest concern" for the next year.¹⁸ The consensus forecast was that the most important risks for 2014 were socioeconomic and environmental; concerns about pandemics or geopolitical instability were posited to be less important. It would be safe to say that the actual events of 2014, highlighted by political turmoil in the Middle East and an Ebola pandemic in West Africa, did not conform to the WEF's *Global Risks 2014* report.¹⁹

As with economics, long-term geopolitical predictions suffer from even greater problems than near-term predictions. The most well-known public-sector effort is the National Intelligence Council's *Global Trends* series. Since 1997, the NIC's reports have attempted to project what the world will look like 15-20 years out. As the world has caught up with the NIC's past projections, some of the predictions seem prescient. Written in 2000, for example, *Global Trends 2015* predicts that the global economy will be

"marked by chronic financial volatility and a widening economic divide." Other predictions—like the global economy "return[ing] to the high levels of growth reached in the 1960s and early 1970s"—have held up far less well.²⁰ The primary bias in the NIC *Global Trends* series is that, as Philip Tetlock and Michael Horowitz pointed out, "the reports almost inevitably fail into the trap of treating the conventional wisdom of the present as the blueprint for the future 15 or 20 years down the road."²¹

The private sector hardly does better than the public sector in making long-term predictions about international politics. Private sector political forecasters have an incentive to accentuate the negative so as to highlight the need for their services. When not scaring potential clients, for-profit firms like McKinsey or Goldman Sachs highlight market opportunities for their customers.²² The most successful example of this, by far, was Goldman Sachs' invention of the BRICs category in 2003. This was a rare case of a marketing neologism leading to an actual international grouping. Other analysts, picking up on the BRIC concept, argued that there would soon be a "world without the West," in which developing economies were "decoupled" from the advanced industrialized states.²³ The 2008 financial crisis categorically demonstrated that decoupling had not taken place, however. Ruchir Sharma is likely correct when he concluded that "no idea has done more to muddle thinking about the global economy than that of the BRICs."²⁴ Geopolitical analysts concur that the BRICS acronym generated fuzzy understandings about their actual power.²⁵ Indeed, even Goldman Sachs officials have lamented their overhyping of the BRICs phenomenon.²⁶ After hemorrhaging losses for five straight years, Goldman Sachs quietly dissolved its BRIC fund in August 2015.²⁷

More generally, just as economic forecasters seem to suffer from an optimism bias, geopolitical forecasters tend to display a profound pessimism bias.²⁸ Political scientists failed to predict both the manner and the end of the Cold War.²⁹ Realists in particular made overly pessimistic predictions about how the post-Cold War order would affect NATO, nuclear

proliferation, violent conflict, and balancing against the United States.³⁰ In actuality, the twenty years after the breakup of the Soviet Union saw dramatic declines in almost every category of political violence.³¹ More generally, international relations scholars have been predicting the end of American hegemony since the start of American hegemony. The centennial anniversary of the start of the First World War led to a raft of historians predicting a replay of those events in the Pacific Rim in 2014.³² A year later, that region looks more stable than either the Middle East or Eastern Europe.

To be sure, there are pertinent dimensions of the future global political economy that can be currently predicted with a reasonable degree of accuracy. Demographic predictions have proven to be remarkably robust. The NIC's *Global Trends 2015* population forecast of 7.2 billion, for example, was correct. This is not because demographic models have gotten better. Rather, demographic models require few working parts: fertility rates, mortality rates, and net migration (at the national level). The persistence of fertility and mortality trends, combined with better data from the developing world, has improved demographic projections.³³ Similarly, the Intergovernmental Panel on

Climate Change (IPCC) has refined their modeling exercise to determine the effects of greenhouse gas emissions on the Earth's climate. The IPCC's past models of climate change effects have been borne out by increases in global temperature readings since 1990.³⁴ In contrast to geopolitics and economics, predicting long-range climate shifts is easier than predicting medium-term fluctuations in climate.³⁵ Finally, some international relations scholars stress the constants of world politics over time, like the durability of the Westphalian state system.³⁶ Still, predicting a constant to remain constant seems like a low bar for success.

Stepping back, the picture is not pretty. Neither economic forecasters nor geopolitical analysts are very good at prediction. There are persistent flaws in their short-term predictions and persistent biases in their long-term predictions. These problems are not a function of whether the forecaster is working for the private, public or nonprofit sector. Outside of a few areas like demography, the current tools, models, and analytics for predicting the contours of the next-generation global economy are at best radically imperfect and at worse significantly flawed.

The Market for Lemons in Forecasting

Given the strong incentives to develop quality predictions, why is the state of political economy forecasting so bad? The most obvious explanation is that predicting the future of complex systems is extremely difficult, and the global political economy is an extremely complex system. The analogy to meteorology would seem apt. The accuracy of weather forecasters fades as the forecast lengthens in time because it becomes impossible to predict the complex interactions that could occur. The same problem exists when thinking about the global economy. For most economists, there is too simply much uncertainty to model this kind of exercise. Beyond predicting that summer will be warmer than winter, the utility of weather forecasts after a week serves little purpose.³⁷

The complexity of the global political economy makes prediction intrinsically difficult. The deep uncertainty that it fosters, however, also creates perverse incentives that degrade our ability to develop better predictions. For example, the deep uncertainty of forecasting deters many scholars from engaging in this area of activity. From a career perspective, there is little incentive for social scientists to engage in long-range forecasting when the likelihood of error is so high.³⁸ There is therefore little incentive for scholars to risk their reputations by refereeing debates about prediction when the entire exercise is viewed as a dubious endeavor. This leaves the forecasting playing field to those unafraid of such reputational costs. This leads to a more shallow pool of forecasters – and, equally important, a more shallow discussion about the validity of extant forecasts.

Consider, for example, the ongoing debates about whether the developed world has entered a period of “secular stagnation” in recent years. Unusually, this hypothesis does have the backing of some prestigious economists, such as Lawrence Summers and Robert Solow.³⁹ Nevertheless, there has been surprisingly little scholarly debate on the question of whether the secular stagnation hypothesis is valid or merely a reprise of past hypotheses about economic growth that emerged during previous depressions.⁴⁰ There has been a lot of public debate about the possibility of a permanent growth slowdown, but less scholarly inquiry and discussion.⁴¹ As the economist Robert Shiller noted: “There is little talk about secular stagnation in scholarly circles today. The recent chatter has centered in the news media, in conference panel discussions and in the blogosphere.”⁴² And compared to other questions crucial to predicting the next generation economy, there has been much more high-profile discussion of secular stagnation. Indeed, with a few significant exceptions, there has not been an abundance of recent scholarly work on the next generation economy.⁴³

Without more rigorous models, efforts at prediction rely on simple but flawed methodologies. Long-range prognosticators often lean on straight-line extrapolations from the present or recent past. This is based on the simple premise that the recent past is the best guide for the future—that the biggest determinant of events at time $(t + 1)$ or $(t + 20)$ is the observed changes between time (t) and $(t - 1)$ or $(t - 20)$. Long-range forecasting is vulnerable to dis-

continuities, however.⁴⁴ Simple or even sophisticated extrapolations are highly vulnerable the precise moment in time one begins a projection. Predictions of a persistent, durable Cold War sounded reasonable in 1984; the same prediction would have sounded less reasonable just a few years later. A decade ago, forecasters were warning about ‘peak oil’ and U.S. energy dependence on the rest of the world. Now the United States is the leading producer of oil in the world and has dramatically reduced its need for oil imports. More generally, economic forecasts can overhype short-term bursts of economic growth, overlooking the fact that such bursts tend to be transient.⁴⁵

The most high-profile example of this kind of extrapolation risk concerns the future of China. By one measure the largest economy in the world, getting China’s growth trajectory right is a key facet of any attempt to predict the next generation economy.⁴⁶ The most headline-grabbing forecast in recent years was Nobel prize-winning economic historian Robert Fogel’s *Foreign Policy* essay projecting China to have a \$123 trillion economy by 2040—more than three times the size of the United States economy. That result, however, was based on a cursory analysis—a simple, straight-line extrapolation of China’s previous thirty-year growth rate. Five years later, as China’s economy has cooled off significantly, the absurdity of Fogel’s projection can already be seen. But even more sober forecasts of Chinese economic growth, such as the OECD’s *Looking to 2060* project, the Carnegie Endowment for International Peace’s *World Order in 2050*, or the World Bank’s *China 2030* exercise, projected massive increases in Chinese per capita income growth.⁴⁷ As Lant Pritchett and Lawrence Summers note, “Many of the great economic forecasting errors of the past half century came from excessive extrapolation of performance of the recent past and treating a country’s growth rate as a permanent characteristic rather than a transient condition.”⁴⁸ Clearly, a common source of error from economic forecasters has been the excessive weighting of current rates of economic growth over the tendency of countries to revert to their mean growth rate. Geopolitical forecasters are guilty of a similar sin. As concerns about the resiliency of governments across

the world has risen, there has been a desire to identify states at risk of instability or violent conflict based on past examples of state collapse.⁴⁹ Plenty of analysts predicted that Chinese political stability would be at risk if economic growth fell below eight percent a year. When oil prices crashed in 2014, there were numerous warnings about the fragility of oil-exporting economies to fiscal crunches.⁵⁰ Many of these exercises failed to consider the degree to which authoritarian regimes adapted to negative shocks, however. Beyond simply doubling down on repression, many of these countries built up reserves via sovereign wealth funds and other investment vehicles. Revenues from these funds, combined with low interest rates, has made it easy for these governments to maintain stability.⁵¹ As for China, just as economists overestimated that country’s future growth rate, geopolitical analysts have underestimated the Communist Party’s political resiliency.

Beyond extrapolation, the robust demand for more precise predictions also leads to other forecasting errors. Human beings have a cognitive tendency to see patterns in noisy data, even if the pattern is actually a statistical chimera.⁵² Because clients desire precision, forecasters of every stripe have an incentive to proffer *faux* certainty even when it is unjustified. This can encourage forecasters to pass off uncertainty as risk. In a world of what economists call “Knightian uncertainty,”⁵³ probabilities cannot be assigned to different outcomes because the existing distribution of possible outcomes is unknowable. In a world of risk, probabilities can be assigned to possible outcomes. A range of possible outcomes exists in worlds of quantifiable risk *and* unquantifiable uncertainty—which means that it is easy for a forecaster to claim that we operate in a world of risk even if we live in a world of uncertainty. There is simply no way for any client to be able to distinguish the reasons why a prediction might be wrong. Because those who consume predictions prefer analytical precision, forecasters will provide precise predictions, regardless of the quality of the analysis underlying those predictions.

There are multiple ways in which forecasters can exaggerate their predictive powers in ways that

cater to the cognitive biases of their clients. One is through the prioritization of first-hand information or intelligence. Individuals are far more likely to value first-hand narrative sources of information over more dispassionate analyses.⁵⁴ Both geopolitical risk analysts and management consultants excel at marrying such narratives to their predictions.⁵⁵ Another way that forecasters will worsen their performance is through ‘overfitting’—over-interpreting statistical noise as representing an underlying trend. As Nate Silver notes, “Overfitting represents a double whammy: it makes our model look *better* on paper but perform *worse* in the real world.”⁵⁶

The cumulative effect of these pitfalls to prediction is what could be called a market for lemons in long-range forecasting. As George Akerlof noted long ago, markets in which consumers possess imperfect information and producers possess a profit motive are thin, insubstantial, and low quality.⁵⁷ Similarly, bad forecasters drive out good forecasters. There is massive uncertainty in making long-range political economy predictions, and there are powerful

incentives for talented researchers to stay away from this arena of inquiry. It is also difficult for any client to discern between good-faith forecasters who expend considerable effort in their analysis and turned out to be wrong and charlatans who are equally wrong. There is little incentive for forecasters to improve on their predictions. Rather, the incentives are geared towards exaggerating the precision of forecasts. Such exaggerations satiate the cognitive preferences of governments and corporations, and also generate greater media attention to the forecast itself. For much of the private sector, public forecasts are designed to maximize marketing rather than predictive accuracy.⁵⁸ Public investment in better forecasting can only partially offset this market for lemons. As Philip Tetlock concluded, “the demand for accurate predictions is insatiable. Reliable suppliers are few and far between. And this gap between demand and supply creates opportunities for unscrupulous suppliers to fill the void by gulling desperate customers into thinking they are getting something no one else knows how to provide.”⁵⁹

How to Think About Thinking About the Next Generation's Global Political Economy

Long-range forecasting suffers from an absence of quality and an abundance of biases. Neither of these facts vitiates the continued need by governments and corporations for political and economic projections into the future. Simply arguing that forecasting is impossible and therefore should not be done will not work; all large organizations must engage in some form of strategic planning to act in the present.⁶⁰ As Dwight D. Eisenhower said, “Plans are useless, but planning is indispensable.” Thinking about the next generation global economy requires marrying a few deeply held ideas about economics with big questions about the sociopolitical assumptions that economists usually take as given. Is it possible to reconcile the meager supply of decent projections with surging demand?

Given the inherent biases and flaws in the forecasting process, perhaps the first step going forward is to filter out contingencies that simply cannot be predicted with any accuracy. For example, Nassim Taleb has criticized forecasters for underestimating fat-tailed outlier events, such as financial crashes.⁶¹ This is a valid critique, but the important question is what forecasters should do with this information. There are certain contingencies that are so catastrophic that, paradoxically, there is no point in planning for them. The Global Challenges Foundation has attempted to estimate the probability of events that have “potentially infinite impacts,” such as a nuclear war or a global pandemic.⁶² In trying to plan out what the global economy will look like in 2036, even entities such as central banks, sovereign

wealth funds, or multinational corporations lack the resources to insure or prepare against this kind of catastrophic contingency. Mapping out what the global economy will look like in 2036 must presuppose the existence of a global economy. This means that future forecasts will be slightly biased in favor of stability against extremely negative or extremely positive shocks.⁶³ To put it in more concrete terms, perhaps long-range forecasters should be concerned about the prospect of a great power war, but not the likelihood of a nuclear war.

This realization segues to the next guideline: abstaining from making predictions of central tendency and instead focusing on the “known unknowns” of the next generation. As Secretary of Defense Donald Rumsfeld famously said in 2002: “[T]here are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don’t know we don’t know.”⁶⁴ The known knowns for the next generation are the effects of demographics and climate change, and will not be discussed further in this paper. The unknown unknowns fall into the aforementioned category of possibilities that might have extreme effects but simply cannot be forecast. The known unknowns, however, can be discussed. It might not be possible to convert known unknowns into quantifiable risks—but, at a minimum, known unknowns can be acknowledged and debated by planners going forwards.

The commonality to the known unknowns is the intersection of economic questions with non-economic questions that economists take as given in short-run forecasts. Various domestic and international arrangements can be assumed to be constant in short-term projections. Over a generation, however, what are thought to be constants must be treated as variables. For example, the OECD's *Looking to 2060* project has served as a baseline for many long-range forecasters.⁶⁵ That exercise, however, explicitly ignored a number of possible negative impact factors, "including the possibility of disorderly debt defaults, trade disruptions and possible bottlenecks to growth due to an unsustainable use of natural resources."⁶⁶ The authors further assumed a policy trend of more market-friendly regulations without any convincing explanation. Other non-economic factors, such as political instability or interstate wars, were not even mentioned as contingencies. Recent private-sector forecasts have made similarly unrealistic assumptions.⁶⁷

This leads to the last guideline: recognizing that long-range economic projections require some incorporation of non-economic factors. Many of the key drivers of generational economic change have little to do with neoclassical economics or even conventional growth economics. Conventional economic models usually take as "given" factors that, over the span of a generation or more, might be subject to change. For example, most modern macroeconomic projections have been made in a world where the United States has been the unquestioned economic hegemon. If the United States experiences relative decline, there are reasons to believe that the current rules of the global economic game will be subject to change.⁶⁸ Similarly, shifts in the global distribution of ideas—as well as the interplay between economics and the grand strategy of great powers—could also feed back into economic policy and economic growth.

The Known Unknowns

The next generation world economy will depend crucially on the answers to the following five questions:

1. *Has the accelerated growth experienced by the developed world since the start of the Industrial Revolution come to an end?*

Perhaps the best long-range economic forecast ever made was John Maynard Keynes' statement at the start of the Great Depression in 1930 that "the standard of life in progressive countries one hundred years hence will be between four and eight times as high as it is today."⁶⁹ That prediction has turned out to be true—because of the rapid rate of postwar economic growth.

While Keynes proved to be correct, it is nonetheless true that the last two centuries of rapid growth are the exception and not the rule in human history. One economic historian estimates that England's per capita GDP in 500 B.C. was roughly what it was in 1800 A.D. Over the next two hundred years, however, GDP per capital increased twelve-fold.⁷⁰ Economists agree that with the start of the Industrial Revolution, economic growth and prosperity radiated outwards from Great Britain to the rest of the developed world.⁷¹ The Industrial Revolution directly contributed to economic growth through innovation, but it also indirectly contributed to economic growth through trade and demographic drivers.⁷² The development and spread of general purpose technologies in manufacturing directly contributed

to faster economic growth through increases in labor productivity. New technological advances in transportation and communication rapidly lowered the barriers to trade and exchange across borders, thereby spurring greater growth through globalization. Advances in health and medicine also enabled and enhanced a significant demographic explosion, another key mechanism to increase economic growth.

In recent years, however, the rate of per capita income economic growth in the developed world has slowed down considerably. If one compares the U.S. economy since 1971 to the Bretton Woods era, there is no denying that, with one brief exception in the late 1990s, there has been a slowdown in per capita income growth. According to Northwestern University economist Robert Gordon, at the peak of the twentieth century U.S. boom, real GDP per capita increased by 2.5 percent per year. In the 21st century, that figure has been less than 1.4 percent.⁷³ A concomitant slowdown has occurred in U.S. productivity. During the heyday of the 1960s, labor productivity increased by more than three percent a year. Over the past five years, annual U.S. productivity growth has fallen to an average of 0.9 percent. Indeed, in the last quarter of 2014 and the first quarter of 2015, productivity contracted by 2.6 percent.⁷⁴ The slowdowns in income and productivity are not only true of the United States—they apply to the rest of the advanced industrialized democracies as well.

Gordon speculates that by the year 2100, growth in GDP per capita could fall to pre-1800 levels. This is

because, as Tyler Cowen has argued, many of the drivers of economic growth in the developed world for the past two centuries are now close to being tapped out: “We’re trying to eke out gains from marginal improvements in how we’ve done things for quite a few decades. That kind of process isn’t going to yield massive improvements in our living standards.”⁷⁵ The “low-hanging fruit” of demographic and trade expansions will not play much of a role in boosting economic growth in the developed world. All of the demographic evidence shows a decline of working-age population in the OECD economies. Japan is projected to lose over a quarter of its labor force; Germany, Portugal and South Korea are projected to lose close to twenty percent.⁷⁶ Trade will also be less of a driver of economic growth for these economies. Further trade liberalization is certainly possible, as demonstrated by the ongoing negotiations of the Trans-Pacific Partnership and Transatlantic Trade and Investment Partnership. Still, estimates of these agreements’ effect on economic growth pale beside the estimates of past trade liberalization on economic growth.⁷⁷

The erosion of the trade and demographic drivers puts even more pressure on technological innovation to be the engine of economic growth in the developed world. As one McKinsey analysis concluded, “For economic growth to match its historical rates, virtually all of it must come from increases in labor productivity.”⁷⁸ Growth in labor productivity is partially a function of capital investment, but mostly a function of technological innovation. The key question is whether the pace of technological innovation will sustain itself.

This remains a known unknown. The pace of innovation relative to global population has slowed dramatically over the past fifty years.⁷⁹ Consider that the developed world still relies on the same general purpose technologies of modern society that were originally invented 50-100 years ago: the automobile, airplane, telephone, refrigerator, and computer. To be sure, all of these technologies have improved in recent decades, in some cases dramatically. But nothing new has replaced them. And even these

improvements have not necessarily had dramatic systemic effects. For example, the average speed on a passenger aircraft has actually fallen since the introduction of the Boeing 707 in 1958, because of the need to conserve fuel. For all of the talk of “disruptive innovations,” the effect of these disruptions on both the business world and aggregate economic growth have been exaggerated.⁸⁰

At present, many of the fields that seem promising for innovation—nanotechnology, green energy, and so forth—require massive fixed investments. Only large institutions, like research universities, multinational corporations and government entities, can play in that kind of game. Joseph Schumpeter warned that once large organizations became the primary engine of innovation, the pace of change would naturally slow down. Because large organizations are inherently bureaucratic and conservative, they will be less able to imagine radical innovations.⁸¹ What if the “secular stagnation” debate is really just a harbinger of a deeper debate about a return to pre-19th century growth levels?

An obvious counter to this argument is that the pace of technological innovation in laptops, smart phones, tablets, and the Internet of things has accelerated. This is undeniably true—but the problem is that the gains in utility have not been, strictly speaking, economic. Most of the important innovations that we think about with respect to the Internet—Facebook, Twitter, Wikipedia, YouTube and so forth—are free technologies for consumers. As Tyler Cowen argues, “The big technological gains are coming in revenue-deficient sectors.”⁸² They generate lots of enjoyment but little employment. The largest and most dynamic information technology firms, like Google and Apple, hire only a fraction of the people who worked for General Motors in its heyday. At the same time, Internet-based content has eroded the financial viability of other parts of the economy. Content-providing sectors—such as music, entertainment, and journalism—have suffered directly. The growth of “sharing economy” firms like Uber and Airbnb that develop peer-to-peer markets are causing similar levels of creative disruption to the travel

and tourism sectors.⁸³ The rapid acceleration of automation is also leading to debates about whether the “lump of labor” fallacy remains a fallacy—in other words, whether displaced workers will be able to find new employment.⁸⁴

A slow-growth economic trajectory also creates policy problems that increase the likelihood of even slower growth. Higher growth is a political palliative that makes structural reforms easier. For example, Germany prides itself on the “Hartz reforms” to its labor markets last decade, and has advocated similar policies for the rest of the Eurozone since the start of the 2008 financial crisis. But the Hartz reforms were accomplished during a global economic upswing, boosting German exports and cushioning the short-term cost of the reforms themselves. In a low-growth world, other economies will be understandably reluctant to engage in such reforms.

It is possible that concerns about a radical growth slowdown are exaggerated. In 1987, Robert Solow famously said, “You can see the computer age everywhere but in the productivity statistics.”⁸⁵ A decade later, the late 1990s productivity surge was in full bloom. Economists are furiously debating whether the visible innovations in the information sector are leading to productivity advances that are simply going undetected in the current productivity statistics.⁸⁶ Google’s chief economist Hal Varian, echoing Solow from a generation ago, asserts that “there is a lack of appreciation for what’s happening in Silicon Valley, because we don’t have a good way to measure it.”⁸⁷ It is also possible that current innovations will only lead to gains in labor productivity a decade from now. The OECD argues that the productivity problem resides in firms far from the leading edge failing to adopt new technologies and systems.⁸⁸ There are plenty of sectors, such as health or education, in which technological innovations can yield significant productivity gains. It would foolhardy to predict the end of radical innovations.

But the possibility of a technological slowdown is a significant “known unknown.” And if such a slowdown occurs, it would have catastrophic effects on

the public finances of the OECD economies. Most of the developed world will have to support disproportionately large numbers of pensioners by 2036; slower-growing economies will worsen the debt-to-GDP ratios of most of these economies, causing further macroeconomic stresses—and, potentially, political unrest from increasingly stringent budget constraints.⁸⁹

2. Are there hard constraints on the ability of the developing world to converge to developed-country living standards?

One of the common predictions made for the next generation economy is that China will displace the United States as the world’s biggest economy. This is a synecdoche of the deeper forecast that per capita incomes in developing countries will slowly converge towards the living standards of the advanced industrialized democracies. The OECD’s *Looking to 2060* report is based on “a tendency of GDP per capita to converge across countries” even if that convergence is slow-moving. The EIU’s long-term macroeconomic forecast predicts that China’s per capita income will approximate Japan’s by 2050.⁹⁰ The Carnegie Endowment’s *World Order in 2050* report presumes that total factor productivity gains in the developing world will be significantly higher than countries on the technological frontier. Looking at the previous twenty years of economic growth, Kemal Dervis posited that by 2030, “The rather stark division of the world into ‘advanced’ and ‘poor’ economies that began with the industrial revolution will end, ceding to a much more differentiated and multipolar world economy.”⁹¹

Intuitively, this seems rational. The theory is that developing countries have lower incomes primarily because they are capital-deficient and because their economies operate further away from technological frontier. The gains from physical and human capital investment in the developing world should be greater than in the developed world. From Alexander Gerschenkron forward, development economists have presumed that there are some growth advantages to “economic backwardness”⁹²

This intuitive logic, however, is somewhat contradicted by the “middle income trap.” Barry Eichengreen, Donghyun Park, and Kwanho Shin have argued in a series of papers that as an economy’s GDP per capita hits close to \$10,000, and then again at \$16,000, growth slowdowns commence.⁹³ This makes it very difficult for these economies to converge towards the per capita income levels of the advanced industrialized states. History bears this out. There is a powerful correlation between a country’s GDP per capita in 1960 and that country’s per capita income in 2008. In fact, more countries that were middle income in 1960 had become relatively poorer than had joined the ranks of the rich economies. To be sure, there have been success stories, such as South Korea, Singapore, and Israel. But other success stories, such as Greece, look increasingly fragile. Lant Pritchett and Lawrence Summers conclude that “past performance is no guarantee of future performance. Regression to the mean is the single most robust and empirical relevant fact about cross-national growth rates.”⁹⁴

Post-2008 growth performance of the established and emerging markets matches this assessment. While most of the developing world experienced rapid growth in the previous decade, the BRICS have run into roadblocks. Since the collapse of Lehman Brothers, these economies are looking less likely to converge with the developed world. During the Great Recession, the non-Chinese BRICS—India, Russia, Brazil, and South Africa—have not seen their relative share of the global economy increase at all.⁹⁵ China’s growth has also slowed down dramatically over the past few years. Recent and massive outflows of capital suggests that the Chinese economy is headed for a significant market correction. The collapse of commodity prices removed another source of economic growth in the developing world. By 2015, the gap between developing country growth and developed country growth had narrowed to its lowest level in the 21st century.⁹⁶

What explains the middle income trap? Eichengreen, Park and Shin suggest that “slowdowns coincide with the point in the growth process where it is no longer possible to boost productivity by shifting

additional workers from agriculture to industry and where the gains from importing foreign technology diminish.”⁹⁷ But that is insufficient to explain why the slowdowns in growth have been so dramatic and widespread.

There are multiple candidate explanations. One argument, consistent with Paul Krugman’s deconstruction of the previous East Asia “miracle,”⁹⁸ is that much of this growth was based on unsustainable levels of ill-conceived capital investment. Economies that allocate large shares of GDP to investment can generate high growth rates, particularly in capital-deficient countries. The sustainability of those growth rates depends on whether the investments are productive or unproductive. For example, high levels of Soviet economic growth in the 1950s and 1960s masked the degree to which this capital was misallocated. As Krugman noted, a lesser though similar phenomenon took place in the Asian tigers in the 1990s. It is plausible that China has been experiencing the same illusory growth-from-bad-investment problem. Reports of overinvestment in infrastructure and “ghost cities” are rampant; according to two Chinese government researchers, the country wasted an estimated \$6.8 trillion in “ineffective investment” between 2009 and 2013 alone.⁹⁹

A political explanation would be rooted in the fact that many emerging markets lack the political and institutional capabilities to sustain continued growth. Daron Acemoglu and James Robinson argue that modern economies are based on either “extractive institutions” or “inclusive institutions.”¹⁰⁰ Governments based on extractive institutions can generate higher rates of growth than governments without any effective structures. It is not surprising, for example, that post-Maoist Chinese economic growth has far outstripped Maoist-era rates of growth. Inclusive institutions are open to a wider array of citizens, and therefore more democratic. Acemoglu and Robinson argue that economies based on inclusive institutions will outperform those based on extractive institutions. Inclusive institutions are less likely to be prone to corruption, more able to credibly commit to the rule of law, and more likely to

invest in the necessary public goods for broad-based economic growth. Similarly, Pritchett and Summers conclude that institutional quality has a powerful and long-lasting effect on economic growth—and that “salient characteristics of China—high levels of state control and corruption along with high measures of authoritarian rule—make a discontinuous decline in growth even more likely than general experience would suggest.”¹⁰¹

A more forward-looking explanation is that the changing nature of manufacturing has badly disrupted the 20th century pathway for economic development. For decades, the principal blueprint for developing economies to become developed was to specialize in industrial sectors where low-cost labor offered a comparative advantage. The resulting growth from export promotion would then spill over into upstream and downstream sectors, creating new job-creating sectors. Globalization, however, has already generated tremendous productivity gains in manufacturing—to the point where industrial sectors do not create the same amount of employment opportunities that they used to.¹⁰² Like agriculture in the developed world, manufacturing has become so productive that it does not need that many workers. As a result, many developing economies suffer from what Dani Rodrik labels “premature deindustrialization.” If Rodrik is correct, then going forward, manufacturing will fail to jump-start developing economies into higher growth trajectories—and the political effects that have traditionally come with industrialization will also be stunted.¹⁰³

Both the middle-income trap and the regression to the mean observation are empirical observations about the past. There is no guaranteeing that these empirical regularities will hold for the future. Indeed, China’s astonishing growth rate over the past 30 years is a direct contradiction of the regression to the mean phenomenon. It is possible that over time the convergence hypothesis swamps the myriad explanations listed above for continued divergence. But in sketching out the next generation global economy, the implications of whether regression to the mean will dominate the convergence hypothesis are

massive. Looking at China and India alone, the gap in projections between a continuation of past growth trends and regression to the mean is equivalent to \$42 trillion—more than half of global economic output in 2015.¹⁰⁴ This gap is significant enough to matter not just to China and India, but to the world economy.

As with the developed world, a growth slowdown in the developing world can have a feedback effect that makes more growth-friendly reforms more difficult to accomplish. As Chinese economic growth has slowed, Chinese leader Xi Jinping’s economic reform plans have stalled out in favor of more political repression. Follows the recent playbook of Russian President Vladimir Putin, who has added diversionary war as another distracting tactic from negative economic growth. Short-term steps towards political repression will make politically risky steps towards economic reform that less palatable in the future. Instead, the advanced developing economies seem set to double down on strategies that yield less economic growth over time.

3. Will geopolitical rivalries or technological innovation alter the patterns of economic interdependence?

Multiple scholars have observed a secular decline in interstate violence in recent decades.¹⁰⁵ The Kantian triad of more democracies, stronger multilateral institutions, and greater levels of cross-border trade is well known. In recent years, international relations theorists have stressed that commercial interdependence is a bigger driver of this phenomenon than previously thought.¹⁰⁶ The liberal logic is straightforward. The benefits of cross-border exchange and economic interdependence act as a powerful brake on the utility of violence in international politics. The global supply chain and “just in time” delivery systems have further imbricated national economies into the international system. This creates incentives for governments to preserve an open economy even during times of crisis. The more that a country’s economy was enmeshed in the global supply chain, for example, the less likely it was to raise tariffs after

the 2008 financial crisis.¹⁰⁷ Similarly, global financiers are strongly interested in minimizing political risk; historically, the financial sector has staunchly opposed initiating the use of force in world politics.¹⁰⁸ Even militarily powerful actors must be wary of alienating global capital.

Globalization therefore creates powerful pressures on governments not to close off their economies through protectionism or military aggression. Interdependence can also tamp down conflicts that would otherwise be likely to break out during a great power transition. Of the 15 times a rising power has emerged to challenge a ruling power between 1500 and 2000, war broke out 11 times.¹⁰⁹ Despite these odds, China's recent rise to great power status has elevated tensions without leading to anything approaching war. It could be argued that the Sino-American economic relationship is so deep that it has tamped down the great power conflict that would otherwise have been in full bloom over the past two decades. Instead, both China and the United States have taken pains to talk about the need for a new kind of great power relationship. Interdependence can help to reduce the likelihood of an extreme event—such as a great power war—from taking place.

Will this be true for the next generation economy as well? The two other legs of the Kantian triad—democratization and multilateralism—are facing their own problems in the wake of the 2008 financial crisis.¹¹⁰ Economic openness survived the negative shock of the 2008 financial crisis, which suggests that the logic of commercial liberalism will continue to hold with equal force going forward. But some international relations scholars doubt the power of globalization's pacifying effects, arguing that interdependence is not a powerful constraint.¹¹¹ Other analysts go further, arguing that globalization exacerbates financial volatility—which in turn can lead to political instability and violence.¹¹²

A different counterargument is that the continued growth of interdependence will stall out. Since 2008, for example, the growth in global trade flows has been muted, and global capital flows are still considerably

smaller than they were in the pre-crisis era. In trade, this reflects a pre-crisis trend. Between 1950 and 2000, trade grew, on average, more than twice as fast as global economic output. In the 2000s, however, trade only grew about 30 percent more than output.¹¹³ In 2012 and 2013, trade grew *less* than economic output. The McKinsey Global Institute estimates that global flows as a percentage of output have fallen from 53 percent in 2007 to 39 percent in 2014.¹¹⁴ While the stock of interdependence remains high, the flow has slowed to a trickle. The Financial Times has suggested that the global economy has hit “peak trade.”¹¹⁵

If economic growth continues to outstrip trade, then the level of interdependence will slowly decline, thereby weakening the liberal constraint on great power conflicts. And there are several reasons to posit why interdependence might stall out. One possibility is due to innovations reducing the need for traded goods. For example, in the last decade, higher energy prices in the United States triggered investments into conservation, alternative forms of energy, and unconventional sources of hydrocarbons. All of these steps reduced the U.S. demand for imported energy. A future in which compact fusion engines are developed would further reduce the need for imported energy even more.¹¹⁶

A more radical possibility is the development of technologies that reduce the need for physical trade across borders. Digital manufacturing will cause the relocation of production facilities closer to end-user markets, shortening the global supply chain.¹¹⁷ An even more radical discontinuity would come from the wholesale diffusion of 3-D printing. The ability of a single printer to produce multiple component parts of a larger manufactured good eliminates the need for a global supply chain. As Richard Baldwin notes, “Supply chain unbundling is driven by a fundamental trade-off between the gains from specialization and the costs of dispersal. This would be seriously undermined by radical advances in the direction of mass customization and 3D printing by sophisticated machines... To put it sharply, transmission of data would substitute for transportation of

goods.”¹¹⁸ As 3-D printing technology improves, the need for large economies to import anything other than raw materials concomitantly declines.¹¹⁹

Geopolitical ambitions could reduce economic interdependence even further.¹²⁰ Russia and China have territorial and quasi-territorial ambitions beyond their recognized borders, and the United States has attempted to counter what it sees as revisionist behavior by both countries. In a low-growth world, it is possible that leaders of either country would choose to prioritize their nationalist ambitions over economic growth. More generally, it could be that the expectation of future gains from interdependence—rather than existing levels of interdependence—constrains great power bellicosity.¹²¹ If great powers expect that the future benefits of international trade and investment will wane, then commercial constraints on revisionist behavior will lessen. All else equal, this increases the likelihood of great power conflict going forward.

There have been other drivers of the decades-long reduction in militarized interstate disputes. Nuclear deterrence has helped curb violent conflict among the great powers. Multilateral peacekeeping missions mitigate small country conflicts. Even if there is a decline in interdependence, it is possible that the “Long Peace” will endure. Furthermore, it is impossible to predict the degree to which either innovations or geopolitics will lessen the need for international trade. Even technological optimists acknowledge that the future diffusion of 3D printing is unclear. Advocates of networked manufacturing insist that economic openness is a prerequisite for the process to continue.¹²² And the degree of geopolitical revisionism among great powers might be endogenous—that is to say, preexisting levels of globalization might constrain revisionist impulses, rather than such impulses weakening the globalized economy.

If great powers resort to revisionist foreign policies, however, then the global economy will start to resemble the Cold War era of economic blocs and strategic embargoes—one in which trade and investment follow the flag rather than follow the rate of return. The

increased American use of targeted financial sanctions, for example, has already generated grumblings from peer competitors about finding ways to diversify away from reliance upon the dollar.¹²³ In 2015, China introduced its own international payment and settlements system, in part, to diversify away from reliance upon the dollar.¹²⁴ The correlation of economic flows with geopolitical alliances would not just have a profound effect on cross-border flows; it would likely lead to the fragmentation of global economic governance. Just as significantly, great power governments would reverse post-Cold War trends and choose to allocate more scarce resources towards their militaries.

4. Will income and wealth inequality persist going forward, to the point when political externalities cannot be ignored?

Thomas Piketty’s bestselling “Capital in the Twenty-First Century” sparked a wide-ranging debate about the future of economic inequality.¹²⁵ In his book, Piketty argued that, left to its own devices, capitalism creates an economy in which the rate of return on capital exceeds the rate of economic growth. The current ratio of capital to national income, for example, matches the Gilded Age of the late 19th century; only the upheavals of the first half of the 20th century have prevented an even greater concentration of wealth. In this kind of world, existing owners of capital capture an ever-greater share of the economic pie. The essence of Piketty’s “ $r > g$ ” equation was that if the rate of return persistently exceeded the rate of growth, the income and wealth of the rich would grow faster than the average income from work.”¹²⁶ Furthermore, according to Piketty, elites who hold more capital will earn an even higher rate of return than elites possessing a smaller initial endowment. Piketty’s dynamics, if correct, would produce a world in which the richest of the rich would grab an ever-growing share of the economic pie—and inherited wealth matters more than ability.

Piketty’s theoretical argument buttressed ongoing debates about the rise of inequality and decline of

economic mobility across the developed world. Since 1820, the world Gini coefficient has increased by more than 30 percent.¹²⁷ That increase has been even more concentrated in recent years. The top 1 percent of the U.S. population captured 52 percent of the gains in national income between 1993 and 2008; between 2009 and 2012, that share climbed to 95 percent.¹²⁸ The returns to capital have so exceeded the returns to labor that Goldman Sachs provocatively noted in early 2016 if high corporate profits persist while wage growth remains stagnant, “there are broader implications to be asked about the efficacy of capitalism.”¹²⁹ Nor is this phenomenon restricted to the United States. Between 1980 and 2005, the Gini coefficient increased in 80 percent of the advanced industrialized economies.

Piketty’s argument has encountered significant pushback, however. Some economists argue that the rising share of capital income is primarily due to the increased price of housing and not some general dynamic of capitalism.¹³⁰ More generally, Daron Acemoglu and James Robinson have pushed back on the theoretical part of Piketty’s analysis. They argue that Piketty omits any consideration of political and economic institutions in ameliorating trends towards inequality: “a satisfactory framework for the analysis of inequality should take into account both the effect of different types of institutions on the distribution of resources and the endogenous evolution of these institutions.”¹³¹ If these institutions can foster a higher rate of economic growth, then any natural path towards income and wealth inequality would be disrupted. Acemoglu and Robinson’s argument are consistent with historical institutionalist accounts in political science.¹³² These suggest that, regardless of the distributional effects of capitalism, markets can be embedded into political arrangements that sustain different distributional outcomes.

Piketty’s argument was centered on the degree of inequality within national economies in the developed world. A glance at projections of global income inequality reveal trends at variance with Piketty’s narrative. A recent Peterson Institute for International Economics paper argues that the rapid rate of

economic growth in the developing world has reduced global economic inequality. Between 2003 and 2013, the Gini coefficient for global inequality fell from .69 to .65. By 2036, it is projected to fall even further. If the convergence hypothesis predominates, then the Gini should fall to .61. Even if a regression-to-the-mean phenomenon takes place in the developing world, global economic inequality is still projected to fall.¹³³

As Piketty acknowledged in a follow-up paper, “there is substantial uncertainty about how far income and wealth inequality might rise in the 21st century.”¹³⁴ Nevertheless, the counterarguments made by Acemoglu, Robinson et al have their own counterarguments as well. In particular, a world of extreme economic inequality is likely to lead to a world of extreme political inequality. In theory, a free-market democracy can be economically unequal but politically equal. In practice, however, the rich can direct greater resources at influencing political outcomes. These influence attempts range from outright political corruption to direct support of favored politicians to lobbying for policies that favor entrenched economic interests to supporting ideologically sympathetic think tanks and foundations. As Acemoglu and Robinson acknowledge, “It may be difficult to maintain political institutions that create a dispersed distribution of political power and political access for a wide cross-section of people in a society in which a small number of families and individuals have become disproportionately rich.”¹³⁵

This political economy of rent-seeking is already potent within the United States. According to Benjamin Page, Larry Bartels, and Jason Seawright, wealthy Americans display a much stronger preference than ordinary Americans for cutting government spending on social insurance programs like Social Security or Medicaid.¹³⁶ One recent study of U.S. policy preferences found that enacted policies more closely reflected median policy preferences of 90th percentile Americans rather than 50th percentile.¹³⁷ The rich have an incentive to use their political influence to bend the rules of the game to keep themselves rich and prevent competition to their sources of income.

According to The New York Times, fewer than 160 families were responsible for close to half the campaign contributions during the first part of the 2016 election cycle—“a concentration of political donors that is unprecedented in the modern era.”¹³⁸ Economists view this kind of activity as unproductive rather than productive entrepreneurship.¹³⁹

It is also possible to envision this kind of rent-seeking taking place at a global level. Indeed, the insertion of ever-more-stringent intellectual property rights provisions into trade deals would qualify as one example of successful global lobbying to favor producers over consumers.¹⁴⁰ Furthermore, the life of global plutocrats subtly alters their perspective on public policy. Many of them participate in the same circuit of events in which they mingle with each other to the exclusion of anyone from a different economic strata.¹⁴¹ After a steady diet of World Economic Forums, TED conferences, and Clinton Global Initiatives, a certain mindset begins to calcify. As Chrystia Freeland noted in her book “Plutocrats”: “For the super-elite, a sense of meritocratic achievement can inspire self-regard, and that self-regard—especially when compounded by their isolation among like-minded peers—can lead to obliviousness and indifference to the suffering of others.”¹⁴² Studies confirm that wealthy people, because they are surrounded primarily by other wealthy people, overestimate the wealth of others and undervalue the benefits of social insurance policies.¹⁴³ Such insulation can lead to an atrophying of political antennae, as when billionaires write letters to The Wall Street Journal comparing political antipathy to the wealthy to the first days of Kristallnacht.¹⁴⁴

The past two centuries demonstrate that it is possible to combine rising levels of inequality with rising levels of mass affluence. And it remains uncertain whether an explosion of plutocrats comes at the expense of a global middle class. The known unknown is whether current political and economic institutions can ameliorate any secular trend towards rising levels of income and wealth inequality—and, if not, whether political resentment against global elites lead to a more severe political backlash.

5. *Will an alternative economic ideology supplant free-market capitalism as a viable universal model for large parts of the world?*

Francis Fukuyama’s “End of History” argument has been widely mocked but little understood since he originally formulated it a quarter-century ago.¹⁴⁵ Fukuyama did not claim that the world would soon consist of nothing but free-market democracies. Rather, his contention was that, with the collapse of communism, liberal free-market democracy remained the last *universally* appealing model of political economy left standing. While there might be powerful nationalist or sectarian challenges to capitalist democracy, these challenges were self-contained to a particular region or country. Radical Islamic theology can only be implemented in Muslim societies; Putin’s nationalist calls for “Novorossiya” do not play well outside of Russia’s borders. Fukuyama’s prediction was that no universally viable challenger to liberal capitalist democracy would emerge as an alternative mode of domestic governance.

Fukuyama developed his end of history thesis at the end of the Cold War. On its 25th anniversary, Fukuyama reaffirmed his position, concluding that, “the underlying idea remains essentially correct.... In the realm of ideas, moreover, liberal democracy still doesn’t have any real competitors.”¹⁴⁶ More recently, however, he has also focused on the concept of “political decay,” concluding in his most recent book: “the fact that a system once was a successful and stable liberal democracy does not mean that it will remain so in perpetuity.”¹⁴⁷

Fukuyama’s slight hedge gives rise to the biggest known unknown for the next generation. One of the unspoken assumptions of the past generation was that free-market capitalism was the only viable economic model for generating economic growth. Another unspoken assumption was that for affluent countries, democracy was “locked in.” In other words, it was assumed that the advanced industrialized democracies would stay democratic and capitalist, and that the rest of the world would seek to emulate that model. But it is now at least possible to

conceive of an alternative governance model of political economy, for two reasons.

First, the liberal capitalist model looks somewhat shopworn. Even before the Great Recession, the paradox of political stability affected the entire developed world. The paradox is that stable polities help to foster the slow accretion of policy distortions from interest group pressures and rent-seeking.¹⁴⁸ Events since 2008 have not improved the image of the advanced industrialized economies. The growth slowdown in the OECD economies has been severe, which in turn led to increased fragility for elected governments.¹⁴⁹ In the United States, political gridlock has accelerated a decline in public trust in government. Both Gallup and Pew data showed a marked decrease in the trust in the U.S. federal government to do the right thing.¹⁵⁰ Nor is this disillusionment limited to the United States. The Edelman Trust Barometer shows that trust of elite institutions is significantly higher in developing countries than in the developed world.¹⁵¹ Little wonder that extremist movements have gained voting shares across the European Union. Elected leaders like Hungary's Viktor Orbán have said explicitly that "liberal democratic states can't remain globally competitive," and that it is better to create "an illiberal new state" inspired by Russia and China.¹⁵² The issue is not whether Orbán is actually correct, but that he is publicly willing to articulate such an alternative. Such disdain among political leaders reflects populist trends across the developing world—including the United States—that show waning faith in democracy.¹⁵³

Similarly, disillusionment has set in with the Washington Consensus set of neoliberal economic policies. Whether accurate or not, many actors view the U.S. embrace of "market fundamentalism" as the key trigger for the 2008 financial crisis. Some scholars assert that the resulting Great Recession has led to a "new heterogeneity of thinking" about how to manage global capital markets.¹⁵⁴ The first step towards thinking about a new paradigm is to discredit the old one. And the contradictions that have crept into the liberal free market democratic model suggest that this first step could be accomplished.

At the same time, some commentators are beginning to articulate an alternative model that contrasts with liberal democracy. On the economic side, there has been enthusiasm in some quarters for the way that authoritarian states deploy a mix of sovereign wealth funds, state-owned enterprises, policy development banks, and national oil companies to accelerate economic development, buy off dissent, and promote technology transfer. Multiple Western analysts argue that the relative success of state-directed growth augur a rise in "authoritarian capitalism" or "state capitalism."¹⁵⁵ Stefan Halper argues explicitly that "the terms, the conditions and arrangements, of state-directed capitalism give Beijing a distinct edge over Western competitors."¹⁵⁶ Martin Jacques notes "China's success suggests that the Chinese model of the state is destined to exercise a powerful global influence, especially in the developing world, and thereby transform the terms of future economic debate."¹⁵⁷ As previously noted, the ability of this model to generate economic growth in the future is dubious. But its political appeal to citizens frustrated with seemingly corrupt democracies can be potent.

There are also emerging arguments in favor of alternative political models posited to be superior to liberal democracy. Arguments from authoritarian strongmen can be discounted as self-serving. Support from Western pundits are more worrisome but can also be dismissed.¹⁵⁸ Political theorists making the case for "political meritocracy" are harder to dismiss. Daniel Bell argues that meritocratic principles for selecting leaders based on virtue, social skills, and intellectual ability can produce superior forms of governance in theory. In practice, he argues that China's current political model—"democracy at the bottom, experimentation in the middle, and meritocracy at the top"—is superior to Western liberal democracy as practiced. Bell goes on to observe that his political views are "quite middle-of-the-road among academics living and working in China."¹⁵⁹ Whether Bell is correct in his praise of meritocracy is not the point; what matters is that political theorists are putting forward arguments in favor of non-democratic political models that could be universal in application.

Continued intellectual support for state capitalism and political meritocracy would have corrosive effects on the Western-created rules and norms that currently govern the global political economy. Sociologists note the tendency of developing countries to mimetically copy the practices of successful states.¹⁶⁰ This copying is not always successful—indeed, these same sociologists conclude that it leads to dysfunctional policy outcomes. Nevertheless, if a majority of countries in the world perceive non-liberal models of political economy the pathway for a “successful” country, then one could envision the proliferation of such states—regardless of whether such institutions actually work. Economically, the effects of a turn away from liberal capitalist democracy would be disastrous. For every country like China or Singapore that has seemed to demonstrate that an alternative is possible, there are myriad other countries that have failed spectacularly. Politically, it would be an open question whether the rest of the world would look at the democratic development model as one to emulate. To use Joseph Nye’s language of soft power, the effect of a viable, non-Western alternative is that far fewer countries would want what the advanced industrialized states want.¹⁶¹

It is still highly uncertain whether these nascent articulations of a viable universal alternative to

free-market democracy will actually take root. The 2008 financial crisis was an ideal moment for neo-liberal critics to proffer an alternative. As it turns out, however, there has been no wholesale rejection of the neoliberal model. If anything, in recent years China has moved closer to the Washington Consensus, not further away from it.¹⁶² Furthermore, global public opinion surveys demonstrate strong and robust support for both free markets and free trade. Indeed, this support is stronger in the developing countries where state capitalism is ostensibly supposed to be more appealing.¹⁶³ And the real world flaws of China’s political model have also caused leading China-watchers to predict that the luster of political meritocracy will soon be lost.¹⁶⁴

Still, given the vicissitudes of markets, it is highly likely that there will be significant shocks to the global political economy between now and 2036. The question is whether the current neoliberal model will be able to ward off political decay effectively enough to prevent an unforeseen alternative from emerging. If an alternative ideology were to emerge, the effects on global economic governance are impossible to foresee.

Conclusion

Large institutions need forecasts about future state of the world economy to be able to plan—but prediction is really, really hard. The evidence suggest that both economic and geopolitical forecasting efforts have been underwhelming at best and counterproductive at worst. They get worse the further one stretches out the time horizon. For a variety of reasons—sheer complexity, scholarly disincentives, the conflation of uncertainty with risk—there appears to be a market for lemons in the world of forecasting. This is particularly true for long-range forecasting. These exercises rely too much on extrapolation and not enough on noneconomic factors that affect the global economy.

This paper has suggested five “known unknowns” that should govern thinking about the next generation global economy. Each of these known unknowns, by definition, possesses significant uncertainty. Will the developed world revert to pre-Industrial Revolution growth rates? Will large developing economies continue to converge towards the developed world or regress to their mean growth rates? Will economic interdependence continue to function as a constraint on great power conflict? Will economic inequality—and its attendant political externalities—continue to rise? And will a viable, universal alternative to free-market democracy be developed?

All five of these questions merit much further study in thinking about the next generation economy. Scenario-based planning based around different possible outcomes of these known unknowns could be

one way to proceed in forecasting; some geopolitical analysis relies on such scenario-based planning. Of course, even five variables with binary outcomes can generate 32 different possible scenarios. This is far too complex for most consumers of forecasts.

Another possible way of simplifying would be to determine drivers common to more than one of these known unknowns. The pace of technological innovation, for example, clearly affects economic growth, but it also has concomitant effects on interdependence and inequality. This could reduce the number of scenarios that planners would need to sketch out. Highlighting these known unknowns reveal some questions beyond the scope of this paper. Whether technological innovation will continue to be correlated with robust economic growth affects known unknowns about economic growth in the developed world, inequality, and the viability of free market democracy. Whether China’s political system copes with its economic slowdown affects known unknowns about the developing world, interdependence, and the viability of free market democracy. And finally, the ability of the developed world to adapt to demographic and political pressures affect every known unknown listed above.

In conclusion, it is worth stressing the degree to which projecting the next generation economy require analysis that goes far beyond economics. Of the five known unknowns listed above, only the first one could be considered to be an exclusively economic question. The future of the developing world

depends as much on political institutions as it does on economic fundamentals. The probability of great power conflict is the province of international relations, not economics. The effect of inequality on the global political economy is a question that requires sociological and political analysis. And the question of whether liberal democracy will remain

uncontested is a question for political theorists and philosophers. The answers to each of these known unknowns depend upon politics and culture as well as economics. This is a fact that both planners and prognosticators should consider as they develop their next round of forecasts.

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Endnotes

1. Indeed, in Thomas Piketty's *Capital in the Twenty-First Century* (Cambridge: Belknap, 2014), the author argues that a source of the rising wealth gap in the future will be the fact that the richest individuals and institutions can afford the best financial planning.
2. Philip Tetlock and Dan Gardner, *Superforecasting: The Art and Science of Prediction* (New York: Crown, 2015), p. 5.
3. One could argue that the surfeit of punditry should count as forecasting, but much punditry, particularly in the global political economy, is too vague to be predictive. See Tetlock and Gardner, *Superforecasting*.
4. Graham Elliott and Allan Timmermann, "Economic Forecasting," *Journal of Economic Literature* 46, no. 1 (2008): 3-56.
5. Davide Furceri et al., "Where Are We Headed? Perspectives on Potential Output," in *World Economic Outlook* (Washington: International Monetary Fund, 2015).
6. In the case of the IMF, for example, see Axel Dreher, Silvia Marchesi, and James Raymond Vreeland, "The Political Economy of IMF Forecasts," *Public Choice* 137, nos. 1-2 (2008): 145-171.
7. For the classic example of this, see David Stockman, *The Triumph of Politics: Why the Reagan Revolution Failed* (New York: Harper & Row, 1986).
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9. Loungani and Juhn, "Further Cross-country Evidence;" See, more recently, "A mean feat," *Economist*, January 9, 2016.
10. Nate Silver, *The Signal and the Noise* (New York: Penguin, 2012).
11. Gultekin Isiklar and Kajal Lahiri, "How Far Ahead Can We Forecast? Evidence from Cross-country Surveys," *International Journal of Forecasting* 23, no. 2 (2007): 167-187.
12. Giang Ho and Paolo Mauro, 2014, "Growth: Now and Forever?" (IMF Working Paper, International Monetary Fund, Washington, July 2014); Giang Ho and Paolo Mauro, "Prognosis: Rosy," *Finance and Development* 52, no. 1 (2015): 10-14.
13. Ho and Mauro, "Growth: Now and Forever?" p. 23.
14. Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005). Political pundits are even worse; see Silver, *Signal and the Noise*, chap. 2.
15. On the growing interest in geopolitical risk, see Barney Thompson, "Political Risk Is Now a Growth Industry in Its Own Right," *Financial Times*, September 28, 2014. On the improvements in forecasting, see Barbara Mellers et al., "Identifying and Cultivating Superforecasters as a Method of Improving Probabilistic Predictions," *Perspectives on Psychological Science* 10, no. 3 (2015): 267-281; and Tetlock and Gardner, *Superforecasting*.
16. Niall Ferguson, "Looking Back on the Future," *Economist*, November 19, 2005.
17. Blake Clayton and Michael Levi, "Fiscal Breakeven Oil Prices: Uses, Abuses, and Opportunities for Improvement" (discussion paper, Center for Geoeconomic Studies, Council on Foreign Relations, Washington, 2015).
18. World Economic Forum, *Global Risks 2014* (Davos: World Economic Forum, 2014), <http://www.weforum.org/reports/global-risks-2014-report>.
19. It is difficult to gauge the accuracy of commissioned, or "bespoke", geopolitical forecasts, because of their proprietary nature. Several of them have boasted to me about their predictive accuracy in their bespoke research, but there is no way to independently confirm such claims. For a review of recent efforts, see Philip Tetlock, "Reading Tarot on K Street," *The National Interest* 103, September 2009, 57-67.
20. National Intelligence Council, *Global Trends 2015* (Washington: National Intelligence Council, 2000), <http://www.dni.gov/files/documents/Global%20Trends%202015%20Report.pdf>.
21. Michael Horowitz and Philip Tetlock, "Trending Upward," *Foreign Policy*, September 7, 2012, <http://foreignpolicy.com/2012/09/07/trending-upward/>.
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24. Ruchir Sharma, "Broken BRICs: Why the Rest Stopped Rising," *Foreign Affairs* 91, no. 6 (2012): 4; See also Ruchir Sharma, "How Emerging Markets Lost Their Mojo," *Wall Street Journal*, June 26, 2013.
25. Harsh V. Pant, "The BRICS Fallacy," *The Washington Quarterly* 36, no. 3 (2013): 91-105; Marcos Degaut, "Do the BRICS Still Matter?" (report, Americas Program, Center for Strategic and International Studies, Washington, October 2015).
26. Sinead Cruise and Chris Vellacott, "Emerging Markets Mania Was a Costly Mistake: Goldman Executive," Reuters, July 4, 2013; Luciana Magalhães, "China only BRIC Country Worthy of the Title – O'Neill," *Wall Street Journal*, August 23, 2013.

27. Ye Xie, "Goldman's BRIC Era Ends As Fund Folds after Years of Losses," *Bloomberg*, November 8, 2015.
28. Though there are overly optimistic predictions as well. See the debate on the likelihood of a persistent reduction in violent conflict between Steven Pinker, *The Better Angels of Our Nature: The Decline of Violence in History and Its Causes* (London: Penguin, 2011); and Pasquale Cirillo and Nassim Taleb, "On the Statistic Properties and Tail Risk of Violent Conflicts and Its Underestimation" (research paper, School of Engineering, New York University, Brooklyn, 2015).
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31. Pinker, *Better Angels*.
32. Margaret MacMillan, "The Rhyme of History: Lessons of the Great War," *The Brookings Essay*, December 14, 2013, <http://www.brookings.edu/research/essays/2013/rhyme-of-history>.
33. Heather Booth, "Demographic Forecasting: 1980 to 2005 in Review," *International Journal of Forecasting* 22, no. 3 (2006): 547-581.
34. Intergovernmental Panel on Climate Change, *Climate Change 2013: The Physical Science Basis*, T. F. Stocker et al., eds. (New York: Cambridge University Press, 2013).
35. Dana Nuccitelli, "IPCC Model Global Warming Projections Have Done Much Better Than You Think," *The Guardian*, October 1, 2013, <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2013/oct/01/ipcc-global-warming-projections-accurate>.
36. See, recently, Stephen M. Walt, "What Will 2050 Look Like?" *Foreign Policy*, May 12, 2005. See, more generally, Kenneth Waltz, *Theory of International Politics* (New York: McGraw-Hill, 1979).
37. Silver, *Signal and the Noise*, chap. 4.
38. Or, to put it another way, it creates perverse incentives. Forecasters who make extreme predictions but turn out to be correct are vindicated by history and speaker fees. And it is true, as noted in Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005) "hedgehogs" are more likely to be persistently wrong – but also more likely to get an "unexpected" outcome right. This incentivizes more extreme predictions as a means of capturing attention and the rewards from getting a rare event right.
39. Lawrence H. Summers, "US Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound," *Business Economics* 49, no. 2 (2014): 65-73; Robert Solow, "Secular Stagnation: Affluent Economies Stuck in Neutral," *Finance and Development* 51, no. 3 (2014): 16.
40. It is worth noting that the term "secular stagnation" first gained popularity from Alvin H. Hansen, "Economic Progress and Declining Population Growth," *American Economic Review* 29, no. 1 (1939): 1-15.
41. See Cole Teulings and Richard Baldwin, eds., *Secular Stagnation: Facts, Causes and Cures* (London: Center for Economic Policy Research, 2014).
42. Robert Shiller, "When a Stock Market Theory Is Contagious," *New York Times*, October 18, 2014.
43. For exceptions that will be discussed later, see Tyler Cowen, *The Great Stagnation* (New York: Dutton, 2011); on innovation, see Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age* (New York: W.W. Norton, 2014); and on inequality, see Piketty, *Capital in the Twenty-first Century*. At a deeper level, growth economics is mired in debates over "mathiness." See Paul Romer, "Mathiness in the Theory of Economic Growth," *American Economic Review* 105, no. 5 (2015): 89-93.
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