

# ECLIPSE



Living in the Shadow  
of China's Economic Dominance

Arvind Subramanian

Peterson Institute for International Economics

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*Eclipse: Living in the Shadow of China's  
Economic Dominance*

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Arvind Subramanian

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Washington, DC  
September 2011

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*To*  
*Parul*  
*Mrigaya (Tia), Kartikeya, and Rohan*





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# Preface

The Peterson Institute's research and publications over the years have focused to a considerable extent on China and its economic rise. One of the early books in this regard was Nicholas Lardy's *China in the World Economy* (1994) followed most notably by *China: The Balance Sheet—What the World Needs to Know Now about the Emerging Superpower* (Bergsten et al. 2006) and *China's Rise: Challenges and Opportunities* (Bergsten et al. 2008).

Most of these analyses focus on the opportunities for, and challenges facing, China itself rather than its impact on the rest of the world (though chapter 1 of *China's Rise* addresses that issue and elaborates my earlier proposal for a G-2 between China and the United States). There are, however, two major exceptions. Morris Goldstein and Lardy's *Debating China's Exchange Rate Policy* (2009) analyzes the effects of China's exchange rate policy on its trading partners and Gary Hufbauer et al.'s *US-China Trade Disputes: Rising Tide, Rising Stakes* (2006) examines trade disputes between China and the United States.

In this book, Senior Fellow Arvind Subramanian extends this line of inquiry by examining the rise of China from the perspective of its impact on the world economic system. He explores this through the key concept of economic dominance, focusing on whether and how China might attain future dominance.

Subramanian anchors the analysis by adopting a historical perspective in comparing China's future rise with the past hegemonies of Great Britain and the United States. He attempts to quantify and project both economic dominance and currency dominance, arguing that China's future dominance could be more imminent, broader in scope, and much larger in magnitude than is currently imagined. The profound effect that this might have on the United States and the world financial, and especially trading, system is explored at

some length. The book concludes with a series of proposals for reconciling China's rise with continued openness in the global economic order.

The Peter G. Peterson Institute for International Economics is a private, nonprofit institution for the study and discussion of international economic policy. Its purpose is to analyze important issues in that area and to develop and communicate practical new approaches for dealing with them. The Institute is completely nonpartisan.

The Institute is funded by a highly diversified group of philanthropic foundations, private corporations, and interested individuals. About 35 percent of the Institute's resources in our latest fiscal year were provided by contributors outside the United States. The Smith-Richardson Foundation and the Eranda Foundation provided generous support for this study.

The Institute's Board of Directors bears overall responsibilities for the Institute and gives general guidance and approval to its research program, including the identification of topics that are likely to become important over the medium run (one to three years) and that should be addressed by the Institute. The director, working closely with the staff and outside Advisory Committee, is responsible for the development of particular projects and makes the final decision to publish an individual study.

The Institute hopes that its studies and other activities will contribute to building a stronger foundation for international economic policy around the world. We invite readers of these publications to let us know how they think we can best accomplish this objective.

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Director  
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# Acknowledgments

When Keynes famously noted that practical men believe themselves to be exempt from any intellectual influences, he probably had in mind some iron law of vanity that says that the debts we really owe (even if to defunct economists) considerably exceed those we recognize and acknowledge. The obligatory filling of an acknowledgments page is a discipline, however weak, to guard against this law. So here goes.

My foremost general debt is to C. Fred Bergsten, who persuaded me to forgo being a “lifer” at the International Monetary Fund, with all its variable charms, yo-yo excitements, but unquestionable security, and join the Peter G. Peterson Institute for International Economics. The intellectually fertile and stimulating environment of the team at the Institute, under his superb direction, has allowed me to work with delight and inspiration every day that I have been here since April 2007. I owe a similar debt to Nancy Birdsall and the Center for Global Development, with which I have been associated for as long as the Institute.

I owe specific debts, connected directly to the book, to several people. All my colleagues at the Peterson Institute have directly or indirectly contributed to this book. They include Fred Bergsten, Anders Åslund, William Cline, Mac Destler, Joe Gagnon, Morris Goldstein, Gary Hufbauer, Randy Hemming, Olivier Jeanne, Brad Jensen, Simon Johnson, Mohsin Khan, Jacob Kirkegaard, Barbara Kotschwar, Nicholas Lardy, Michael Mussa, Marcus Noland, Adam Posen, Carmen Reinhart, Jeffrey Schott, Ted Truman, Nicolas Veron, Steve Weisman, and John Williamson. Presenting my ideas on a number of occasions at the Institute and to be at the receiving end of many a scathing reaction from my colleagues has made the book a better—or at least less bad—product.

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ARVIND SUBRAMANIAN  
Washington, DC  
September 2011



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# Introduction

*The British action [at Suez] was the last gasp of a declining power . . . perhaps in two hundred years the United States would know how we felt.*

—Harold Macmillan to John Foster Dulles on December 13, 1956, after economic pressure from the United States persuaded the United Kingdom to withdraw its forces from the Suez Canal zone

February 2021. It is a cold, blustery morning in Washington. The newly inaugurated Republican president of the United States is on his way to the office of the Chinese managing director of the International Monetary Fund (IMF) to sign the agreement under which the IMF will provide \$3 trillion in emergency financing (about 12 percent of GDP) to the United States and the conditionality to which the United States will have to adhere.

Over the preceding decade, the US economy has had to contend with three interconnected problems: slow growth, a fragile fiscal situation, and a beleaguered middle class. Under the weight of public and private debt accumulated after the crisis of 2008–10, high and persistent unemployment, and diminished participation in the labor force, the US economy has grown at just below 2 percent in the 2010s. As a consequence, and despite intermittent attempts to come to grips with the rising costs of entitlements, especially related to health care, public finances are not on fundamentally secure footing. Public-sector liabilities have built up to 50 percent of GDP, as Peter Boone and Simon Johnson warned a decade ago, because the US financial system has remained as cavalier in its risk-taking and as toxic-asset-laden in its balance sheets as before the financial crisis of 2008–10. And inequality has increased even further, with income gains at the very top (.01 percent of the population) becoming even larger. Economic and social mobility have declined, giving rise to a middle class that understandably does not want to move down the skill spectrum but whose prospects of moving up, through education and skill acquisition, are increasingly limited by competition from India and China.

At the same time, China, despite the slump of 2012–13, has recovered its growth momentum and is economically dominant: Its trade and GDP are

nearly 50 percent larger than those of the United States, and it remains the largest bankroller to the world with the United States still its largest bank-rollee. The renminbi is increasingly in demand as a reserve currency, and the sheen has come off the dollar.

In the months preceding the 2020 US election, inflation became the primary global problem because commodity and oil prices soared due to rapid growth in the emerging markets. Growth in the United States has slowed, threatening to further expose the fiscal and financial sector vulnerabilities. Rumors are swirling in global financial markets that China is planning to wield its financial power because it can no longer countenance substantial US naval presence on the Indian and Pacific Oceans. The dollar is under intense pressure and China has reinforced that pressure by selling some of its \$4 trillion worth of reserves. The dreaded dollar collapse is imminent. Bond markets have turned on US government paper, the country has been stripped of its AAA rating, and investors are suddenly absent from US Treasury auctions.

To maintain confidence, the US Federal Reserve has raised interest rates sharply—much more than it might have had to when it enjoyed the “exorbitant privilege” of the dollar as the world’s near-exclusive reserve currency. The United States has started to face the dilemma that many developing countries faced during the Asian financial crisis of the late 1990s: While necessary to keep inflation in check and maintain confidence in the currency, higher interest rates are threatening growth and hurting the viability of the financial sector. US debt dynamics look ominous because interest rates substantially exceed growth rates. Significant economic and social costs loom. America, in short, appears like any emerging-market country.

Cheap financing is the need of the hour—especially since the loss of confidence is related to fiscal sustainability, as many advanced economies discovered years earlier (Iceland, Greece, and Ireland in 2010 and 2011 and Spain and Portugal in 2012). The oil-rich countries have refused to extend emergency financing to the United States, because the friendly autocrats of yore have all been replaced by “illiberal democrats” (to use Fareed Zakaria’s phrase) of various Islamic persuasions, moderate to extreme, with long memories of US intervention in the Middle East. The IMF seems the only option left.

The presidential motorcade reaches the plush IMF headquarters, but the leader of the free world has not arrived alone. Because the elections of 2020 resulted in divided government, the managing director has insisted that, to reassure the financial markets of the credibility of the IMF loan-cum-conditionality package, US congressional leaders of both parties be present to signal that bipartisan legislative approval for the package will be forthcoming. (The United States, however, is able to resist pressure that the chief justice of the Supreme Court, representing the remaining branch of government, also be present.)

China—which is now the largest contributor to IMF resources and, pursuant to the reform of the IMF’s voting structure in 2018, now has veto power at the Fund—makes the removal of US naval bases from the Western Pacific



a precondition for the United States to receive the financing necessary to make its debt dynamics sufficiently stable to satisfy bond markets. This precondition has bite because China can easily get a majority of IMF members—beneficiaries of Chinese trade and financial largesse—to block a US financing program. The terms of the IMF program are clear, onerous, and delicately balanced between tax increases and expenditure reductions and are therefore equally distasteful to Republicans and Democrats. The US government must introduce a national value-added tax, restore the highest marginal tax rate to 40 percent, institute means testing for Medicare and Social Security benefits, and substantially reduce defense expenditures. The president grimly accepts. Under the calm gaze of the managing director and flanked by leaders of both houses of Congress, he signs the letter of intent that elaborates the terms and conditions of IMF financing.

This scene of stark symbolism is relayed instantaneously around the globe. It is eerily reminiscent of 1998, when with arms crossed and a smug expression, West-embodiment IMF Managing Director Michel Camdessus watched as Indonesian President Suharto signed off on an IMF program and, in the eyes of Asia, signed away sovereignty and self-respect. Except that the roles have been reversed. The handover of world dominance is complete.

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Is this scenario merely fantasy, or could it actually play out in the not-too-distant future? Mainstream opinion in the United States clearly rules out the latter possibility: A central tenet of America's self-perception is that its economic preeminence cannot be seriously threatened because it is America's to lose, and sooner or later the country will rise to the challenge of protecting it. China may be rising as an economic superpower, and the United States may have to cooperate more with China and others to share the global stage. But the Chinese threat is neither imminent nor sufficiently large in magnitude or broad in scope to dislodge the United States from the driver's seat. Moreover, if the United States can get its economic house in order, the Chinese threat can be headed off.

Tinges of hubris (or complacency) that have long lurked behind that tenet could be detected in Larry Summers's speech just before his departure as President Barack Obama's national economic advisor in December 2010:

America's history, in a certain sense, has been one of self-denying prophecy—a history of alarm and concern, but alarm and concern averted by decisive actions to assure our prosperity. As one former CIA director warned of our largest competitor, that industrial growth rates of eight or nine percent per year for a decade would dangerously narrow the gap between our two countries. That was Allen Dulles in 1959 referring to the Soviet Union. And when the Soviet Union collapsed instead, the *Harvard Business Review* in 1990 proclaimed in every issue—every issue—in one way or another that the Cold War was over, and that Germany and Japan had won. Now we hear the same thing with re-

spect to China. Predictions of America's decline are as old as the republic. But they perform a crucial function in driving the kind of renewal that is required of each generation of Americans. I submit to you that as long as we're worried about the future, the future will be better. We have our challenges. But we also have the most flexible, dynamic, entrepreneurial society the world has ever seen. If we can make the right choices, our best days as competitors and prosperous citizens still lie ahead (Summers 2010).

In concluding his book on reserve currency status or "dollar power," another manifestation of economic dominance, economist Barry Eichengreen (2010, 177) sounds a similar theme: "The good news, such as it is, is that the fate of the dollar is in our hands, not those of the Chinese."

These beliefs are not confined to economists such as Summers and Eichengreen. They are quite widely shared. Political scientist Michael Mandelbaum (2010, 182) asserts: "When Britain could no longer provide global governance, the United States stepped in to replace it. No country now stands ready to replace the United States. . . ."

In a similar vein, Joseph Nye (2010, 11–12), an eminent international relations expert and former senior official, offers this assessment: "The United States is not in absolute decline, and in relative terms, there is a reasonable probability that it will remain more powerful than any single state in the coming decades. . . . The problem of American power in the twenty-first century, then, is not one of decline but what to do in light of the realization that even the largest country cannot achieve the outcomes it wants without the help of others."

These perspectives flow from a deep and noble fount: the wells of belief in American exceptionalism, that something special about the nation's past and present will carry into the future. That sentiment was, of course, also widely shared in the United Kingdom. When the anti-imperialist Irishman Stephen Dedalus in James Joyce's *Ulysses* is asked about the Englishman's proudest boast, his irony-laced response is, "That on his empire, . . . the sun never sets."<sup>1</sup>

This book, then, is an attempt to question this central tenet of US economic preeminence trumpeted by the experts from the different fields cited above. Its aim is to quantify relative economic dominance and its manifestations, including currency dominance; to track the history of dominance; and to project it over the next 20 years.

This quantification yields some surprising conclusions. First, the economic dominance of China relative to the United States is more imminent (it may already have begun), will be more broad-based (covering wealth, trade, external finance, and currency), and could be as large in magnitude in the next 20 years as that of the United Kingdom in the halcyon days of empire or the United States in the aftermath of World War II.

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1. Nearly every empire in history has shared and expressed a similar belief in its enduring dominance; the "sun never setting" metaphor can be traced to a speech in Herodotus's *Histories* made by Xerxes I of Persia before invading Greece.

Second, since size—of an economy, its trade, and its creditor position—is a key determinant of reserve currency status, China's growing size and economic dominance are likely to translate into currency dominance. The calculations, as well as a new reading of the history of the transition from sterling to the dollar, suggest that the renminbi could surpass the dollar as the premier reserve currency well before the middle of the next decade. The probability and speed of this transition will greatly increase if China undertakes some key reforms of its financial and external sector, even more so if China makes the political transition to democracy. And if the renminbi ascends to become the premier international reserve currency, China might be reluctant to lose the strength and prestige that comes with that status by disrupting financial and trade relations in any serious way.

Third, these overwhelming numbers contain two policy messages, one for all of China's main trading partners and the other for the United States in particular. China's future dominance need not pose a threat to the current open and rules-based economic and trading system. Indeed, China is so unusually open in terms of actual trade outcomes that a large and growing private constituency is being created with an awareness of mutual dependence, the benefits from it, and hence a stake in maintaining it. Moreover, China is so dependent on trade as an engine of growth and continual improvements in living standards—which are key to the legitimacy of the Chinese leadership—that the private stakes for maintaining openness are matched and reinforced by public interests.

But the world cannot be entirely sure of what actions China will take in the future, especially if fundamental political transformations continue to lag behind economic changes, and if uncertainty remains about China's territorial ambitions. The world needs insurance against the possibility of a future with an economically dominant but less than benign China. And that insurance must take the form of reviving multilateralism and tethering China to it. China, in short, offers the new case for reviving multilateralism.

The message for the United States is that rising economic and currency dominance of China might well be determined to a greater extent by Chinese policy and performance than by US actions. Dominance might be more China's to lose than America's to retain. America cannot escape the inexorable logic of demography and the phenomenon of "economic convergence," the process by which hitherto poor countries, and especially China, catch up with their richer counterparts. A country that is four times as populous as the United States will be bigger in overall economic size, once its standard of living exceeds a quarter of that of the United States.

In principle, the baseline scenario of a dominant China can be altered materially by a resurgent America. In some ways, the United States did just that in the early 1990s to head off the challenge to its dominant status from Japan. But that analogy might be less applicable in the future. Japan's dynamism collapsed in a way that is less likely for China, whose room for growth remains considerable not least because it is still so far away from the frontier.

Moreover, the conditions in the United States now are more difficult than before: The fiscal and external situation are more fragile, the outlook for growth less promising, and above all, the structural malaise of economic and social stagnation of its middle class has worsened.

Moreover, even if the United States found new founts of technological dynamism, that will still not necessarily give it an edge over China and others because in the new “flattened” world, technological progress in one country can be more easily replicated elsewhere (Friedman 2005). If rich countries stagnate, countries such as China will catch up as they have been doing. But if rich countries become technologically dynamic, they may not be able to pull ahead. The asymmetry might be that rich countries can fall behind, but their ability to stay ahead in growth terms is inherently limited by convergence and by the nature of new technologies and the ability of countries such as China to more quickly use them.

One lesson from the last great transition of dominance from the United Kingdom to the United States is that it is a combination of broad internal economic weakness, external vulnerability, and the presence of a dominant power that makes the status quo power vulnerable. In the present case, this vulnerability would be to a dominant power that is not only not an ally—unlike the United States and the United Kingdom before and after World War II—but also a country that has yet to sufficiently reassure the world about its internal politics and its extraterritorial ambitions. The prospect, however remote, of being at the receiving end of a less-than-benign exercise of power by a dominant China should serve as a loud wake-up call for the United States.

What can this book possibly add to an overgrazed field? The related themes of the changing world order, American decline, and China’s rise have not suffered from lack of insightful attention. Besides the scholars mentioned above, thoughtful contributions have recently come from C. Fred Bergsten (2008), Niall Ferguson (2010), Thomas Friedman and Michael Mandelbaum (2011), Robert Kagan (2008), Parag Khanna (2011), Henry Kissinger (2011), Gideon Rachman (2011), Adam Segal (2011), Anne-Marie Slaughter (2009), Martin Wolf (2010, 2011), and Fareed Zakaria (2008a, 2008b), to name just a few.

In questioning the wisdom going forward of clinging to the notion of America’s invulnerability, this book will not introduce any new theories. It does not attempt to break any new ground in terms of economic or geopolitical insights, and its projections do not go beyond 2030, when a lot can and will change, not least the rise of countries such as India, Brazil, and Indonesia, which by that time will have the demographic weight and levels of affluence to knock on the doors of the economic dominance club. Rather, the book will look at some numbers from the past and for the future, which form the core of the case presented here, leavened by historical narrative. The innovation, such as there is, will be to present new and relevant numbers, produce them in a reasonably consistent and defensible manner, combine them in new ways, and look at them through a new lens.

For example, I attempt to look at GDP numbers for the future that correct for differences in future purchasing power across countries. Similarly, there are very few numbers on how trade will evolve in the future. Nor have there been successful attempts to understand and quantify the determinants of reserve currency status. In this book, these numbers are assembled and combined to create a new “index of economic dominance” to quantify the strength of countries and compare them across countries and time. The index goes back to 1870 and projects forward to 2030.

These numbers draw on well-established methodologies, whose plausibility is tested against historical experience. Since the period of greatest interest for this study is the next 20 years, the focus here is on the past century or so, because that window provides two historical parallels to the possible future dominance of China: the United States after World War II and the United Kingdom before World War I.

What is the justification for the 20-year time horizon? Twenty years may not be the optimal time frame for analyzing all questions about the future, but it seems an acceptable compromise. On the one hand, if the horizon of analysis is too long, the uncertainties increase and the confidence bands surrounding projections can become uncomfortably large. On the other hand, a shorter horizon seems less meaningful for discussing issues such as dominance and drawing out their implications for individual countries and the system. The 20-year horizon is thus an attempt to navigate between the clamorous cycle and the tenuous trend.

I begin this book with the story of how the acquisition and loss of the Suez Canal by the United Kingdom coincided with the peak and end of empire and end it by comparing the Suez Redux scenario—as described in the “hand-over” fantasy at the beginning of this introduction—with the original Suez episode in 1956 to assess how plausible the former might be.

Chapter 2 quantifies economic dominance by constructing an index for different countries across time. Quantification is preceded by a discussion of the universe of possible determinants, the rationale for narrowing this universe to a few key determinants (wealth, trade, and external finance), and the complicated issues of measurement and weighting. The quantification is validated in a number of ways: by comparison with real-world examples of power allocations such as those of the IMF and by testing whether the index can track the history of economic dominance since 1870.

Chapter 3 turns to currency dominance. After reviewing the history, the chapter undertakes a new analysis of the determinants of reserve currency status going back to 1900. The key finding is that size—in terms of GDP, trade, and external finance—is the fundamental determinant of reserve currency status. These variables explain about 70 percent of the variation in reserve currency status of the major currencies over the last 110 years. This finding also serves to validate the index of economic dominance because the determinants of currency dominance seem to be similar to those of economic dominance.

Chapters 2 and 3 provide the basis for projecting, respectively, future economic and currency dominance. GDP and trade are the underlying determinants of that dominance, so they need to be projected out. Chapter 4 takes on these long-term projections, which are driven by “economic convergence,” whereby poor countries catch up with the rich ones, and by “gravity,” whereby trade between countries is determined by their GDPs. Convergence and gravity help quantify future GDP and trade. The chapter shows that convergence, which was selective until recently, has become much broader in scope and faster in pace. Many more countries are catching up, and doing so more quickly, with the rich countries. This is true in spades for some of the larger emerging-market countries such as China, India, and Brazil, which will be key to determining future dominance.

Equipped with the framework and the numbers, chapter 5 projects economic and currency dominance until 2030. The main conclusions relate to the timing, magnitude, and breadth of future Chinese dominance. Like the two previous economically dominant powers, China’s dominance will be broad-based. By 2030, China will account for close to a quarter of the world’s GDP measured in purchasing power parity terms (compared with 12 percent for the United States), which is roughly similar to that of the United States in 1950 and greater than that of the United Kingdom in 1870. China will account for between 15 and 20 percent of world trade, while the United States will account for 7 percent. The projected figure for China is greater than what the United States posted in its heyday but somewhat below what the United Kingdom achieved (24 percent) in 1870.

Chinese dominance would also extend to the currency, with the renminbi starting to compete with the dollar for reserve currency status. The econometric results combined with a slightly different reading of the historical experience of the sterling-dollar transition yields a more dramatic fate for the dollar and renminbi. The conventional view on the sterling-dollar transition is one of persistence and inertia. This is based on comparing the period when the United States became the largest economy (around 1870) and the period when it became the premier reserve currency (around World War II). The rise of the dollar then is supposed to have lagged the rise of the US economy by more than 65 years.

But this view needs to be qualified on two grounds. First, the analysis here suggests that reserve currencies are determined not just by income but, crucially, by trade and external finance. On this broad-based index, the United States surpassed the United Kingdom and became the world’s economically dominant power closer to World War I rather than in 1870.

Second, as Barry Eichengreen and Marc Flandreau (2008) have argued, the dollar first eclipsed sterling in the mid-1920s, and although sterling and the dollar shared near-equal status during the interwar years, the persistence of sterling during this period was driven to a considerable extent by the politics of the sterling area. Correcting for these two factors, the lag between the rise

to economic dominance of the United States (around World War I) and the establishment of the dollar as the premier reserve currency was considerably shorter—closer to 10 years rather than the 60-plus years conventionally believed. Applying this timing to the current situation suggests that the renminbi could overtake the dollar within the next 10 years because China's index of overall economic dominance overtook that of the United States around 2010.

The currency dominance transition is far from inexorable. It will be conditional on China undertaking far-reaching reforms of its financial sector and exchange rate policies. China will need to eliminate restrictions on foreigners' access to the renminbi for the entire range of financial and trade transactions and deepen its financial markets so that investors gain confidence in their liquidity and depth. However, if these policy initiatives are indeed undertaken—and many have already been initiated—the fundamentals will be in place to facilitate the rise of the renminbi and its eclipsing of the status quo reserve currencies, the dollar and the euro.

Skeptics of these projections will concede that size and policies are important determinants of reserve currency status but would argue that the deepest determinant of this status is confidence and trust, especially in hard times. Their telling question will be: In a crisis, when the chips are down, will investors feel that their money is safer in China than in the United States or at least safe enough against expropriation or nationalization by Chinese authorities?

Of course, broader political developments—especially Chinese political stability accompanied by transition toward greater democracy and freedoms—will be important in reassuring investors. But there are grounds for believing that China, regardless of the political transition, is unlikely to act in a manner that should worry investors. China, through its policy actions, is signaling its desire to elevate the status of the renminbi, not least because internationalization of the renminbi offers China's policymakers a possible political exit from the current mercantilist strategy. Having worked hard to secure reserve currency status for the renminbi, China is unlikely to jeopardize it. It goes without saying that if the United States suffers a failure of policy and performance (even without it being as bad as the fantasy scenario outlined at the outset of this chapter), the transition to the renminbi would occur with greater certainty and speed.

Chapter 6 elaborates on three distinct aspects of China's dominance. First, China will be a precocious power, in that dominance will occur at living standards associated with middle-income countries. In contrast, the United States and the United Kingdom were among the richest countries in the world during their periods of dominance. Second, China's mercantilism has also been somewhat unusual. Like the United States and the United Kingdom during comparable periods, China has run current account surpluses. But unlike the United States, China has consciously targeted mercantilist outcomes through exchange rate or trade policy. And unlike the United Kingdom, which relied primarily on trade policy, China's mercantilist instrument has been ex-

change rate policy. China has been unique in that its rise to dominance and its mercantilism are associated with being closed to capital, whereas the United Kingdom and United States were highly open to capital.

Finally, China, although mercantilist now, is a highly open economy, measured in terms of trade outcomes. This is the paradox of a China that is both mercantilist and highly open. And China's openness is unusual for such a large country, especially when compared with the United States during the heyday of its dominance.

All projections are problematic, not least because they extrapolate the recent past. So chapter 7 asks what can go wrong with the analysis, especially regarding the numbers for China. The chapter suggests that the China projections are appropriately cautious. The projections of dominance do not require China to replicate its performance of the last three decades—they assume China's growth slowing to 6 percent a year in PPP terms (less than 7 percent in dollar terms) over the next two decades, which would be about 40 percent slower than in recent years. A historical comparison, based on looking at how countries fared when they had reached China's situation today—namely one-quarter of the standard of living of the United States during its postwar economic heyday—suggests that there are enough countries that have done in the past what China is projected here to do in the future. It should be noted that some countries have also slipped and encountered long periods of decline. But a lot will have to go wrong for China to find itself in the latter rather than the former category.

Chapters 8 and 9 draw out the possible implications for economic cooperation with a rising China. The big question here is whether the open, rules-based trade and financial system bequeathed by the United States after World War II will survive China's economic dominance?

It will almost be true by definition that as a dominant power, China—as for the United States during Pax Americana—will increasingly be beyond the influence of outsiders, especially on key issues such as exchange rates, climate change, and technology protectionism. Self-interest will, largely, rule.

The pursuit of self-interest per se need not undermine the current system. For one, China's unique features—especially the fact that it is one of history's most open superpowers—will invest it with a stake in broadly maintaining the current trade and financial system. The commitment of the United States to an open system after World War II was less economic because it was not a very open economy and was more the product of a broader strategic vision: An open economic system would promote prosperity elsewhere, especially for its allies in Europe and Japan, reduce the prospects of another global conflagration while consolidating the dominance of the United States. China's stake in market openness will be existential and substantial because delivering development to its people—the basis for the regime's legitimacy—is crucially predicated on markets remaining open.

The importance of trade for China going forward, the likelihood that China will exit from its mercantilism by internationalizing the renminbi, and



the relative ineffectiveness of the IMF as a forum for cooperation between systemically important countries, makes it likely that engagement—and the scope for friction—between China and the other large economies will relate more to trade than macroeconomic issues. In turn, this will make the World Trade Organization (WTO) not the IMF the key forum for and locus of cooperation between China and these economies.

The high probability scenario must still be one of China having a vested interest in an open trading system and hence acting, even leading, to preserve it. Moreover, modern trading relationships, notably the slicing up of the value-added chain, and the globalization of foreign direct investment, have resulted in much larger two-way flows of goods, capital, people, and ideas. This criss-crossing globalization has created enmeshing private interests with a stake in preserving this globalization to a greater degree than ever before. And if the renminbi ascends to becoming an international reserve currency, China might be reluctant to lose the strength and prestige that comes with that status by disrupting financial and trade relations in any serious way.

But there is a small but finite probability that China's perception of its self-interest conflicts with the requirements of an open system and that it exercises its dominance in a less-than-benign manner. A dominant China could pursue industrial and quasi-protectionist policies domestically, capture resources abroad, enter into bilateral and discriminatory arrangements with selected partners, all of which, given China's size, could affect the fundamental character of the current open economic system. How can the world today secure some protection against, or diminish the chances of, a damagingly assertive China in the future?

The world—more specifically, China's large trading partners, including the United States, Europe, Japan, India, and Brazil—needs to take out an insurance policy today or sometime during the period of transition to greater Chinese dominance to provide some protection against or diminish the chances of a not-so-benign exercise of China's economic hegemony in the future. The need for insurance would stem not from alarmism but would simply follow as a matter of prudent risk management. Insurance does not foreclose or preclude the possibility of a positive dynamic of engagement with China based on deepening or strengthening economic and trade cooperation.

History suggests that multilateralism offers the best hope for placing checks on dominant economic powers. The aim of China's trading partners should be to keep China tethered to the multilateral system, but achieving this will not be easy. First and foremost, China's trading partners will need to exercise strategic foresight and restraint in terms of refraining from deepening bilateral ties with China, especially in areas covered by the WTO. If many of these countries do negotiate bilateral trade agreements, then all of them will have less multilateral dealings with China. The problem is not just that bilateral agreements with China might be imbalanced but also that enforcement of rules and agreements is likely to be more difficult bilaterally than multilaterally. In other words, China's economic dominance might play out

more under imbalanced bilateral rules and the asymmetry inherent in adhering to them.

A more difficult question is whether a second act of self-restraint by China's major trading partners might be necessary. If the United States, European Union, Japan, India, and Brazil resist deepening bilateral ties with China but go ahead and negotiate free trade or economic partnership agreements with each other, China might legitimately view this situation as "hostile regionalism," as an attempt at the economic and trade encirclement of China. A more positive and less hostile way of keeping China anchored would be for its trading partners to practice a policy of multilateralism not only in their dealings with China but also among themselves. This would signal a belief in the intrinsic value of multilateralism rather than just as an instrument to contain China.

This book is primarily about the rise of China with some implications for the United States and the multilateral system and is somewhat inattentive to Europe and its role in the dominance stakes. In quantitative terms, Europe or the EU-27 is as big today as the United States and hence is a key player in the economic system. The neglect of Europe is in part because Europe today is still a half-way house, with divided responsibilities on decision-making between member countries and Europe. Moreover, as of this writing, it remains unclear which of the two competing forces—sovereignty-preserving and sovereignty-reclaiming versus centralizing and sovereignty-pooling—will gain the upper hand in the wake of the ongoing crisis in the European periphery. The projections suggest that even if the future throws up a more unified Europe that is capable of projecting economic power, China will still remain the biggest individual player by far. But a resurgent America and a unified Europe will play, and need to play, a key role in shaping the multilateralism that represents the best insurance against any unbenign exercise of dominance by China.

It is possible, of course, that China's rise is exaggerated and that American economic preeminence will persist, even if diluted to some extent. On the other hand, the possibility of the United States being dictated to in the near future by an economically dominant and an assertive China is a low but not a zero probability outcome. Regardless of exactly how and how quickly China's rise plays out, the numbers and their implications spelled out in this book stand in stark contrast to the immutable belief among some of America's enduring economic dominance in the years ahead. Can history—or rather China—abbreviate the duration of dominance of the United States to much less than the 200 years anticipated by Harold Macmillan in the opening quote to this introduction?

# A Brief History of Economic Dominance

*The United States has the sticks and carrots.*

—John Foster Dulles in a memorandum to  
President Dwight Eisenhower in the aftermath of the Suez crisis<sup>1</sup>

The Suez Canal is as good a metaphor as any for economic dominance. It is well known that the Suez crisis of 1956 irretrievably buried any hopes (or illusions, some would say) that the United Kingdom might retain its status as a great power. But the history of the canal actually bookends both the apogee and collapse of the British empire. And at both points in time, the economically dominant creditor country gained at the expense of the enfeebled and indebted power.

Opposed originally to the canal's construction, which began in 1859, the United Kingdom subsequently rued its lack of a direct stake once the waterway's strategic possibilities as its "highway to India" and "backdoor to the East" became evident. The original Suez Canal company was majority-owned by the French, with the Egyptian ruler, Ismail Pasha—the *khedive* or viceroy nominally representing the Ottoman ruler in Istanbul—enjoying a 44 percent stake.

By 1875, however, Egypt teetered on the edge of insolvency, overstretched by military adventurism in the Sudan and Ethiopia, seduced into profligacy stemming from the *khedive's* grandiose ambition to make Cairo the Paris-on-the-Nile, and debilitated by dwindling export revenues once stability returned to international cotton markets after the US Civil War. A debt-to-GDP ratio of close to 200 percent, mostly owed to restive European bondholders, forced the *khedive* to sell his stake for a paltry sum of 4 million pounds, which amounted to 4 percent of his debt and 7 percent of Egypt's GDP at the time.

Spotting the opportunity, the British government, with the assistance of the Rothschilds, acquired the viceroy's stake—amounting to 0.3 percent of UK GDP compared with the 3 percent of GDP that the United States paid for

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1. As reported by Kunz (1991).

the Louisiana Purchase—with lightning speed. “You have it, Madam,” Prime Minister Benjamin Disraeli wrote to Queen Victoria upon completion of the transaction. So rapid was the transaction that Disraeli’s arch enemy, William Gladstone, fumed that parliamentary procedure was being circumvented (Ferguson 2000). The Suez Company became an Anglo-French concern, but the United Kingdom exerted effective control over the Suez zone and its sea traffic until the early 1950s.

But just as the United Kingdom acquired the canal by virtue of its economic dominance, and in particular as a net creditor to the rest of the world, it lost it when it faded as a power and became a net debtor. Following a long sequence of events, including the withdrawal of US and British support for the World Bank to finance construction of the Aswan dam, Egyptian President Gamal Abdel Nasser nationalized the Suez Canal in July 1956. The United Kingdom, France, and Israel mounted an attack in late October and November of that year and Egypt responded by sinking all the ships and vessels in the canal, thereby blockading the vital oil tanker traffic.

Investor anxiety about this campaign and its consequences for the United Kingdom led to sterling coming under attack, and the Bank of England was forced to draw down its reserves to defend sterling. By December, the threat of a devaluation was very real, especially since there was a fear that the United Kingdom’s reserves might fall below the target level set by the UK authorities, which would signal the need for a devaluation of sterling.

Heading off a sterling devaluation was thought imperative for two reasons. Oil prices (denominated in dollars) spiked because of the Suez blockade, which reduced tanker traffic and global oil supplies, and a devaluation would make oil even more expensive in the United Kingdom, fueling inflation. Second, United Kingdom was still clinging to the vestiges of empire and the sterling area, which yoked together the United Kingdom and the Commonwealth countries through preferential trade and a loose monetary arrangement. A debased sterling would threaten these arrangements and hence the remnants of empire. The then-governor of the Bank of England, Cameron F. Cobbold, emphasized that a sterling devaluation “only” seven years after the previous one in 1949 “would probably lead to the break-up of the sterling or (possibly even the dissolution of the Commonwealth) . . . a reduction in the volume of trade and currency instability at home leading to severe inflation.” Consequently, “we should regard a further devaluation of sterling as a disaster to be fought with every weapon at our disposal” (Boughton 2001a, 435, parentheses in original).

The United Kingdom turned to the United States for financial help, relying on their “special relationship” for assistance either in the form of interest waivers on the United Kingdom’s lend-lease credits (the system of financial assistance extended by the United States to its World War II allies) or new loans through the US Export-Import Bank. But President Dwight Eisenhower—furious about the attack because it occurred during the presidential campaign in which he was campaigning as a man of peace after having ended the fighting in Korea—refused to help. In addition, the United States made it clear that,

unless the United Kingdom complied with a US-sponsored United Nations resolution involving quick and unconditional withdrawal of British forces from the canal area, it would not allow the British to access resources from the International Monetary Fund (IMF).<sup>2</sup> UK compliance would enable it to access Export-Import Bank loans as well as substantial IMF resources.

“This was blackmail. . . . But we were in no position to argue,” recalled a senior adviser to Prime Minister Anthony Eden (who resigned in the wake of the Suez crisis) (Andrews 2006, 7). Once the United Kingdom agreed to a deadline for withdrawal, the United States in fact supported a massive financial package that included unprecedented borrowing from the IMF worth \$1.3 billion and a \$500 million loan from the Export-Import Bank. The United States also allowed the United Kingdom to postpone about \$175 million of its payments under lend-lease.<sup>3</sup>

Four aspects of this episode are worth highlighting from the perspective of dominance and power. First, economic means were used by the dominant power to secure noneconomic objectives. Second, power was exercised by the rising superpower not against some small country but against the power that it was displacing, which was a political, economic, and military ally rather than an adversary. Third, the exercise of economic power was directed against a country to secure national objectives, not to change the rules of the system. National rather than systemic objectives were the motives for exercising dominance.

Finally, a key and less recognized aspect of the Suez episode was that the dominant power used not just sticks but carrots to change outcomes. The hardball played by the United States, and its ability and willingness to use tough financial sanctions before the crisis was resolved, were matched or even surpassed by its generosity after the United Kingdom agreed to the conditions imposed. Indeed, US willingness to go to bat for the United Kingdom was reflected not just in the unprecedented magnitude of the IMF loan<sup>4</sup> but also in the fact that the loan violated IMF rules at the time that prohibited lending to support large capital outflows, which the United Kingdom experienced during the Suez crisis.<sup>5</sup> Economic dominance is thus not just about penalties but also about incentives, and indeed one might argue that carrot-based dominance might have greater legitimacy than stick-based dominance.

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2. The IMF functions like a credit union, with contributions from each member country. These contributions have a hierarchy. The first 25 percent is called the gold tranche, which the country can withdraw at any time without permission from the IMF membership. Withdrawals beyond this gold tranche require approval of 50 percent of the IMF's membership. The United States made clear that it would block any UK request to access resources beyond the first 25 percent.

3. In fact, the lend-lease arrangement was renegotiated seven times to allow the United Kingdom the unconditional right to postpone payments of principal and interest (Kunz 1991, 181).

4. Indeed, the package was designed to be so big as to immediately deter speculation against sterling, which had the desirable effect that the United Kingdom ended up borrowing only \$560 million of the total of \$1.3 billion that was approved by the IMF.

5. IMF rules only allowed lending when a country's current account (consisting of trade in goods and services), not its capital account, was jeopardized.

Whether irony or symmetry, the upshot of it all was that as an economically dominant net creditor, the United Kingdom, acquired the Suez Canal, and as an economically enfeebled net debtor, she lost it. The enfeeblement, of course, was a gradual process that had begun long before 1956. The Suez episode simply marked, dramatically and definitively, the relegation of the United Kingdom from the top league.

## **Systemic Manifestations of US Economic Dominance**

The Suez episode illustrates one facet of economic dominance, namely dominance directed at one or a set of countries to attain direct national objectives. In this respect, the United States has used economic power in countless ways on innumerable occasions. For example, since World War II, the United States, acting alone or in concert with other countries, has accounted for nearly 70 percent of economic sanctions used or threatened to achieve foreign policy goals (Hufbauer et al. 2007).

As important as its exercise of economic power against individual countries has been the imprimatur of the United States in creating and shaping the overall economic, trade, and financial system. The measure of its economic preeminence has been the fact that in the postwar period the United States has been able to define the rules and exceptions of this system and change them when its perceived interests have so dictated. It is not that the United States has always achieved its economic objectives by successfully changing the actions of other countries or insulating its own actions from external influence. Nor is it the case that economic dominance has always been achieved by unilateral US actions, or that the changes sought by the United States have necessarily occurred speedily or by the use of threats alone. But the fact remains that, by and large, for much of the 20th century, the United States had the ability to influence outcomes. The sections that follow consider some major ways in which the United States has shaped the financial and trade system over time.

### **International Financial System**

Designing the rules for the IMF was a contest between Harry Dexter White, a senior US Treasury official, and Lord John Maynard Keynes, bravely seeking to hold the fort on behalf of a diminished and indebted United Kingdom (Harrod 1951). Collectively, they designed a relatively open system and one that would keep in check the worst beggar-thy-neighbor instincts that prevailed during the interwar years. But it was a system that was partial to creditors over debtors, and in several important respects, White, representing the interests of the world's then-largest creditor, prevailed over Keynes. Of the technical discussions that eventually formed the core of the IMF, Robert Skidelsky (2003, 736) writes: "The seminars tended to follow a pattern: the

British proposed, the Americans disposed. This was the inevitable consequence of the asymmetry of power.”<sup>6</sup>

Keynes wanted more symmetric adjustment between surplus and deficit countries. He wanted to impose financial penalties on countries that ran excessively large current account surpluses, ease the burden of adjustment on deficit countries by providing more resources to the IMF, and have the IMF run more like an international central bank with less political control exerted by the United States.<sup>7</sup> White mostly rejected or significantly attenuated these ideas. It is either irony or historic justice that the refusal of the United States to institute more stringent rules on surplus countries to adjust has come back to haunt it today, when it has been asking China (and Germany) to do—reduce their surpluses—what it would not contemplate back in 1945.

Less well known is that Keynes wanted IMF quotas to be decided on the basis of the importance of a country in world trade, which would have reduced the disparity between the United Kingdom and the United States. White would have nothing of that. The United States decided on quota shares on explicitly political grounds and a (convoluted) technical formula was conjured up to give expression to, and provide cover for, clearly political decisions (Mikesell 1994, Boughton 2006). President Franklin Roosevelt wanted to give the largest quotas to his military allies in World War II—the United Kingdom, Russia (which did not become an original IMF member), and China. When the French protested at their demotion behind China, Treasury Secretary Henry Morgenthau explained that President Roosevelt had already promised the fourth largest quota to China, although cool relations between Roosevelt and Charles de Gaulle were thought to have played a role (Mikesell 1994).

What is as telling about US economic dominance, however, has been its ability to change the rules of the system. Between 1971 and 1973, the United States was essentially and unilaterally able to blow up the Bretton Woods

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6. Louis Rasminsky, the Canadian representative who played an important role in drafting the Bretton Woods agreement and became Canada’s first Executive Director to the IMF, put it much more starkly: “We have all been treated to a spectacle of American domination and domineeringness through their financial power which has to be seen to be believed. . . . US foreign economic policy seems to be in the hands of the Treasury who are insensitive to other people’s actions and prepared to ram everything they want down everyone’s throat” (as quoted in Pauly 2006, 191).

7. In his speech at the first meeting of the IMF Board of Governors in Savannah, Georgia, Keynes warned about US political control over the IMF and the World Bank with typical eloquence. Expressing the hope that the two Bretton Woods twins would not be cursed by the malicious fairy, Carabosse, he nevertheless feared that they would: “You two brats shall grow up politicians; your every thought and act shall have an *arrière-pensée*; everything you determine shall not be for its own sake or on its own merits but because of something else” (Skidelsky 2003, 829). Fred Vinson, the US Treasury Secretary, sensing that these words were targeted at him, responded, “I don’t mind being called malicious but I do being mind called a fairy” (Skidelsky 2003, 829). To help minimize the political pressures from the United States, Keynes urged—unsuccessfully—that the IMF and World Bank be located in New York rather than Washington, DC.

international monetary system of fixed exchange rates because fixed rates became an unacceptable straitjacket on US domestic policies.

In 1971, the United States, in violation of the spirit and also the letter of the IMF Articles of Agreement, suspended the convertibility of dollars into gold and refused to keep its currency within the bands required by IMF rules. Then, in violation of the letter and spirit of the rules of the General Agreement on Tariffs and Trade (GATT) in place at the time, the United States imposed an across-the-board import surcharge of 10 percent as a means of persuading partner countries to revalue their currencies (and hence indirectly devalue the dollar).<sup>8</sup> This action worked, reflected in the Smithsonian Agreement of December 1971, to change the values of the currency pegs. But when even this currency realignment proved insufficient to meet the needs of its domestic policies, the United States in March 1973 abandoned the fixed exchange rate system in favor of floating exchange rates, driving the final nail into the coffin of the original Bretton Woods agreement.

This process was neither smooth (domestically or with trading partners) nor speedy enough to allow any inference of unconstrained US economic power.<sup>9</sup> Nor, importantly, was it the case that other countries had not changed the value of their currencies prior to the US action—France, the United Kingdom, and Germany all did that. Nor indeed was it the case that the outcome—the move to flexible exchange rates—was undesirable from a global perspective. But at the end of the day, the US government “was exercising the unconstrained right to print money that others could not (save at unacceptable cost) refuse to accept” (Strange 1987). The hegemonic power was unwilling to accept the domestic costs of supplying the public good—which the fixed exchange rate system was considered to be then—and was able to change the terms of international cooperation. The abrasive US Treasury Secretary John Connally—author of the “dollar-is-our-currency-but-your-problem” quip—is reported to have told a group of experts at this time, “Gentlemen, the foreigners are trying to screw us, but I intend to screw them first.”<sup>10</sup>

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8. That this action was extreme is suggested by the fact that to implement it, President Richard Nixon had to invoke very unusual domestic legal authority—emergency banking legislation from 1933, also known as the Trading with the Enemy Act of 1918—because normal authority to apply tariffs under the US Constitution rests with Congress.

9. The fact that the United States tolerated the yoke of fixed exchange rates throughout much of the 1960s, when it was running expansionary domestic policies, is invoked as evidence that even the economic superpower had to accept the rules of and constraints imposed by the system (that it had created). Put differently, even the power of the United States was not uncircumscribed (Gilpin 2001, 131–42).

10. Then-US Treasury Secretary John Connally also exercised American power in more personal ways. The IMF Managing Director at the time, Pierre-Paul Schweitzer, brother of Nobel Prize-winning doctor and philanthropist Albert Schweitzer, attempted to convince the United States that any change in the value of the pegs of the different currencies should involve both devaluation by the United States (to which Connally was adamantly opposed) and revaluation by the other currencies. An irate Connally subsequently ensured that Schweitzer would not secure reappointment as Managing Director.



Now, fast forward 20 years. The counterpart of the current Chinese export juggernaut in the 1980s was Japan. Then, like today, Japan was the target of accusations of unfair trade (Lawrence 1987, Noland 1995, Bhagwati 1999). The recession of the early 1980s, and the sharp rise in the dollar, led to record US current account deficits (and counterpart surpluses in Japan). Protectionist rhetoric surged in the United States. But in this episode, with greater cooperation from European trading partners, the United States was able to get its way both on the currency and on actual protectionist action.

Under the Plaza Accord negotiated in September 1985, the United States, Japan, and European partners agreed to coordinated foreign exchange market intervention to appreciate the yen and Deutsche mark against the dollar. The United States also engaged in “talking down” the dollar. These official actions combined to reinforce market-determined appreciations of the yen and deutschemark, the consummation desired by the US authorities. In addition, the United States had been able to secure Japan’s agreement earlier in the 1980s to “voluntarily” reduce its exports of cars, steel and machine tools, and other products. And the United States also was able to use antidumping actions and voluntary import expansions to secure changes in the semiconductor industry.

## Multilateral Trading System

In the multilateral trade system as well, the United States was able to determine rules, exceptions, and outcomes. Just after World War II, the United States sought to eliminate the system of imperial preferences whereby the United Kingdom and its colonies discriminated in their trade relations against the rest of the world and strenuously worked to enshrine a system based on nondiscrimination,<sup>11</sup> usually referred to as the most favored nation (MFN) principle.<sup>12</sup> Having done this, the United States indulged Europe’s efforts to integrate in a discriminatory fashion because of the broader political objec-

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11. The United States did not immediately achieve this objective. Imperial preferences declined gradually over time not because the preferences themselves were eliminated but because the tariffs applicable to other countries were reduced under successive rounds of tariff negotiations under the GATT. Schenk (2010a) notes that the average preference margin on trade between the United Kingdom and the Commonwealth remained at about 5 to 6 percent as late as 1953, which was about half the level in 1937.

12. There is some semantic irony in the term “most favored nation,” which connotes discrimination rather than its opposite. But the point was to suggest that a member of the GATT should treat another GATT member no worse than any other country (including nonmembers of the GATT). The MFN principle made its first appearance in the 17th century (WTO 2007, 132) but was seriously tested during the opium wars between the United Kingdom and China. It was incorporated in the 1842 treaty between the United Kingdom and China signaling the end of the first opium war. In that context, China was required to extend to the United Kingdom any (not just trade) favor it extended to any other country. China’s refusal to extend benefits it had granted the United States led to another war between the United Kingdom and China in 1854.

tives related to European reconstruction in the aftermath of World War II.<sup>13</sup> This discrimination could be intellectually rationalized as an overall gain for the world on the grounds that the trade-creating effects of preferential tariff cuts would outweigh the negative trade-diverting effects. But discrimination it was, and it was institutionalized for political reasons.

Then, when the United States started to feel the discriminatory effects of European integration, it pushed strongly for reductions in MFN tariffs under various “rounds” of multilateral trade negotiations, especially the Dillon (1960–62) and Kennedy (1962–67) Rounds. President John F. Kennedy, in his special message to Congress seeking support for the eponymous round, cited European integration at the top of the list of reasons for undertaking multilateral trade negotiations. Between 1956 and 1967, tariffs on nonagricultural goods in the United States and Europe were reduced from 20 percent to below 9 percent (WTO 2007).

The major motivation of the US administration to start the Tokyo Round of trade negotiations in 1973 was to respond to its difficult economic times, including high and rising unemployment, chronic trade deficits, and rising inflation (WTO 2007, 185).<sup>14</sup> The Bretton Woods system of fixed exchange rates had collapsed, the first oil price shock reverberated through the world, and, above all, a rising Japan embodied the larger competitive threat facing the United States. As a result, the Tokyo Round focused more on making trade fair rather than free, stemming from the widespread perception in Washington that other countries were taking advantage of the United States and reflected in the emphasis on disciplining subsidies and permitting contingent protection actions (safeguard, antidumping, and countervailing duties) against surges in imports. Congress made clear to the US administration that disciplining subsidies should be a priority in the Tokyo Round. As Mac Destler (1992, 148) writes: “The codes on subsidies and countervailing measures and on antidumping, however, were the MTN’s (Tokyo Round of multilateral trade negotiations) centerpieces.” In other words, the Tokyo Round was as much about disciplining and sanctioning the departures from free trade—to reflect the US economic situation—as it was about promoting free trade.

Furthermore, for most of the postwar period, the United States ensured that agriculture and textiles would remain beyond the scope of serious liberalization because of the political strength of its domestic farm and textile interests. The textile sector was regulated by a series of periodically deter-

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13. Jean Monnet, one of the moving spirits behind early European integration, had close connections with prominent US officials and financiers, including John Foster Dulles. The United States financed the first integration initiative—the Economic Coal and Steel Community—to the extent of \$100 million. And even before that, the United States financed the creation of the European Payments Union—the precursor of European monetary and currency integration—to the tune of \$50 million.

14. Another motivation was the fear that enlargement of the European Economic Community (EEC) would have a negative impact on US trade and investment, and in particular that UK membership in the EEC would adversely affect US exports of agricultural goods to Europe.

mined bilateral quotas agreed to among the major importing and exporting countries. This arrangement began in 1961 under the so-called Short Term Agreement on Cotton Textiles (STA), which gave way to the Long Term Agreement Regarding International Trade in Cotton Textiles (LTA), which became the Multi-Fiber Arrangement (MFA) in 1974. In other sectors, especially steel and autos, whenever the domestic industry came under pressure from foreign competition, the United States was able to minimize this competition, notably by securing “voluntary export restraints” from its trading partners or by seeking recourse to antidumping and countervailing import restrictions.

In the 1980s, when its near-abroad foreign policy considerations became important, the United States itself departed from the cherished MFN principle for which it had long crusaded by negotiating a free trade agreement with Israel in 1985 and Canada in 1987. The latter was later extended to Mexico as part of the North American Free Trade Agreement (NAFTA). These agreements presaged and indeed galvanized the negotiation of other free trade agreements around the world. In some ways, the embrace of discriminatory free trade agreements by the United States—rather than its enthusiastic support of European integration—might have been the great betrayal of the nondiscriminatory trading system that it had worked hard to create after the Great Depression.

Also in the 1980s, the United States began to perceive that its comparative advantage lay in the intellectual property and service sectors, so it pushed for new international rules to open international markets for intellectual-property-intensive products (e.g., pharmaceuticals, software, and movies) and especially financial and telecommunications services. This push led to the Uruguay Round of multilateral trade negotiations completed in 1994. The move to incorporate intellectual property in the multilateral system was especially controversial both in terms of the means deployed and the objectives targeted by the United States. Several analysts wrote that intellectual property was unlike trade liberalization in that the global benefits were questionable because up to the first order, the economic impact was a rent transfer from poor to rich countries. Achieving these objectives was sought by threatening countries with trade retaliation unless they agreed to increase the standards of intellectual property protection in their markets. Special domestic legislation—the infamous Section 301 of US law—was enacted in the United States to authorize such retaliation.

Finally, the United States was able to secure significant opening of China’s goods and services markets as part of China’s accession to the World Trade Organization (WTO) in 2001. Again, it is true that the United States was pushing on a door already slightly opened because the Chinese leadership under Zhu Rongji was attempting to use external pressure to further reform domestically. But it is a measure of how radical the opening was that a senior Chinese negotiator—10 years later—cast the Doha impasse as payback by China for the concessions it had to make under its WTO accession.

After WTO Director General Pascal Lamy proposed his compromise in the Doha Round, and after it was tentatively accepted by most of the G-7 (not including India), some US negotiators went to the Chinese embassy in

Geneva to try to pry loose some additional concessions. Paul Blustein (2009, 271) writes that “the U.S. negotiators knew they would have a tough sell, because the Chinese have nursed grudges ever since the 1999 talks concerning their entry into the WTO; [they] feel that the United States bullied them into accepting excessively stringent terms. . . .”

Perhaps an even more telling illustration of the radical nature of China’s opening is the fact that China embarked on a mercantilist exchange rate strategy (to push exports and reduce imports) in part to offset the trade opening brought about by its WTO accession.<sup>15</sup>

In many of these proliberalization and occasionally antiliberalization efforts of the United States, it is not that the United States did not have the complicity of trading partners in achieving some outcomes. Most notably, many developing countries were quite happy to have textiles and clothing beyond the scope of international rules as a quid pro quo for not having to undertake liberalization obligations in the manufacturing sector (Wolf 1987), since they were ideologically committed to import-substitution and protectionist policies at home. And many if not most of the inefficient textile exporters were glad to have guaranteed quotas rather than face open competition from other, more competitive exporters. This was the dirty secret of the MFA and the main reason why it persisted for so long.

Nor was it true that the United States always got its way; for example, in the Tokyo Round, the United States was unable to significantly discipline agricultural practices of the then European Economic Community (EEC). Neither did the United States get its way expeditiously: It took some 12 years of protracted and tortuous negotiations from the initial effort to secure global intellectual property and services liberalization in 1982 until the final agreement in the Uruguay Round of trade negotiations in 1994. And the United States indeed had to “pay” to achieve its objectives: For example, in return for opening up intellectual property and service sectors globally, the United States had to offer to open up its own apparel sector.

But broadly speaking, the trading system and the rest of the world proved malleable to the efforts of the United States: The system may not have been putty in the hands of the United States to shape entirely to its liking, but it did shape it, and much more so than any other country.

Contrast this history of US dominance with that today, in particular vis-à-vis China. For the last five years, the United States has been attempting to change China’s exchange rate policies. China has maintained a consistently undervalued exchange rate (Cline and Williamson 2010) and as a result has run consistently large current account surpluses (Goldstein and Lardy 2008), leading to a historically unprecedented level of foreign exchange reserves totaling \$3 trillion. Since the global economic crisis of 2008, China’s exchange rate policies have acquired greater political salience in the United States, where high levels of unemployment and underutilization of economic resources

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15. See chapter 6 for further discussion of this point.

make China's undervalued exchange rate seem more demonstrably a beggar-thy-neighbor policy. And yet, the United States has been largely ineffective acting unilaterally in its efforts to change China's policies.

The United States has threatened unilateral trade actions but has been unable to translate these threats into any meaningful legislative action. The initiative by Senators Charles Schumer (D-NY) and Bob Graham (D-FL) in 2005 to impose across-the-board tariffs on imports from China never saw the light of day. And the bill passed by the House of Representatives in October 2010 looks decidedly weak in that it would affect a small fraction of China's imports in contrast to the Nixon surcharge of 1971.<sup>16</sup>

This inability to act reflects in part growing Chinese dominance. Action against China does not command broad support in the United States: Labor may be in favor of tough actions against China's undervalued exchange rate, but capital—that is, US firms—are at best ambiguous. US firms located in China and exporting abroad might actually benefit from the undervalued exchange rate, and other US firms that are invested in or do business with China are vulnerable to Chinese retaliatory action, such as by being denied access to Chinese government procurement contracts. Thus, the United States barks but cannot bite. The balance of power in the US-China relationship is especially striking given that it was only about a decade ago that the United States was able to muscle China into radically opening its agriculture, goods, and services market as part of China's accession to the WTO (Bhattasali, Shantong, and Martin 2004).

China has, of course, facilitated this strengthening of its own economic power by encouraging US foreign direct investment (FDI) and influencing American politics and political economy by building a stake for these firms in China. In the 1980s, Japan was the target of US trade action, but Japan was less successful in fending off trade measures taken against it. Japan did not have the economic heft that China currently enjoys, and by limiting US FDI in Japan, it had forgone the opportunity to create a constituency in the United States to speak up for Japanese interests.<sup>17</sup>

If China has been able to resist the exercise of US power through its size and strategic use of FDI, it has also been able to do so indirectly. For example, China has used its surpluses to provide aid to and finance investments in Africa, extracting in return the closure of Taiwanese embassies. It has used its size to strengthen trade and financial relationships in Asia and Latin America. (China's offer to build an alternative to the Panama Canal to boost Colombia's prospects is one dramatic illustration of this phenomenon.) More recently, it has offered to buy Greek, Irish, Portuguese, and Spanish debt as a way of forestalling or mitigating financial-market chaos in Europe. ("China is

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16. At the time of this writing it is unclear if this measure will also be passed in the Senate.

17. Interestingly, Japan's response was to build factories, especially in the contentious automotive sector, in the United States. By doing so, it has now built a stake for US labor and suppliers, and hence made US politics a little more sympathetic to Japan and Japanese investments.

Spain's best friend," effused Spanish Prime Minister José Luis Rodríguez Zapatero in April 2011 on the occasion of the Chinese president's visit.)

Chinese exchange rate policy has adversely affected emerging-market and developing countries as much as the United States. But Europe and emerging-market countries have stood on the sidelines while the United States has had to carry the burden of the crusade and, for that reason, not very successfully. China has had more allies and fewer critics in part because of the support it has been able to buy and the potential opposition it has been able to ward off through financial generosity and trade links. Many countries—including Brazil and India—chafe at their competitiveness being undermined by the undervalued renminbi, yet they maintain a studious public silence, refraining from criticizing Chinese policy. If dominance is as much about being able to not do what others want you to do, China's dollar stockpile and large market have already conferred dominance.

Another illustration of declining US influence relates to trade. Today, the politics of the Doha Round is very complicated because of US ambivalence under the Barack Obama administration about completing it. But it must be remembered that a Republican president and Republican Congress between 2000 and 2006—generally considered to be a combination that is more conducive to trade opening—were unable to wear down opposition from major emerging-market countries, including China and India, and successfully complete the Doha Round of trade negotiations.

### **Caveats to US Dominance and Decline**

The foregoing should not be interpreted as portraying some golden hegemonic era of US dominance during which the country got all that it wanted, as soon as it wanted it, and from whomsoever it wanted it. Nor does the recent change in fortunes by any means suggest that the United States has suddenly gone from omnipotent to impotent. First of all, in several respects the United States did *not* get its way.<sup>18</sup> It did not eliminate imperial preferences, even though it wanted to; it failed to persuade the United Kingdom to become a charter member of the EEC; it did not stop the creation of the European free trade area; and it was unable to change European agricultural policies. Moreover, the United States often had to pay or incur some domestic political costs to secure outcomes of interest, often securing them only after considerable delay, and possibly more easily when there was a weaker or more compliant trading partner (than Europe, for example). In the trade arena, it also helped that the European Union partnered with the United States in pushing the broad agenda of market opening.

And of course, the lack of complete hegemony in the noneconomic sphere was also clear, as described by Joseph Nye (2010, 4): "After World War II, the

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18. For example, the Hufbauer et al. (2007) database suggests that in the postwar period, economic sanctions by the United States were partially or fully successful in about 45 percent of the cases studied.

United States had nuclear weapons and an overwhelming preponderance of economic power, but nonetheless was unable to prevent the ‘loss’ of China, to roll back communism in Eastern Europe, to overcome stalemate in the Korean War, to stop the ‘loss’ of North Vietnam, or to dislodge the Castro regime in Cuba.”

On the other hand, it is certainly not accurate to say that the United States has suffered such a loss of dominance as to render it unimportant today. During the recent global financial crisis, the United States—or rather the US Federal Reserve—performed a key role traditionally associated with a hegemony: supplying countercyclical liquidity during a financial crisis. The Federal Reserve was the central banker to the world, providing \$600 billion in credit via foreign exchange swaps (not including the foreign institutions that participated in the various US programs). Countries such as Brazil, Singapore, Mexico, and Korea not only participated in these swaps but they actually sought help from the United States rather than turn to the IMF for similar financial assistance.

The fact that, on the one hand, the United States could not secure all the outcomes in the past, or, on the other, that it continues to have influence in the present is undeniable. But these facts cannot be invoked to obscure the possible and possibly clear differences in the breadth and magnitude of influence then and now; simply put, the probabilities associated with the United States being able to successfully shape outcomes were greater in the past than today. The question today is whether US economic dominance in this more nuanced sense of some clear loss of ability to influence outcomes is declining, and if so what are the economic causes.

There is now a cottage industry of writings arguing that the world is on the cusp of a change in economic dominance, with power and influence moving away from the United States toward Asia. Niall Ferguson’s dramatic description states that “on closer inspection, we are indeed living through a global shift in the balance of power very similar to that which occurred in the 1870s. This is the story of how an over-extended empire sought to cope with an external debt crisis by selling off revenue streams to foreign investors. The empire that suffered these setbacks in the 1870s was the Ottoman empire. Today it is the US. . . .”<sup>19</sup> The question is whether there might be some economic antecedents to such alarmist prophesying.

## Defining Dominance and Power

Power or dominance is not easy to define. Hans Morgenthau (1949, 13) wrote: “The concept of political power poses one of the most difficult and controversial problems of political science.” But one can talk more easily about or around power. Power can have intrinsic and instrumental value. Countries might seek power for its own sake or in order to influence the actions of others

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19. Niall Ferguson, “An Ottoman Warning for Indebted America,” *Financial Times*, January 1, 2008.

and insulate their own actions from external influence (Kagan 2008). Robert Dahl's celebrated and widely accepted definition of power was "the ability to induce another party to do something it would not otherwise do" (cited in Scott Cooper 2006, 80).

Another aspect of power, of course, is that it has a zero-sum quality to it. Paul Kennedy cites two early thinkers who saw power up to the first order in these terms. "Whether a nation be today mighty and rich or not depends not on the abundance or security of its power and riches, but principally on whether its neighbors possess more or less of it" (Philipp von Hornigk, the mercantilist German writer, cited in Kennedy 1989, xxii); "Moreover national power has to be considered not only in itself, in its absolute extent, but . . . it has to be considered relative to the power of other states" (Correlli Barnett cited in Kennedy 1989, 202).

Power can broadly derive from military strength. Mao Zedong famously noted that power flows from the barrel of a gun; "How many battalions does the Pope have?" Josef Stalin is supposed to have asked his aides on being informed that the Allied cause had the support of the Vatican. Military might has clearly been seen as a source of power and influence throughout history, and, conversely, overreaching by the military has often been the cause of the decline of great powers.

If hard power occupies one end of the spectrum, Nye's soft power occupies the other. According to Nye (2004, 31), "the primary currencies of soft power are a country's values, culture, policies and institutions"—and the extent to which these "primary currencies," as Nye calls them, are able to attract or repel others to "want what you want."

Between hard and soft power, or perhaps even underpinning both, is economics. Seldom in history have economically small or weak nations dominated others. Kennedy (1989, xv) argues that, "the triumph of any one Great Power . . . has also been the consequences of the more or less efficient utilization of the state's productive economic resources in wartime, *and, further in the background, of the way in which that state's economy had been rising or falling, relative to the other leading nations, in the decades preceding the actual conflict.* For that reason, how a Great Power's position steadily alters in peacetime is as important to this study as how it fights in wartime."

This suggests not only that economics is a key factor in shaping great power status but also that what matters are economic factors not in some absolute sense but in a relative sense. It is this economic dimension and these economic determinants of power that will be the focus of much of this book. But even as I assert the importance of economics, it immediately gives rise to questions about the specific economic attributes that confer economic power and whether economic dominance can be quantified. These issues are taken up in the next chapter.



## Quantification and Validation of Economic Dominance

*Everything should be made as simple as possible, but no simpler.*

—Albert Einstein

Mindful of and inspired by Einstein's exhortation, this chapter attempts to quantify economic dominance—a daunting task indeed, as economic dominance, like power more broadly, has many dimensions. It can have intrinsic value (e.g., having one's currency as the world's reserve currency can provide national prestige) or instrumental value. As an instrument, it can be deployed to achieve economic and noneconomic outcomes. In turn, these outcomes can be national or systemic. Also as an instrument, economic dominance can be wielded both as a stick and carrot, as the previous chapter showed. And dominance can encompass many areas of economics, including resources, trade, finance, and currency.

Richard Cooper (2003, 1–2) captures many of these points: “Economic power . . . involves the capability decisively to punish [or to reward] another party, according to whether that party responds in the desired way, combined with a perception that the possessor has the will or political ability to use it if necessary.”

While useful and multiple distinctions can be made between various aspects of dominance, the aim of this chapter is simply to project economic dominance more broadly over the next 20 years. This requires quantifying the concept of economic dominance, which is done here by constructing an index. This is an exercise fraught with pitfalls. Indices, and quantification more broadly, can be reductive, obscuring the richness of the underlying phenomenon they try to measure. They can also be political or politically manipulated, aimed at perpetuating or justifying certain inequitable outcomes.<sup>1</sup>

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1. Morris (2010, 141) cites the example from the field of archaeology, where quantification by evolutionists was criticized by the anthropologists Michael Shanks and Christopher Tilley as justifying “the priorities of the West in relation to other cultures whose primary importance is

Further, because of the complexity and multidimensionality of the underlying concept, an index of economic dominance might be particularly unhelpful or meaningless.

Having said all that, at least the extreme manifestations of economic dominance—the apogee and the loss or disappearance—can be identified and even dated, as the story of the Suez Canal shows. The challenge is whether dominance can be measured outside of these extreme and clear-cut situations.

The chief virtue of quantification is that it can make explicit what is often not, thereby helping to push forward discussions and debates about economic dominance and power. But for any such exercise to be taken seriously, at least five broad principles must be respected.

First, quantification must be simple in the sense of being parsimonious in the number of determinants and/or attributes of dominance that are included while still capturing its main features. There is a balance to be struck here between being indiscriminately inclusive and being objectionably selective, as captured in Einstein’s remark. One way of achieving this balance is to see how much additional or independent information an attribute adds to those that are already included.

Second, all the attributes should be amenable to relatively uncontroversial measurement, and the data for these variables should be easily available, especially going back in time. Third, since the aim is to look into the future, there should be something beyond an ad hoc basis for projecting the variables over the 20-year time horizon that is the focus of this exercise. The greater the need to predict future policy behavior, the less confidence the projections will inspire.

Fourth, there should be some reasonable and justifiable basis for weighting the variables and computing an index. And finally, there should be some way (or ways) of validating the whole business of quantification and index building.

This chapter proceeds in four steps. I first present the list of possible determinants of economic dominance based on an admittedly selective reading of the history of the exercise of dominance (identification). Using the criteria described above, I then narrow the list and offer explanations as to why some of the potential candidates are excluded (what one might call “Occam razorization”).<sup>2</sup> This is followed by a discussion of some of the issues involved in measuring the variables retained in the index (measurement). Finally, the

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to act as offsets for our contemporary ‘civilization’.” A more positive use of indices is the World Bank’s Cost of Doing Business indicators, which have on occasion been used to name-and-shame governments that have fallen behind others in creating an investor-friendly regulatory environment.

2. “Occam’s razor” is the principle associated with a medieval Franciscan monk, William of Ockham, that extols simplicity over complexity. In Ockham’s words, “plurality should not be posited without necessity.” This has, over time, become an important principle in distinguishing good from less-good science and useful from less-useful descriptions of reality.

different variables are weighted in order to construct the index and then validate it in different ways (weighting and validation).

Even in discussing the various stages of building the index, several limitations will become evident, leaving room for experimenting with alternatives.<sup>3</sup> So what follows should be seen as a preliminary but transparent, difficult but careful, and controversial but hopefully useful attempt to understand and quantify economic dominance.

## **Identifying the Potential Attributes of Economic Dominance**

What are the possible determinants or correlates of economic dominance? Based on history and intuition, six candidates plausibly suggest themselves for inclusion as determinants of dominance: economic wealth and resources, fiscal strength, military strength, trade, finance, and currency. Intuitively, it would seem that the size and wealth of an economy and the resources at its disposal, as well as its role in trade and finance, are important determinants of dominance. One indicator of trade and finance as determinants of dominance is the extent of their use as tools to secure foreign policy goals. Gary Hufbauer et al. (2007) find that in 204 episodes they studied, financial sanctions alone were used in 54 instances; trade sanctions in 40 instances; and the combination in 100 instances. Human capital and technological strength are two other plausible candidates for inclusion, but these tend to be highly correlated with wealth and resources and can thus be excluded on the Occam's razor principle.

### **Resources and Wealth—and Which Resources?**

That a nation's wealth is one of the key determinants of economic dominance is uncontroversial. "Wealth is power, and power is wealth" wrote the English philosopher Thomas Hobbes. Above all, it is wealth that provides the economic resources to project power to deploy against potential rivals and others in influencing outcomes.

But opinion has varied about whether particular types of wealth and resources are more important than others. In principle, one might think of at least four different types of resources that could be relevant for determining power: overall resources, fiscal resources, military resources, and foreign resources.

The overall resources at the disposal of a country or its government, measured by its GDP, can be one simple and broad measure of dominance. Historically, since power was associated with military supremacy, certain kinds of economic activity that were particularly important for military strength were considered crucial, as in the cases of shipbuilding in the 1600s, coal and steel

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3. Virmani (2004) offers one such alternative.

leading up to World War I, and industrial strength more broadly leading up to World War II.

Is military strength a determinant or correlate of economic strength? Historically, there was a mutually reinforcing relationship between the United Kingdom's ability to control the seas and its ability to further its economic objectives to expand markets and access cheap resources. One of the most famous pieces of governmental intervention to promote trade was the Navigation Act passed under Oliver Cromwell to ensure that all goods imported into England be carried in English ships or in ships of the country of origin of imported goods. The act's clear purpose was to dominate overseas trade by undermining Dutch domination of the seas.

The fact that Japan benefits from the security umbrella provided by the United States was not an irrelevant factor conditioning Japan's vulnerability or susceptibility to US influence, including during the negotiation of the Plaza Accord in the 1980s that led to an appreciation of the yen and depreciation of the dollar. Similarly, US support for Russia after the collapse of communism was influenced by Russian possession of nuclear weapons. Thus, military strength can be argued to be a determinant of economic dominance and power.

Is fiscal strength also a determinant of economic dominance? After all, it is the resources that governments can galvanize that provide the wherewithal for converting and projecting national purpose into international power and influence. Throughout history, the ability of governments to finance wars conferred power. Conversely, in the words of the Niall Ferguson (2009), "This is how empires decline. It begins with a debt explosion."

For the early mercantilists, an increase in the wealth of one country was synonymous with an increase in power. But in the mercantilist doctrine, increases in wealth were not associated with particular domestic resources or activities but rather with acquiring foreign resources, namely specie (gold or silver), at the expense of trading partners (Hirschman 1945). This aspect of resources is discussed below.

## Trade

That a country's dominance in trade also affects its power will again not be controversial given the history of imperial conquest. At the zenith of its power, the United Kingdom dominated world trade, accounting for nearly a quarter of world exports (and probably imports). Britannia ruling the waves (often by waiving the rules, some critics contended) enabled it to control its colonies.

Voltaire had no doubts about the source of power and dominance of imperial Britain: "What made the power of England is that all the parties have . . . combined since the time of Elizabeth to promote trade. The same Parliament, which had the head of its King cut off, busied itself with maritime projects, like in the most untroubled times. The blood of Charles I was still warm, when that Parliament, though almost made up entirely of fanatics, passed in 1650 the famous Navigation Act."

Hufbauer et al. (2007) find that trade sanctions were used in about 20 percent of the instances in which countries used sanctions to achieve foreign policy goals. But how exactly does trade confer economic dominance and power? Is it imports, exports, trade, product composition, or the number and identity of trading partners that confer power?

Today, importing and the size of imports confer power because they determine how much leverage a country can get from offering or denying market access to goods and services from other countries. And indeed postwar history is replete with examples of powerful countries using market access as a stick or carrot to secure economic and noneconomic objectives (Hufbauer et al. 2007, Bayard and Elliott 1994).

Recall the examples in chapter 1 of Richard Nixon using import tariffs to secure exchange rate changes by partner countries in the 1970s and then of the threat of protectionist action instigating exchange rate and trade policy changes in Japan in the 1980s.

Other examples abound. The 1974 Jackson-Vanik Amendment denied trade access for countries that violated human rights. The threat of trade sanctions under Section 301 was an important instrument in getting developing countries to tighten their intellectual property laws in the 1980s and 1990s. China was willing to liberalize its trade regime as part of its accession to the World Trade Organization (WTO) in part because the United States agreed in return to guarantee nondiscriminatory access for Chinese exports to its own market. That is, it is not that the United States as a *quid pro quo* was offering new access to China; rather, it was offering security of access by committing to eliminate the procedure whereby Congress decided annually whether to continue providing nondiscriminatory access to China.

Trade preferences for low-income countries—first under the Generalized System of Preferences and later under the European Union’s Everything But Arms initiative<sup>4</sup> and the US African Growth and Opportunity Act—have been a standard instrument of development policy in the United States and European Union. And, of course, offering preferential trade access under free trade agreements has been an important instrument of foreign policy best illustrated by integration in North America under the North American Free Trade Agreement (NAFTA) and enlargement of the European Union to countries in the eastern periphery.

But exports too can confer power.<sup>5</sup> A strong current of opinion in Europe before and after World War I held that Germany had made war with the instruments of peace, namely through silent economic penetration of other countries through trade, and above all by the rapid expansion of its exports and by attempting to dump products in overseas markets with the aim of pre-

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4. That the Everything But Arms initiative does not cover migration and movement of skilled people earned it the moniker of “everything but arms and legs.”

5. Hufbauer et al. (2007) note that the United States used export restrictions far more often than import restrictions as tools for achieving foreign policy goals.

venting industrialization overseas. So strong was this perception that six Allied nations—the United Kingdom, France, Italy, Russia, Belgium, and Japan—adopted resolutions at the Paris Economic Conference in 1916 to not only deny most favored nation (MFN) treatment to German exports but to subject them to prohibitions or to special regimes. This spirit carried over to the Versailles Conference and was one that US President Woodrow Wilson sought to fight against.

Moreover, in a world where consumption determines welfare, exports confer power because they give a country the ability to determine another country's living standard and access to goods and services, especially if these are considered "essential." China has recently used export controls to deny Japan access to important rare earth minerals. Russia uses gas exports as an instrument of foreign policy in its relations with neighbors. The United States has extensive restrictions on exports of high-technology products and military hardware to countries that are deemed to be potential enemies or security threats. And most famously, oil has been used as a weapon by exporting countries, most notably by Saudi Arabia and other Organization of Petroleum Exporting Countries (OPEC) countries in 1973 when they imposed export embargoes directed at the United States in retaliation for US support of Israel in the Yom Kippur War with Egypt (Yergin 2008).

But exports also create vulnerabilities because of their dependence on other countries' actions.<sup>6</sup> The irony in the case of pre-World War I was that the alarm over German exports was matched within Germany by the concern that it was becoming overly dependent on foreign markets and was thus vulnerable to actions abroad that would deprive it of raw materials and food. It was this fear that in part led Germany in 1879 to reverse its policy and turn protectionist, especially in agriculture, to attain self-sufficiency in food. This concern also underlay Germany reversing Bismarckian policy and joining other European countries in the "scramble for Africa" and African markets.<sup>7</sup>

Similarly, in the financial crisis of 2008–10, China found that its export-led growth strategy was rendered vulnerable to downturns in its markets abroad, creating severe dislocations for its own workers as exports contracted sharply. Trade is thus a double-edged sword, creating power and dependence, strength and vulnerability, at the same time.

Finally, trade vulnerability can arise from having excessively concentrated sources of supply, especially of essential goods such as oil, and from having one's exports too concentrated in terms of markets.

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6. A variant of this argument comes originally from John Stuart Mill, whose eulogy of free trade was based on the view that trade created mutual dependence and would thereby constitute a force for peace (Hirschman 1945).

7. As Hirschman (1945, 148) notes, "The alarm cry, 'export or die,' is one of the many slogans Hitler did not invent."

## External Financial Relations: Debtors and Creditors

How much economic dominance derives from or is related to a country's external financial relations? Historically, the mercantilist school of thought maintained that economic dominance and power derived from running current account surpluses. Power derived from wealth, wealth meant the accumulation of specie, and the accumulation of specie resulted from exporting more than importing (current account surplus). The added advantage of running current account surpluses was that the accumulation of specie was at the expense of trading partners, which meant a corresponding reduction in their wealth and power (Hirschman 1945). Today, of course, instead of specie we get creditor and debtor relationships: Countries that run current account surpluses acquire claims on foreign goods and services and are net creditors to the world (and vice versa for countries running deficits).

In the late 19th century, all the major powers were net foreign creditors. Being a creditor meant that a country controlled the capital in countries where this capital was invested. Creditors called the shots. According to Niall Ferguson, being a creditor was important for British rule: "Britain was also the world's banker, investing immense sums around the world. By 1914 the gross nominal value of Britain's stock of capital invested abroad was £3.8 billion, between two-fifths and a half of all foreign-owned assets. That was more than double French overseas investment and more than three times the German figure. No other major economy has ever held such a large proportion of its assets overseas. More British capital was invested in the Americas than in Britain itself between 1865 and 1914. Small wonder the British began to assume that they had the God-given right to rule the world."<sup>8</sup>

In the aftermath of World War II, the United Kingdom's indebtedness was widely considered to have contributed to its decline as a world power (Harrod 1951, Skidelsky 2000). The more famous example of vulnerability as a result of dependence on foreign capital—and, conversely, power as a result of being a supplier of capital—was the Suez Canal crisis, with the United States (the creditor) dictating terms to the debtor (the United Kingdom). This dependence was also evident—well before the 1956 crisis—in the agreement signed between the United States and the United Kingdom as part of the negotiations leading up to the creation of the International Monetary Fund (IMF).

As a condition of receiving an overall financial package that included a new loan (\$3.75 billion), a write-off of about \$20 billion to settle the lend-lease arrangements, and transfer of property to the United Kingdom of \$6.5 billion, the United Kingdom was required to ensure that its currency was convertible and did not discriminate against US exports and to eliminate discriminatory quantitative import restrictions. The latter included a broader requirement, which was subsequently implemented through the General Agreement on Tariffs and

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8. Niall Ferguson, "Why We Ruled the World," June 1, 2003, [www.niallferguson.com](http://www.niallferguson.com).

Trade (GATT), for the United Kingdom to phase out its system of imperial preferences that discriminated against countries not part of the British empire.<sup>9</sup> In the Suez episode, dominance was used to secure foreign policy goals; in the Anglo-American agreement of 1945, dominance was used to secure economic objectives.

Less well known but perhaps even more dramatic an illustration of the United Kingdom's long-gone preeminence were the events in 1966, when Prime Minister Harold Wilson's government tried to coerce Malaysia into negotiating a monetary union with Singapore. According to David Andrews (2006), this threat backfired when Malaysia threatened to pull out of the sterling area. Malaysia's sterling reserves amounted to 14 percent of the United Kingdom's net liabilities to sterling area countries. Converting them into dollars would have had serious repercussions for the United Kingdom's external situation, which was already under threat. In 1956, the United Kingdom was blackmailed by its successor to economic power status; in 1966, the blackmailer was not the mighty United States but tiny Malaysia.

Similarly, the fact that Saudi Arabia obtained an exclusive chair with a sizable chunk of voting power on the IMF's Executive Board in the aftermath of the oil price shocks of the 1970s had a lot to do with it acquiring large current accounts surpluses and becoming a large net creditor to the rest of the world.<sup>10</sup>

In the Asian financial crisis, Korea had to open its domestic financial services sector, which US export interests had long been pushing for unsuccessfully. Korea's letter of intent "included specific items that the United States had long demanded of Asian governments, and that the latter had rejected" (Gilpin 2001, 159). Larry Summers has stated that "the IMF has done more to promote America's trade and investment agenda in East Asia than 30 years of bilateral trade negotiations," a sentiment echoed by former US Trade Representative Mickey Kantor, who hailed the IMF as "a battering ram" that was used to open Asian markets to US products in the wake of the Asian financial crisis (Kirshner 2006, 159).

One distinction is between a real creditor and an implicit or institutional creditor. As the statements by Summers and Kantor attest, the United States has continued to wield influence and achieved outcomes through the IMF

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9. Imperial preferences were not eliminated directly. They were reduced indirectly and gradually as a result of the decline in MFN tariffs that was achieved through various rounds of tariff negotiations in the GATT.

10. When Saudi Arabia became one of the two largest creditors, it was able to appoint its own Executive Director rather than participating in the election of directors like other developing countries. And after the second oil shock, IMF Managing Director Jacques de Larosiere fought off opposition from the industrial countries to raise Saudi Arabia's quota share to the sixth highest, above Canada and Italy. De Larosiere was keen to increase resources for the IMF, and Saudi Arabia's quota increase paved the way for the largest-ever loan (about \$9 billion) made by a country to the IMF. Note that this privileged status for Saudi Arabia was entirely due to its net creditor status, because the application of the normal quota formula would not have warranted such favorable treatment (Boughton 2001b, 890).



despite having turned net debtor some three to four decades ago. In economic terms, the United States has been a net debtor to the rest of the world since the 1970s, but institutionally—or more specifically by ensuring early on that it had a decisive say in IMF decision-making—it has de facto remained a net creditor, able to press its views and ply its influence.<sup>11</sup> Of course, this anomaly cannot persist indefinitely, and calls for the reform of the Bretton Woods institutions are aimed precisely at rectifying this anomaly. But institutions have proved remarkably immune to real change, and one consequence is the persistence of power acquired long ago.

## Currency Dominance

Having one's currency as the world's reserve currency—which is widely accepted, demanded, traded, and transacted—can confer power and prestige. In the most recent global financial crisis, for example, the United States, or rather the US Federal Reserve, supplied countercyclical liquidity to the extent of \$600 billion to Europe and several emerging markets. Partly by virtue of its reserve currency status, the Federal Reserve could essentially use its balance sheet to help the world. This conferred prestige, and had the United States wanted to, it could have exploited this source of power.

History provides at least two other interesting examples of the use of reserve currency status by the United States for achieving noneconomic and economic objectives.

The first relates to the Panamanian experience of the 1980s. Panama was effectively a completely dollarized economy. In 1988, following accusations of corruption and drug dealing against General Manuel Noriega, the United States froze Panamanian assets in US banks and prohibited all payments and dollar transfers to Panama. The economy was afflicted by a severe liquidity shortage and effectively demonetized, and output shrank by nearly 20 percent. In the words of a former US ambassador to Panama, these actions had done the most damage to the economy “. . . since Henry Morgan, the pirate, sacked Panama City in 1671.” These sanctions were not enough to overthrow

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11. At the founding of the IMF, the United States, as the dominant economic power at the time, was given about a third of the voting power. The United Kingdom had the second largest quota (nearly 15 percent), followed closely by the Soviet Union and then by China, France, and India. Boughton (2006, 2), the IMF's historian, notes that, “The significance of the United States having a third of the total was that certain policy decisions required qualified majorities, ranging from two thirds up to 85 percent, for approval. The U.S. share thus made it the only country with a veto over major decisions, although other countries could (and still can—and they do) form coalitions to block proposals that they dislike. The Soviet Union—a key military ally at the time—was assigned a large quota as an inducement to persuade it to join (which, in the end, it declined to do). China—another important wartime ally of the United States—also received favorable treatment. As an additional benefit, the countries with the five largest quotas were entitled to appoint their own Executive Directors and avoid having to join forces with other members to elect directors to look after their interests.”

Noriega, but the power to inflict pain on others from possessing a reserve currency was clear (Cohen 1998, 44–46).

Another interesting if less known example illustrating the use of currency dominance to achieve other economic objectives—in this case promoting the interests of a country’s financial sector—dates to pre-Castro Cuba. Andrews (2006, 88) is worth citing:

Like many other Caribbean-basin countries that fell under the direct and indirect influence of the United States during this period, Cuba’s domestic monetary system became increasingly dollarized during the first two decades of the twentieth century. When a financial crisis struck in 1920–21, Cuban-owned banks collapsed because they had no access to the lender-of-last-resort facilities of the U.S. central bank. U.S. banks then quickly emerged in a dominant position in the Cuban financial system. In this way, the United States exerted a major influence over the Cuban financial system simply by a ‘non-decision’—that is, by not providing lender-of-last resort support to Cuban banks. Interestingly, after this crisis, the U.S. Federal Reserve Bank of Atlanta (as well as that of Boston, between 1923 and 1926) established an agency in Cuba to carry out lender-of-last-resort functions.

In other words, through nonaction, the power from reserve currency led to a competitive advantage for US banks, and through subsequent deliberate action the interests of these banks were consolidated.

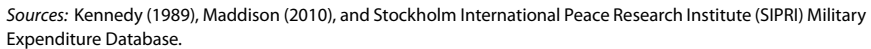
## **Occam Razorization: Narrowing the List**

In the interests of simplicity and transparency, of the six potential determinants of economic dominance—overall resources, military resources, fiscal resources, trade, external finance, and currency—this study retains only three: overall resources or GDP, trade, and finance. The reasons for discarding the others follow.

Fiscal strength, which is the ability of a government to mobilize resources to achieve dominance, and military strength, which is the ability of a government to mobilize resources for one particular objective, ultimately stem from overall wealth or resource availability. Countries may be able to spend more on their militaries than might be warranted by their economic strength (e.g., Russia after 1950), but the discrepancy eventually tends to correct itself, as the Russian experience ultimately showed. In other words, military strength, while important, may not be an independent or additional (additional to aggregate wealth/GDP) determinant of economic dominance.

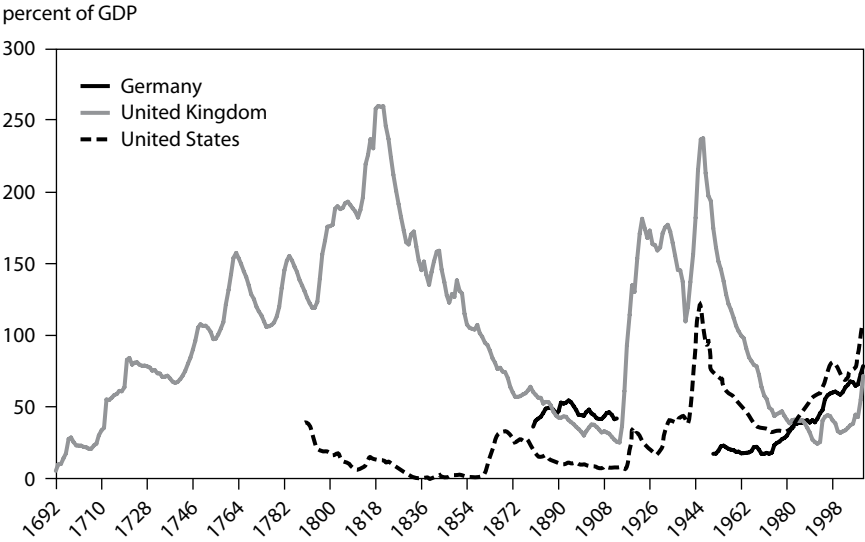
The data also tend to support such a conclusion. Data on military expenditures of the economically dominant powers for selected years from 1880 to 2010 show that the correlation between aggregate wealth and military strength is high (figure 2.1). Specifically, the correlation between the share of a country in world GDP (a measure of aggregate wealth) and its share in world military expenditure is nearly 0.7 for the major countries over the long run.

share of total military expenditure by dominant powers



What about fiscal strength as an attribute of economic dominance? First, the correlation between government deficits and debt and economic dominance is far from clear. Figure 2.2 plots the government debt (as a share of GDP) for some of the major economic powers in history. Consolidation and exercise of British imperial power after the mid-1600s was associated with rising deficits

**Figure 2.2 Public debt in the United Kingdom, United States, and Germany, 1692–2010**



Source: Reinhart and Rogoff (2009).

and debt. British success over the French in the Napoleonic wars did not necessarily occur because the United Kingdom could raise taxes to finance the wars, but because it was able to successfully run deficits through bond financing (Bordo and White 1991). France, in contrast, had higher taxes and lower deficits, and this “did not reflect any superior fiscal virtues but rather the opposite” (Bordo and White 1991, 316). Running large deficits was thus a sign of strength rather than weakness. Similarly, the United States ran up massive fiscal deficits to finance World War II, and that episode reflected, perhaps even caused, economic dominance rather than decline. Conversely, the decline of British power after World War II was associated with fiscal surpluses and declining debt.

Second, and perhaps more fundamentally, government fiscal strength is a function of overall economic strength, and whether the latter can be translated into the former is less a matter of economics and more one of politics and history. The key question is whether the domestic social compact is sufficiently robust and credible (from the perspective of investors) to allow countries to tax and spend in a manner necessitated by domestic objectives and external imperatives.<sup>12</sup> Thus, at least up to the first order, economic strength can proxy for fiscal strength.

12. The ability of the United Kingdom to run larger deficits during the Napoleonic wars was at least in part due to its record of fiscal probity and the open budgetary process in Parliament. France, on the other hand, had squandered her reputation during the ancient regime, and then again following the revolution, through expropriation and hyperinflation.

Finally, there is a more practical reason not to include fiscal strength as a determinant of economic dominance. Dominance is relative, so one needs measures that are comparable across countries. But assessing relative fiscal strength across countries is not easy. One could look at government indebtedness (as a share of GDP), but cross-country comparisons are fraught with difficulties. For example, countries have different debt tolerance depending on their history of honoring obligations, whether they borrow in domestic or foreign currencies, and what their respective growth potential is.<sup>13</sup> Figure 2.2 shows that there have been periods when dominant powers have had larger debts than others (e.g., the United Kingdom in the 1800s and the United States after the 1980s), rendering cross-country comparisons difficult.

Should a country's reserve currency status be included in measures of overall economic dominance? It is not included here for two reasons. Having a reserve currency can be a source and instrument of strength, but as explained in chapter 3, it can also create vulnerabilities. A reserve currency, at best, is a double-edged sword and hence fails to satisfy the criterion of being an unambiguous source of dominance. More important perhaps is the fact that having a reserve currency is more a proximate than a fundamental determinant. Reserve currency status is itself an outcome and in turn determined, as shown in chapter 3, by GDP, trade, and external financial strength—the three variables retained here for construction of a parsimonious index of economic dominance.

## Measuring the Three Determinants

Having identified the list of potential determinants of economic dominance, and then narrowed it to include just three, I turn now to measuring the three determinants selected: resources, trade, and external finance. A first point worth noting is that all measures for a country with regard to these three determinants are expressed as a country's share of the world total: By construction, the larger a country's share, the smaller that of others, including rivals. This captures the essential zero-sum nature of power and dominance.

### Resources

The simplest measure of a nation's wealth or resources is, of course, its GDP. But the question is whether GDP should be valued using market exchange rates or in terms of the true purchasing power of a nation's currency. Using purchasing power parity (PPP) to compare standards of living is well accepted. But using PPP to assess economic dominance is less so, the contrary view being that what matters for power and dominance is "dollars," which would argue in favor of conventional market exchange-rate-based measures of GDP.

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13. See Reinhart, Rogoff, and Savastano (2003) for an analysis of debt tolerance.

But dominance is about the real resources (or the real services provided by them) that a country can muster relative to other countries in the exercise or projection of power. So the question is: What resources are potentially used for power and how should they be valued? Note that this question does not arise in measuring other determinants of dominance—trade and external finance—which must be valued in conventional or market-exchange-rate-based dollars. It is only when evaluating broad resource availability that the question of PPP or market exchange rates becomes relevant.

As an exercise, imagine a future military confrontation (the extreme example of exercising dominance) between China and the United States. Then ask: What are the relative resources (real resources) that each country can muster in this confrontation?

If the real resources required for this war were all tradable goods (e.g., military equipment that was not available in China), then it is true that GDP measured in PPP terms would be overstating the real resources available to China. “Real” dollars would be all that matter. But if waging this war were to require domestic, nontradable, resources (e.g., soldiers or equipment that could be made at least in part in China), then GDP measured in PPP terms would in fact be a good, or even better, proxy for dominance. So as long as power and its use require economic resources that are part domestic (which will always be the case given people are involved) and part tradable, a combination of market-based and PPP-based exchange rate measures is the right way to value these resources.

In fact, Alan Heston and Betina Aten (1993) calculate internationally comparable military expenditures using PPP exchange rates, arguing that market exchange rates inaccurately reflect differences in salaries and procurement across countries, and hence the real military resources available to different countries. And what is true in the military context (that real resources are not just about dollars) is true more broadly. Thus, the index will measure GDP only half in PPP terms and the remaining in dollar terms.<sup>14</sup>

## Trade

One issue in measuring trade is whether imports, exports, their product composition, their geographic concentration, or some combination of these is the right measure of dominance.<sup>15</sup> To avoid complexity, and dictated by data availability, I simply use a country’s trade—measured as the sum of exports and

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14. It could be argued that GDP should be measured entirely in PPP terms because the power that comes from command over foreign resources—and captured in the trade and external finance variables in the index—are measured in dollar terms. But to be conservative, the index measures GDP only half in PPP terms.

15. Hirschman (1945) attempts a more complex measure of trade dominance that takes account of these various considerations.

imports of goods—expressed as a share of world trade as the relevant measure for the economic dominance index.

A problem with measuring trade over time, as is done in this index, is that the measure might be distorted because of the increasing fragmentation of the value-added chain through supply chains and outsourcing. This could lead to overstatement of trade over time and hence overstating dominance from trade. This potential distortion is limited, however, by the fact that all the measures are in relative terms. If world trade is generally increasing because of fragmentation, no one country's measure will be prone to bias, unless it is uniquely or disproportionately a beneficiary of trade fragmentation, as China's might possibly be.

## External Financial Strength

The preceding discussion suggested broadly that net creditors or suppliers of finance have power and net debtors are vulnerable. So some measure of net creditor status is necessary to compute the index of economic dominance. In principle, this measure could be a stock or flow. Stock measures could include a country's or government's net foreign assets or foreign exchange reserves. The problem with a stock measure such as net claims is that these claims may not be worth much unless a country has the power and other means to compel foreigners to honor those claims. As John Maynard Keynes (1981, 277–78) put it: “To lend vast sums abroad for long periods of time without any possibility of legal redress if things go wrong is crazy construction; especially in return for a trifling extra interest.” The problem with reserves as a measure of economic power is two-fold. Economically dominant countries tend to have reserve currencies and hence have less need and incentive to hold reserves. Moreover, a country holding foreign reserves (for example, China today) is vulnerable to seeing their value erode through policy actions of the reserve currency issuing country.

For these reasons, it seems preferable to measure power stemming from net creditor status in flow terms. Having a current account surplus is indeed a source of power because adjustment is so painful to the deficit countries if the flow is cut off, as the numerous instances in history have illustrated. Taking this into account, I define external financial strength in the following manner. For any given time period, the cumulative current account balance of a country (over the preceding 10 years) is measured. The cumulative net flow of capital for the world as a whole is calculated by adding up the surpluses for all countries running such surpluses.<sup>16</sup> The measure of economic power

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16. For the world as a whole, the sum of current accounts of countries must add up to zero. Here, the denominator is the sum of all the positive current account balances (which should equal the sum of all the negative balances) and is a measure of cumulative net global capital flows (outflows for the surplus countries and inflows for the deficit countries). This way of measuring the dominance deriving from creditor/debtor status is possible because of data compiled by Taylor (2002) on current accounts for the major countries going back to 1870.

stemming from creditor/debtor status is computed as the country's cumulative balance as a share of the world's cumulative balance. The reason I do the calculations over a slightly longer period is to avoid anomalies arising from cyclical factors (current account balances are typically sensitive to the cycle) and to ensure that countries are indeed structural creditors or debtors as the case may be. If a country is a large net creditor relative to world flows of capital, I posit that it will have more economic power. If a country is a net debtor, it will suffer from a loss of power by being dictated to by creditor countries.<sup>17</sup>

This is by no means the only way of measuring dominance arising from external financial strength. Capital flows could have been measured in gross rather than in net terms as done here. Claims could have been measured as a share of global GDP rather than as a fraction of total capital flows. And, arguably, even the size of the creditor claims relative to global GDP is less important than who is holding the claims, or who is indebted.<sup>18</sup> As the Suez example makes clear, if a government is indebted, especially to a foreign government, it has far more serious implications for dominance than claims within the private sector.

## Validating Economic Dominance

Given all the problems associated with the concept of dominance and the difficulties of measurement, is the attempt at quantification too theoretical and otherwise misguided? One important real-world example suggests otherwise: the IMF, which exemplifies dominance and its exercise.

At the IMF—for so long a much-derided institution—there is an explicit attempt to allocate power (and determine dominance) in the form of voting rights based explicitly on economic factors. IMF governance procedures certainly constitute a refutation to the possible critique that dominance is a vague concept. The formula that determines a country's share in total voting rights includes its share in (1) the world's economy measured at market exchange rates; (2) the world's economy measured at PPP exchange rates; (3) world cross-border current account transactions;<sup>19</sup> (4) the variability of cur-

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17. Thus, the range of this variable is between plus 1 (when there is one country exporting all the world's capital to all the other countries) and minus 1 (when one country is receiving all the world's net capital from all other countries).

18. When capital becomes less publicly controlled and more dispersed, both on the lender's side and the borrower's side, the power associated with being a creditor and the vulnerability associated with being a debtor are arguably diluted. For example, the fact that China's large current account surpluses have resulted in readily available cash in the hands of the government—as opposed to the private sector—gives China clout in a number of its dealings with countries. The government can provide financial assistance to poor countries and can shore up interest rates in the United States or, more recently, Greece, by buying assets of foreign governments. These are currencies of power.

19. Specifically, the underlying data are a member's sum, and the corresponding world aggregates, of current account payments and receipts (goods, services, income, and transfers).



rent account receipts and net capital flows; and (5) the world total of official reserve assets (foreign exchange, special drawing right holdings, reserve position in the IMF, and monetary gold) (Bryant 2010).

So, to the possible critique that dominance is a vague and not meaningful concept, one can respond that IMF governance procedures constitute a real-world refutation of that critique.

Validation of the construction of the economic dominance index in this book comes first and foremost from the broad overlap between the previously discussed determinants selected to build the index and the variables listed in this IMF formula. The first two IMF variables capture wealth or economic size; the third variable relating to current account transactions is simply an expanded definition of trade; and the fifth variable—holdings of reserve assets—really corresponds to the mercantilist view that power derives from holdings of assets that have international purchasing power. The IMF's determination of dominance (voting rights), echoing the earlier discussion in this chapter, has no role for fiscal, military, or reserve currency variables.

The second point worth noting is that the IMF too views power in explicitly relative terms because all the variables (with one exception, dropped here for reasons explained below) are expressed as a country's share in the world total: by construction, the larger a country's share, the smaller that of others, including rivals.<sup>20</sup>

Third, while there are two sources of discrepancy between the variables in the IMF voting formula and in the index presented here—the first relating to the list of determinants and the second to measurement—they can be easily explained. The IMF's formula includes a variable for the variability of foreign exchange receipts, which the index here does not. Why so? It is well known that the quota formula tries to meet three different objectives: in addition to being the basis for determining dominance (via voting power) it also serves to determine the maximum borrowing limits for countries and their financial contributions. The variable relating to fluctuations in foreign exchange earnings aims to capture the potential borrowing need of a country from the IMF, and is therefore less relevant in broader measures of economic power. This variable is thus not a celebration of dominance but a concession to weakness.

Further, the IMF's quota formula attempts to capture the command over foreign resources by including holdings of official foreign exchange reserves as a determinant of power. While this may have been relevant for the pre-World War II period, it is irrelevant and indeed perverse in the environment since the

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20. The importance of economic size, trade, and creditor/debtor status as three key determinants of power reflected in the IMF formula was foreshadowed in the original US proposal for what would eventually become the IMF. This was the Harry Dexter White proposal for an International Stabilization Fund (ISF) that envisaged quota allocations according to four variables: national income, foreign trade, population, and holdings of gold. Keynes's alternative for the ISF, namely the International Clearing Union, envisaged allocations based on foreign trade, which would have favored the United Kingdom relative to the ISF proposal. The holdings of gold in the White proposal correspond to the net creditor variable in the index of economic dominance presented here.

1970s. Perverse because, as explained earlier, the rich and powerful countries, whose currencies serve as reserve assets for others, tend not to hold any significant quantities of reserves (put starkly, by virtue of being reserve currencies, they can just print them). Reserve holdings are thus not a very good proxy for power that stems from enjoying net creditor status and the associated command over foreign resources that being a creditor confers. For this reason, net creditor status is measured differently here.

Finally, by including two measures of GDP, the IMF recognizes that domestic resources can be valued in different and complementary ways for the purpose of measuring dominance.

If the IMF is the first source of validation cited here, the second comes from the analysis of reserve currency status in chapter 3, which shows that the three determinants of economic dominance are also associated strongly with a market-based or, rather, outcome-based measure of economic dominance, namely reserve currency status. Not only is the association strong for each of the determinants; collectively they also explain a large share of the variation in reserve currency status. This provides some additional, if indirect, validation of the choice of the three variables as determinants of economic dominance.

## Weighting and Constructing the Index of Economic Dominance

Finally, the three underlying determinants need to be aggregated into a summary measure of dominance. The main reason for aggregation is for presentational simplicity and tractability (the results are not materially altered by the manner in which these variables are aggregated). It would be cumbersome to track all the determinants of dominance for all the relevant countries for several time periods. But aggregation raises a big problem: How should one weight all the determinants to arrive at a single summary measure? To do this, I construct an index of economic dominance, which can be represented as shown in the footnote.<sup>21</sup>

Can the weights be determined in a manner that is not completely arbitrary so that one can get a number from the three different determinants of dominance? Clearly, no weighting scheme can be defended on some a priori theoretical grounds. Any choice of weights will be indefensibly arbitrary. I show below that the projections are unaffected by the weighting scheme, so

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21. I define an index of economic dominance (IED) as follows:

$$\phi_i^{\text{IED}} = \alpha_1 \phi_i^{\text{GDP}} + \alpha_2 \phi_i^{\text{TR}} + \alpha_3 \phi_i^{\text{CR}} \quad (1)$$

where the index  $\phi_i^{\text{IED}}$  is expressed as a share, say, of world economic power, and as such is inherently a measure of relative power.  $\phi_i^{\text{GDP}}$  is the share of a country in world GDP (average of dollar and PPP GDP);  $\phi_i^{\text{TR}}$  is the share of a country in world trade; and  $\phi_i^{\text{CR}}$  is, as described earlier, a country's share in world net flows of capital. Note that the equation has a simple interpretation because the left- and right-hand-side variables are expressed as a share. The alphas are weights to be accorded to each of the determinants of power, and these weights add up to one.

that scheme should be seen as a means to simplify tracking dominance across countries and over time rather than expressing some definitive judgment about the determinants of dominance. In what follows, two different weighting schemes are adopted for illustrative purposes, both of which have some external underpinnings.

These weighting schemes draw respectively on the IMF precedent and the work in the next chapter on reserve currency status. If one looks at the current IMF formula, and ignores the variable that captures the fluctuations in foreign exchange flows (which is less relevant for a broader index of power), one sees that the weights are 0.3 for aggregate GDP at market exchange rates, 0.2 for aggregate GDP at PPP exchange rates, 0.3 for foreign exchange flows, and 0.05 for holdings of gold (which was a historic proxy for creditor status). Disregarding for the moment the distinction between the two different ways of measuring GDP, and recalibrating the weights to reflect excluding the variable for fluctuations and to ensure that they add up to one, one sees that the IMF formula accords a weight (after suitable rounding) of 0.6 for GDP, 0.35 for trade, and .05 for creditor/debtor status.<sup>22</sup> This is the first set of weights (with the slight difference that within economic size, GDP at market and PPP exchange rates are weighted equally), which might be called “IMF weights.”<sup>23</sup>

The second set of weights is derived from the next chapter on reserve currencies. Trade, GDP, and net creditor/debtor status are all important determinants of reserve currency status. Interestingly, the numbers yield a weighting scheme for the variables that is very similar to that practiced by the IMF, with the difference being that trade and GDP are switched in importance. Thus, an alternative weighting scheme—“reserve currency weights”—derived from the next chapter yields weights of 0.6 for trade, 0.35 for GDP (divided equally between market-based and PPP exchange rate measures), and .05 for net creditor status.<sup>24</sup> Surprisingly, and reassuringly, the weights for net creditor status are nearly identical between the reserve currency analysis and the IMF’s weighting procedure.<sup>25</sup>

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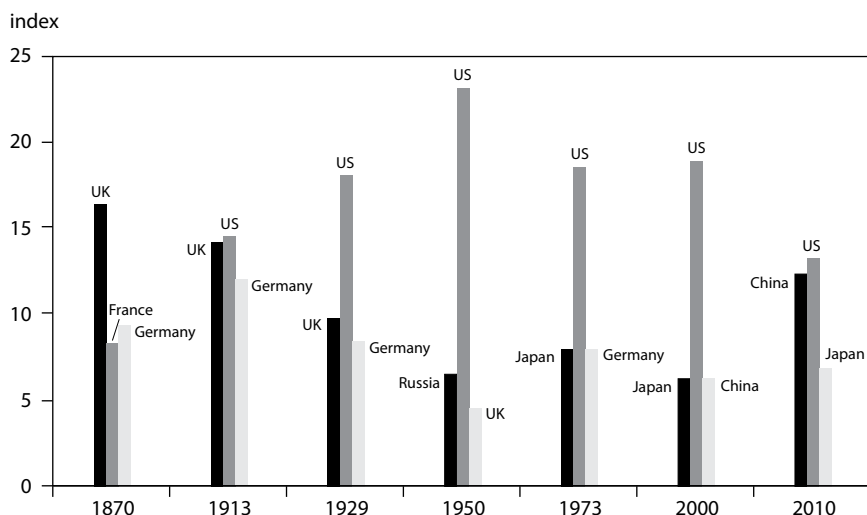
22. Although the weights add to one, the IMF quota formula is algebraically calculated and implemented in a way that provides discretion to reduce the shares of richer countries relative to what is given by the formula and reallocate these shares to poorer countries (Bryant 2010).

23. The IMF as inspiration and justification for the variables to be included in an economic dominance index and how they might be weighted can be criticized on the grounds that the IMF decisions are entirely political, not economic. But if power is about politics as practiced in the real world, the outcome of this political process may not be so inferior to measuring dominance than any theoretical reasoning might yield. That it is a political decision might even be a virtue. At the very least, it can be thought of as a kind of revealed preference measure of the practitioners of power.

24. The quantitative analysis of reserve currency yielded a weight of .37 for GDP, .59 for trade, and .04 for net creditor status. This was close enough to the IMF weights that it was decided to retain the symmetry with them.

25. I thank Simon Johnson for suggesting that the IMF as inspiration for quantifying economic dominance and Aaditya Mattoo for suggesting that the reserve currency analysis could be a basis for assigning weights in computing the index of dominance.

**Figure 2.3 Economic dominance index from 1870 to 2010 for the top three countries using IMF weights**



IMF = International Monetary Fund

Notes: This index is a weighted average of the share of a country in world GDP, trade, and world net exports of capital. The index ranges from 0 to 100 percent (for creditors) but could assume negative values for net debtors. The weights for this figure are 0.6 for GDP (split equally between GDP measured at market and purchasing power parity exchange rates, respectively); 0.35 for trade; and 0.05 for net exports of capital.

Source: Author's calculations.

Having constructed the index, does the resulting translation into economic dominance for the past accord with what one broadly knows about history? To determine this, the next section looks at a third—and historical—validation for the quantification of economic dominance.

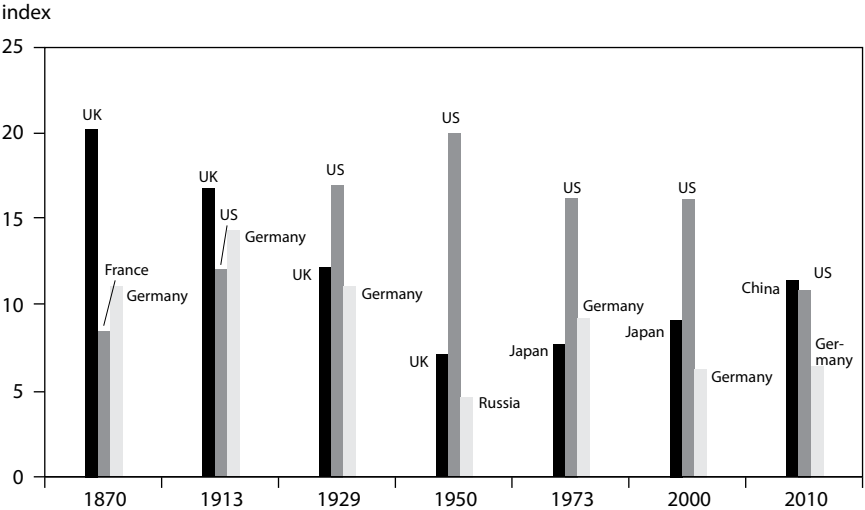
## Results: Economic Dominance in the Past

The index of economic dominance is computed for the following years: 1870, the heyday of UK imperialism; 1913, just before the onset of World War I; 1929, just before the onset of economic instability and political turmoil; 1950, in the immediate aftermath of World War II; and 1973, 2000, and 2010.<sup>26</sup> The index is computed for eight countries that either wielded power in the past or were contenders for doing so: the United Kingdom, United States, France, Germany, Japan, Russia, China, and India.

The index for the top three powers at any given point in time is plotted in figures 2.3 and 2.4. The difference between the two relates to the weights—figure 2.3 uses the modified IMF weights and figure 2.4 uses the weights that

26. The choice of dates for the past is to a large extent also dictated by data availability.

**Figure 2.4 Economic dominance index from 1870 to 2010 for the top three countries using reserve currency weights**



Notes: This index is a weighted average of the share of a country in world GDP, trade, and world net exports of capital. The index ranges from 0 to 100 percent (for creditors) but could assume negative values for net debtors. The weights for this figure are 0.6 for trade; 0.35 for GDP (split equally between GDP measured at market and purchasing power parity exchange rates, respectively); and 0.05 for net exports of capital.

Source: Author's calculations.

come from the reserve currency analysis in chapter 3. The index appears to broadly track the history of dominance since 1870.

In 1870, the United Kingdom was the most dominant power (index value between 15 and 20 percent) and substantially greater than that of its closest rivals, Germany and France (the United States at this stage was not among the world's top three on the index). In the case of the United Kingdom, empire was dominance: At the turn of the 20th century, an island with less than 5 percent of the world's population controlled close to 25 percent of the world's land area and population. Empire meant, of course, that government and administration controlled by the United Kingdom extended to trade, finance, and currency. It turns out that the high value of the index for the United Kingdom for 1870 stems from it having been a dominant exporter, accounting for nearly 25 percent of world exports, compared with 13 percent for Germany, its closest competitor; a very rich country (25 percent richer than the United States and 50 percent richer than Germany and France); and a substantial net creditor, accounting for 50 percent of the world export of capital. In short, the United Kingdom was dominant on all economic attributes.<sup>27</sup> This

27. The United Kingdom was not the most populous country, but at that time, population was nearly equally distributed across the four major powers.

period also coincided with the United Kingdom setting the standard for the international monetary system. An increasing number of countries that were either on a bimetallic or silver standard started moving to the gold standard in the late 1800s, which was *de facto* a sterling standard, because the pound had been pegged to gold formally since 1821.<sup>28</sup> The United States and Germany adopted the gold standard *de facto* in 1873.

By 1913, the gap between the United Kingdom and its closest rivals had shrunk dramatically, and *vis-à-vis* the United States it had been eliminated (on one of the two indexes the United States has the higher rating). The index for the United Kingdom remains roughly unchanged, but those of the United States and Germany increase substantially. By that time, the world seemed no longer to be unipolar in terms of economic fundamentals.

This shift between 1870 and 1913 happened in part due to changes in the volume and composition of trade (the UK share declined by about 6 percentage points, while that of the United States increased by 4 percentage points) and much more to changing demography and economic growth in the United States. This combination led to the United States increasing its share of world GDP by 10 percentage points, from about 9 to 19 percent, with a small decline in the UK share in world economic size. The United Kingdom still remained the world's largest net creditor, its position not having changed since 1870.

By 1929, even bigger changes were evident. The position of the United Kingdom and United States had reversed dramatically and the United States had become the world's dominant power with an index of 18 compared with 13 just before World War I. The United Kingdom's index had declined to 11 from 18 in 1913. While this change happened in part as a steady and inexorable rise in the United States as a generator of wealth and trade, a big change also occurred in net capital flows. The United States became a large net creditor while the United Kingdom's role as a creditor diminished. Barbara Tuchman captures this transition to the ascendancy of the United States, which from the time of World War I became, in her words, Europe's "larder, arsenal, and bank."

By 1950, the picture changed even more dramatically. The United States had become the unrivalled world economic hegemonic power. The index for the United States rises to between 20 and 25 (depending on the weights), while that of its closest competitor, Russia stands at 7. The United States accounted for 27 percent of global GDP; it had become the world's largest trader, accounting for 15 percent of world trade; and it was the world's largest exporter of capital, and a substantial one at that. The dramatic decline in the fortunes of the United Kingdom stemmed in large part from it becoming a large net debtor because of World War II, in contrast to its net creditor status in the late

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28. Britain had been on a bimetallic standard for some time. In 1717, Sir Isaac Newton established a new conversion rate that overvalued gold relative to silver in Great Britain compared with other countries. Exports of silver from, and imports of gold to, Great Britain increased, thereby driving silver out of circulation and putting the country on a *de facto* gold standard.

1800s and early 1900s. The sun had set on the British empire and the 1956 Suez Canal fiasco lay ahead. US economic hegemony continued through the 1970s and 1980s.

By 1990, Japan was mounting a challenge to US dominance (Russia had faded) on the strength of its trading situation (accounting for 7.5 percent of world trade) and its growing net creditor status. The United States continued to be the largest economy and largest trader, but the big change was that it had started becoming a consistent net debtor. The index of economic dominance for the United States declines to 16, while that of competitors, Japan and increasingly China, start rising. It is still a unipolar world but less so than in the previous four decades.

By 2010, the Japanese challenge faded, and China now seems on the rise. Consistent with the historical experience, economic dominance for China is based on its rapid growth in GDP and trade, as well as financial dominance, related to its large current account surpluses. Depending on the weight to be assigned to the latter, China's index is close to or even greater than that for the United States. And, of course, the big difference between China and some of the historical pretenders to economic superpower status is that demography works overwhelmingly in China's favor. China is as big as the United States in terms of economic size and trade, but the United States is a large net debtor while China is a large net creditor.

Having quantified and validated economic dominance, I turn to currency dominance in the next chapter.





## Quantifying Currency Dominance

*[T]he currency of a country which is important in world markets will be a better candidate for an international money than that of a smaller country.*

—Paul Krugman (1994)

An iconic expression of a country's economic dominance is its currency. Even if the economic benefits of currency dominance are questionable, countries and their governments do seem to prize that status. Some of the benefits could be psychic captured for example, in the Archbishop of Canterbury's insistence that, "I want the Queen's head on the banknotes. . . ." (Goodhart 1995). Others could be political, for example, when the United Kingdom tried to salvage some prestige for its postempire status via its currency. Prime Minister Harold Wilson said in 1964 that "To turn our backs on the sterling area would mean a body-blow to the Commonwealth and all it stands for."<sup>1</sup>

Even if currency status is not prized for one's own currency, at the very least countries seem to resent the currency dominance of others. This resentment could be based on a perception of economic gain for the other. Charles de Gaulle, for example, complained bitterly of America's privileged use of "dollars, which it alone can issue, instead of paying entirely with gold, which has a real value, which must be earned to be possessed, and which cannot be transferred to others without risks and sacrifices" (quoted in Frieden, 2006, 345).

Today's version of the ongoing currency debate centers on the fate of the dollar, which has once again become ragingly topical. Questions relating to reserve currencies have periodically obsessed the economics profession, typically under two circumstances. First, when the policies of the principal reserve currency (the dollar) threaten to erode confidence in it (e.g., in the 1960s and

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1. Quoted in Scott Cooper (2006, 172). There was another strand of opinion in the United Kingdom during the 1950s and 1960s that saw sterling's reserve currency status as a burden and wanted to see its gradual demise, but in a manner that would not disrupt the UK economy or the international monetary system (Schenk 2010a).

1970s), as captured in French President Georges Pompidou's famous metaphor: "We cannot keep forever as our basic monetary yardstick a national currency that constantly loses value. . . . The rest of the world cannot be expected to regulate its life by a clock which is always slow" (quoted in Frieden, 2006, 345). Second, reserve currency issues become topical when potential rivals to the dollar emerge, as with the euro in the 2000s.

With equal periodicity, though, the issue has been quietly consigned to forgetfulness. Today the issue has resurfaced in the aftermath of the global financial crisis with somewhat greater intensity because of a combination of the two factors mentioned above. First, there is the view that the crisis was occasioned in part by reckless US policies, in turn aided and abetted by the dollar's reserve currency role, which allowed the recklessness to be financed by outsiders. Joseph Stiglitz (2009) made this case in his speech to the United Nations in 2009: "The system in which the dollar is the reserve currency is a system that has long been recognized to be unsustainable in the long run." The second reason relates to the rise of China and the possible ascendancy of the renminbi to reserve currency status and the competition that it poses to the dollar.

Similar doubts about the dollar arose in the 1960s, which led to the creation of special drawing rights (SDRs) through the International Monetary Fund (IMF). But back then there was no challenge to the dollar (in fact the SDR was created in anticipation of the fear—that never materialized—there would be too few dollars relative to the growing demand for them). In the early 2000s, the euro represented a challenge to the dollar but there was no systemic crisis that created theoretical angst about the status quo. Today, there is both the concern about the economic strength and policies of the United States and the fact of the emergence of a potential rival, which makes discussions about reserve currency and the fate of the dollar much more salient.

The recent economic crisis has led some—including most famously the governor of the People's Bank of China—to question the legitimacy and effectiveness of having the dollar as the international reserve currency. There are calls to strengthen the role of the real currencies such as the euro, artificial ones such as SDRs, or both as an alternative to the dominant status of the dollar.

The question addressed here is not the normative one of the desirable composition and configuration of reserve currencies, but a positive one: Will changes in the world economy lead to or be accompanied by any changes in the status of different currencies as international reserve currencies? In particular, is it possible that the dollar will be eclipsed as the unrivaled international reserve currency or at least be relegated to one among two or three other currencies that vie with each other for reserve currency status? Further, is it possible that the renminbi will be one of these two or three or perhaps even *primus inter pares* among them? This chapter presents some new results on the determinants of reserve currency status. These results inform the conclusion in chapter 5, which projects the course of future economic and currency dominance.

**Table 3.1 Roles of an international currency**

| <b>Function</b>   | <b>Use by governments</b>                 | <b>Use by private agents</b>   | <b>Desirable prerequisites of/in country issuing reserve currency</b>  |
|---|---|--|--|
| Store of value (allows transactions to be conducted over long periods and geographical distances) | International reserves                    | Foreign currencies become substitutes for a domestic currency because the latter is prone to inflation and volatility. In the extreme, foreign currencies can even become legal tender | Low and stable inflation; relatively strong and stable currency; financial markets that are deep, liquid, and open to foreigners |
| Medium of exchange (avoids inefficiencies of barter)  | Vehicle for foreign exchange intervention | Means of payment. Invoicing trade and financial transactions   | Large global share of output, trade and finance; financial markets that are deep, liquid, and open to foreigners                 |
| Unit of account (facilitates valuation and calculation)   | Anchor for pegging local currency         | Denominating trade and financial transactions  | Large global share of output, trade, and finance   |

*Sources:* Adapted from Kenen (1983) and Ferguson (2008).

## Definition

Before answering the questions posed above, one needs to define reserve currency and assess the benefits (and costs) of being an international reserve currency. Paul Krugman (1984) and Menzie Chinn and Jeffrey Frankel (2008) provide a useful summary. An international currency is simply one that is used outside one's own country. The greater the use, the more it merits the description of a reserve currency. Foreign governments and/or foreign private agents seek to use the currency of another country because of the three functions that a foreign currency can perform, as summarized in table 3.1.

Although much of the research on international reserve currencies has focused on reserve holdings by foreign governments, it must be emphasized that reserve currency status reflects use not just by governments but also the private sector for trade and financial transactions.

The quantitative dimensions of the official holdings of reserve currencies are discussed below, but it is worth recalling some of the basic numbers relating to the international or private-sector dimensions of reserve currencies.

Between 1860 and 1914, nearly 60 percent of world trade was denominated in sterling even though the United Kingdom accounted for about 30 percent of world trade (Schenk 2010a). More recently, when the dollar has ruled, 45 percent of international debt securities were denominated in dollars (as of end-2008), the dollar was used in 86 percent of all foreign exchange transactions (as of 2007), and 66 countries used the dollar as their exchange rate anchor (as of 2008). For many countries, 70 to 80 percent of their trade is denominated in dollars, oil and most commodities are priced in dollars, and in the shadowy world of crime and illicit transactions, “the dollar still rules” (Eichengreen 2010). In some ways, one could argue that private-sector actions are indeed the deep determinants of reserve currency status.<sup>2</sup>

## **Benefits and Costs to the Country Issuing the Reserve Currency**

Countries exhibit a certain ambivalence about their reserve currencies because both benefits and costs are associated with reserve currency status.

### **Benefits**

*Convenience for the Country’s Residents.* A country’s exporters, importers, borrowers, and lenders are able to deal in their own currency rather than foreign currencies. Thus, the transaction costs of obtaining another currency and the psychological costs of having to move or convert from domestic to foreign currencies are lowered or eliminated. When an American tourist goes abroad, he or she can, often and in many places, buy goods and services for dollars because the latter are widely accepted or easily exchanged for local currency. A Thai tourist, on the other hand, will have had to go to the bank to get the relevant local currency for his expenditures. For banks and other financial institutions, there may also be some cost advantage of dealing in one’s own currency: When transactions are denominated in dollars, foreign economic agents have to convert it back to their local currency to understand the transaction; in contrast, US agents avoid the nuisance of having to do this conversion. This is all rather like the convenience of dealing in one’s own language.

*Seigniorage or Exorbitant Privilege in Good Times.* The advantage that comes from having other governments or their citizens hold—or willing to hold—one’s currency is a narrow definition of seigniorage captured in this quote from columnist Thomas Friedman:

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2. As Eichengreen (2010, 125) notes: “Central banks will want to hold reserves in the same currency in which the country denominated its debt and invoices its foreign trade, since they use those reserves to smooth debt and trade flows . . . and to intervene in foreign exchange markets.”

The United States has an advantage few other countries enjoy: It prints green paper with George Washington's and Ben Franklin's and Thomas Jefferson's pictures on it. These pieces of green paper are called 'dollars.' Americans give this green paper to people around the world, and they give Americans in return automobiles, pasta, stereos, taxi rides, hotel rooms and all sorts of other goods and services. As long as these foreigners can be induced to hold those dollars, either in their mattresses, their banks or in their own circulation, Americans have exchanged green paper for hard goods.<sup>3</sup>

But a broader definition of seigniorage—and indeed the heart of reserve currency status, also called “exorbitant privilege” (coined by Charles de Gaulle and his adviser Jacques Rueff)—is the ability to borrow abroad large amounts cheaply in one's own currency, especially while simultaneously earning much higher returns on investments (including FDI) in other countries.<sup>4</sup>

Although, the empirical evidence is unclear, exorbitant privilege can be interpreted as the ability to run large current account deficits—and hence run up large debts denominated in one's own currency at low interest rates—safe in the knowledge that others will be willing to finance it on account of the special status for the currency.

*Seigniorage or Exorbitant Privilege in Bad Times.* Perhaps as important a benefit or even more so might be the attenuation of costs in times of financial crises. Having a reserve currency might imply lower interest costs and more enhanced capital-market access than would otherwise prevail during a crisis. This helps avoid currency meltdowns and the associated dislocations that usually accompany severe financial crises. In the recent crisis, the United States benefited from such a flight to quality, which meant that markets did not start pricing in default probabilities.

*Political Power and Prestige.* Having one's currency as the reserve currency tends to confer power and prestige. The example of being able to supply counter-cyclical liquidity, especially in a crisis, and the potential power and influence that can derive from it has already been noted. The United Kingdom's gradual loss of key currency status coincided with its gradual loss of political and military preeminence. The two examples described in chapter 2 relating to Panama and pre-Castro Cuba also attest to the power stemming from having a reserve currency.

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3. Thomas Friedman, “The World; Never Mind Yen. Greenbacks Are the New Gold Standard,” *New York Times*, July 3, 1994.

4. The United States has consistently earned more on its investments overseas than it has had to pay on its debts, a differential of about 1.2 percent per annum (Cline 2005, 49). A few recent studies speak to the seigniorage gain. One study finds 10-year bond yields were 70 basis points lower as a result of foreign capital inflows (Bandholz, Clostermann, and Seitz 2009). Still another suggests that the increase in US treasuries held by foreigners depressed yields by 90 basis points (Warnock and Warnock 2009).

## Costs

*Exorbitant Curse, not Exorbitant Privilege.* Seigniorage has a flip side. The fact that a currency is considered special makes it attractive to hold, increasing the demand for it, and causing the currency to appreciate and render exporters less competitive on world markets. C. Fred Bergsten (1975, 2009) has a stronger version of this curse. In his view, the ability to finance current account deficits more easily can lead to irresponsible government and private-sector behavior, thereby contributing to financial instability. The US experience in the recent global financial crisis is a case in point, the argument being that the large current account deficits—stemming in part from reserve currency status—led to large capital inflows and cheap and easy money, which combined with lax regulations led to reckless behavior and sowed the seeds for the crisis. Thus, reserve currency status may have been the rope that allowed the United States to hang itself because of the cheaper financing that it afforded.

*Vulnerability from Exorbitant Privilege.* Exorbitant privilege also creates a vulnerability to external actions among those who have bought US assets. China arguably has some leverage over the United States because of its ability to sell its large stockpile of US treasuries. Many of the sterling bloc countries after World War II were in a position to sell their sterling holdings, creating instability and complicating UK macroeconomic management. As discussed in chapter 2, in 1966, Malaysia, which held 14 percent of the United Kingdom's net liabilities to sterling area countries, was able to threaten to sell these holdings and destabilize sterling as a way of successfully staving off UK political pressure to force it to integrate monetarily with Singapore.

*Burden of Responsibility.* This is the flip side of the power that can come from reserve currency status. The monetary authorities in the country of the leading international currency may have to take into account the effects of their actions on world markets, rather than being free to devote monetary policy solely to domestic objectives. Edwin Truman (2007) argues that the Federal Reserve probably cut interest rates more than it otherwise would have in the second half of 1982, and again in late 1998, in response to international debt problems in Latin America and elsewhere. The United States has also been reluctant to see other countries officially dollarizing (Argentina) for fear of having to accept any burden of responsibility, even if only implicit.

The best example of the costs of preserving reserve currency status comes from the experience of sterling. Susan Strange (1987) argues that preserving sterling's international role required higher defense spending and higher interest rates to keep sterling strong, which also undermined export competitiveness. After World War II, the United Kingdom at several times between 1949 and 1967 chose not to devalue sterling stemming in part from the fear that such a move would destroy the sterling bloc and jeopardize the Commonwealth. In the Suez crisis, part of the United Kingdom's vulnerability

stemmed from wanting to avoid the effects of devaluation on the sterling bloc and hence on the remains of empire.

*“Costly” Prerequisites.* One point that is not sufficiently emphasized and which lies at the heart of China’s dilemma in elevating its currency to reserve currency status—or rather allowing its currency to be elevated—relates to the demanding prerequisites. Reserve currency status requires as a *sine qua non* an openness to capital flows and elimination of domestic financial repression. Put simply, for a currency to become a reserve currency it must be available for use by outsiders, especially for outsiders to buy assets in the country issuing the currency. But a domestic growth strategy that is predicated on maintaining an undervalued exchange rate and generating rapid export growth is difficult to sustain the more open a country is to capital flows: When foreigners buy a country’s assets, that increases capital inflows, making the currency stronger and exports less competitive. For China, therefore, there is a tension between the export-led growth strategy, which requires denying foreigners the ability to buy Chinese assets, and promoting reserve currency status, which requires allowing unrestricted access to foreigners to buy Chinese assets.

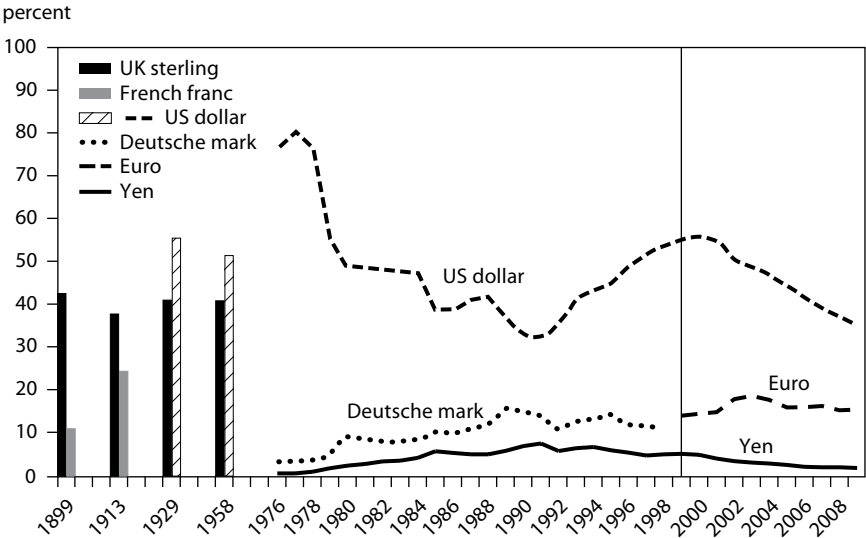
## Short History

One way to answer the question about changes in reserve currency status—especially in relation to the dollar and renminbi going forward—is to turn to history. Which countries have enjoyed reserve currency status historically, and when and why have there been significant transitions?

Figure 3.1 plots the reserve holdings of the top three reserve currencies at selected points in time between 1899 and 2009. Until the post-World War II period, there was never just one reserve currency. Peter Lindert’s (1969) analysis showed that in the period before the war, sterling was the dominant reserve currency but by no means the currency hegemon. According to Lindert’s calculations, in 1913, sterling accounted for 38 percent of all official currency holdings, while the comparable share of the French franc and German mark were 24 and 13 percent, respectively. In 1899, the figures for the three countries were respectively, 43, 11, and 10 percent. Holdings of nonsterling reserves were especially pronounced in regions commercially and financially linked to France (e.g., Russia) and Germany.

The dollar made its first appearance as a reserve currency in the interwar years. In this period, the pound and the dollar accounted for a roughly equal share of reserve holdings. Although the dollar surpassed sterling around the mid-1920s, according to Barry Eichengreen and Marc Flandreau (2008), they traded places for the top spot afterward. In 1931, when sterling went off the gold standard in the wake of serious economic problems, sterling reserves fell. But when the dollar went off the gold standard some switching occurred back to sterling.

**Figure 3.1 Holdings of reserve currencies, 1899–2009**



Notes: Holdings are expressed as share of a currency in global holdings of foreign exchange reserves. Part of the foreign exchange reserves cannot be assigned to particular currencies, so the share is expressed in terms of total holdings that can be so assigned.

Sources: Eichengreen and Flandreau (2008); Lindert (1969); Kennedy (1989); Triffin (1961); and International Monetary Fund, Currency Composition of Official Foreign Exchange Reserves (IMF COFER) database.

After the establishment of the Bretton Woods system in 1945, the dollar was the de facto reserve asset (even though all currencies were still denominated in terms of gold) and enjoyed a near-monopoly status. The European currencies, including sterling, were not convertible into gold until 1958. But this dominance of the dollar is not quite reflected in the data because of the persistence of sterling as a reserve currency. According to estimates in Robert Triffin (1961), the share of sterling in world foreign exchange reserves was higher than that of the dollar until 1954 (27 and 26 percent, respectively); thereafter the dollar's share rose steadily, reaching 65 percent in 1973. On other measures of reserves (e.g., liquid foreign assets), the dollar had overtaken the pound by 1945.<sup>5</sup>

The high share of sterling after World War II is misleading because many if not most of these reserves were held by countries (mainly UK colonies) in the

5. Schenk (2010b, 2) has a slightly different interpretation: "In the 1950s the sterling area (35 countries and colonies pegged to sterling and holding primarily sterling reserves) accounted for half of world trade, and sterling accounted for over half of world foreign exchange reserves. In the early post-war years, this share was even higher: the IMF estimated that official sterling reserves, excluding those held by colonies, were four times the value of official dollar reserves and that by 1947 sterling accounted for about 87 percent of global foreign exchange reserves. It took ten years after the end of the war (and a 30 percent devaluation of the pound) before the share of dollar reserves exceeded that of sterling."



sterling area. When World War II broke out, the sterling bloc countries within the British empire agreed to protect the external value of sterling by essentially extending credit to Britain and accepting sterling-denominated IOUs. Legislation was therefore passed throughout the empire formalizing the British sterling bloc countries into a single exchange control area.

Thus sterling balances were blocked and could only be used to buy British goods. That sterling was in fact a diminished currency, with its elevated status propped up by the sterling area measures, is revealed by the events of 1947. When, as part of the Anglo-American Agreement negotiated by John Maynard Keynes after World War II, restrictions on the use of sterling had to be removed in 1946, residents in sterling area countries rushed to convert sterling into dollars to purchase US goods. The consequential loss of nearly 40 percent of UK reserves (\$1 billion out of \$2.5 billion) led quickly to the restoration of restrictions on sterling convertibility (Eichengreen 2010).

Holding European currencies as reserves started to become attractive in the 1960s as the European countries began to gradually relax exchange controls for capital account transactions, as the United States started generating inflation, and as the United States started imposing ad hoc restrictions on capital outflows as a way of protecting the balance of payments.<sup>6</sup> This led to the development of the euro-dollar market. The German mark and Japanese yen started featuring more prominently in official reserve holdings from the mid-1970s onward, according to IMF data, with a corresponding decline in the dollar.

Since the early 1990s, the dollar has made a comeback and the euro—since its introduction in 1999—has increased its share of global reserve holdings (figure 3.1). For much of the post-1973 period, though, the dollar has accounted for a vast bulk of the share of official foreign exchange reserves held by the world.

In 1970, a new reserve currency was issued by the IMF called the special drawing right. This action was in response to the belief, spawned by the analysis of Triffin (1961), that there would be an inherent shortage of international liquidity. The shortage would result because there were limits on the amount that the United States—or any reserve currency center—could supply in its currency to the rest of the world in response to the demand for it. If there is too much supply, as occurred in the United States during the late 1960s and 1970s, leading to current account deficits, foreigners start losing confidence in the currency and its ability to be stable and hold value. And if the United States responded by reducing its deficits, there would not be enough dollars in the rest of the world to grease trade and finance. The solution therefore was to create a synthetic reserve asset, the SDR, to supplement the supply of the reserve currency (and gold).<sup>7</sup>

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6. The interest equalization tax first imposed by the United States in 1963 is seen as a key trigger for the development of the euro-dollar market.

7. See Williamson (2009) for a lucid history of SDRs.

## What Determines Reserve Currency Status?

Table 3.1 relates the desirable prerequisites of the country issuing the reserve currency to its three key functions. To be an attractive store of value, the issuing country should have low and stable inflation as well as a stable and relatively strong exchange rate. To be a good medium of exchange and to serve as a unit of account, a reserve currency must be widely transacted and accepted. A country that is large in output, trade, and finance will naturally find its currency widely transacted and hence more likely to be widely accepted.

There is a certain circularity or self-reinforcing quality here: The more transacted a currency is, the more there will be an incentive to use this currency as a medium of exchange and as a unit of account, and hence the more it will be transacted, and so on.<sup>8</sup> Also, the more deep and liquid a country's financial markets, the easier it will be to raise money in that currency and hence easier to make payments and store value.

Putting all these factors together suggests that any quantitative analysis of the determinants of a reserve currency must include the size of a country's economy, trade and external financing, the development of its financial markets, the confidence that investors have in the currency as a store of value, and how extensive its use already is. This is the approach adopted in Chinn and Frankel (2007).<sup>9</sup>

The analysis used here—described in detail in appendix 3A—departs from the existing literature in two different ways, based on a historical perspective on the issue. First, it spans a much longer time period, between 1900 and 2010, compared with existing contributions that focus on the period after 1973. Second, Occam's razor is wielded to narrow the list of determinants to (1) relative size, albeit measured along three economic dimensions—income, trade, and external finance, which are also the determinants of economic dominance more broadly as discussed in chapter 2; and (2) persistence or the self-reinforcing characteristic of a reserve currency.

Krugman (1984, 274) provides justification for such a simplification. In his view, the two key determinants of a reserve currency are as follows: “First, the currency of a country which is important in world markets will be a better candidate for an international money than that of a smaller country. Second,

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8. Chinn and Frankel (2008, 9) draw an analogy with language: “If one sat down to design an ideal language, it would not be English. (Presumably it would be Esperanto.) Nobody would claim that the English language is particularly well-suited to be the world's lingua franca by virtue of its intrinsic beauty, simplicity, or utility. It is neither as elegant and euphonious as French, for example, nor as simple and logical in spelling and grammar as Spanish or Italian. Yet it is certainly the language in which citizens of different countries most often converse and do business, and increasingly so. One chooses to use a lingua franca, as one chooses a currency, in the belief that it is the one that others are most likely to use.”

9. The contrast between the results here and those of Chinn and Frankel (2007) is discussed in greater detail in appendix 3A.

the use of a currency as an international money itself reinforces that currency's usefulness, so that there is an element of circular causation." Frankel (1995) makes the same case in favor of size while also elaborating that the relevant dimensions of world markets are the share of a country international output, trade, and finance.

The key findings of the analysis based on using a simple and historical approach are discussed below.

First, there is a large and statistically strong relationship between a country's reserve currency status, on the one hand, and its share in global GDP and global trade, on the other.

Second, there is a positive but slightly less strong relationship between the country's net creditor status and reserve holdings.

Third, the surprising finding is that these three variables together—which I argued were also the key determinants of economic dominance more generally—account for reserve currency status. Together, they explain nearly 70 percent of the variation in reserve currency holdings. Thus, seeking parsimony in explaining reserve currency status is vindicated, as Krugman and Frankel have suggested.

Fourth, a surprising finding—and one somewhat different from the results in the literature—is that trade appears to be a much more important determinant of reserve currency holdings. This is consistent with the view that reserve currency status derives in turn from private-sector behavior—that is, the more the private sector desires, uses, or denominates transactions in a particular currency, the more likely it will attain reserve currency status. The results suggest that if a country's share in world trade goes up from, say, 10 to 15 percent, all else being equal, its share in reserve holdings would increase from 20 to 37 percent. In contrast, if a country's share in world GDP increased by the same amount, its share in reserves would increase from 20 to about 30 percent.

Finally, the statistical analysis suggests that the United States is currently punching above its weight, which was not true a decade ago. Given US fundamentals on GDP, trade, and net creditor status, its share in reserve holdings is substantially greater than it ought to be. This finding can give rise to complacency or alarm. Complacency because it suggests or reinforces the fact of persistence and first-mover advantage: Once a currency is entrenched as a reserve asset, dislodging it from its lofty perch is difficult. But the finding could also be a source of alarm because it shows that fundamentals are working against the currency and once some tipping point is reached, the switch away from the dollar could be swift.

Will that happen? The British empire was associated with sterling dominance, Pax Americana with dollar dominance. In the long march from the cowry shell to the greenback (via silver, bimetallism, gold, and sterling), does renminbi dominance await the world? I turn to this question in chapter 5.



## Appendix 3A

### A Regression Analysis of Reserve Currency Status

There is an extensive literature examining the determinants of reserve currency status.<sup>10</sup> Simple regression analysis is used to relate reserve currencies to the three key determinants to see if there is any strong association between them. Data have been compiled here on the major reserve currencies going back to 1899. The analysis is restricted to the major reserve currencies in each period (sterling, franc, and mark for pre-1913; sterling and dollar for 1929 and 1958; dollar, franc, sterling, yen, and mark between 1975 and 2000; and dollar, sterling, yen, and the euro since then).<sup>11</sup>

Selected years were chosen for the analysis depending on data availability and also because the aim was to estimate long-run rather than high-frequency relationships. Thus, data were selected for every 10 years beginning with the most recent period (1980, 1990, 2000, and 2009) and then for those years for which they were available (1900, 1919, 1929, 1958, and 1976). The longest gap is for the period between 1929 and 1958 because data are most shaky for this period, according to Eichengreen and Flandreau (2008). Chinn and Frankel (2007), in contrast, estimate the relationship for annual data from 1973 onward. They also have a more expanded set of explanatory variables, including inflation differentials, depreciation, and foreign exchange market turnover ratio. As discussed in the chapter, the specification here is more parsimonious, restricted to GDP, trade, and net debtor/creditor status.

One important technical point drawn from Chinn and Frankel (2007) is in specifying the left-hand-side variable. They suggest that the functional form relating reserves to the underlying determinants cannot be linear because the dependent variable (currency shares) is bounded between 0 and 1. They suggest using a logistic transformation to take account of this constraint, which is adopted here. Thus the dependent variable is  $\log(\text{share}/(1 - \text{share}))$ , where share refers to the share of a currency in total global holdings of reserves. This functional form also captures persistence in reserve holdings, which Krugman (1984) and others have argued is a key determinant of reserve holdings.<sup>12</sup>

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10. See Aliber (1966), Alogoskoufis and Portes (1992), Eichengreen and Mathieson (2000), Frankel (1992, 1995), Kenen (1983), Krugman (1984), Kindleberger (1981), McKinnon (1979), Portes and Rey (1998), Rey (2001), and Swoboda (1969).

11. One could add Switzerland to the sample.

12. The basic equation is  $\log(\Phi/(1 - \Phi)) = \alpha Y$ , where  $\Phi$  is the reserve share and  $\alpha$  is the coefficient on the explanatory variable estimated in table 3A.1. Taking logs yields:  $d\log \Phi + d\log(1 - \Phi) = \alpha d\log Y$ . Using the fact that  $d\log \Phi = d\Phi/\Phi$  and rearranging terms yields an expression for the change in the share,  $d\Phi = (\alpha d\log Y) \times (\Phi \times (1 - \Phi))$ . Now, *ceteris paribus*, this expression is highest for  $\Phi = 0.5$ , and declines monotonically for all values of  $\Phi$  below and above 0.5. That is, the closer the initial share of a reserve currency is to zero or one, the smaller will be its change in response to changes in underlying determinants such as trade and income. This is the sense in which this functional form captures persistence. Thus, for any given change in the right hand side variable ( $dY$ ), the impact on reserve changes is smaller when the initial share of reserves is very high or very low.

Thus, of the many determinants suggested by Chinn and Frankel (2007), only two are used here—size and persistence. Neglecting the other variables is partly due to limited data availability, because it is not easy to find data on the depth of financial or foreign exchange markets going back in time; and partly due to the fact that over long periods, differences between reserve currency countries in inflation, for example, (which affects the attractiveness of a currency as a store of value) is not that significant. And as the results clearly suggest, ignoring these other factors does not seem to be a major problem, because the limited set of explanatory variables seems to account for a surprisingly large share of the variation in reserve currency holdings.

Table 3A.1 reports results for two ways of calculating reserve holdings. In the first four columns of table 3A.1, the reserves of each currency are expressed as a share of total official reserves; in columns 5 to 8, reserves are expressed as a share of all reserves whose denomination is accounted for. Results do not change significantly across these two definitions, except that in the former specification, the net creditor status variable is statistically more significant. Columns 1 and 5 use all the observations. The specifications in all the other columns drop the observation for the United Kingdom in 1958, which, for reasons discussed in the text, was an outlier because sterling was artificially propped up by special policy measures. In columns 3 and 7, the observation for the United States in 2009 is also dropped.

One caveat about the interpretation of the results. My sample by construction includes only those currencies that already have reserve currency status, so there is selection bias. The results should be interpreted as suggesting something about the relative standing of currencies once they have reached reserve currency status, not necessarily their likelihood of attaining this status. The findings are described below.

First, there is a large and statistically strong relationship between a country's reserve currency status, on the one hand, and its share in GDP and trade, on the other. In columns 2 to 4, and 6 to 8, which are my preferred specifications, the coefficients of these two variables are significant at the 1 percent confidence level.

Second, there is a positive but less strong relationship between the country's net creditor status and reserve holdings. In the specification in column 2, the net creditor variable is significant at the 10 percent confidence level, and at the 5 percent level in the specifications (columns 3 and 7) excluding the dollar in 2009.

Third, the surprising finding is that these three variables together—which I argued were also the key determinants of economic dominance more generally—account for reserve currency status. Together, they explain nearly 70 percent of the variation in reserve currency holdings. In Chinn and Frankel (2007), the proportion of variation that is explained is high but that is because of the presence of the lagged dependent variable on the right-hand side of the regression.

**Table 3A.1 Determinants of reserves, 1899–2009**

| Variable <sup>a</sup>                | Reserve shares based on all reserves <sup>b</sup> |                     |                                    |                     | Reserve shares based on allocated reserves <sup>c</sup> |                     |                                    |                     |
|--------------------------------------|---|---------------------|------------------------------------|---------------------|---|---------------------|------------------------------------|---------------------|
|                                      | 1   | 2                   | 3                                  | 4                   | 5   | 6                   | 7                                  | 8                   |
| Constant                             | -6.03<br>-9.14                                    | -6.18<br>-9.46      | -6.19<br>-9.46                     | -6.19<br>-9.31      | -5.75<br>-8.36  | -5.89<br>-8.54      | -5.90<br>-8.57                     | -5.90<br>-8.43      |
| Share in world GDP                   | 11.37<br>3.58                                     | 12.87<br>4.52       | 12.67<br>4.42                      | 12.67<br>4.35       | 13.85<br>3.61   | 15.24<br>4.24       | 14.99<br>4.09                      | 14.99<br>4.02       |
| Share in world trade                 | 22.13<br>4.32                                     | 20.84<br>4.18       | 20.56<br>4.08                      | 20.56<br>4.01       | 21.95<br>4.14   | 20.76<br>3.92       | 20.39<br>3.83                      | 20.39<br>3.77       |
| Share in world's net capital surplus | 1.18<br>1.37                                      | 1.38<br>1.77        | 1.74<br>2.10                       | 1.74<br>2.07        | 1.08<br>1.09  | 1.26<br>1.31        | 1.73<br>1.77                       | 1.73<br>1.74        |
| Dummy for US in 2009                 |   |                     |                                    | 1.19<br>3.23        |   |                     |                                    | 1.57<br>3.79        |
| R <sup>2</sup>                       | 0.62  | 0.67                | 0.66                               | 0.67                | 0.63  | 0.67                | 0.67                               | 0.68                |
| Number of observations               | 33  | 32                  | 31                                 | 32                  | 33  | 32                  | 31                                 | 32                  |
| Description of sample                | All countries                                     | Excludes UK in 1958 | Excludes UK in 1958 and US in 2009 | Excludes UK in 1958 | All countries   | Excludes UK in 1958 | Excludes UK in 1958 and US in 2009 | Excludes UK in 1958 |

a. The dependent variable is logistic of the share of a currency in world reserves. The dependent variable relates to currencies, while the right-hand-side variables relate to countries issuing the currencies. The t-statistics are reported in italics below the coefficients.

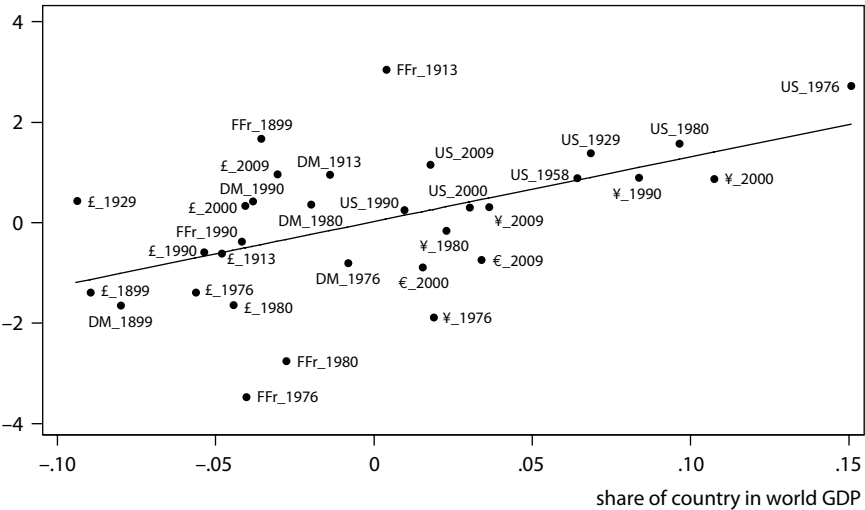
b. The denominator in this calculation is the total of reserve holdings even if the currencies are not of accountable denomination.

c. The denominator in this calculation is the total of those reserves whose currency denomination can be identified.

Source: Author's calculations.

**Figure 3A.1 Association between reserve currency and GDP, 1899–2009**

logistic of share of currency in world reserve holdings



FFr = French franc; DM = Deutsche mark; US = US dollar; ¥ = Japanese yen; £ = UK sterling

Notes: The logistic of a variable is defined as  $\log(\text{share} / (1 - \text{share}))$ , where share is the share of a currency in world official reserves of foreign exchange. Data points in this figure capture the conditional relationship between the share of reserve holdings and the share of a country's currency in world GDP. Each data point also shows the relevant year. The data correspond to the specification in column 2 of table 3A.1.

Sources: Data are from Eichengreen and Flandreau (2008); Lindert (1969); Triffin (1961); and International Monetary Fund, Currency Composition of Official Foreign Exchange Reserves (IMF COFER) database.

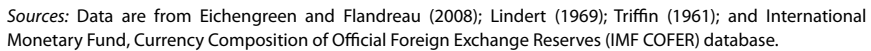
Fourth, again a surprising finding—and one somewhat different from the results in Chinn and Frankel—is that trade appears to be a much more important determinant of reserve currency holdings.<sup>13</sup> The coefficient on trade is substantially larger (between 35 and 60 percent depending on the specification in table 3A.1) than that for GDP. In Chinn and Frankel (2007), the coefficient on GDP is also significant but is about one-fourth the magnitude obtained here and they do not find trade to be a statistically significant determinant.

The regressions also suggest that the dollar is currently punching above its weight. The regression in columns 4 and 8 introduce a dummy for the US dollar in 2010. This dummy is positive and significant at the 1 percent confidence level, which essentially means that given United States fundamentals on GDP, trade and net creditor status, its share in reserve holdings is substantially greater than it ought to be. In contrast, if a dummy for 2000 for the US dollar is added to the regression, that dummy is not significant, suggesting that the

13. Chinn and Frankel (2007) report that trade shares do not emerge as significant explanatory variables in their analysis.



logistic of share of currency in world reserve holdings

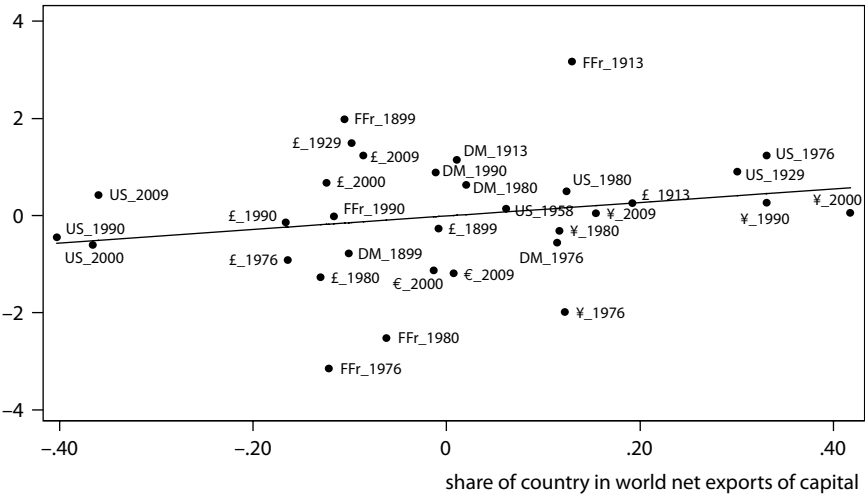


Figures 3A.1 to 3A.3 show the relationship between reserve currencies and their three main determinants, respectively. These figures plot the conditional relationship summarized in the regressions (in table 3A.1) between the share of reserve holdings and the share of the country using that particular reserve currency in world GDP (figure 3A.1), the share of the country in world trade (figure 3A.2), and the share of a country in world net exports of capital (figure 3A.3). These figures are not plots of the unconditional relationship. They correspond to the regressions in column 2 of table 3A.1. Each observation denotes a currency and the year, so that it is easy to see where the reserve currencies stand at different points in time relative to the average relationship depicted by the line in these figures.

How can this analysis of the determinants of reserve currency status be used to project, in chapter 5, the timing of China's future currency dominance? I do this in two ways, which might be called respectively, "level" and "change" ap-

**Figure 3A.3 Association between reserve currency and net creditor status, 1899–2009**

logistic of share of currency in world reserve holdings



FFr = French franc; DM = Deutsche mark; US = US dollar; ¥ = Japanese yen; £ = UK sterling

Notes: Data points in this figure capture the conditional relationship between the share of reserve holdings and world's net exports of capital. Each data point also shows the relevant year. The data correspond to the specification in column 2 of table 3A.1.

Sources: Data are from Eichengreen and Flandreau (2008); Lindert (1969); Triffin (1961); and International Monetary Fund, Currency Composition of Official Foreign Exchange Reserves (IMF COFER) database.

proaches. In the main text of chapter 5, I focus on the former. This consists of the following steps. First I use the coefficients from the regressions described in table 3A.1 for GDP, trade, and net creditor status to construct the index of economic dominance for different countries, including China. This index is displayed in figure 2.4. I use historical values of this index for the United Kingdom and the United States and go back to history to identify the lag between US economic dominance and dollar dominance. I then project forward economic dominance for China and the United States (using the same weights for GDP, trade and net creditor status) and then apply the historical lag between economic and currency dominance to ascertain the timing of the possible ascent of the renminbi.

An alternative—the change approach—follows these steps. I project changes in GDP, trade, and capital export shares between 2010 and 2030 for the United States and the euro area. These projections combined with coefficients for each of these variables in the regression analysis from table 3A.1 imply changes in the currency holdings of dollars and euros in 2030. The equation that helps this projection analysis is described in footnote 12. I implicitly assume that the decline in shares of dollars in reserve holdings will be reflected in increased renminbi holdings.

## Forces Driving Dominance: Convergence and Gravity

*... the degree of income inequality across societies has reached unprecedented levels. None of this can persist ... [C]ountries that have been kept out of this process of diffusion by socialist planning or simply by corruption and lawlessness will, one after another, join the industrial revolution and become the miracle economies of the future.*

—Robert E. Lucas, Jr. (2004)

Shifts in economic dominance seem a real possibility today because the financial crisis that began in 2007 and its aftermath have appeared to economically diminish the United States and Europe. Although US economic growth has recovered somewhat, a long and difficult period of unemployment looms ahead. In Europe, too, the core countries (especially Germany and France) have also put the worst of the crisis behind them, but troubles in the periphery have been so severe that talk of a “two-speed” Europe with a richer northern core and a poorer southern periphery is no longer beyond consideration. In the short run, the world itself seems to be divided into two distinct regions, with the anemic West being pulled up by the dynamic “Rest,” to borrow Fareed Zakaria’s characterization (Zakaria 2008a).

In fact, though, the post–World War II dichotomy of a rich West economically separated from and situated above the poor Rest has been losing its salience since well before the recent crisis. The twofold developed-developing categorization of the early postwar years was first abandoned to make way for the newly industrialized economies (NIEs) (the original gang of four Asian economies: Korea, Taiwan, Singapore, and Hong Kong), then to a broader set of “emerging-market” countries, and then to these NIEs being elevated to the category of “other advanced economies.” Even then, these mutating, proliferating categories seemed unable and inadequate to capture the shifts set in motion by the rise of China and India.

Underlying these taxonomic tweakings is a simple and historic change: catch-up or convergence, the phenomenon of poor countries becoming richer

and narrowing the gap with the rich countries. To set the context, it is useful to first document the broader phenomenon of convergence and then focus on those large countries that will be key players in terms of future economic dominance. Consider therefore convergence for the “previously poor” and then for the “populous and previously poor,” encompassing Brazil, China, India, and Indonesia (the BIICs).<sup>1</sup>

## Convergence of the Previously Poor

Depending on how far back in history one wants to go, the economic history of humankind can be divided into four broad phases. The first and longest is the period of Malthusian stagnation, running from about 13000 BCE to around 1000 CE (Clark 2007). The average standard of living during this period fluctuated but broadly hovered around subsistence, and life was, in the words of Thomas Hobbes, “poor, nasty, brutish, and short.” The decisive break from subsistence started after the Middle Ages, culminating in the Industrial Revolution of the late 1700s. The profusion of technological innovation that allowed people to extract energy from nature transformed civilization (Clark 2007). This Industrial Revolution created also the “great divergence” whereby the West—the United Kingdom and its western offshoots—embarked on a trajectory of consistently upward improvement in living standards while the Rest lagged behind. The great divergence marked the second phase of human economic history and continued, with some exceptions, until World War II.

The third phase starting after the war witnessed another break from the preceding era. A group of countries started growing faster in per capita terms than rich countries, allowing them to narrow the gap in living standards (the level of per capita GDP) with those richer countries. In other words, they started to catch up with the frontier. The first cohort included war-ravaged Germany and Japan and other industrial countries. But the experience of these countries was thought to have limited relevance because prior to the war many of them were already reasonably rich and close to the frontier. Their postwar performance was a reversion to recent history.

What marked this third phase, however, was the performance of another cohort, whose growth took off between 1950 and 1970. This cohort comprised countries that had been poor for several centuries, including Taiwan, Korea, Singapore, Hong Kong, Malaysia, Indonesia, Thailand, Brazil, Chile, Tunisia, Botswana, and Mauritius. This cohort of high and converging performers was then followed by the two largest countries—China and India—with the potential to become systemically important. In some ways, China and India were latecomers to the catching-up process.

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1. For reasons largely related to demographics and the consequential impact on growth, it seems more natural to focus on the BIICs than the BRICs, which excludes Indonesia and includes Russia. The contrast between Russia’s expected negative population growth of nearly 0.5 percent a year between 2010 and 2030 and Indonesia’s increase of 0.8 percent is likely to favor strongly Indonesia’s prospects going forward.

**Table 4.1 Convergence and growth rates over time, 1870–2008**

|   | Data source        |                     |                     |  |
|---|--------------------|---------------------|---------------------|--|
|   | Maddison<br>(2010) | Penn<br>World Table | Penn<br>World Table | World Bank,<br><i>World<br/>Development<br/>Indicators</i> |
|   | 1870–1960          | 1960–2000           | 2000–07             | 2000–08  |
| US GDP per capita growth rate (CAGR) (percent)  | 1.7                | 2.5                 | 1.3                 | 1.1  |
| World GDP per capita growth rate (CAGR) (percent)                                     | 1.3                | 2.8                 | 3.2                 | 2.3  |
| Number of nonoil, nonsmall, developing countries with CAGR above US CAGR <sup>a</sup> | 2                  | 21                  | 75                  | 76   |
| Average excess over US CAGR (percent)   | 0.02               | 1.53                | 3.25                | 3.01   |
| Total number of nonoil, nonsmall developing countries in sample                       | 38                 | 72                  | 103                 | 89   |
| Total number of countries in sample <sup>b</sup>                                      | 63                 | 110                 | 186                 | 168  |

CAGR = compound annual growth rate

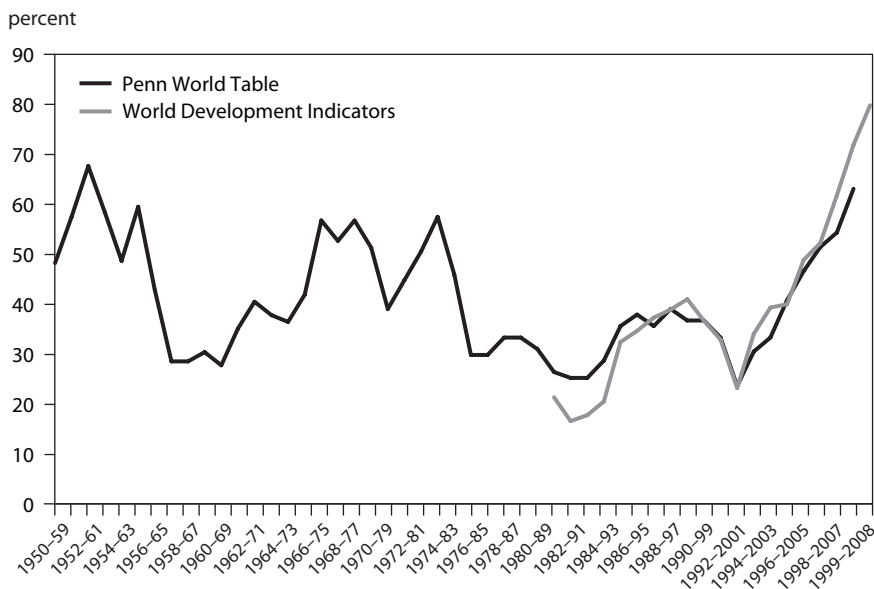
a. For the period 1870–1960, Venezuela's growth exceeded that of the United States but is excluded on the criterion of being an oil-based economy. The classification is from the IMF's *World Economic Outlook*. Small economies are classified as those with a population below 1 million in 2001.

b. The 1870–1960 sample excludes a number of countries classified as small by Maddison (2010).

It is possible that the world has now entered a fourth phase of economic history. In the decade and a half preceding the recent global economic crisis, a much greater number of countries in Europe, Africa, Latin America, and Asia have started growing much faster than in the past and much faster than the industrial countries. In other words, convergence is broadening and accelerating.

Table 4.1 illustrates the expanding membership in this convergence club. During the period from 1870–1960, two nonoil, nonsmall developing coun-

**Figure 4.1 Broadening convergence: Percent of all nonoil, nonsmall developing countries with GDP per capita growth rates above the US growth rate, 1950–2007**



Notes: Rates are 10-year compound annual growth rates. Nonsmall countries are those whose population exceeds 1 million.

Sources: Penn World Table (version 6.3); World Bank, *World Development Indicators*.

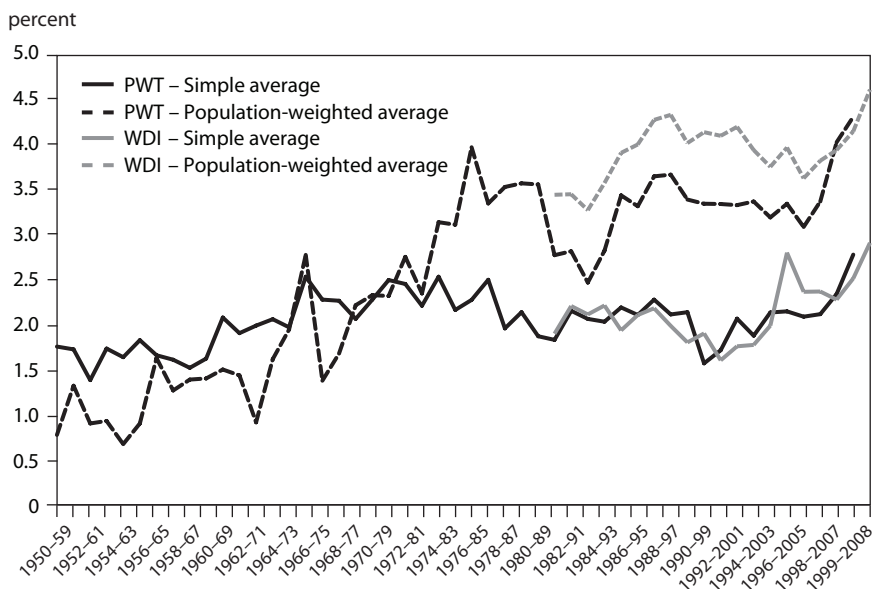
tries (of a total of 38) grew faster, though barely so, than the United States (the benchmark for convergence analysis).<sup>2</sup> In the next phase (1960–2000), 21 of 72 countries converged toward US income levels, narrowing the gap at a rate of 1.5 percent per year. But in the period just preceding the recent crises, between 75 and 90 percent of developing countries (depending on the data source) grew faster than the United States, and at a faster clip, closing in by about 3 percent a year. Thus, something significant may have happened just prior to the crisis in terms of the breadth and speed of catch-up by the poorer parts of the world.

Figures 4.1 and 4.2 illustrate this phenomenon in more detail. Figure 4.1 computes the proportion of countries that have been converging—specifically growing faster than the United States—since 1950.<sup>3</sup> This proportion, which fluctuates around a declining trend, troughs in the 1990s and then

2. Oil-based economies and very small economies, whose population was less than 1 million in 2007, are excluded from the sample.

3. The sample is restricted to nonoil countries and those countries with a population exceeding 1 million. Two different sources of data are used—the Penn World Tables (version 6.3) and the World Bank’s *World Development Indicators*—to compute the numbers.

**Figure 4.2 Accelerating convergence: Average of excess of GDP per capita over US growth for all nonoil, nonsmall developing countries with growth above that of the United States, 1950–2007**



PWT = Penn World Table; WDI = World Development Indicators.

Notes: Per capita GDP growth rate based on 10-year compound annual growth rate (CAGR).

Nonsmall countries are those whose population exceeds 1 million.

Sources: Penn World Table (version 6.3); World Bank, *World Development Indicators*.

takes off decisively. Over the last decade and a half, an increasing number of countries have started to catch up with the United States, and just before the crisis nearly 80 percent of countries had embarked on catch-up.

Figure 4.2 computes the magnitude of catch-up. Specifically, it shows by how much the average growth rate in the catch-up group exceeded that of the United States. Since the 1990s there has been a sharp increase, and just before the crisis, catch-up seems to have been occurring at a rate of 3 percent per year (on an unweighted basis) and nearly 4.5 percent (on a population-weighted basis).

The picture that emerges from table 4.1 and the two figures in box 6.2 in chapter 6 is one of a strikingly positive and unprecedented change in the economic fortunes of humanity. Of course, there have been plenty of episodes of growth spurts in the past that have fizzled out after short periods of time (Hausmann, Pritchett, and Rodrik 2005). But while this has been true for individual countries, seldom in the last 50 years has one seen episodes where a large number of poor countries have simultaneously done as well as in the decade preceding the recent crisis.

In fact, if one checks for each of the four decades before 2000, the best collective performance was in the 1970s, when 38 of 87 countries exceeded US growth rates by an average of about 2.5 percent. Even that performance falls well short of what has occurred in the period leading up to the crisis. So the numbers for the most recent period are simply too striking to be ignored.

One cannot be sure, of course, that this phenomenon of broadening and accelerating convergence is here to stay. But as Robert Lucas (2000) argued, economic theory had long predicted that convergence should be the natural state of affairs for at least three reasons. First, poor countries are poor in part because they have small amounts of capital. But low capital levels imply big returns to capital because of investment opportunities that have remained unexploited. Hence, capital would flow from rich to poor countries, generate growth, and pull up the latter. Second, as Robert Tamura (1996) pointed out, knowledge produced anywhere benefits producers everywhere. Technology is a public good, and once created can be exploited anywhere.

A third explanation puts a political and policy interpretation on knowledge and spillovers: Governments in the unsuccessful economies can adopt the institutions and policies of the successful ones, removing what Stephen Parente and Edward Prescott (1994) call “barriers to growth.”

The latter two points suggest that technology can be interpreted in the physical sense of converting inputs to outputs, but also in the policy sense of adopting good ways of running an economy by making sensible policy choices. And technology—both as hardware and software—is a public good, so once created it is available to all to use and replicate, which should also create a tendency for poorer countries to be pulled up toward the richer countries.

The surprise therefore is not why countries have started converging but why they had not done so earlier. Lucas (2000) notes that the Industrial Revolution was a revolution precisely because it overrode for more than 200 years this natural tendency toward convergence.

## **Conditional or Unconditional Convergence?**

In the immediate post-World War II period, when the catch-up phenomenon was restricted to a few countries and had not become widespread—as seems to be happening in the most recent phase—economists characterized it as “conditional convergence.” In other words, not all countries had been able to embark on a process of becoming rich and catching up with the standards of living of the rich countries. Only those that fulfilled certain conditions, or as Dani Rodrik (2009) puts it, those that did the “right things,” had been successful. Development economics has been the locus of the most contentious and even acrimonious discussions about what those “right things” were. Were they strong institutions, geography, culture, political stability, lack of ethnic divisions, policies (and if so which policies), etc.? The newer consensus—such as it is—is about search and pragmatism rather than a ready-made list of to-do’s.



The fact that catch-up appears to be become more ubiquitous does not necessarily mean that it is now unconditional. It means simply that more and more countries are putting in place the basic conditions that allow faster growth to be realized. Two of those conditions are worth mentioning. First, the conviction that macroeconomic stability is a necessary condition for growth seems to be spreading. In a sense, if Paul Romer's (1994) emphasis on the role of ideas in growth is correct, one such idea that has taken hold is the need for and the ability to deliver macroeconomic stability, and a recognition that the failure to realize this stability lay behind the low and volatile growth performance of Latin America and sub-Saharan Africa in the 1980s and 1990s. The fact that a number of low-income countries survived the crisis of 2008–09 with minimal damage is in part a tribute to the embrace of the idea of macroeconomic stability.<sup>4</sup>

A second condition seems to be the spread of new information and communication technologies, whose transformational role in low-income countries is now being realized.<sup>5</sup> Neither of these conditions is a guarantee that low-income countries will grow at Chinese rates of growth in the future. What they do suggest is that on balance, more countries will catch up rather than lag behind the frontier in the years ahead.

A third factor that seems to have come into play is what might be called a “growth begetting growth” dynamic. If countries grow for some period of time, growth itself seems to create positive change, reinforcing subsequent growth. One good example is in India, where growth has increased the return to education so much that the demand for education has increased, forcing supply to respond. As a result, dramatic improvements have occurred in educational outcomes.<sup>6</sup>

Thus, the numbers presented here are certainly not inconsistent with the possibility that the diffusion of technology and information (including how to manage or rather not manage economic policy at macro and micro levels) may be proceeding so rapidly that catch-up—though not necessarily at a frenetic and uniform pace—is now becoming the norm rather than the exception that it has been until recently. The “new normal”—to borrow Mohamed

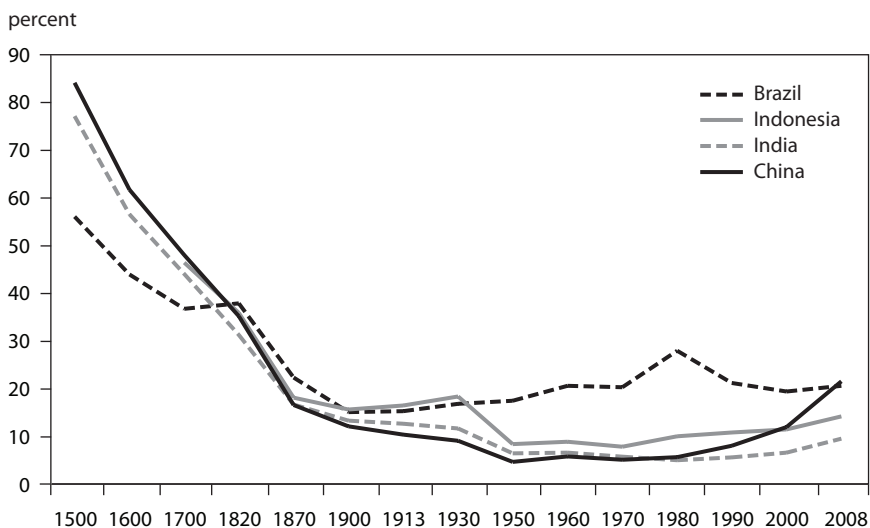
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4. The irony, of course, is that industrial countries seem to have forgotten the importance of, and preconditions for, attaining macroeconomic stability, which might itself merit the label of a “great reversal” of ideas.

5. Jensen (2007) and Aker and Mbiti (forthcoming) highlight the role of mobile telephones in improving the functioning of markets in developing countries. Kenny (2011) discusses the impact of the telecommunication revolution in the spread of ideas and hence in improving development outcomes such as increased female autonomy.

6. Other examples illustrating this growth-begetting-growth dynamic are in my article in the *Financial Times*, “India’s Weak State Will Not Overhaul China,” August 16, 2010. And it is precisely this possibility of organically driven change that underlies the “modernization” hypothesis: that political change and democratization will result from economic development and the consequent demand for greater political freedoms (Lipset 1959).

**Figure 4.3 Per capita GDP of the “populous poor” relative to the economic frontier, 1500–2008**



Note: The “frontier” country is the United Kingdom until 1900 and the United States thereafter.

Source: Maddison (2010).

El-Erian’s (2010) phrase—could turn out to be what should always have been the old normal.

## Convergence of the Populous, Previously Poor

While the broader phenomenon of convergence provided the background for analyzing shifts from the West to the Rest, from the perspective of dominance I am particularly interested in the performance of large and populous countries.

The phenomenon of the “great divergence” discussed above was in some ways and for some countries—especially today’s large ones—actually one of “great reversal” (Acemoglu, Johnson, and Robinson 2002; Diamond 1997; Pritchett 1997; Morris 2010). Around 1500 AD, Ming China, Mughal India, Ivan the Great’s Russia, Aztec Mexico, and Melaka (loosely what is now Indonesia) were among the more prosperous and populous places on earth. Data on urbanization, which is a reasonable proxy for levels of development, show that these countries were much better off than the United States, Canada (which Voltaire derisively described as “acres of snow”), Australia, or New Zealand. In addition, China was a technological leader and home to many of the world’s important inventions, including the horse collar, gunpowder, the printing press, cast-iron tools, shipping, and the magnetic compass (Morris 2010).

Then the great reversal of economic fortunes happened. China imposed extensive prohibitions and regulations on foreign trade, allowed its technological excellence in long-distance maritime navigation (spearheaded by a Muslim eunuch sailor Zheng He) to fade, and more broadly turned inward as a result of internal struggle. India fell behind as the Mughal empire disintegrated, opening itself up to colonization. This was followed by colonization of the New World and Asia. Western Europe and its settler colonies raced ahead, especially after the Industrial Revolution in the mid-1700s, while the other regions stagnated, leading to the developed-developing dichotomy that has characterized much of the 20th century.

This history can be traced by looking at today's four most populous developing countries: Brazil, India, Indonesia, and China. Figure 4.3 plots the average per capita GDP of these countries as a ratio of the per capita GDP of the frontier or the richest country—the United Kingdom until 1900 and the United States thereafter. From 1500 to about 1960/1970, these countries were on a steady decline, slipping farther and farther away from the frontier. In 1500, the average person in India and China was nearly as rich as the person in the United Kingdom, but nearly 500 years later that average person's standard of living in these countries was a fraction (less than 10 percent) of their richer counterparts. A similar trend with slight differences in timing is evident for Brazil and Indonesia.

Then in the mid-20th century a historic “reversal of the reversal” starts occurring, with these most populous countries starting to grow faster in per capita terms than the rich countries, allowing them to narrow the gap in living standards (the level of per capita GDP). For China, India, and Indonesia the turning point occurs in the late 1970s, after which these countries started growing rapidly. For Brazil, it begins around the 1950s.

For the purposes of discussions about future economic dominance, the key question is whether the convergence in these large countries will continue over the next 20 or 30 years. The main argument of this book—the strong likelihood of shifts in economic dominance toward emerging-market countries and China in particular—is dependent on convergence continuing. The specific projections will be discussed later, but the broader phenomenon provides a backdrop for the discussion to follow. How can one be confident in this assumption of ongoing convergence, especially for the larger countries such as China and India?

It is impossible to be absolutely certain, of course, but the facts of the Chinese and Indian growth turnarounds offer confidence. They have grown respectively at about 8.5 percent and 5 percent per capita for 30 years, and their growth miracles are now entering their fourth decades.<sup>7</sup> During this period, they have decisively shed their dependence on agriculture and have be-

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7. It is well known that China's turnaround occurred in 1978. Less well known is that India's growth turnaround occurred around 1980, even though the policy paradigm shifted in 1991 (Rodrik and Subramanian 2004).

come powerhouses in manufacturing (China) and services (India). They have also increased their share of trade substantially and mostly followed prudent macroeconomic policies, avoiding inflation and currency and financial crises. And all the while, they have remained politically stable.

There have been other examples of such rapid growth in recent history, but many have been followed by stagnation. Venezuela grew at above 7 percent per capita for 30 years after oil was discovered there in the early 1920s, but experienced a substantial and sustained decline in living standards, from a peak of \$11,250 per capita in 1977 to \$7,000 in 2003. Venezuelan growth was extraordinarily oil-dependent and its politics were always highly unstable. Brazil grew at about 4.75 percent per capita for 30 years between 1950 and 1980 and built up its manufacturing sector, but then endured nearly 20 years of stagnation from 1980 to 2000. Brazilian growth never approached Chinese levels, never achieved China's large increase in trade, and was perennially prone (until recently) to macroeconomic instability.<sup>8</sup>

In sum, few countries in economic history have grown as fast and for such a long time period, structurally transformed their economies to such an extent, and remained as politically and macroeconomically stable as China and India—and yet not become at least half as rich as the frontier country.<sup>9</sup> Any precipitous slide in the fortunes of China and India cannot be ruled out, of course, but history is more on their side than against them.

## Projecting Numbers: Background Analytics

### Bases for Projections: Convergence and Gravity

The previous chapter noted that economic dominance in the years ahead is likely to be shaped by the wealth, trade, and external capital of nations, especially the performance of large countries such as China, India, Brazil, and Indonesia, and especially in relation to the performance of currently dominant nations such as the United States. How rich will those growing countries become? How much will they trade with other nations? How much capital will they export or import? These are the numbers that need to be projected in order to assess future dominance.

The future is unlikely to indulge one's whim for prognostication but economic theory and history provide some guidance for gazing into the crystal ball. The projections of economic wealth (strictly speaking, GDP) will rely on

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8. Argentina is cited as the classic case of reversal after attaining a relatively high standard of living. But Argentina never grew at the pace of China and India. Russia also grew rapidly at about 4 percent per capita for 30 years beginning just after World War II, and then famously witnessed an economic collapse because of highly dirigiste policies that had to be abandoned.

9. The significant exceptions are a number of oil-exporting countries—Oman, Libya, Gabon, Saudi Arabia, Equatorial Guinea—that have often seen rapid growth associated with exploiting new discoveries of oil or sharp price increases for their exports. But these countries have then slipped considerably when the oil exploitation has slowed down or oil prices have declined.

the phenomenon of convergence already discussed. For projecting trade, too, economic theory and evidence offer guidance. Just as the force between two objects in physics depends on the product of their masses and the distance between them, so trade between two countries is thought to depend on their economic mass (GDP) and all the frictions affecting trade, including transport costs and policy barriers.

The theoretical foundations of this so-called gravity model have been solidified in recent years (Anderson and van Wincoop 2003; Eaton and Kortum 2002; Helpman, Melitz, and Rubinstein 2008). Unlike economic convergence, which worked in theory but played out in the real world incompletely and tardily, gravity as a determinant of trade has been robustly and consistently vindicated in practice. The gravity model has consistently produced one of the most robust results in empirical economics and therefore has impeccable credentials in the field.<sup>10</sup>

One feature of the projections here is therefore an internal consistency between the growth and trade projections, because the key driver of trade in the gravity-model-based projections is GDP. Thus, the well-known but empirically contested phenomenon of convergence and the underrecognized but reliable phenomenon of gravity will be the two key drivers of future economic dominance, which is the subject of much of this book.

## **Baseline Scenario: Convergence**

While the principles of convergence and gravity serve as the basis for deriving numbers of future GDP and trade, forecasting is inherently uncertain. So a range of possible outcomes must be considered. The focus is on the baseline, or what might be called the “convergence” scenario, predicated on the assumption previously discussed that the gap in GDP levels between the rich and poor will be narrowed over time. Details are provided in appendix 4A. It must be emphasized that the pace of catch-up will neither be rapid nor uniform around the developing world.

As a robustness check, I consider alternative scenarios. To avoid a proliferation of scenarios and numbers here, these alternative scenarios are taken up in the postscript and focus on the two countries contending for stakes in dominance. The scenarios quantify the impact of how economic dominance will evolve under differing assumptions not of absolute growth rates but of the difference in growth rates between the United States and China.

The basic growth projections for the convergence scenario are presented for the important countries and groups of countries in table 4.2. Projections of economic growth rates for industrial countries between 2010 and 2030 draw on the assessments of several experts at the Peterson Institute for In-

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10. For recent applications, see Subramanian and Wei (2007), who estimate the impact of the WTO on trade; Helpman, Melitz, and Rubinstein (2008), who extend it to account for new theoretical developments, and Frankel and Rose (2000), who analyze the impact of currency unions.

**Table 4.2 Growth projections in a convergence scenario, 2010–30**

| Country/group  | GDP growth rate (PPP dollars) | GDP growth rate (dollars) | Per capita GDP growth rate (PPP dollars) | Per capita GDP growth rate (dollars) | Population growth rate (percent) |
|--|-------------------------------|---------------------------|--|--------------------------------------|----------------------------------|
| United States  | 2.5                           | 2.5                       | 1.7                                      | 1.7                                  | 0.8                              |
| EU-27  | 2.0                           | 2.0                       | 1.9                                      | 1.9                                  | 0.1                              |
| Japan  | 1.5                           | 1.5                       | 1.9                                      | 1.9                                  | –0.4                             |
| China  | 5.9                           | 6.9                       | 5.5                                      | 6.5                                  | 0.4                              |
| India  | 7.6                           | 8.9                       | 6.5                                      | 7.8                                  | 1.0                              |
| Korea  | 3.5                           | 3.9                       | 3.4                                      | 3.8                                  | 0.1                              |
| Africa   | 7.4                           | 9.0                       | 5.3                                      | 6.9                                  | 2.0                              |
| Egypt  | 5.5                           | 6.1                       | 4.1                                      | 4.7                                  | 1.4                              |
| Pakistan   | 6.4                           | 7.2                       | 4.5                                      | 5.2                                  | 1.8                              |
| Iran   | 3.8                           | 4.1                       | 2.9                                      | 3.2                                  | 0.9                              |
| Middle East  | 5.2                           | 5.9                       | 3.2                                      | 4.0                                  | 1.9                              |
| Mexico   | 4.6                           | 5.2                       | 3.9                                      | 4.5                                  | 0.7                              |
| Chile  | 3.7                           | 4.1                       | 3.0                                      | 3.3                                  | 0.7                              |
| Brazil   | 3.7                           | 4.0                       | 3.1                                      | 3.5                                  | 0.5                              |
| Rest of Latin America                                    | 5.4                           | 6.3                       | 4.3                                      | 5.1                                  | 1.1                              |
| Indonesia  | 6.3                           | 7.3                       | 5.5                                      | 6.5                                  | 0.8                              |
| Rest of Asia   | 6.7                           | 8.1                       | 5.6                                      | 6.8                                  | 1.1                              |
| Russia   | 1.6                           | 1.7                       | 2.1                                      | 2.1                                  | –0.4                             |
| Rest of Europe   | 4.7                           | 5.5                       | 4.5                                      | 5.3                                  | 0.2                              |
| <b>Total</b>   | <b>4.3</b>                    | <b>4.1</b>                | <b>3.4</b>                               | <b>3.2</b>                           | <b>0.9</b>                       |
| BRICs (Brazil, Russia, India, and China)                 | 5.6                           | 6.3                       | 5.0                                      | 5.7                                  | 0.6                              |
| Populous countries (Brazil, India, Indonesia, and China) | 6.1                           | 6.8                       | 5.3                                      | 6.1                                  | 0.7                              |
| Asia excluding Japan                                     | 6.3                           | 7.3                       | 5.4                                      | 6.4                                  | 0.8                              |
| Emerging and developing countries                        | 5.6                           | 6.4                       | 4.6                                      | 5.3                                  | 1.0                              |

Notes: Estimate in “dollars” refers to valuation based on market exchange rates. Estimate in “PPP dollars” refers to valuation based on purchasing power parity exchange rates.

Sources: IMF, *World Economic Outlook*; and author’s calculations.

ternational Economics. They broadly take the view that the global crisis will not significantly affect medium-run growth rates in industrial countries. The United States is projected to grow at 2.5 percent, or 1.7 percent in per capita terms (over long time periods going back to 1950, the United States has grown at about 2.2 percent per capita); the European Union countries (which includes 27 countries) at 2 percent; and Japan at 1.5 percent. Within emerging and developing economies, China is projected to grow at 6.9 percent, which amounts to per capita PPP-based growth of 5.5 percent; for India, the corresponding numbers are 8.9 and 6.5 percent respectively; and for Brazil, 4 and 3.1 percent.

The assumption that postcrisis growth rates will be similar to those before the crisis suggests that the output decline (in the case of rich countries) suffered by industrial countries and the growth decline (suffered by developing countries) will not be recouped going forward. In other words, the crisis will have imposed a one-off but not permanent cost. This is also the conclusion drawn by the IMF based on analyzing previous episodes of crises (IMF 2009).

Before discussing the projections, however, some issues relating to measurement need to be reviewed.

## **Measuring GDP Level and Growth Rates: Purchasing Power Parity Estimates**

Recall that the projections for GDP and trade are necessary inputs in computing and forecasting economic dominance. Further, the index requires levels of GDP at both market exchange rates and at PPP exchange rates. This means that growth too has to be projected at both market-based and PPP-based exchange rates.<sup>11</sup> How can this be done?

Most projections for GDP and GDP growth rates, including Goldman Sachs's (2003) renowned report on the BRICs (Brazil, Russia, India, and China) report and the more recent study by Citigroup (2011), project one or the other. For example, the Goldman Sachs report values GDP at market-based exchange rates, while the recent Citigroup report uses PPP for valuing GDP. As discussed in box 4.1, both cannot be right, so which one is? Neither of these reports makes the distinction between PPP and market exchange rates for growth projections (Johnson et al. 2010), and thus neither employs this distinction as a basis for projections. This book projects both.

Thus, two methodological innovations in this study are to project (1) PPP-based GDP and market-exchange-rate-based GDP and (2) long-run trade consistent with the GDP projections. There are very few predictions of long-run aggregate trade and fewer of bilateral and regional trade because of uncertainty about how to model trade flows. This is surprising because the gravity model of trade provides a simple and theoretically consistent way of doing so (see appendix 4B for details).

Before presenting the results, I draw attention to an important matter of measurement in box 4.2 that leads to an upward revision of China's PPP-based GDP estimate for 2010 of about 47 percent.

## **Results**

According to the projections, between 2010 and 2030 emerging markets and developing economies will increase their share of world GDP (at market-based

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11. Throughout this book “dollar GDP” or “dollar GDP growth” refer to values based on market exchange rates; correspondingly “PPP GDP” or “PPP GDP growth” refer to values based on PPP exchange rates.



#### **Box 4.1 Goldman Sachs or Citigroup: Whose growth projections are right?**

The rationale for using purchasing power parity (PPP) estimates to compare standards of living across countries at a point in time is well understood. Statistical, institutional, and intellectual apparatuses are in place to achieve that objective. What is less well understood is that GDP growth rates and growth projections should also take account of purchasing power parity considerations.<sup>1</sup>

Take, for example, the renowned Goldman Sachs BRICs (Brazil, Russia, India, and China) report and the more recent Citigroup report on growth in emerging markets.<sup>2</sup> Both project “real” per capita GDP growth rates. But Goldman Sachs applies these growth rates to the market-exchange-rate-based level of GDP (“dollar GDP”) while Citigroup applies them to the base year GDP but valued at purchasing power parity (“PPP GDP”). Goldman Sachs’s GDP projections are thus in dollars while Citigroup’s are in PPP dollars. Which “real” growth rate is the right one? Because both cannot be.

The rationale for using purchasing power parity to estimate growth rates is broadly the same as that to estimate levels of GDP. If the market exchange rate was incorrect in valuing the GDP of the United States in 2005 relative to that of India in 2005 because some services were cheaper in the latter than in the former, so too the market exchange rate is likely to be incorrect in comparing India in 2030 with India in 2005 because these same services will be more expensive there in 2030 than they were in 2005 (this is the dynamic Balassa-Samuelson effect). What is true across countries at a point in time is likely to hold across time within countries.

A key point is that while market exchange rate based estimates of the level of GDP understate the real standard of living in poorer countries, market-exchange-rate-based growth projections, particularly those for longer periods, will overstate improvements in such living standards over time.

The best way to understand this point is to think in terms of the terminal condition. A poor country today has a higher level of PPP GDP than dollar GDP. At some point in the future, with growth and development, these different ways of valuing GDP must converge (as they have for most industrial countries). So the growth rate between these two points will necessarily be lower in purchasing power parity terms than in dollar terms.

A generous interpretation is that Goldman Sachs essentially interprets “real” growth as based on dollars while Citigroup interprets it as PPP dollars. Neither is strictly speaking wrong. But both are oblivious to the distinction and are therefore both limited and incomplete. The Goldman Sachs procedure cannot project PPP GDP and the Citigroup procedure cannot project dollar GDP.



#### **Box 4.1 Goldman Sachs or Citigroup: Whose growth projections are right? (continued)**

This book projects GDP growth both in dollar and PPP-dollar terms. We start with the projection of the PPP GDP growth rate. (A true long-run convergence framework helps project such growth rates, not dollar GDP growth rates.) We then use the dynamic Balassa-Samuelson effect to derive dollar GDP growth rates. We are thus able to take into account the fact that relative prices between tradables and nontradables will change over time as convergence proceeds apace, as indicated in appendix 4A. The key point to note is that all PPP-based growth rates are lower than dollar-based ones as theory and the empirical evidence in Ravallion (2010) suggest they should be.

1. See Johnson et al. (2009) for a detailed discussion of the issues.

2. The Goldman Sachs report (*Dreaming With BRICs: The Path to 2050*) is available at <http://www2.goldmansachs.com/ideas/brics/book/99-dreaming.pdf>. The Citigroup report (*Global Growth Generators Moving Beyond 'Emerging Markets' and 'BRIC'*) is available at <https://ir.citi.com/HczY2lBWcwtGZR0AHICRQy2eGoEnjrR3DWCmGlnYp1sVXpAF6So2pQ%3D%3D>.

exchange rates) by a whopping 19 percentage points and by 15 percentage points at PPP exchange rates (table 4.3). China's share of world GDP (in PPP dollars) will increase from 17 percent in 2010 to 24 percent in 2030, and India's share will increase from 5 to 10 percent. China's economy (in PPP dollars) will be more than twice that of the United States by 2030. Measured in PPP terms, the Rest, which account for half of world GDP today, will account for about 67 percent by 2030.

In incremental terms, the shift in the world economy will be even more dramatic: 68 percent of the increase in world GDP at market exchange rates between 2010 and 2030 will emanate in the emerging and developing world; the comparable figure in PPP terms will be about 79 percent. In other words, the dynamo for the world economy will be what are today the poorer parts of the world.

According to table 4.4, which shows the relative ranking of the world's largest industrial and emerging-market countries, China overtook the United States in 2010 if GDP is measured in PPP terms. By 2013, India will overtake Japan to become the world's third largest economy. Brazil will become the world's fifth-largest economy by 2012. In other words, before the middle of this decade three of the world's six largest economies will be what are now considered emerging-market countries. And other emerging-market countries—especially Indonesia and Mexico—will start climbing up the ranks of the world's largest economies, with Indonesia overtaking all the industrial economies except the United States and Japan.

Table 4.5 depicts the same relative rankings but based on the dollar value of GDP. By 2030, China and India will become the world's second and third

#### **Box 4.2 Is China already number one?**

The projections in this book involve applying growth projections for 2010–30 to levels of GDP in the base year (2010).<sup>1</sup> Data for this base year are from the October 2010 edition of the International Monetary Fund's *World Economic Outlook*. That publication contains the IMF's own purchasing power parity (PPP)-based estimates for 2010, but they are problematic in two important respects for China. First, the GDP number for 2005, which is the starting point for all the PPP-based calculations, is understated; and second, the price increases between 2005 and 2010 are overstated, which further reduces the GDP number for 2010.

When the World Bank published its PPP-adjusted estimates for GDP per capita based on disaggregated data collected by the International Comparison Program (ICP) in 2005, a number of commentators expressed doubts about them, especially because the estimates for China (\$4,091 per capita) and India (\$2,126) were revised downward by 40 percent relative to the pre-ICP estimates. The IMF uses this lower number for 2005 (in part because the World Bank does so).

Surjit Bhalla (2008) argued that the number for China was unrealistic. Suppose, he said, the revised number was extrapolated backward, using China's growth rate between 1952 and 2004 of 5.52 percent. It would imply a level of GDP per capita in 1952 of \$153 (in 1985 prices) that was well below the threshold value of \$250 that Pritchett (1997) has argued is the minimum required for subsistence. In Bhalla's evocative description, the revisions meant that there were few living Chinese in 1952.

The validity of doing this backward extrapolation is questionable because, as pointed out by Johnson et al. (2009), purchasing power parity growth rates and market exchange rate based growth rates are not identical and cannot be used interchangeably.

Nevertheless, Bhalla's point is correct, albeit for slightly different reasons, as argued by Angus Deaton and Alan Heston (2010). They suggest that China's PPP GDP was underestimated (by the ICP and by the World Bank) because of the urban bias of the price sampling in ICP 2005. Data on prices were collected for 11 cities and their surroundings, but no rural prices—which are typically substantially below urban prices—were collected (or rather allowed to be collected by the Chinese authorities).

Version 7 of the Penn World Tables released in February 2011 has corrected these biases, which results in an upward revision for China's PPP-based GDP by about 27 percent and for India by about 13 percent for 2005.<sup>2</sup> The projections in this book use the new Penn World Table corrections as the starting point for computing new estimates for PPP-based GDP and GDP per capita.

A second correction relates to developments between 2005 and 2010. For this period, if the IMF data are taken at face value, they suggest an increase in the real