
Ordering the World: Truth to Power

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Preface

The singular large economic fact about the world remains the rise of China. The large geopolitical question remains how the structures of world power and global leadership will adapt to this ascent.

It is sometimes said “China’s rise directly challenges America. Competition between the two is inevitable. Just as America dominates the Western Hemisphere, China will aim to dominate Asia, and America and China will each seek to contain the other. As China continues its ascent, the likelihood of war with America only ever grows.”

Many observers will consider such statements extreme. Indeed, frontline economic policy-makers routinely put to one side issues of global or regional security when they meet in international dialogue. These statements, however, are not unrepresentative of accounts in serious academic research and scholarship, and—in the eyes of many—conform to the positions assumed by great geopolitical powers. For those observers, anything less is fanciful and utopian.

Not that war can ever be comparable, but in attenuated form such competition surfaces every time yet another call goes up for emerging economies to have greater voice in global policy-making, and developed economies resist. Moreover, while global leadership takes centre stage in almost every geopolitical discussion, in terms of pure logic, global leadership is just one dimension of the structure of world order in general. And, however unlikely China might actually face military confrontation with the US in pitched battle for global leadership, certainly all emerging and developed economies routinely need to work

within that world order.

I wrote this book to help explain the empirical reality of the economic rise of China and other emerging economies, and to analyze how world order does not just react to that development, but instead causally helps shape it. That is, in this book I consider how the economics and geopolitics of global shifts in economic prosperity are jointly determined and thereby co-evolve.

I do not claim to be either a specialist in China's economy or an International Relations scholar. I have not written here a book about China or about International Relations as a field. Before I started tackling the questions in this book, my goal as an academic economist had been to try and understand things that were relatively technical but conceptually more straightforward: economic growth and convergence, and how these affected the large-scale dynamics of inequality.

Economists discussed these questions using the ideas that came out of our models. And, although, interesting variations existed, the central question was: What makes an economy grow? We looked at technology and creativity, savings and capital accumulation, human capital and schooling, taxation and redistribution, international trade in goods and services and financial assets, migration from rural to urban places of work, and the nature of the political regime under which an economy operated. We were driven by many different considerations in that research but at base what we felt most keenly was one simple fact: Just as a matter of arithmetic, long-term sustained growth had impact on people's well-being an order of magnitude greater than almost everything else in economics.

Even as economists advanced understanding in that direction, scholars in other social sciences were no less aware of how the simple arithmetic of economic growth unleashed large forces. Only, many of these scholars focused, not on the consequences of economic growth for people's well-being, but on how growth was shifting the geopolitical footprint of nations.

These scholars are concerned about world order—the distribution of power across individual nation states, and the understood relations between these states. This international system is one

that has for almost a century now been constructed around a core with the US as dominant power. The acknowledgment of power mirrored economic performance. The US, together with parts of the Western Hemisphere and Japan, are the world's richest economies. These nation states govern the globe: They write the rules of the game; they develop advanced technologies that filter out, eventually, to the rest of the world; they advocate and enforce standards—in political values, in business practice, and in technical specifications; they police the world and keep secure international air, sea, and cyber communications. These nations provide the global public goods for the rest of humanity. Advanced economies run the world.

If China and the rest of the emerging economies continue to grow, what will that do to how the world is governed? Is the world now flat, so that the previous single pole of power no longer dominates? Going forwards, will China come to rule the world? Or, will the American Century continue? Is the new Asian Hemisphere real? What remains of the age of US unipolarity? How will the current global hegemon, the US, respond to the rise of China?

Academics who study these problems often also work on practitioner frontlines in developing strategic frameworks for large powerful nation states. But while these questions build on economics, they are not themselves typically considered to be economic research questions that are the focus of attention of academic economists. One reason is the underlying nature of the challenges under consideration. When these questions are simplified and sharpened to a point where answers might be definitive—the way economists conduct research—the resulting answers are almost never thought to be useful.

There is a straightforward and obvious answer on how the world economy is changing. It is that that evolution is no more than a direct arithmetic consequence of how each economy itself evolves. We know a lot about the last from numerous empirical studies on convergence and economic growth. Simply splice together what happens in each of the 200 or so economies in the world—never mind how each might be interacting with any other—and right there is a complete picture of the global

economy.

The problem is, while economists have undertaken extensive empirical research on growth in rich and poor countries, we had not actually drawn all that together into an explicit map of change in the global economy. As economists we knew about the dynamics of a “representative economy”. Since economies differed in measureable ways, we conditioned out those individualities and focused on what remained. We understood the evolution of per capita incomes. Valiant work had even uncovered insight into the personal distribution of incomes around and across the world.

But none of these tells us anything about how the world’s entire distribution of economic performance was interacting in different parts, feeding back on one another in others, and then differentially rising and falling. Is there, in fact, an emergence of China and a decline of the US that appreciably changes the landscape of the global economy in ways that sensible interlocutors find useful to understand?

What happened to the North-South divide? What dynamics—empirical, political, ideological—are transforming the global narrative that puts on one side a liberal, democratic, free-market Trans-Atlantic axis and, on the other, an autocratic, illiberal, state-intervened East Asia? Because studies in economics mostly eschew proper names, such questions don’t typically come into economics focus. When economists delve deeply into what makes an economy grow—a single representative economy, inserting conditioning variables into the analysis to account for cross-country differences—have we ended up abstracting away too much of the global picture, leaving that instead to political scientists, international relations scholars, and investment bankers?

It was, after all, Jim O’Neill and his team at Goldman Sachs who brought the world’s attention to the BRICs. That conceit went from catchy phrasing to central principle for high-level international policy making, multi-trillion dollar portfolio investment, and geopolitical analysis. Political scientists and international relations scholars weaved persuasive and elaborate arguments to debate world leadership, US unipolarity, the con-

tinuation of the American Century, and global power shift. Key to those were facts about economic performance. The original BRICs calculations used what economists would recognize as production function accounting and made economically-inspired assumptions about technical factor productivity. But most economists studying the intricacies of economic growth—whose findings must be useful in such debate on geopolitics—seemed unwilling to participate and contribute insight in those geopolitical discussions. Or, worse, they were simply unaware that such debates were, in fact, swirling about them.

Part of the motivation for this book then is to argue that economics has more to contribute to geopolitics than its being merely a service department, i.e., in economists' handing over for others to use the empirical facts we uncover. Economics understands normative analysis: Economics says that instead of only admiring all that a world superpower can do, we ought to be asking what it should do. Game-theorist economists know mechanism design and noncooperative games: there is more to interaction between purposeful, self-seeking countries than just a zero-sum game, on the one hand, and all-out explicit cooperation, on the other. To escape a mutually destructive Prisoners' Dilemma, you don't have to force participants to cooperate. (You can't force sovereign nations to do anything, anyway.) But you can try to re-wire the rules of the game. And, of course, even if all else fails, economists' empirical methods can still be more sharply tuned to make economics a better service department, better designed to help others address the grand overarching themes of global governance and world power.

I have attempted to write this book in such a way that no special technical background is asked of the reader. Although pretty much all research writing in economics is extremely technical, what I have put down in the book attempts to keep in mind what Lionel Trilling told C. Wright Mills, i.e., to write assuming my audience comprises "an audience of teachers and students from all departments of a leading university, as well as an assortment of interested people from a nearby city". Most important, according to Trilling, is to assume those people have a right to know and that I (as author) really want them to know.

In putting this book together I have been lucky enough to get to draw on an extraordinary array of student talent worldwide. I have taught versions of the ideas in this book to generations of students across places as diverse as London, Singapore, and Beijing. And I have been fortunate to have been assisted by teaching and research assistants, all of whom seemed to me to have already had considerable expertise in areas I was myself just learning: Jiaqian Chen, Gunes Asik, Andrew Hodge, Reka Juhasz, and Guo Xu, then of LSE's Economics Department; Inez Freiin von Weitershausen and Raj Verma, similarly, LSE's International Relations Department; and Elaine Leong, then of the Politics Department, Princeton University and Khazanah Nasional; Ken Teoh, then of the Wharton School at the University of Pennsylvania; and Lucy Zhu, then of the Economics Department, Wellesley College and the Madeleine Korbelt Albright Institute of Global Affairs.

Because the ideas in this book are diverse, a great deal of their exposition has taken place in classrooms other than economics ones. My colleagues and employers at LSE, the National University of Singapore, and Peking University have generously allowed me to lecture in courses in International Development and International Relations, as well as in LSE100—the LSE Course—and that other LSE innovation, “economics courses for non-economists”. These last are courses that economics students are not allowed officially to take, even if one or two of them would sometimes sneak into my lectures. I am grateful to all these students and colleagues who have helped me sharpen my understanding of these issues.

The more I was drawn into these larger geopolitical questions the more my work brought me into a circle of inter-disciplinarity spread across the social sciences. I found I spent more and more of my time talking to researchers outside technical economics. Chris Brown, Craig Calhoun, Lloyd Gruber, David Held, Ted Hopf, Chris Hughes, Mary Kaldor, Nick Kitchen, Yuen-foong Khong, George Lawson, Kishore Mahbubani, Eva-Maria Nag, Joseph Nye, Robert Hunter Wade, Arne Westad, and Rachel Zhou have all put to me points—whether on public panels or in discussion—that have influenced the thinking in this book. But I

have to reserve special thanks for Michael Cox, who has served as mentor and guide, in London, Beijing, and many other places across the world, and finally as debating foil, the countless times that he and I openly disagreed on the rise of West and East.

1 Introduction

IN APRIL 2014 London's Financial Times published an eye-catching graphic (Fig. 1.1) showing the US on the verge of being displaced from its historical position as the world's leading economic power.

April 30, 2014 1:01 am

China poised to pass US as world's leading economic power this year

By Chris Giles, Economics Editor [Author alerts](#)

The US is on the brink of losing its status as the world's largest economy, and is likely to slip behind China this year, sooner than widely anticipated, according to the world's leading statistical agencies.

The US has been the global leader since overtaking the UK in 1872. Most economists previously thought China would pull ahead in 2019.

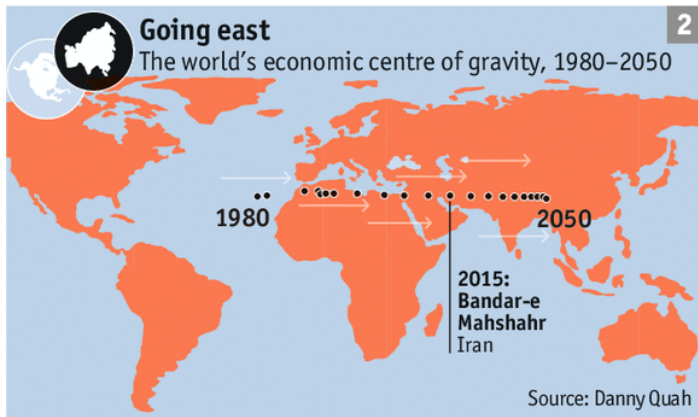


Figure 1.1: China poised to pass the US as world's largest economy. Graphic from Giles [2014].

Instead, bragging rights as the world's largest economy would, for the first time in nearly a century and half, be no longer be

held by the US but instead transferred to a different nation state, China.¹ If the world's largest economy is global hegemon—leader of the world order, writing the rules of the game for all the rest of the world—then that potential cross-over is not just a technical one bringing with it self-satisfaction and some degree of admiration from the rest of the world. Leadership would pass from the world's greatest democracy, set on constructing a liberal world order, to the world's largest autocracy, with global designs not quite as transparent. The effects on world order would be profound.

In November 2014 the Economist newspaper reported (Fig. 1.2) how the world's economic centre of gravity—long located in the Atlantic Ocean, midway between the US and Western Europe—had in the last three decades shifted over three quarters of the earth's radius eastwards to the Persian Gulf, on a trajectory predicted to stop only when that centre reached the boundary between China and India.



In March 2015, the China-led Asian Infrastructure Investment Bank drew into its initial formation the participation of most of the world's leading nations, including firm US allies such as the UK, France, Germany, and Italy; all the ASEAN economies; and all five of the largest emerging economies in the world. This mass sign-up stood against the express wishes of the US, leading many observers to wonder aloud if the world had reached a watershed moment where the US no longer dominated the global

¹ Chris Giles. China Poised to Pass US as World's Leading Economic Power This Year. *Financial Times* (30 April), 2014

Figure 1.2: Going east: The world's economic centre of gravity, 2008–2050. Graphic from The Economist [2014b].

power order.

Facts such as these have led scholars and policy-makers to ask if a global power shift—from West to East—is under way. Observers have been drawn to reconsider the current world order, either to defend its continuation and sustainability on the one hand, or to urge its rewiring on the other.

1.1 *What is World Order?*

World order is the global community of nation states placed in a setting to reveal two features:

1. the distribution of power across individual nation states and
2. the understood relations between those states.

In a specific world order, each nation state has an understanding of its relative status in the world; each comes to some settlement on how it deals with the other nation states that matter to it. Thus, world order defines the set of choices available to nation states; it circumscribes the rules of the game. The constellation of these understandings and arrangements, taken in their entirety, helps determine and is in turn determined by shared norms and expectations, and patterns of global priority and regional authority.

Global governance—strong or weak, secure or absent, multilaterally benevolent or unilaterally self-serving—is one of the principal outcomes of a given world order. International and regional security agreements are yet other implications of the global system: Who is responsible for defending sovereignty when a rogue state goes belligerent against its peaceful neighbors, not least if those neighbors have historically emphasised priorities other than national defense? How does a group of nation states best organise against ideologies and aggressions driven by extremism and terror, and how do they decide on the margin between separatism and existential threat? Who determines when national self-determination conflicts with international core values, and when does that conflict call for international action?

Conventional narratives on world order focus on power and capacity. Among the questions these address are: Which nation state is number one, and will it continue to be that? How will rising powers that challenge the global leader manage a peaceful transition, and what will they write for the new rules of the game? How should small states respond to specific international proposals, since such nations have neither the power nor capacity to stand on equal footing alongside the great powers in decision-making?

1.2 *Demand, Supply, and a Rational World Order*

The conventional narratives focus on the supply of world order. They ask who can provide world order and what form that provision will take. In such discussions, a global power shift is a handover from one nation state to another, from one previously endowed with greater power in economics, military, cultural affinity, technology, and status, to another now agreed to be better resourced on all these dimensions. Thus, in such discussions, global power shift is simply a switch between providers of world order, different nation states best equipped to supply world order.

Absent from consideration in those discussions is what factors might drive the demand for world order. What do the seven billion people on earth want in a world order? Which nation states benefit most from being able to write the rules of the game? Conversely, which ones are disadvantaged from a given world order?

The reason for asking this alternative set of questions is not mere idle curiosity. From economics, we know that, under appropriate conditions, when demand meets supply, the result is efficient, i.e., it provides the greatest good to all at minimum cost. Of course, relative to conventional discussion, none of these—the greatest good, minimum cost, benefits distributed how to whom, costs allocated in what way to which global actors—is yet tightly defined. But the idea to apply economic calculation to reshaping world order is suggestive. If the notion can be made empirical and concrete, then there is a different

way to consider world order: we can put together demand and supply, and draw on insights provided from economics. We can then ask the optimality question: what feasible world order most efficiently serves the collective needs of all of humanity? What is a rational world order?

For observers dissatisfied with the current world order, all this might seem unnecessary. Don't supply-side considerations alone already provide powerful reasons for seeking a different international system? Who has the greater capacity now for crafting and implementing the rules of the game? The global economy is no longer centred on the Trans-Atlantic axis. The world's economic centre of gravity, having sat for decades in the Atlantic Ocean between Washington DC on the one hand, and London, Paris, and Berlin on the other, has in the last 35 years shifted eastwards 5,000km, drawn by the rise of Asia. Emerging economies now have combined GDP at market exchange rates that has converged to within 95% that of the G7, even though that ratio had languished at only 20-40% for decades running up to 2005. For countries such as Germany, exports to Developing Asia have grown in magnitude to more than one and a half times those to the US. Even if China's economy slowed to only 7% growth in 2015, it would still generate US\$790bn in magnitude of GDP growth, almost three times what it did ten years ago—at inflation-adjusted market exchange rates; if average worker productivity continued to rise on trend, China's labour market would generate 53mn new jobs. These observations and others like them suggest that capacity for organizing the world is no longer the sole preserve of the US or the developed West.²

At the same time, however, it is certainly legitimate and appropriate to counter that the West remains the repository of soft power, and that US military projective power, US information technology, and the West's history of science Nobel Prizes all remain unchallenged still.³

There is an interesting debate to conduct on these measurements and counter-measurements. But all that is different from my principal argument: It is only by putting together demand and supply—what world order does humanity need, what world order best serves all humanity—that provides the most com-

² Kishore Mahbubani. *The Great Convergence: Asia, the West, and the Logic of One World*. Public Affairs, London, 2013; and Danny Quah. *Convergence Determines Governance - Within and Without*. In Kemal Dervis and Homi Kharas, editors, *Growth, Convergence, and Income Distribution*, pages 179–184. Brookings, Washington DC, nov 2014c

³ Michael Cox. *Power Shifts, Economic Change, and the Decline of the West?* *International Relations*, 26 (4):369–383, dec 2012. DOI: 10.1177/0047117812461336; and Joseph S. Nye. *Is the American Century Over?* Polity Press, Cambridge, 2015

elling motivation for and the best guide to reshaping world order. Obviously, such a view will not sit easily with those nation states who derive disproportionate advantage from a current or incipient world order. Nor do I claim that such a narrative explains the current world order. Far from it. But it is, I argue, a compelling framework for those observers who wish to stand apart from any given world order and who wish to argue dispassionately for change towards a better system.

Why the American Century Was the Right World Order

The later part of the 20th century is widely viewed to have had a unipolar world order organized around the US, the single most powerful nation on the planet—whether measured by economic size, military capability, or status as perceived in the eyes of the rest of the world. The US was undisputed world leader. It was an unstoppable economic juggernaut. The US harnessed liberal democracy and free market economics to devastating success, bringing prosperity to the American people, and admiration from and hope for all others on the planet.

Whenever it mattered, the US could take unilateral action, to benefit itself or its allies. Over the course of what became known as the American Century, the US crafted a world order that was transparent, inclusive, democratic, and rules-based.

These features should be more than enough to justify a unipolar world order. But there was yet more to recommend this particular one. Charles Kindleberger, the great economic historian who studied the world economy during and after the Great Depression of the 1930s, reckoned that having a global leader such as the US helped secure economic prosperity for all the world.⁴ The US was a hegemon that provided stability and leadership and thus space for policy coordination across the multiplicity of nation states. This idea became known as hegemonic stability theory, and helped explain the need for a unipolar world order.

For its adherents, the power of this conceit manifest in both directions, first when the US asserted its dominance, and second when it failed to do so. Following the 2008 Global Financial Crisis, the US seemed to retreat from unilateral activism, and

⁴ Charles P. Kindleberger. *The World in Depression, 1929-1939*. University of California Press, Berkeley, 1973. ISBN 0-520-02423-0

thus from world leadership. Correspondingly, the global economy saw stagnation when there should have been recovery. Peter Temin and David Vines lamented how the world had become a “Leaderless Economy”.⁵ In that reasoning, global economic under-performance derived from failure in world leadership, just as, conversely, success required strong hegemony.

⁵ Peter Temin and David Vines. *The Leaderless Economy*. Princeton University Press, Princeton, 2013. ISBN 978-0-691-15743-6

Why Change Anything Then?

If what the world needs is clear leadership, why not just restore world order around strengthened US unipolarity? After all, in the conventional supply-side narrative the US remains that nation state with the most powerful military, the most compelling soft-power discourse, and the largest economy — still twice the size of the next-largest. No other single nation state shows anything remotely close to the broad powers that have been America’s to bear for the last half-century. In this perspective on international order, yes, the world might indeed have changed; but it has not yet changed enough.

The question that a demand-side narrative adds to the mix is, Is it still the US that best serves the world as global hegemon? Two critical observations arise.

First, when the US began its period of stewardship at the head of the world order, it was mindful of how it would serve the needs of the world. The compelling case for US hegemony was never one of sheer power alone, but of power in tandem with that to which power was applied. Henry Luce spoke powerfully of the US being “the Good Samaritan to the entire world”. Subsequent versions of this idea, even if they veered a little off course into “what is good for America is good for the world” rhetoric, always kept in focus the needs of the world at large. The US was not global hegemon because it got paid, but because the American people sought “a sharing with all peoples of our Bill of Rights, our Declaration of Independence, our Constitution, our magnificent industrial products, our technical skills.” What would emerge was to be “an internationalism of the people, by the people, and for the people.”

Advocates like Luce saw extension to a world order the best

features of a US style of governance. For them, it was the Lockean “consent of the governed”—a phrase that appears in the American Declaration of Independence—that needed to energise world order, just as it already did the American system.

These sentiments, however, have receded further and further into the background in current narratives on how the US needs to be the one to write the rules of the game merely because it remains the world’s most powerful nation state.

Second, conditional on the needs of humanity in a world order, where is it set down that only one nation-state can be service provider? Given the global public goods needed, why not engineer a spectrum of specialization on the supply side? Perhaps the US can be military and security officer, China can design the global architecture on transportation and energy, Singapore and the UK can provide the financial engineering framework, select small states design systems of global public housing, and so on?

It is only an accident of history that injects into observers the idea that in a modern world order one nation state must be global hegemon on every single front: In ordinary life, why would we think that those parts of our society best at physical self-defence also be the people to whom we trust the design of new technologies or be the hackers and engineers that will keep secure our Internet infrastructure?

To be clear, asking for supply and demand side considerations be taken into account does not mean setting up a marketplace for exchange. The landscape of a rational world order needs to be one that focuses on providing global public goods. Because of externalities a competitive marketplace will fail to deliver the right outcome on that provision. Thus the demand and supply language simply provides a metaphor, not a paradigm to be taken literally.

Economic theory provides a suggestive answer on how to achieve that outcome: namely, solving an optimization program that internalises appropriately the spillovers and externalities surrounding public goods provision. The specific circumstances surrounding world order make subtle the implementation of that optimum but the analysis is a piece of research that needs

to be done, not to be simply ignored. Again, that optimization program is meant to be simply metaphor. Its directives are not intended to be interpreted directly or literally. Achieving those directives, while respecting national sovereignty and the primacy of self-seeking action, is a problem in mechanism design, broadly construed.

Such a design problem needs to be distinguished from a so-called “rational choice” approach. The latter describes a mode of actions to be undertaken by individual actors. Our design problem is one that seeks to put together those modes in an optimum, equilibrium way. In contrast, individual rational choice can sometimes lead to outcomes that are far from optimum: the Prisoner’s Dilemma situation is but one such example.

Asking that nation states provide frameworks and architectures in a globally coherent way is not submitting to a displacement of the private marketplace. In the scheme I describe it will still be private businesses that drive the global economy. My proposal refers only to global public goods, i.e., features in the landscape of human activity that private enterprise does not see incentive to provide. Moreover, these are only the same elements that we already ask of the old world order. My proposal envisions no new control or encroachment on individual liberties or national sovereignties beyond what we already have in principle.

What I describe is most closely related to Robert Keohane’s analysis of the Demand for International Regimes.⁶ The difference rests in my proposal recognizing explicitly the externalities associated with global public goods, and its focus on establishing an optimal world order, rather than on explaining the one that exists. In contrast, Keohane concentrates on transactions costs and information, and uses those to explain fluctuations in the strength and reach of observed international regimes.

The trajectory of history in the development of nation states and their power configurations that has converged on our current world order is a pathway that has produced many positive, beneficial outcomes. But if we are serious about asking whether our world order is fit for purpose still, we need to put in more by way of rational design principles into that architecture. I have described in broad outline how some simple economics, based

⁶ Robert O. Keohane. The Demand for International Regimes. *International Organization*, 36(2):325–355, 1982

on demand and supply, can help. Making such a design concrete will of course entail considerable analysis and empirical research. But it removes the discussion from simple measurement on who has the best guns and most robust economy. And such a framework could well provide fresh perspective on what modern world order might work best for the world.

1.3 *Hegemony and Survival*

The stakes are not just bragging rights to being the world's largest economy. In an important narrative that informs both scholarship and policy-making, survival is the over-riding geopolitical concern of the great powers. To maximise the chances of survival, great powers are driven to dominate other nation states. Most obviously, therefore, in Fig. 1.1, China's rise is a direct challenge to the US. Behind the dry arithmetic of a cross-over in GDP trajectories is inevitable competition between these two great powers. China will aim to dominate Asia, just as the US has dominated the Western Hemisphere. And each will aim to contain the other. China's economy nudging upwards in the Figure might make for interesting disputes in methods of extrapolation for some researchers, but the reality is that it only increases the likelihood of military confrontation with the US.

In this narrative how global leadership, or the US in particular, responds to China's rise constitutes the key issue of the 21st century.⁷ For some scholars the question is only whether the US remains the leading dominant global power, asserting itself to contain China, or remains the leading dominant global power, working out how to co-exist peacefully with China, whether through direct diplomacy or international institutions.

⁷ John J. Mearsheimer. *The Tragedy of Great Power Politics*. W. W. Norton and Company, New York, 2014; and Xuetong Yan. How China Can Defeat America. *The New York Times* (20 November), nov 2011

1.4 *Global Power Shift*

Some observers conclude that any West-to-East global power shifts are illusory and at best temporary, and that the current world order will endure. They argue that the world has been here before, with some challenger or other taking on the incumbent hegemon, the US. But each time the US has drawn on its

vast reserves of strategic capacity, its profound technological superiority, and its deep wells of political flexibility and resilience. Each time the US has successfully seen off the challenger. In this view the world remains firmly in “The American Century”.⁸

Yet other observers conclude that a global power shift is indeed occurring and will be permanent, and that a world order constructed for effective global governance must change in tandem with that shift. Without that adjustment the world’s economic and political landscapes will be disjoint and fractured. Global policy will work in directions opposite to what is actually needed. In this view the reality of world power is permanently and profoundly altered; the narrative of global governance now must adjust.⁹ Resistance implies gridlock or worse.

If those who argue that the current global power shift is illusory draw on the lessons of history, so too those who argue the opposite. After all, there was a time once when the US was not the world’s dominant power. The fact that it has been that since 1872 is evidence that shifts in world leadership do occur. Sure, the moment for a shift might not be exactly right now. And likely the shift will not be just one moment: It will be a sequence of moments. The greater underlying reality is that world power shows cycles. Great geopolitical powers rise and fall. The real question, in those observers’ analysis, is whether the world accommodates such shifts peacefully or violently.¹⁰

At the same time that this discussion is taking place, yet a different line of reasoning has re-surfaced. There are economists who agree the world order is changing but suggest that the way to achieve a stable world economy is reinstatement of the old order, i.e., ever greater assertion of US hegemony. This “Hegemonic Stability Theory” reasoning—the principle that the world economy is at its most stable when a benevolent hegemon runs the world—is associated most closely with Charles Kindleberger’s writings and has seen renewed enthusiasm following the 2008 Global Financial Crisis. A first interesting feature of this reasoning is that its justification is explicitly normative. A second interesting feature is that the justification for US world leadership derives not from the will, capacity, and power of the US. Indeed that justification does not even come from the US. It

⁸ Michael Cox. Power Shifts, Economic Change, and the Decline of the West? *International Relations*, 26 (4):369–383, dec 2012. DOI: 10.1177/0047117812461336; and Joseph S. Nye. *Is the American Century Over?* Polity Press, Cambridge, 2015

⁹ Kishore Mahbubani. *The Great Convergence: Asia, the West, and the Logic of One World*. Public Affairs, London, 2013

¹⁰ Paul Kennedy. *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000*. Random House, New York, 1989

is the world that *prefers* a global order under US leadership compared to any other kind of world order. Having the US write the rules—serve as hegemon—is a price worth paying for the stability the US brings to the world. The US does the world a favour by taking on the task of world leadership. Hegemony beats the alternative, a leaderless world economy.¹¹

Such debates invite rethinking the nature of world order. Is world order best run by a hegemon, a benevolent powerful leader like the US, whatever “best” might mean? Or, is the global system at each instant in time determined only as the endpoint of a sequence of historical events itself unfolding with no overarching design? (“Stuff happens.”) Or, is world order ever only the result of conflict and resolution between a handful of great geopolitical powers, with configurations of rise and fall varying historically only to the degree with which global violence manifests? Researchers might analyse the motivations and actions of individual nation states but it is futile to try and think about an emergent, organising structure to the system as a whole. The world is simply all conflict and disorder.

For economists the focus might be instead on other specific questions: Should world order serve a global purpose? If the present global system fails that purpose, should public policy and academic research seek to nudge world order towards something reasonable? It is useful to note here that when economists ask these questions, the approach is neither moralistic nor utopian. Economists do not reject the notion nations are self-serving and might, indeed, seek only to maximise their own position in world order in disregard of possibilities for cooperation. Instead, here the goal of the economists’ approach is examine the conjecture that when individuals—whether people, businesses or nation states—are self-serving, nonetheless the system can end up advancing the well-being of everyone in the totality. Arguing for the benefit of all is not a reliance on cooperation. This approach does not plead with individual nations to look at the bigger picture, or to be anything but narrow-mindedly selfish. Recommending policies for the good of humanity does not ask states to act against their national interests. The economic approach maintains a difference between the end goal—the system-

¹¹ Peter Temin and David Vines. *The Leaderless Economy*. Princeton University Press, Princeton, 2013. ISBN 978-0-691-15743-6

wide properties of world order—and the means—what is asked of individual nation states.

What then are the features of a rational world order? How is such an ideal world order shaped by the distribution of economic performance, incomes, capacities, and needs across different nation states in the world? If an optimum world order does exist but is not yet realized, what mechanism might we design that could guide non-cooperative and self-seeking individual nations towards that optimum outcome? How do history and optimum mechanism design interact to produce a feasible path of reform in the world order that might get the global system out of its current state of gridlock?

In other words, is there order to world order?

1.5 *The Contribution This Book Intends*

THIS BOOK SEEKS to organize answers to these questions. It combines ideas from diverse strands of academic work:

1. International Relations, studying deep properties of a nation state and how it engages with others—normatively and positively—but, for the purposes of this book, often emphasizing a perspective that in economics is labelled partial equilibrium;
2. International History, for an understanding of the initial conditions from which the analysis starts;
3. Econometric analysis of the global economy, so the discussion can be founded on empirical evidence, to understand, among other things, both the truth and falsity in statements such as “What’s good for America is good for the world”;
4. International Economics, to clarify the economic linkages across nations;
5. Welfare Economics, to ask explicitly what is good overall for the entire community of nations as , i.e., providing a more explicitly general equilibrium analysis; and

6. Basic Game Theory, to understand what non-cooperative self-seeking nations actually do, when obviously they have no idealistic intention of generously seeking to make life better for everyone in the world.

This book builds on two simple ideas. *First, world order needs to be purposeful.* It must have a goal that is sensitive to the needs of all of humanity, not just the desires of the nations geopolitically most powerful. This does not assume individual nation states share such generous and lofty ideals. My approach, as an economist, is not to take a moralistic stance; nor is it to hypothesise some kind of utopia for the community of nations. Quite the opposite: if purposeful, individual actors should be viewed as at best concerned only for their own well-being, not for that of the world community. The interesting question is, Can a global system comprising only self-seeking nation states nonetheless generate a world order that ends up good for all?¹²

Here economics has an advantage. As a discipline, economics brings to policy discourse not just positivist empiricism and careful description but also normative analysis. Economics encourages in its practitioners the arrogance to ask what should be, not just what is. And economics has intellectual experience exactly with asking how individualistic self-seeking agents might nonetheless produce systemic features that benefit everyone. Against the background of this idea, however, I need to spell out what the historical reality of world order has been, and to assess how far that reality is from a normative optimum. That description will occupy a large part of the book. So too will laying out what such a rational world order needs to be.

(Leigh Jenco has emphasised to me that political philosophy of course has always asked deep questions about how societies should organise for the well-being of their diverse and varied citizenry. Isn't that problem compounded beyond usefulness in a discussion about the well-being of all of the world? What most occupies this book is that world order needs to take *some* account of the world's well-being, as opposed to no account at all. Beyond that, there is a whole other debate still to have. Technically, this book draws on the idea that welfare economics acknowledges there is a multiplicity of outcomes that are socially

¹² Keohane [1984] has explored how cooperation can be induced across self-seeking nation states not through hegemony but through the explicit device of international institutions. Gruber [2000] describes the difficulty of sustaining such collaborations. The approach I take, instead, is to ask if good outcomes for the whole can be achieved with neither hegemony nor explicit cooperation.

efficient. The book will argue world order needs to get to one of those outcomes. Currently, the way discourse on world order typically proceeds, we do not seem driven to get to any. Once we do achieve such a socially efficient outcome, then the debate that political philosophy informs kicks in on which of those outcomes we should be targetting.)

Second, sensitivity to the needs of humanity must change over time. As populations, incomes, and capabilities evolve, what works in one era will not in another. The changes that matter are those that have global impact. Tracing through those large shifts in the world economy—those changes that are sometimes too big for the human eye—calls for quantitative analysis that is similarly broad in expanse. That empirical research will occupy the other large part of this book.

This book has been written with two specific audiences in mind. First is that group of readers interested in using economics to understand the struggle for power among nations and the constantly evolving world order, covering issues ranging from global leadership through unipolarity and multipolarity. Technical economics is hard. But its insights ought be explained in a way that is understandable to any informed thinking audience of international media such as the New York Times, the Wall Street Journal, The Economist, the Financial Times, the BBC, or Al Jazeera. For this audience the book seeks to place economic ideas around concepts much used in world policy-making and in international relations scholarship.

Second is that group of readers who are experts in economics but have not necessarily used economic ideas to think about the global economy beyond, perhaps, Kindleberger's "Hegemonic Stability Theory". The idea that a stable global economy requires a dominant hegemon is of course just one extreme view on world order. Following the 2008 Global Financial Crisis, a number of economists suggested that the US's departure from its traditional hegemonic position, voluntary or otherwise, has led to the secular stagnation that is the continued under-performance of the global economy. How does the evolving world order that we see square with hegemonic stability theory and other perhaps more nuanced versions of the need for a global hegemon?

Because this book's intended readership approaches social-science analysis from quite opposing starting points and with significantly different toolsets, this book runs the risk of satisfying no one. That judgement might of course be well deserved for other reasons. But also likely is that for one set of readers this book will have insufficient rigour in its technical statements and wastes too much time on factual description; for others it will provide insufficient nuance and deep historical background to its descriptive narrative, and unnecessarily provides technical statement to things that are intuitively obvious. But I have always thought it useful, in the longer-run, to try and bridge intellectual disciplines, even if in the short term, few others seem to quite get why. This book seeks to combine economics and international relations. What are the intellectual benefits and policy insights to such a program of work?

In economic analysis, enlightened public policy seeks to improve the well-being of everyone, not just advance the interests of a narrow elite. So too global policy should aim to improve the state of the world, not just serve the goals of a single nation. This does not mean that economists are idealists—they are after all the social scientists who keep truest to the notion that agents in the real world can be only self-serving, selfish, and greedy. It means simply that economists believe that goal of advancing the well-being of all is a good place from which to begin analysis, and helps guide how we assess the actions of policy-makers.

However, shouldn't policy-makers look only to their own nationals for that? It is, in my view, a deep internal contradiction in liberal thinking when concern for doing good, helping the disadvantaged, ends at a nation's boundaries. Sometimes one hears in defense of that nationalism the argument that policy-makers should concentrate on what they can achieve; there is little that even the most benevolent of policy-makers can do for the disadvantaged elsewhere. To talk about a world order, however, already presupposes that policy actions do influence the world. And in the global economy there is no "elsewhere".

The right principle in global governance, therefore, must be to seek to improve the well-being of all of humanity. How should policy-makers go about this? How can research help

guide thinking?

Few any longer dispute that our global economy is deeply inter-linked: Statistical economic models can make precise the strength of economic dependencies across nations. Research can clarify the nature and significance of global public goods. From an economics perspective, therefore, the problem of global leadership and world order is straightforward: acknowledging global externalities, maximize the well-being of humanity subject to the constraints of the inter-dependent world economy.

Or, put succinctly, design world order that is good for the world.

Two points will come to mind at this stage. First, the mechanics: What is the appropriate form of that global decision-making process? What nation should get to determine global rules of engagement, and who should set the right provision of global public goods? How can economic thinking help guide a defensible and rational structure to global governance?

In economics this would be described as seeking a mechanism design—the rules of the game—to implement an optimal outcome, acknowledging that individual nation states will only ever act in a self-seeking, non-cooperative way. That mechanism might not exist: the optimum cannot be achieved. But then what rules of the game might get us close?

Second, the reality: The actual global order of nations currently extant is, in most people's views, laughably distant from that rational world order I have described. What I have proposed is a world order with greater idealism in it than even the collective security umbrella envisioned by International Relations idealists. In reality, world order is rife with debilitating gridlock, great-power competition, conflict over opposing circles of influence, a fierce zero-sum mentality where a rival nation sees gain only when one's own nation loses, and profound disagreement over the legitimacy of governments that currently run countries holding huge swathes of the world's population.

Yes, the reality of world order is very different from the economically logical and rational version I propose. But is it reasonable that the world so easily and lightly accept that difference? Is it that observers believe that historical path dependence pre-

vents anything but the world order in which we now find ourselves? Do nation states automatically always have to adopt a confrontational zero-sum game perspective when dealing with other nations?

If economics is optimistic and idealistic for world order it is because economics has had some analytical experience with such systems. When economists evoke Adam Smith's vision that social outcomes maximise the well-being of a nation's citizens, it is not that they imagine a central planner is, behind the scenes, determining who does what. Instead, the opposite: economists imagine that businesses and customers pursue only narrow self-interest and engage with one another through only an anonymous marketplace. Yet, in economic theory these individual actions end up achieving an emergent social outcome that optimises the well-being of society as a whole. This almost-magical result comes from a particular mechanism—markets and the price system—that ends up producing a socially optimum outcome despite asking of its participants only that they do what is selfishly best for themselves.

Economists realise of course that externalities, market imperfections, and so on confound the workings of that analytical construction. But this analysis gives us a way to think systematically about repairing the situation that we see in reality.

What is the analogue of that mechanism that would work for global governance? In the global economy, inter-connectedness across actors is rife. Global public goods—international security, rules of the game that are fair and transparent, lenders and consumers of last resort in a fluctuating global economy—need to be provided. Taking these into account, what global order will best deliver outcomes that, in an economist's calculation, is good for the world: Unipolarity? Undisputed hegemony? Multiple opposing circles of influence with opportunistically shifting followers? Unstructured, disorganized *laissez faire*?

1.6 *The Plan of the Book*

IN THE CHAPTERS THAT FOLLOW I set out a historical and empirical perspective on these questions, and build on that background to provide an economic analysis of world order.

Chapter 2 “An Economic Statement of the Problem of World Order” is my terse pseudocode description of the problem of world order. In software programming, programs written in a precisely-specified computer language will execute on a computer. But once such programs are more than a page long they will typically be incomprehensible to humans. An English (or other natural language) description of a problem, however, will not run on a machine. Although understandable to humans such a statement is almost never sufficiently precise. Software designers write pseudocode to bridge this gap: provide a statement that humans can grasp but that, at the same time, resembles computer language sufficiently so that a little work will make the program run on a machine. This Chapter provides that pseudocode for the problem of world order. This Chapter sits between what a technical economist might expect to see, on the one hand, and, on the other, the historical and descriptive narrative in the chapters that follow. It seeks to provide a one-equation statement of the problem of world order, and so, many readers might feel free to skip it entirely. For others, it might be a useful way to organize the narrative that follows.

Chapter 3 “Unipolarity and Hegemony” discusses US unipolarity specifically but also hegemony in the current world order more generally. Its primary goal is to provide a concrete, historical setting while developing analytical concepts that will be used subsequently. In this chapter, by reference to the US experience, I consider how power in the world order has two logically distinct dimensions. First is that of *capacity*: Does a nation state have the capability—economic size, trade volume and centrality in the global trading system, technological expertise, military force, political resilience, soft power—to achieve what it seeks, both domestically and internationally?

The second dimension, relatively unusual in discussions of global power, is that of *legitimacy*: Does a nation state have approval in the eyes of the world? Does the international community view that nation state accountable in its pronouncements

and its claims? Does that nation state take on the responsibility of doing good in the world? Or, is that nation state merely self-seeking to where it even disadvantages those lower than itself in the world order? When there are trade-offs so that specific actions do not benefit everyone, does the nation state responsible explain itself properly to others? There is of course no legal contract that any nation state has to do any of these things; but that is what makes useful and informative this second dimension to power in the world order.

If the discussion concerned only the government of a domestic population then this concept of legitimacy might be viewed to be a version of John Locke-inspired “consent of the governed”, as appears in the US Declaration of Independence. The legitimacy in global power in this book is just one that is particularly informed by economic consideration. But while government, e.g., in the US, makes central its concern for the governed (“We the People”), in typical narratives on global power, the place of those governed—namely, all the rest of the world—is kept remote and implicit. For instance, traditional discourse on hard power—military expenditure, economic footprint, geopolitical size—provide no explicit reference to or detail on the rest of the world to develop their case: they consider only how large and powerful and stocked with capacity one’s own nation happens to be. Exceptionally, therefore, it is through Joseph Nye’s concept of soft power (a nation’s attractiveness, respect, admiration, “the ability to make others want what you want”) that those governed figure explicitly. Others—not just the superpower itself—help inform that superpower’s place in world order.¹³ Thus, legitimacy in our discussion seeks to combine Lockean consent and soft power—it does so through what welfare economics calls the public good, and, thus in the international domain, the global public good.

In these two dimensions of global power, capacity is invoked when we admire what a world superpower can do; legitimacy, when we ask what it should do.¹⁴

Chapter 3 argues that a discussion of the rise and decline of world powers is overly restrictive. Beginning the debate thus immediately constrains our analysis to a single linear dimen-

¹³ Joseph S. Nye. *Soft Power: The Means to Success in World Politics*. Public Affairs, New York, jun 2005

¹⁴ Danny Quah. How China’s Rise is Revealing the Cracks in US Claims to Legitimacy as Global Leader. *South China Morning Post* (19 August), aug 2015

sion. Why should world order be primarily about one nation state getting ahead of or falling behind another? That, great power politics, might well be how world order has traditionally been studied. But if instead we constructed a narrative where the configuration of nation states is not linear but, driven by the economics, turned out instead to be multi-dimensional or complex or networked, there is then no simple “ahead” or “behind”. When world order isn’t linear, likely that order becomes less confrontational, and cooperation between nations easier.

Taking world order to be linear leads naturally and unfortunately to a zero-sum perspective on the relation of nation states: What the number 2 nation gains can come only from a corresponding and equal loss to the number 1 nation.¹⁵ A win-win mindset would welcome lesser nation states becoming wealthier and more powerful, for then they could share the burden of providing global public goods. In contrast, a zero-sum perspective warns the lead nation against other nations becoming more capable, for it would mean those other nations’ widening their circles of influence at the expense of one’s own. Economics instructs us that rejecting the world is zero-sum or, even more extreme, a prisoners’ dilemma, does not automatically mean that world order has to be fully cooperative—a condition that many international relations scholars dismiss as naive and idealistic.¹⁶ Far from it. Economics instead instructs us to be creative and seek to re-design the rules of the game so that even self-seeking nations, behaving individually, non-cooperatively, and without explicit cooperation, end up generating reasonable socially beneficial outcomes.

Chapter 4 “The Great Shift East” provides the facts needed to conduct evidence-based discussion on how that re-design will need to proceed. The chapter gives a snapshot and a trajectory for the global economy. Although the title of the chapter gives away the empirical finding that will emerge, the chapter does not begin by presuming that, say, China or the BRICs economies or East Asia, or indeed any other a priori identified group might rise to oppose US hegemony. The research in this chapter allows the rise of whichever others to reveal itself. In other words, unlike when a researcher looks at the GDP of a single economy

¹⁵ Gideon Rachman. *Zero-Sum Future: American Power in an Age of Anxiety*. Simon and Schuster, New York, 2011

¹⁶ Stephen G. Brooks and William C. Wohlforth. Reshaping the World Order: How Washington Should Reform International Institutions. *Foreign Affairs*, 88(2): 49–63, mar 2009

and then studies its scalar dynamics, the analysis instead takes the global economy to be a richly-textured, infinite-dimensional distribution, and explores all different ways to characterise the trajectory of that global economy. Some of the discussion in this chapter will be straightforward and direct. Other parts will be detailed and relatively technical. For those too impatient to work through all of it, however, the title of the chapter gives the bottom-line conclusion.

Chapters 3 and 4 throw up difficult questions. One of the largest of those returns to an issue that many observers might have thought long resolved. In one of the most powerful pieces of writing following the end of the Cold War, Francis Fukuyama concluded “liberal democracy remains the only coherent political aspiration that spans different regions and cultures around the globe” and “we have trouble imagining a world that is radically better than our own, or a future that is not essentially democratic and capitalist”.¹⁷ Fukuyama described a vision of societal success and universalist principle that continues to resonate with many writers on world order and development. Although muted somewhat now on its sharper edges, this idea appears repeatedly still, not least in economic debate on growth patterns worldwide that seem to point away from a Trans-Atlantic vision of successful and legitimate government.

The idea morphs constantly so that the word democracy has become plug-in replacement for almost everything that societies feel they should have but don’t. Democracy and the vision surrounding it are no longer simply used to select political leaders but represent openness, transparency, and rule of law, among many other things. Even creativity comes bundled in so that open, free-wheeling systems under liberal democracy are regarded as the universalist model by which people can be intellectually and artistically creative, societies can be technologically innovative, and economies can escape the middle-income trap.

Chapter 5 “Democracy and Its Variants” investigates this faith in democracy against the backdrop of our discussion of world order. In its starkest form, world order is of course completely undemocratic: for one, how could hegemony no matter how benevolent be trusted as a form of governance? Indeed,

¹⁷ Francis Fukuyama. *The End of History and the Last Man*. The Free Press, Macmillan, London, 1992. ISBN 0-02-910975-2

hegemonic stability theory postulates the benefits to the world economy of a single, powerful, wise, unelected leadership to stabilise the world economy, write the rules for the world, keep the world safe and secure: the job specification for a hegemon is practically that of the Chinese Communist Party. Opening up the question in terms of world order leads also to asking if democracy is equivalent to good governance. If not, do variants of democracy often criticised by Western observers serve better, and under what circumstances? Singapore—“an illiberal democracy operating under authoritarian capitalism”—provides the interesting case study on these issues.

While there might remain controversy over the sustainability of a model like Singapore’s, hardly anyone disputes the technical expertise of the leadership that has guided that economy through the last half-century. Singapore is of course an island city state with a population of only 5mn, and thus has a tiny geopolitical footprint. In traditional thinking, this last fact immediately rules out Singapore from playing more than a superficial role in world order. But, as this book is about rethinking the rationale to world order, we might ask at this point, Why does size matter?

Sure, a tiny country couldn’t muster the security capacity to defend huge chunks of our planet. But is that all that world order is about—military force? Why shouldn’t Singapore or any other small but competent nation state seek (or actually be tasked with) leading the world? Sure, there are benefits to size but handing over leadership of everything to those that are largest and most powerful, rather than those who are most competent and least selfish and inward-looking, has drawbacks as well. Chapter 6 “Small Competent Nation States” asks what a world order would be like if in its construction we weighted more heavily competence and expertise, rather than simply military strength or geopolitical footprint.

Chapter 7 “Conclusions” draws together the key lessons of the book. In this Chapter, building on the analysis in the preceding Chapters, I put together my own proposal for a rational world order. To anticipate, my suggestion in brief is to make the geopolitical struggle for world leadership one that is utterly

boring. Instead, elevate global governance to be simply a professional civil service, where appointment and decision-making are achieved through competence, expertise, experience, and accountability—not a matter of who has the biggest guns or the loudest bombs.

Certainly, this is idealistic and naive. But that doesn't mean it is without analytical motivation and thus impossible. That is, after all, what the preceding Chapters are supposed to have provided. And I prefer it to a "might makes right" narrative. I hope others do too.

Chapter 8 "Technical Appendix" puts together in a compact and directed way the key ideas from three principal areas of economics I have drawn on in the book: Empirical Analysis and Econometrics; Welfare Economics; Mechanism Design. It provides the computer code I used for my empirical calculations and formal analytical counterparts to the propositions I state in the rest of the book.

2 An Economic Statement of World Order

Two axioms will help organize our thinking on world order: First, when countries engage with one another, each acts to advance its own self interest. Second, sovereign states operate in a background of anarchy.

Few observers would dispute the first of these as a plausible working assumption. The second axiom too is not unnatural if in it anarchy is not taken as synonymous with chaos, but only that no formal higher ruling body exists that issues orders to the world's sovereign states and expects routine obedience. Of course, small states often do comply with what larger, more powerful ones suggest. But they do so from a mixture of fear and their own sense of powerlessness, not because some umbrella global authority endows legitimacy to those states that are more powerful. Together these axioms say sovereign states are self-interested and the collection of them operates without a world government.

These assumptions constitute the cornerstone of what International Relations (IR) calls Realism. Even outside IR scholarship, however, these axioms conform well with many other ideas in social science, not least conventional economic thinking. Indeed, postulates analogous to these when applied not to entire nation states, but to consumers, firms, and other market participants—agents, for short—form the starting point for traditional economic analysis. But widely accepted though they might be, by themselves these two assumptions don't necessarily imply a great deal. Additional implicit hypotheses will turn out to be critical for key conclusions many observers believe characterize a world of self-seeking anarchy. Understanding this will show

how we can maintain those same assumptions of self-interest and anarchy, but can still argue for a quite different world order than typically hypothesized.

It is not the case, for instance, that these axioms alone imply countries routinely go to war with one another. Certainly, violence provides a powerful means for countries to advance their self interests. But, even under anarchy, inter-state war need not be the best or indeed the only route to achieve a country's goals. Benign neglect of others is always feasible, and history shows that most of the time neglect dominates conflict. To say the least, the typical war is a massive deadweight loss and an abysmally inefficient resource allocation: from any given initial condition, whatever reshuffled world order emerges from conflict is physically achievable even without that intervening bloodshed and destruction.

Neither, as a matter of logic, do these axioms imply a zero-sum world, where what one country gains comes only from another's loss. To take just one example, classical gains from international trade mutually benefit both sides of every exchange. Such a win-win situation is obviously not zero-sum. Whether it holds depends only on the economic landscape of each nation involved. It does not hinge on whether those countries look out for the well-being of anyone but themselves, nor does the result depend on an overseer being available to instruct countries how to behave.

It must, therefore, be yet other hypotheses that when added to the mix imply either war or a zero-sum world order. But those other additional hypotheses can lead to quite different outcomes, even maintaining the assumptions of self-interest and anarchy. In economics two key further axioms are that property rights exist and that participants interact with one another through a price system or an anonymous market. Then, assuming some other technical conditions, the fundamental theorems of welfare economics emerge to assert that an equilibrium—the outcome of market participants' self-interested, anarchic interaction with one another—turns out to be optimal for the collective. In equilibrium, resources are allocated efficiently; there is no deadweight loss. To achieve this, no overarching authority is needed to knock

heads together, to issue grand directives, or to force each market participant to be charitable towards others. No agent need think about doing good for anyone else. Instead, it is an unintended and unforeseen consequence that good for all results from each agent selfishly aiming only to do well for itself.

Such an optimality outcome in economics usefully illustrates how self-interest and anarchy don't by themselves necessarily lead to an unsafe or antagonistic world order. Taking as fixed the two axioms that began our discussion, whether good or bad emerges will depend. It is the goal of this chapter to trace the boundaries of that dependence.

2.1 *The Ramsey Problem*

HOW CAN A PARTICULAR WORLD ORDER BE THOUGHT TO BE GOOD OR BAD? The previous discussion contrasted war on the one extreme, as a caricature of anarchic world order, and, on the other extreme, an outcome with features analogous to economic optimality, zeroing out deadweight loss and allocating resources efficiently. Likely more useful and realistic is to consider that there might be a continuum of outcomes between these two opposite extremes.

Asking this question of good and bad is not simply “normative hand-wringing”.¹ For one, there is no notion here of assigning either partisan blame or moral self-righteousness to particular nations that are members of a given world order. For another, the question is a technical one that further draws in the need for an explicit formalization of criteria to use: For instance, can an observed world order be improved in a way that all nations and all observers can agree—if a unanimity criterion is deemed to be the appropriate one for making this assessment? Or, if not all nations, then perhaps a majority might suffice—for why should majoritarian democracy be the right system within a domestic polity but not across nations? Whether, ultimately, the question is useful should be decided by whether useful answers and yet other interesting questions flow from it.

But the query is certainly normative. Normative questions

¹ Kenneth A. Shepsle. *Analyzing Politics: Rationality, Behavior, and Institutions*. W. W. Norton and Company, New York, second edition, 2010

are questions that ask how the world should be, in contrast to positive questions that ask how the world is or that predict how the world will be. Sure, social science shares with the physical and biological sciences the feature that positive questions—understanding cause, predicting effect—figure prominently. But this doesn't mean normative questions are any less important in social science, especially if the responsibility of social science includes understanding how certain social systems or political and business organizations can be better than others.

To take one example, in the 1960s understanding the causes and effects of acid rain in the US mattered hugely. The natural environment had begun to degrade significantly, and even manmade buildings were visibly showing deterioration. Just as important as understanding cause and effect, however, was the acknowledgment that the situation could be improved. It was this recognition that led to government policy that reduced emission of sulphur dioxide and nitrogen oxide in the decades that followed—first at great cost to US society, then more cheaply, as economists designed more effective combinations of pollution standards and market incentives in the form of specific taxes. Equally crucial to note in this narrative, there was no guarantee at the time that the economic proposals being suggested would be actually implemented: US government administrations of different political leanings and different levels of scientific skepticism needed to be convinced. But the end result was a success, and US levels of acid rain fell dramatically.

Normative questions are questions that economists ask when doing policy assessment, and the right normative questions matter.

To be clear, when economists evaluate tax systems, say, they do so not because they believe citizens to be altruistic or generous. Quite the opposite. Economic analysis seeks to determine if a particular tax system is objectively well designed or can be made better. Tax systems are organized because a public good needs to be served, and economic analysis seeks the best way to provide that public good. No individuals in the system being studied need themselves be concerned about or even aware of any higher-level social well-being.

Related but not identical to the discussion of public goods, part of economic analysis is also about externalities, where actions taken by participants have side effects that the participants themselves don't take into account. When the externality is negative, like pollution or acid rain, unfettered individualistically selfish actions lead to the system producing too much of that good or activity. Conversely, when the externality is positive, self-interested behaviour leads the system to produce too little. In situations with externalities, economists routinely ask the normative question, what incentives and rules can be put in place—what mechanisms can be designed—that improve the social outcome. It is important of course whether governments exist or if they do, can act to bring about a better result. But, regardless, just as with acid rain in the face of differing US administrations, the normative question on externalities remains important to address.

I emphasise the distinction between getting the right answer to a normative question and whether that optimal policy will be actually put in place. In IR analysis, that no global government exists is sometimes used to argue the futility of asking normative questions of world order. But so too when economists address normative questions of domestic policy, that a government exists is no guarantee that the right policy will be carried out. Nonetheless, working out optimal policy addressed by asking normative questions remains the right thing to do.

The analysis of world order here follows the same line of attack: World order should be designed to optimally serve the public good. In this book this last needs to be specified as a global public good, not one for just a single country. A convenient way to begin the analysis is to pose the problem abstractly, as a so-called **Ramsey Problem**.

Frank Ramsey was a Cambridge mathematician who in 1927 asked

2.2 *Summary of the Economic Ideas*

The mathematical form is helpful but not essential. But what does matter is to recognise three critical themes that will underpin the analysis to follow. First, this book proposes demand and supply analysis as a framework for studying the problem of world order. This is not to say that in what follows we will shifting demand and supply curves as in an introductory economics course. Instead, it is to identify the problem of world order as that of putting together, on the one hand, what the world needs in its international system and, on the other, what the world finds feasible to provide.

In the standard demand and supply model in economics, if externalities arise and public goods matter, then that point where demand and supply meet fails to be optimal for society. In its normative analysis, economics provides a solution to this problem: Determine what can be agreed to be the optimal outcome; enlightened policy-makers should then seek to devise arrangements, possibly in the form of taxes, transfers, and explicit regulations, that allow such an optimal point to emerge. That it cannot be achieved by market forces—ordinary demand and supply—is not the endpoint of analysis; instead, it is just the beginning. So too for the problem of world order.

Second, winner-take-all competition is destructive. A key lesson from economics is that competition is good when demand and supply surface optimal outcomes. However, (Describe.)

Third, individually rational actions do not produce satisfactory outcomes. Challenge is to design a system where they do. (Describe.)

Additionally, the Chapter collects together a number of ideas from relatively technical fields—emergence and complexity, game theory—for convenient reference. Doing this allows then a consistent lexicon for terms and concepts that will be subsequently used in the book.

The goal of this Chapter cannot be to provide a mathematical statement of the problem of world order—a software program—so precise that it might run on a computer. The statement is at best only pseudocode, not a well-structured program.² Instead,

² Thus it is intended in the same spirit as some of the statements in work such as Knuth [1968].

for those readers already keenly aware of what further technical specification is needed, my goal for this Chapter is to indicate where historical and narrative detail can fill in gaps in the problem's description. On the other hand, many scholars, in International Relations say, will already have long seen the need for researching those details: indeed, that is what they spend considerable effort doing. For those readers the goal of this Chapter is to provide an added use to which that research can be put, i.e., to put a normative discussion to what might have previously been only descriptive.

Denote the well-being of all of humanity by U and the interconnectedness of the global economy by \mathcal{I} —in trade, migration, and other flows. Humanity derives utility from C , a distribution of consumption over time, and a dynamic allocation of global public goods G —international security; rules of global exchange, transportation, and communications; roles of lender and consumer of last resort and so on. Resource constraints confine the range of choices on the allocation of consumption and public goods; call these \mathfrak{R} . The world confronts externalities, written as \mathfrak{X} : these would include spillovers in economic policy; cross-border contagion in financial crisis or plagues and other epidemics; global climate change; among other things. The state of the world S includes a description of the current values and trajectories of the distribution of incomes, GDP, military power, volumes and direction of trade flows, and so on, across nation states in the world.

A **rational world order** solves the mathematical programming problem:

$$\text{Program } \mathfrak{M} \begin{cases} \max_{C,G} U(C, G) \\ \text{s.t. } \mathfrak{R}, S, \mathcal{I}, \text{ and } \mathfrak{X}. \end{cases} \quad (2.1)$$

In words, maximise the well-being of the world subject to feasibility constraints.

(To repeat, the program \mathfrak{M} is, obviously, meant to be only indicative. It is here so the discussion can point to different parts of the problem, and thus to clarify the nature of disagreement. The problem is not here to suggest it might be solved convinc-

ingly. Many features would be needed to be explicitly assumed before one might even think of actually solving the program: Does well-being assume a representative agent? If not, what is assumed of heterogeneity and welfare aggregation? Are the dynamics recursive? What are beliefs and expectations assumed for the optimization? What is the nature of the global public goods, the externalities, the interconnectedness, written explicitly in algebraic form? Are the feasibility restrictions period-by-period or in present value terms? Some of these questions will be of greater interest to some readers than to others; answering them all would go well beyond the intention of this book.)

Program \mathfrak{M} is of course a **Ramsey problem**. seeks to design world order to do good for the world. Whatever the solution might be, an important and natural set of questions are natural to ask of it: Is US hegemony part of every solution? Or, perhaps more usefully, are there features of different S states of the world—conditions surrounding the age of US unipolarity (Chapter 3) say—that make US hegemony more or less central to the solution of problem (2.2)? Do features of multipolarity emerge in the solution when S the state of the world moves along particular trajectories, emphasising, say, a Great Shift East (Chapter 4)? Can we recognise when benevolent hegemony turns into domineering imperialism?

The other important set of questions to ask of (2.2) surround the *implementation* of its solution. In a world populated by sovereign states, all selfishly seeking only their own advancement, what mechanism—what rules of the game—might lead that equilibrium in non-cooperative actions to come close to a welfare-maximising solution to the problem of world order (2.2)? What set of beliefs could nation states have about world order that would lead them to think of their playing only a zero-sum game? What happens when one set of nation states collude to try and improve their well-being while others—whether more or less powerful than they—play zero-sum?

It of course matters critically how we might implement a non-cooperative solution to the problem of world order. An explicit proposal for rules of the game might or might not exist that allows individual nation states to be only self-seeking but that,

at the same time, achieves an optimal solution overall. But even if that goal is unachievable, we cannot discount the value of clearly stating the problem of a rational world order. Doing just this would already reveal hypocrisy when found in the actions of dominant nation states. In the words of Quakers and civil rights leaders, simply being clear about the rational world order (2.2) will allow scholars and observers to “speak truth to power”. And that is hardly only fanciful.

2.3 *Winner-Take-All Competition*

The.

2.4 *State Engagement*

Suppose a well-defined fixed collection of nations is in place. Hypothesise that each nation seeks to advance its well-being, i.e., that each is self-interested or self-seeking.

Obviously, a nation’s well-being—however defined—will differ according to question being addressed specifically, and on context more generally. So, for instance, writers on offensive realism might consider well-being to mean survival probability. Yet other analysts might take a nation’s well-being to mean power—which would then need to be further defined, and might well include the probability that that state will survive. Economists might take a nation’s well-being to mean GDP or GDP per capita, possibly corrected by measures of income inequality, fraction of the population living in poverty, indexes of political openness, and so on.

Game theory provides a lexicon for precise description on engagement between motivated parties, and that we can exploit to study relations between purposeful nation states. The theory itself is a large and elaborate body of ideas, but its basics suffice to help sharpen the analysis applied in this book.³

³ Chs. 7–9 in Mas-Colell et al. [1995] provide a useful technical introduction to the central larger set of relevant concepts and results.

Game Forms

A *payoff matrix* is a table or an array that describes the stakes involved when different nation states engage. In such a description if we seek to analyze a world with only two nations then the payoff matrix is two-dimensional, and we can line up the range of possible *actions* to be undertaken by nation states along the axes, i.e., along the rows and columns. For situations that involve more than two nations, we simply use payoff matrices that have the correspondingly higher dimensionality—a 3-dimensional array for 3 nations; an n -dimensional array for n nations. However, regardless of the exact number of nations, the actions of a specific one of them can still be given along the appropriate axis.

In the discussions to follow, sometimes we will be interested in participants that are not necessarily nation states: they might be coalitions of states (NATO, the Warsaw Pact, ASEAN, the European Union), or different interest groups within a nation state. For generality it will be useful to refer to those engaging in these game-theoretic situations as *players*.

The payoff matrix is such that along each axis the range of possibilities comprises individual actions that are mutually exclusive to that player. This, however, is not particularly restrictive as each possible action along the axis can itself be a combination of different actions.

Each entry of the payoff matrix contains an ordered list of the *payoffs* to the nation states. Such a list thus specifies the well-being of each of the nation states when the entirety of the nation states undertake a particular set of actions. In summary, the payoff matrix is a complete specification of who gets what when every nation state contemplates, in turn, the entire range of actions available to them.

To see how this works, Table 2.1 contains a specific example of a payoff matrix. In this instance the nation state associated with the rows in this table has its possible actions labelled **1**, **2**, and so on. These might be taken to represent, say, (1) “send a warship into the South China Sea”, (2) “undertake \$100bn quantitative easing”, and so on. At this level of abstraction a specific action depicted in the table can be quite involved, and so might be a

compound action that elaborately groups together a number of more basic actions: thus, row 3 in Table 2.1 might stand for “increase military spending by 10%, form an international trading bloc that excludes challenger nation states, and promote the new soft-power cultural icon”. While considerable flexibility is thus permitted, the observer analyzing the problem must construct along each axis a list of actions that are mutually exclusive, i.e., if the nation state undertakes action 1, then actions 2, 3, and so on are unavailable.

In Table 2.1 we have that the entry in the first row and column—where the row nation state undertakes action 1 and the column nation state undertakes action A—pays off the ordered list (1, 0), i.e., one unit of well-being, appropriately defined, for the row nation state, and nothing for the column nation state. Similarly, the profile of actions (2, B) or the (2, 2) entry of the matrix gives payoff that is the ordered list (2, -2), i.e., the row nation state wins 2 units, while the column nation state loses 2 units.

	A	B	C	...
1	(1, 0)	(0, 1)	(1, 1)	...
2	(1, -1)	(2, -2)	(0, 0)	...
...	...			

Highly simplified that it is, Table 2.1 allows a helpful sharpening in language and ideas. A common hypothesis is that nation states now find themselves more and more in a “zero-sum game”. Indeed, following the 2008 Global Financial Crisis, observers like Gideon Rachman began to note:⁴

... the international political system has indeed entered a period of dangerous instability and profound change. ... The economic crisis that struck the world in 2008 has changed the logic of international relations. It is no longer so obvious that globalization benefits all the world’s major powers. It is no longer clear that the US faces no serious international rivals. And it is increasingly apparent that the world is facing an array of truly global problems—such as climate change and nuclear proliferation—that are causing rivalry and division between nations. After a long period of international cooperation, competition and rivalry are returning to the international system. A win-win world is giving way to a zero-sum world.

Table 2.1: Payoff Matrix showing the actions available to row and column nation states and listing the resulting payoffs in well-being.

⁴ Gideon Rachman. *Zero-Sum Future: American Power in an Age of Anxiety*. Simon and Schuster, New York, 2011

In this description significant challenges that threaten the entire world have not brought nations together. Instead, the opposite, they have driven apart the global community.

We can represent Rachman's hypothesis by the statement that the world's payoff matrix has over time been evolving towards a payoff matrix having particular features. Previously, what might have been in operation was something quite different, perhaps a win-win world: That would be where the payoff matrix entries are ordered lists comprising numbers that are zero or higher, i.e., where actions undertaken by nation states produce outcomes that or at worst do no harm but typically benefit everyone. In that world the ordered lists in the payoff matrix need not have entries that are equal; they need simply to be non-negative. In the Rachman hypothesis, however, after 2008 those ordered lists began to drift towards ones summing to zero. Eventually, the world is zero-sum. Whenever one nation benefits from any configuration of actions, some other nation somewhere must be disadvantaged correspondingly. The ordered list has it that if one entry is positive, there must be at least one other that is negative. Put more directly, in that zero-sum world, one nation gains only if someone else loses. Interests are opposed.

Table 2.1 is not a payoff matrix for a zero-sum game. Across its entries the ordered lists vary in their totals, and indeed in the first row the payoffs show positive sums in every single entry. In contrast, in the second row—i.e., outcomes where the row nation state keeps to action 2—the world is indeed zero-sum. If that (row) nation state wished, it could, by always sticking to action 2, enforce zero-sum outcomes for the world, regardless what the column nation state does.

While different "if this, then that" scenarios can be read off a payoff matrix, no presumption can yet be made on the behaviour of nation states engaged in this interaction. In particular, the zero-sum world is a statement not about behaviour, but about the structure of nation state engagement—about the payoff matrix, in particular. A zero-sum world hypothesises that the world is one of pure direct conflict, that the payoff matrix has every entry summing to zero. But without additional assumptions, even in a zero sum world, neither cooperative nor vindictive actions—

to take just two extremes—are yet what we would necessarily see.

However, the world of strategic interaction need not be limited to only situations of pure conflict. A different world is depicted in the payoff matrix in Table 2.2. This example illustrates the so-called Prisoner’s Dilemma.

	A	B
1	(1, 1)	(-3, 2)
2	(2, -3)	(-1, -1)

Table 2.2: A Prisoner’s Dilemma Payoff Matrix

A first key feature to notice of Table 2.2 is that it is not a zero-sum payoff matrix. Nowhere is there an entry in Table 2.2 that sums to zero. Indeed, the ordered list in the (1, A) entry sums to a positive value, while the other entries of the payoff matrix have totals amounting to a range of different negative values.

Why does this payoff matrix describe a Prisoner’s Dilemma? In its original setting that name association came from a hypothetical description of two individuals awaiting conviction in prison. Suppose the authorities have insufficient evidence to obtain any successful conviction unless at least one prisoner testifies against the other. Any such testimony, however, seals the matter, and the accused is successfully convicted.

Suppose that outside of prison these two individuals are rivals in business, legal or otherwise. Let strategy 1 be where the row player remains silent, while strategy 2 is where row provides sworn testimony against column. If row plays 1 and column similarly keeps quiet by playing A, then the authorities have to free both prisoners, thus allowing each of row and column a level of well-being equal to 1. If, however, column testifies against row—plays strategy B—while the latter maintains strategy 1 then row suffers a level of well-being equal to −3 while column enjoys 2, since column goes free and no longer faces competition, with row being put away. Alternatively, row could play 2, i.e., swear testimony against column. Then, if column continues to keep quiet under strategy A, the freedom/imprisonment outcomes are reversed: it is now row who enjoys 2 while column suffers −3. If, however, column also testifies, by playing strategy

B, then both row and column are put away, and each suffers -1 in prison. This is bad for each player but at least they know the other player isn't out there free, taking away their business.

The payoff matrix Table 2.2 shows a critical feature in Prisoner's Dilemma: regardless what the other player does, it is always better for the player to swear testimony against their fellow prisoner. If column plays strategy **A**, it is better for row to play strategy **2**, delivering 2 rather than only 1. If, on the other hand, column plays strategy **B**, again it is better for row to play strategy **2**, delivering -1 rather than -3 . In other words, testifying against the other prisoner is a *dominant strategy* for self-interested players in the Prisoner's Dilemma game. The outcome in dominant strategies $(-1, -1)$, however, is strictly worse for all players than that feasible outcome $(1, 1)$ attained when row plays **1** and column plays **A**. Any player that looks out for their own benefit, not thinking to influence anyone else, will naturally select their dominant strategy.

This then is a second critical feature in Prisoner's Dilemma. The outcome that results from dominant strategies—**2** and **B** combined—is the worst possible outcome for all. Yet, of course, it makes individual sense for each player to select their dominant strategy.

This paradox, that self-interested players end up producing an outcome strictly bad for everyone, including themselves, is the subject of a huge literature.⁵ The conceptual difficulty itself is easy to understand. The social outcome has a property—of being unambiguously bad relative to a different outcome that is physically available—that is, surprisingly, the opposite of what individuals think they are getting for themselves when they selected their dominant strategies.

The challenge that many writers have taken up instead is to see if changes in the basic environment surrounding Table 2.2—uncertainty surrounding the payoffs, repeating play over and over, and so on—might overturn the basic prediction.

In this book the more useful resonance the Prisoner's Dilemma carries is as a model of the historical Cold War arms race. Take the row player to be NATO and the column player to be the Warsaw Pact. Let **1** and **A** denote nuclear disarmament, and, in

⁵ Robert Axelrod. *The Evolution of Cooperation*. Basic Books, New York, revised edition, 2006

contrast, let **2** and **B** denote the decision to boost nuclear capabilities. When both sides boost their nuclear capabilities—the (**2**, **B**) outcome paying off $(-1, -1)$ —neither side will want to deploy the devastating armament, annihilating one another, but the resources expended could have been used otherwise to benefit their own citizens. When, conversely, both players disarm, the pair (**1**, **A**), again no deployment occurs but this time citizens benefit from their resources used in peaceful ways. Finally, asymmetrically, in the off-diagonal entry (**1**, **B**) the row player unilaterally disarms while the column player boosts nuclear capacity: the row player is overrun, and the column player expands its global reach.

While details might change—the NATO/Warsaw Pact Cold War scenario will no longer seem as relevant to many—the underlying Prisoner's Dilemma construction remains relevant. To repeat, Prisoner's Dilemma is not a zero-sum game: so whatever the dismal circumstances associated with Gideon Rachman's description of the world, pressures such as the following stem from a dynamic that is quite different.

Competitive devaluation is another example of Prisoner's Dilemma. When only one economy devalues, seeking to cheapen its currency to boost demand for its goods and services, it hopes to attain a position of exporting advantage relative to others. If no one else devalues, then that economy that does so will indeed achieve that advantage. If, however, others devalue and the nation in question does not, then it ends up in a disadvantageous position. Thus, regardless of what else others do, the nation, behaving selfishly, always sees benefit to devaluing. Put differently, the dominant strategy is to devalue. But, of course, when all economies do lower the value of their currency, at best they simply end up where they began. Along the way they will have damaged whatever atmosphere of trust and collaboration might have been previously built.

This presentation has thus far introduced terms and concepts to help firm up ideas that are often encountered informally (sometimes with confusingly differing definitions) in discussions of relations between nations. The discussion has offered nothing yet from which we can derive predictions about what nations

will do. Instead, the analysis has only concerned what options are available to the players in an engagement, and described what might be sensible strategies to undertake. I adapt practice, e.g., in ⁶ and refer to what has been presented thus far as *game forms*. We now need to look at some ideas that do result in specific predicted actions. But before proceeding to develop this next set of ideas, it is useful to state explicitly four key conclusions already available from game forms alone.

First, indeed, individually self-seeking behaviour can produce the worst possible outcome for all. However, such a property is not characteristic of a zero-sum situation. Instead, it arises from a specific payoff matrix structure, one that is not zero-sum but Prisoner's Dilemma. The hypothesis that nations are self-seeking and look out only for themselves will not produce the worst outcome for all without there being also a Prisoner's Dilemma type of structure in their interactions.

An argument is often made that when nations selfishly seek only their own survival then the global outcome is necessarily bad for everyone. For that international engagements would have to have to them a Prisoner's Dilemma character or something similar. A zero-sum world is not enough.

Second, the concept of a dominant strategy—where regardless how others act, a specific action is always that that a self-serving player will select—usefully implies a unique predicted outcome. This feature operates in the Prisoner's Dilemma game to powerful effect. However, dominant strategies will not appear in all interactions. To study what happens then, analysis needs to go beyond what has already been put down in this presentation.

Third, cooperation—to achieve an outcome in the payoff matrix that is better for everyone—is unambiguously good. This is especially notable in the Prisoner's Dilemma game but will be true in general. But of course it is unclear how to cooperation can be implemented. The design problem is to put forward a set of rules that players can follow—while each player remains self-serving—that then results in the cooperative outcome in the game, even as no single player thinks of themselves as explicitly cooperating with the others.

That it is possible in certain circumstances to design such a

⁶ Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green. *Microeconomic Theory*. Oxford University Press, New York, 1995

mechanism is illustrated by the work of Axelrod and others.
Iterating ...

Fourth, a benevolent leadership—an almost surely infeasible world government or central authority—might be imagined to unilaterally force the cooperative outcome for all. Writers who argue for the benefits of global hegemony have features like this in mind. It is, however, an empirical question whether the hegemons that have emerged in international society have also successfully achieved such benevolent outcomes.

Equilibrium Outcomes

FURTHER ASSUMPTIONS to proceed beyond this. Writing down payoff matrices like Tables 2.1 and 2.2 helps us understand the choices that a community of nations faces.

A **Nash equilibrium** is an outcome when every nation chooses the best response among the strategies available to it, taking as given what all others do. In Nash equilibrium, there is no guarantee that the result has any reasonable optimality properties. Indeed, in Prisoner's Dilemma, the opposite is true.

Equilibrium:

- 1.
2. An outcome is not **Pareto** if some other outcome improves the well-being of one nation without making anyone else worse off. Otherwise, the outcome is Pareto.
3. Multiple equilibria: Leadership, nudging

Properties:

1. If a game is zero-sum then every outcome is Pareto.
2. In Prisoners Dilemma, the Nash equilibrium is unique and is not Pareto.

2.5 Ant Colonies: Invisible Hand Possibilities

Ants do not

If world leaders could be at least as purposeful and rational as ants, that would already be progress.

3 *Unipolarity and Hegemony*

TO THINK ABOUT A WORLD ORDER that might be, it is informative to begin with the world order that is. And the world order that is, for pretty much everyone, is “The American Century”.

3.1 *The Age of US Unipolarity*

In 2005 the US political scientist G. John Ikenberry set down the critical features of this current world order:¹

American global power—military, economic, technological, cultural, political—is one of the great realities of our age. Never before has one country been so powerful or unrivaled. The United States emerged from the Cold War as the world’s only super-power and grew faster than Europe and Japan in the decade that followed. American bases and naval forces encircle the globe. [...] For the first time in the modern age, the world’s most powerful state can operate on the global stage without the fear of counterbalancing competitors. The world has entered the age of American unipolarity.

This eloquent passage gives a powerful and resonant vision to this age of American unipolarity.

(I prefer to use “US” instead of America when referring to the United States of America. In a global setting “America” should be reserved as a descriptor for all of North, Central, and South America—including notably the US, Canada, Mexico, and the rest of Latin America. The term “US” on the other hand is unambiguous and specific for the United States of America. However, when I refer to common usage, “What’s good for America is

¹ G. John Ikenberry. Power and Liberal Order: America’s Postwar World Order in Transition. *International Relations of the Asia-Pacific*, 5 (2):133–152, may 2005. DOI: 10.1093/irap/lci112

good for the world” say, or specifically to what others have written, it will be convenient to use their convention instead.)

Other writings might seek to strengthen or weaken the different planks that appear in Ikenberry’s statement. Some might qualify the basic description: should that American global power be viewed as absolute power, relative power, or usable power? Yet others might probe for nuance in different tenets of global power: What are the different dimensions to, say, cultural power? Is it about universities and Nobel Prizes? Is it about Hollywood and popular culture? Is it about the Internet and who has the greatest number of followers on social media? Is military power measured in aircraft carriers or boots on the ground? How do hackers and cyberwarfare change the contours of military power? Is economic power measured in absolute size of GDP or in per capita incomes? How do trade volumes—exports and imports—and the identities of a nation state’s major trading partners condition and qualify economic power? What about the depth of a nation state’s financial markets and the extent to which a nation state’s currency is held by others in official and private reserves, and do these measures provide a nation state global power or are they the results of that power?

But however the vision is modified, Ikenberry’s compelling statement is a clarion call around which one can organise both action and thinking on world order. That statement describes what I referred to in Chapter 1 as **capacity**: the ability of the US to continue to improve the well-being of its citizens, successfully to achieve what it seeks to do both domestically and internationally. To put in this context what I called **legitimacy**, I now invite the reader to consider an alternative setting.

Imagine a village in an emerging economy where only the richest, most powerful of families are allowed to rule. These families are unchallenged financially and economically. They employ the Village Guard and thus control all the security in the village: Indeed, they have set up checkpoints at all critical hubs of travel in the area. These families dominate the evening story-telling in the village, and thereby set both the symbolism and the narrative in all the village’s entertainment. The families’ jewel and gold coffers are what allow commerce to take place,

and the families' control over those disbursements drives the ebb and flow of prices in the market square every morning. These families determine all rules of engagement for the serfs around them. Apart from those families, everyone is a serf; and serfs get no say in governing the village.

As ordinary people in such a village we would everyday be asking ourselves, How did we surrender to such a feudalistic, despotic, and undemocratic system of governance? It ought to trouble us that none of us so much as came close to any ballot box in deciding on this system. None of us ever cast a vote to elect these rich, powerful families to their positions of power. Those families might claim to be benevolent, to have only all our interests at heart. That might allay our concerns for a while but then we would also worry how long they will remain benevolent, and whether we will be told when they stop being so.

Sure, those families say they are there to keep us safe, because dangerous disruptive, rogue elements in society live among us. But we know that there is such a thing as separation of security and governance. There is no justification why these two domains need reside in just a single agent, and in fact plenty of reason why security and governance should be kept separate.

Whenever liberal thinkers encounter such a village we side with the ordinary people. Given the chance we might even work for their freedom from this oppression.

Only, there is a slight difficulty. What I have just described is exactly world order under US unipolarity: Replace in what I've said "world" for "village", "nation states" for "people", and "the US" for "richest families". Under US unipolarity, with the US dollar as the world's reserve currency and US soft power embodied in its extremely successful US universities and Hollywood, the US might indeed be benevolent as global hegemon. The US indeed might be what keeps the world safe and prosperous.

One might object to the analogy just made by pointing out that of course the world is not one village or one nation. What binds a nation together has no counterpart across sovereign states, the latter only ever selfishly looking out for their own interests. Brooks and Wohlforth described this as follows:²

In an anarchic world of self-interested states—that is to say, in the

² Stephen G. Brooks and William C. Wohlforth. Reshaping the World Order: How Washington Should Reform International Institutions. *Foreign Affairs*, 88(2): 49–63, mar 2009

real world—the chances that those states will cooperate are best when a hegemon takes the lead.

But free-market economies and liberal democracies also assume that participants in them are only ever self-interested. And both systems refrain from insisting that everyone in them cooperates or acts in any coherent unified way. Indeed, the beauty of those systems, in many people's eyes, is that they encourage participants freely and selfishly to select only what works best for them, never thinking about cooperation or the greater good: it is precisely then that society ends up achieving the best possible collective outcome (Chapter 5).

Moreover, the argument that hegemony is what is needed in a dangerous, insecure world is not hugely dissimilar from a narrative that says the Chinese Communist Party is what keeps China together and successful as a nation. Is US hegemony in the world really only akin to Chinese Communist Party rule in China?

Looking ahead, what would be even more dangerous and disturbing is if the US, the world's greatest and most successful democracy came to rely more and more on power—military, economic, financial, technological, or even soft power—to justify its dominant leadership position in the world order. For isn't that transition from hegemony to empire?³

For liberal thinkers the critical difference is how Ikenberry's statement continues:

The United States is not just a powerful state operating in a world of anarchy. It is a producer of world order.

As part of the construction of that world order the global system was told "What is good for the US is good for the world". So, even as the US stood unrivalled on the top of the world order, it generously shared that power by inviting all those with similar values to join it in an international system that was inclusive, transparent, democratic, and built on rule of law. In the ultimate apparent paradox of world power, by giving away power, the US consolidated its own unrivalled position and acquired ever greater power.

³ Niall Ferguson. *Hegemony or Empire?* *Foreign Affairs*, 82(5):154–161, sep 2003; G. John Ikenberry. *Liberal Hegemony or Empire? American Power in the Age of Unipolarity*. In David Held and Mathias Koenig, editors, *American Power in the Twenty-First Century*, chapter 3, pages 83–113. Polity Press, Cambridge, 2004; and Paul Schroeder. *Is the US an Empire?* *The History News Network*, 2003

This paradox vanishes, however, when we acknowledge *legitimacy* as the critical second ingredient to world power. The position of the US at the top of the world order, in the American Century, was due not just to US capacity alone, but to how the US generously shared that capacity. Sharing power and doing good for the world bought the US legitimacy. Those trained in welfare economics might say power, in this instance, is a *non-rival* good: The US did not have its stock of power diminish when it constructed a global system to give away that power. Instead, US power increased.

The question now is, has US policy decided to relinquish the *legitimacy* dimension of US power, to draw on *capacity* alone? Some observers might say yes, and about time too. For them the US can be a much more successful world superpower if it focused on its military arsenal, its domestic economic capabilities, and its soft power, and adapting strategically to challenges against it, rather than by trying to help others in the world.

The danger, however, is that advancing capacity without legitimacy turns into either isolationism or belligerence or both.

This change in emphasis, perhaps being gradual, is not easily noticed. But it appears clearly, it seems to me, when we consider against this setting Joseph Nye's masterful *Is the American Century Over?*⁴ Nye described how the American Century emerged in the 1940s partly from America's then-unique capacity to provide the global public goods the world needed. Nye masterfully showed us, yet again, the devastating reach of his concept of soft power: that influence is more important than military power, that domination doesn't mean leadership. He reminded us how Singapore's Lee Kuan Yew once told him America would always be ahead of China: While China might boast a population of 1.3bn people, America could draw on the talents and goodwill of over 7bn.

But, as Chapter 4 and the rest of the current book will go on to show, that capacity to provide the world its global public goods is no longer unique to the US nor obviously America's any more to wield. The world's economic centre of gravity—not just as metaphor but literally—used to sit just off the eastern seaboard of the US, but no longer (Chapter 4). Many of the

⁴ Joseph S. Nye. *Is the American Century Over?* Polity Press, Cambridge, 2015

world's dilemmas require global cooperation: no single nation by itself, certainly not the US alone, can take on the problem of global climate change or cyber-security or international pandemics (Chapter 6). That unique capacity that started the American Century is no more. If the Century is to remain American, the US will have to be a genuine leader, not just a unilateral doer.

There are two options. The US can lead the world by saying it wields fearsome power—in its military, in its technology, in the strength of its economy, in its ownership of the world's reserve currency, in its creativity, in the Nobel Prizes it wins.

Or, it can lead the world by being a force for good.

Time was, it did both. But if the US now does only the first, can it still draw on the goodwill of the 7bn people on Earth that Lee Kuan Yew promised America?

The idea is neither fanciful nor whimsical that leadership comes with doing good for those who are led. It is, after all, a principle of economics that under free-market capitalism the only need a society has for government is when government provides public goods. Democracy has as one of its most cherished principles that a society should select leaders who are accountable, competent, and effective, and who work for that society. This is an idea that transcends use of the ballot box. This service for good even extends to those parts of society that either do not or can not vote: leaders serve the society they lead. If those leaders are only pretenders who cannot fulfil that purpose, then society should replace them. When we speak of world leadership, it is the society of nations that matters.

Is Nye's account of the American Century now a narrative that draws more and more only on America's power, and less and less on America's doing good in the world?

It is this distinction that is critical for the difference between *capacity* and *legitimacy*.

Why was the world different previously, and why is it this way now? What happened to the US's place in constructing the liberal world order and helping others onto that global system? How has the world changed that might lead rational US policy-makers to wish to retreat from the world? What are the contours of the tradeoff between *capacity* and *legitimacy* that might have

led to US foreign policy shifting in favour of capacity and away from place?

And where does this leave world order?

3.2 *Leadership in World Order*

A great deal of the most sophisticated current thinking on world order begins with the US's leadership in the international system. With that as the baseline, attention then typically turns to potential challengers to that leadership.

Indeed, that was the underlying motivation implicit in how I began Chapter 1. Such a perspective is, of course, natural given how the US has dominated international affairs—as described in the preceding section—for at least the last half century. But if our goal is to rethink world order, it is useful to remind ourselves of the role that leadership is supposed to assume in the international system.

Leadership does not come from just economic size.

3.3 *The First Hegemony: Athens and the Delian League*

CLASSICS STUDENTS familiar with Thucydides's *History of the Peloponnesian War* will have learnt not just about Athens's hegemony but also of the events surrounding it. It was, indeed, this historical episode that originated the word "hegemon", meaning benevolent leader.⁵

From 478 BCE, Athens led the Delian League of Greek city-states against the might of the Persian Empire. Athens was first among near-equals, none nearly as strong as Athens itself. Standing alone, each Greek city-state would have been annihilated by Persia. Instead, coming together from 480 BCE, Athens and Sparta and a unified Greek alliance defeated Xerxes, the son who succeeded Darius the Great as ruler of the Persian Empire. Soon after, Athens together with several other Greek city-states formed the Delian League, with Athens emerging as hegemon and, through military and political leadership, bringing mutual benefit in relative peace and prosperity to all the city-states in the

⁵ Because hegemon already translates to "benevolent leader", it is redundant to say "benevolent hegemon". In the 20th century, however, many influential writers began to equate hegemony with imperialism, to a point where some of my Mainland Chinese students tell me they are actively discouraged from ever using the word hegemon, lest their intentions in the world be misunderstood.

League.

But within four decades of Athens's rise to hegemony, the other Delian League members had grown to resent Athenian excess. These city-states had been reduced from autonomous independent entities to no more than satellites paying tribute to finance Athens's projects. Their military resources had been drained to elevate Athens's own standing. Several of the Delian League even revolted openly against Athens, only to be brutally suppressed. It was increasingly apparent Athens had lost the support of a large number of members of the Delian League. It managed to keep the League in line only through applying the hard power of superior military force.

Hegemony had become empire. Athens had lost legitimacy. It sought to replace that with mere capacity, in its effort to maintain its position of privilege. The Peloponnesian War of 431–404 BCE saw Sparta—who itself had never joined the Delian League—defeat Athens, bankrupting the Athenian economy, replacing Athenian democracy with oligarchy, and ending the Golden Age of Classical Greece.

In the perspective taken in this book the first experiment with hegemony had ended. Others would emerge, British colonialism in the Far East being a leading example. But we now return to the US, picking up the discussion first in the early 20th century.

3.4 *Hegemony and The American Century*

FOR MANY OBSERVERS THE DISTINCTION BETWEEN HEGEMONY AND EMPIRE is not meaningful, whether because they think the former invariably becomes the latter or because they think of imperialism in the same breath as hegemony. Modern usage of the term hegemony often ignores the “benevolent” that is embedded in its original meaning from the Greek; hence, many writers find it necessary to say “benevolent hegemony”.

Readers might also be familiar with hegemony from Antonio Gramsci's ideas on the “manufacture of consent”⁶. In Gramsci's discussion the hegemon is a dominant power or class that encourages a social consciousness—false or otherwise—to emerge

⁶ Antonio Gramsci. *Selections from the Prison Notebooks*. International Publishers, New York, 1971

among the subjugated, that then allows hegemonic rule to be consensual rather than coercive. That discussion often leaves the implication that hegemonic rule is not truly beneficial for those ruled, in contrast to the idea that a hegemon is benevolent.⁷

There is, finally, a further usage where hegemony shares the technical economic meaning in the concept of “monopoly”, that the distinguishing feature is that there is only one. For instance, in the International Relations theory of Offensive Realism, “great powers do not merely strive to be the strongest of all the great powers, although that is a welcome outcome. Their ultimate aim is to be the hegemon—that is, the only great power in the system.”⁸ In this analysis, hegemony is the only possible stable resting point, and even then it will be perturbed through the economic rise of those other than the hegemon. All other configurations of world order entail instability and the increased likelihood of conflagration.

In this book whether there is a unique leader is not critical to the use of the term hegemon. In so far as a hegemon provides global public goods, and it is efficient for there to be just one provider, then the uniqueness of hegemon is an implication, not a definition. That it is not fanciful to think of hegemon as provider of global public goods comes not just from the example of Athens but from the example of the geopolitical rise of the US itself.

For centuries, from at least the early 1800s, the world’s single most powerful nation was Britain. In its collection of colonies . . .

In 1872 the mood in London was . . .

By most accounts the US economy overtook Britain’s in size that year. If that indeed occurred then, this was likely the friendliest, most imperceptible of global power transition. Of course, GDP hadn’t been yet invented so there wasn’t actually anything like the dramatic graph of China overtaking the US of Fig. 1.1 to report. Many other reasons . . .

Nonetheless, . . .

⁷ See further the constructivism ideas in, e.g., Hopf [2013].

⁸ John J. Mearsheimer. *The Tragedy of Great Power Politics*. W. W. Norton and Company, New York, 2014

By most accounts the US became global hegemon only in the middle of the twentieth century. For one, it took two world wars and almost a century before the US dollar grew to be more than mere rounding error in international financial accounts.⁹

...

3.5 *Hegemonic Stability Theory*

When the world economy languished during the Great Depression of the early 1930s it was the US that led the way back to global prosperity. The economist Charles Kindleberger drew on that critical historical example the general lessons that then became known as “Hegemonic Stability Theory” (or HST).¹⁰ (While I have given a positive reading that seems to me faithful to this analysis, scholars have pointed out to me that what Kindleberger actually said was the opposite, on both counts. In Kindleberger’s analysis the world economy failed to recover quickly enough in the early 1930s because the US did not provide leadership:[Kindleberger, 1973, p. 291–292]

... the 1929 depression was so wide, so deep, and so long because the international economic system was rendered unstable by British inability and American unwillingness to assume responsibility for stabilizing it

Indeed

The world economic system was unstable unless some country stabilized it, as Britain had done in the nineteenth century and up to 1913. In 1929, the British couldn’t and the United States wouldn’t. When every country turned to protect its national private interest, the world public interest went down the drain, and with it the private interests of all.

In the interests of brevity, I flipped around (the sign on) both cause and effect. While that seems to me the right lesson and easier to remember, I appreciate how taking that liberty does not necessarily sit well with scholarship.)

A Delian League-inspired hegemon need not restrict the public goods it provided to merely collective security and military

⁹ Menzie Chinn and Jeffrey Frankel. Why the Euro Will Rival the Dollar. *International Finance*, 11(1):49–73, 2008. DOI: 10.1111/j.1468-2362.2008.00215.x; Peter Lindert. Key Currencies and Gold: 1900–1913. *Princeton Studies in International Finance*, 24, aug 1969; and Barry Eichengreen and Marc Flandreau. The Rise and Fall of the Dollar. *NBER Working Paper*, jul 2008. URL <http://www.nber.org/papers/w14154>
¹⁰ Charles P. Kindleberger. *The World in Depression, 1929–1939*. University of California Press, Berkeley, 1973. ISBN 0-520-02423-0; and Charles P. Kindleberger. *World Economic Primacy 1500–1990*. Oxford University Press, Oxford, 1996

defense. Instead, the public goods it provided could, appropriately enough, also be economic in nature: Thus, a hegemon could also serve as lender and consumer of last resort to countries in distress: It could provide a deep well of monetary and financial reserves to smooth other countries' public and private finances over time; and it could inject Keynesian aggregate demand spending that would spill over beneficially across countries in recession.

In this view then the US undertook exactly its rightful hegemonic role in the 1930s. The US provided that global public good—economic growth—on which the rest of the world either shirked responsibility or could not afford. What the US wanted—growth for its own economy—coincided exactly with what the rest of the world wanted: US soft power was complete. Under HST the world looked with respect and admiration at its hegemon.

So too the world might have looked to the US again after the 2008 Global Financial Crisis.¹¹ Only this time, the US seemed to have gone missing in action. Indeed, HST proponents might have found it difficult to reconcile, on the one hand, their understanding of what the US should do with, on the other, what the US actually did.

Monetary policy is a key feature in the international economic landscape.¹² In February 2014 the US Federal Reserve publicly adopted the position that its actions would be based only on what was happening in the US economy, not on whether those actions might help stabilize other economies.¹³

This assessment was described as follows:¹⁴

... the Federal Reserve's new chairman made it clear that the turmoil in certain emerging markets wouldn't affect the policy decisions of the U.S. central bank. She's right: Monetary policy is hard enough without having to worry about the spillover effects to other countries that should take care of themselves.

Remember, for discussing world order, HST does not dispute whether the US has the legal right or the technical capacity to take what actions it wishes. HST says the hegemon's actions affect the world; if indeed that state is truly a hegemon, i.e., benevolent leader, then those actions will be guided by the principle

¹¹ Peter Temin and David Vines. *The Leaderless Economy*. Princeton University Press, Princeton, 2013. ISBN 978-0-691-15743-6

¹² Parts of what follows draw on descriptions previously given in Quah [2014b].

¹³ Robin Harding. Yellen Says Emerging Market Turmoil Will Not Sway the Fed. *Financial Times* (11 February), feb 2014

¹⁴ Matthew C. Klein. Janet Yellen to Emerging Markets: Good Luck. *Bloomberg View* (11 February), feb 2014

of doing good for the world. In this view, HST is brought in to assess how the US, through its actions, influences its legitimacy as world leader.

It is important, therefore, what international figures such as Raghuram Rajan say. In January 2014 Rajan, the highly-respected Governor of the Reserve Bank of India, pointed out that in late 2008, in the midst of the Global Financial Crisis, international monetary cooperation had significantly helped stabilize the global economy. But, in Rajan's view, even though the global economy had failed to recover fully, this cooperation had obviously broken down. Just as the Fed was clarifying what factors would help determine its policy actions, Rajan noted how in early 2009 when the advanced economies failed, it was emerging markets that was powering global economic recovery. By February 2014, when these same emerging markets needed greater international cooperation with the advanced economies, the US was pronouncing "We'll do what we need to, you do the adjustment."¹⁵

In Rajan's view and experience (and in the evidence in Section 4.5) the global economy had become ever more interconnected—whether international policy-makers were dealing with the 2008 Global Financial Crisis or just generally. Sensible policy-makers then ought to believe:¹⁶

We would like to live in a world where countries take into account the effect of their policies on other countries and do what is right, broadly, rather than what is just right given the circumstances of that country.

In a HST-driven world the global hegemon would of course not have to be told this. It would be what they already do, But the US no longer played by these rules: "Our sense is that at this stage these developments do not pose a substantial risk to the US economic outlook."¹⁷ Instead, Rajan's statements and a growing clamour from emerging economies elicited a US response with four distinct lines of reasoning. First, there was fallback to how, within the rules of Federal Reserve System operations, the US central bank could not, by law, take into account the well-being of any party except the US economy when charting its actions.

¹⁵ Kartik Goyal. Rajan Warns of Policy Breakdown as Emerging Markets Fall. *Bloomberg Business* (31 January), jan 2014

¹⁶ Kartik Goyal. Rajan Warns of Policy Breakdown as Emerging Markets Fall. *Bloomberg Business* (31 January), jan 2014

¹⁷ Robin Harding. Yellen Says Emerging Market Turmoil Will Not Sway the Fed. *Financial Times* (11 February), feb 2014

Thus, US global hegemony, i.e., US provision of global public goods, would run foul of US law.

Second, some observers in the US claimed that the world economy was not really as inter-connected as Rajan and others might think. Given the evidence in Section 4.5 and the coordination that all policy-makers had embarked on to save the global economy in late 2008, this claim rings both false and self-servingly hypocritical. Third, some observers in the US suggested that if any foreign economy was adversely affected by US monetary policy, it was only because those economies ran “high current-account deficits, high fiscal deficits and relatively high inflation”. So, really, “the challenge is brought on by their own domestic policies [and] it’s unfair to say it’s all the Fed’s fault.”¹⁸ And, finally, that old saw: What is good for the US is, ultimately, good for the world.

It must be tough to be global hegemon, being constantly reminded that stability of the world economy is your responsibility. No one could fault a diverse group of domestic observers and policy-makers for statements that are appropriate and sensible in difficult local circumstances, but when viewed from an international perspective are instead jarring and inconsistent with a modern, enlightened take on global policy-making.

The problem is, legitimacy in the world order demands high standards. Soft power is hard to earn but easy to lose. In world leadership, whatever the reality, it is perception that matters. Suppose that instead of the US suggesting monetary policy was hard enough without having to worry about spillovers onto other countries, it was China responding to the charge that its exchange rate policy and savings behaviour were causing global imbalance: “Bringing hundreds of millions of my people out of poverty is hard enough without my having to worry about your trade deficits too”.

Suppose that economies adversely affected by US monetary policy were thus affected because those economies ran high current-account deficits and high fiscal deficits. Then those countries adversely affected by the savings outflow from Asian Thrift? They were thus affected because they were countries prone to high current-account deficits and high fiscal deficits anyway.

¹⁸ Kartik Goyal. Rajan Warns of Policy Breakdown as Emerging Markets Fall. *Bloomberg Business* (31 January), jan 2014

Indeed, the US itself would be an example of that.

If the US is to draw on the approbation of its domestic lawmakers before it can conduct economic policy that might turn out to be good for others, then the US really should not be lecturing Germany on how with great economic power comes great responsibility, how in the Eurozone Debt Crisis, Germany should be helping other nations at its own expense.¹⁹

Finally, it almost surely remains true—as it has been for decades—that what is good for the US economy is good for the global economy. But then so too what is good for India, China, Brazil, and Indonesia is directly good for over a third of humanity, and indirectly good for likely yet another third of humanity in the economies that trade with them. US centrality in the global economy was true—metaphorically and literally—when the world’s economic centre of gravity hovered just off the eastern seaboard, somewhere in the Atlantic Ocean. But, again as pointed out in Section 4—in the last three decades that centre of gravity has already moved 5,000km east, drawn by the rise of China and the rest of East Asia. Soon perhaps even more than what is good for the US economy, it will actually be what is good for the East that is good for the global economy.

Yes, HST is almost surely right that the connected global economy needs a global hegemon. The question is, are we looking for US hegemony to run the world order where we should, or just where we have come to out of laziness and habit? When will we need to agree the US can no longer serve as global hegemon, not just because it might not want to, but because the world thinks it should not?

3.6 *Cooperation and Supranationalism*

EVEN IF THE US NO LONGER FINDS IT PROFITABLE to be hegemon—to be the sole provider of the global public goods the world could use—other structures to world order could still be driven by it.

A US-led international order can be built on rules that the US and others find attractive; world order can be liberal, inclusive,

¹⁹ Uwe Reinhardt. Economic Exceptionalism in America. *Financial Times* (13 February), feb 2014

and entirely voluntary. Indeed, in such a world it might be irrelevant whether world order remains US-driven, although most observers think it naturally so.²⁰

Further along in this dimension, after hegemony, supranationalism and explicit cooperation.²¹

...

3.7 *Gridlock*

IF A WORLD ORDER WITH THE US AS HEGEMON IS NO LONGER A REALITY what instead are the features of the current world order?

Continuing to view world order as linear makes it difficult to understand the networked multi-dimensional landscape that is actually emerging. Viewing world order as linear makes one approach the world's problems looking for top-down solutions: this would be only the beginning of a systemic deficiency that then generates gridlock.²²

...

²⁰ G. John Ikenberry. *Liberal Leviathan*. Princeton University Press, Princeton, 2011. ISBN 978-0-691-12558-9

²¹ Lloyd Gruber. *Ruling the World: Power Politics and the Rise of Supranational Institutions*. Princeton University Press, Princeton, 2000. ISBN 0-691-01040-4; and Robert O. Keohane. *After Hegemony*. Princeton University Press, Princeton, 1984. ISBN 1-400809-754

²² Thomas Hale, David Held, and Kevin Young. *Gridlock: Why Global Cooperation is Failing When We Need it Most*. Polity Press, Cambridge, 2013

4 *The Great Shift East*

IT IS AN OLD MESSAGE—by now both old and new—that world order needs to re-orient away from traditional powers and towards the emerging ones. Reasons given for this, however, vary.

At times this call comes from an almost-moralistic justification that such a shift is only right: It is time that old powers share the benefits of rule with others who have, historically, not been allowed those same rewards. Why this is right, however, is left unspecified. Is it right because being just and fair requires everyone gets a chance to set the rules, no matter if they are inept and unqualified, and their running the global system might be disastrous for the world? Is it right because change and a different perspective are always good, even if all agree the change is towards a perspective viewed as morally and politically illegitimate by the majority of those to be governed?

At other times the call derives from reasoning based on facts and figures, strung together to provide empirical justification. The developing countries are the ones who have successfully managed their economies while the developed ones have become stagnant—but then those in developing countries might do worse managing an economy already mature. It is that underlying ability that ought to determine who runs the world, not just the historical accident of being landed with economies that are easy to steer. The emerging economies are larger in GDP now than the G7, and if world order follows economic capacity then global leadership ought to be handed over. But the argument in this book is intended precisely to steer away from that conventional “Might is Right” perspective. Applying that traditional

view to justify a new world order simply falls into the same trap used to argue against the old one. Moreover, many observers will argue that the capacity needed for global leadership derives from more than just economic size, and the emerging economies have (in those observers' view) so far failed to show any such signs of true leadership.

Neither moralistic claim nor empirical evidence alone can be convincing on world order. The preceding Chapters have sought to understand world order based on one simple question, What is good for the world?, framed in terms of welfare economics. This Chapter is about empirical evidence: It presents a snapshot and trajectory for the state of the world (i.e., for *S* in the language of Chapter 2).

A number of critical points will emerge in the analysis to follow. First, change in the world is not entirely or even mostly about BRICs.¹ Jim O'Neill's original naming of the challengers to the extant world order derived of course from his then-best estimates of the impact of growth trajectory and population size. But the BRICs grouping had always drawn criticism for their diversity and, indeed, those differences have translated into varied economic performance.

Second, the world is profoundly different from how it was in the 1980s. Discussions of a potential global power shift—US decline, in particular—and thus change in the world order sometimes reduce to “We have been here before”. The US has been challenged before, by the confrontation with the Soviet Union, the rise of Japan, and a range of other developments since the 1950s. But have we been here before? The calculations that follow say, “No. We have not.”

4.1 *Where People Count*

IMAGINE YOURSELF ON A POINT IN THE SOUTH CHINA SEA off the coast of Vietnam. Draw a circle 4,000km around (Fig. 4.1).

This circle is tiny. It encloses only 25mn sq km of land, approximately one-sixth of the world's land area. Yet more people live within this circle than outside. The clustering is remarkable.

¹ Jim O'Neill. Building Better Global Economic BRICs. Technical report, Goldman Sachs Global Economics Papers, London, nov 2001

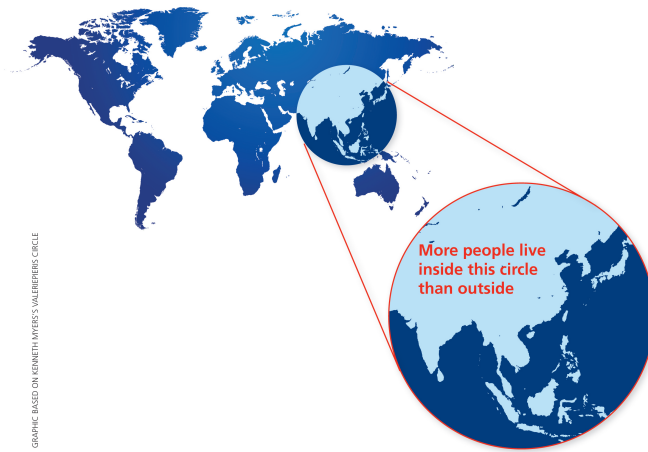


Figure 4.1: The Ken Myers Circle, appearing originally in Myers [2013].

If the world were a democracy, somewhere in this circle is where the median voter would determine electoral outcomes.

(The original author of this depiction had reasons for referring to it as “The Valerie Pieris Circle”. Many who have used the picture, sometimes without attribution or acknowledgement of the author, know it by just that label. Personal correspondence with the author, however, suggests to me that he would not mind my renaming it as “The Ken Myers Circle”).

The picture evocatively makes a powerful point. Here I provide two improvements. First, the picture is one of a circle on a flat, two-dimensional map of the world. Depending on which two-dimensional map one selects a flat circle will translate differently (and unintuitively) to actual physical locations on the surface of the three-dimensional sphere that is our planet. The physical locations themselves will therefore change. Given the concentration of populations identified in the Ken Myers Circle, this variation is likely not significant. Nonetheless, for completeness, this book uses instead the following: Construct actual circles directly on the planet’s surface, and then ask how those appear on a two-dimensional map depiction of the world. Depending on which two-dimensional map depiction one takes, the translated circles will appear differently, but the physical locations they describe will be invariant. The variation in the

visual representations is a feature of global projections generally but the underlying physical locations are, in my calculation, unchanged and thus easily reproducible by others.²

Second, the picture takes an approach that can be described as “guess and verify”. Guessing a point in the South China Sea and then drawing a circle of an appropriate radius, one verifies that more than half the world’s population lives there. What is useful to consider is the variational counterpart to this problem: *What circle on the surface of the three-dimensional Earth is the smallest one that contains at least half the world’s population?* Such a circle might turn out be close to the Ken Myers circle; then again, it might not. Either way, however, that circle will provide a more compelling description to the clustering on Earth.

To be clear, neither of these is a criticism of the Ken Myers Circle. That latter has a sensible, consistent narrative to it. The changes I undertake here simply provide an alternative, one whose descriptions can be consistently reproduced by research scholars, and thus these new versions can themselves be improved.

Section 8.4 in the Appendix describes how I determine the world’s tightest population cluster, the smallest population circle on planet Earth. There are many circles one can draw on the planet that contain more people inside than out. However only one of these is the smallest such circle (up to small perturbations). Appendix 8.4 finds it for 2015, and displays the result in Fig. 4.2.

Cities.

² John Snyder. *Flattening the Earth: Two Thousand Years of Map Projections*. University of Chicago Press, Chicago, 1998. ISBN 978-0226767475

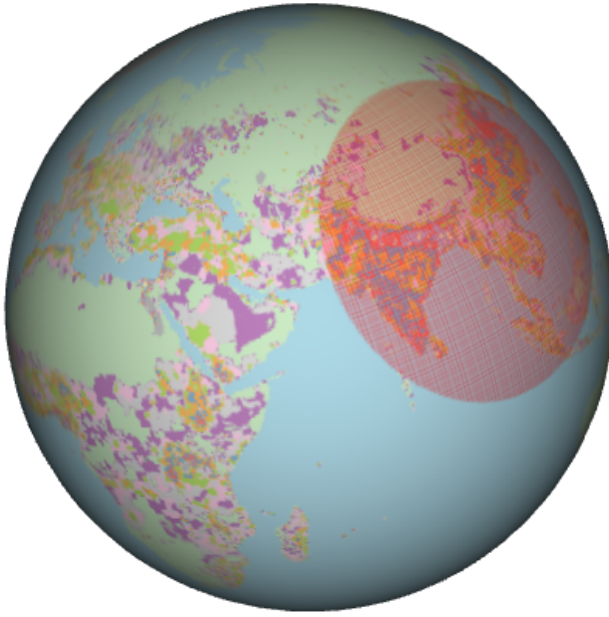


Figure 4.2: The world's 2015 tightest population cluster: That circle centred in Shan State, eastern Myanmar, with a radius 3,300km on the surface of the 3-dimensional planet.

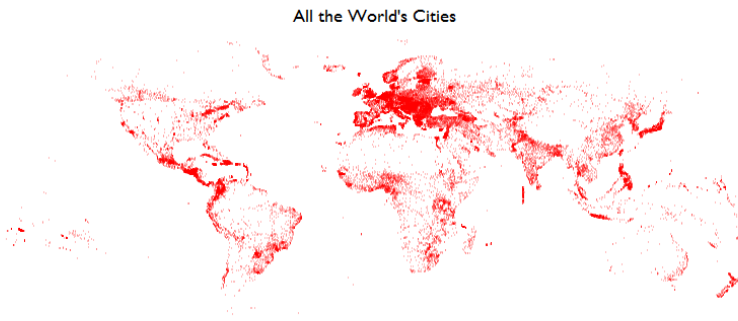
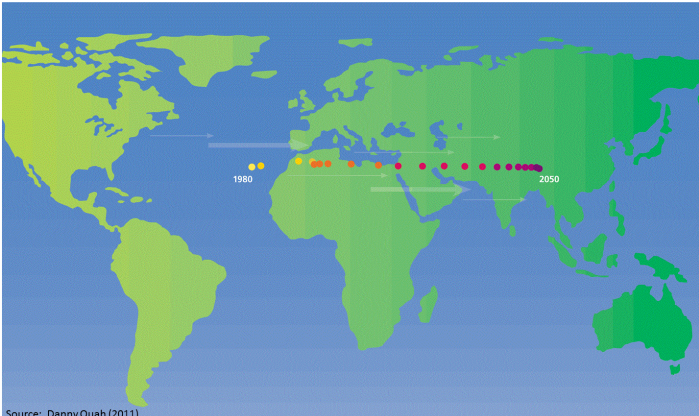


Figure 4.3: All the world's cities. Plotting their locations, there is no longer need for information on coastlines to tell where land ends and ocean begins.

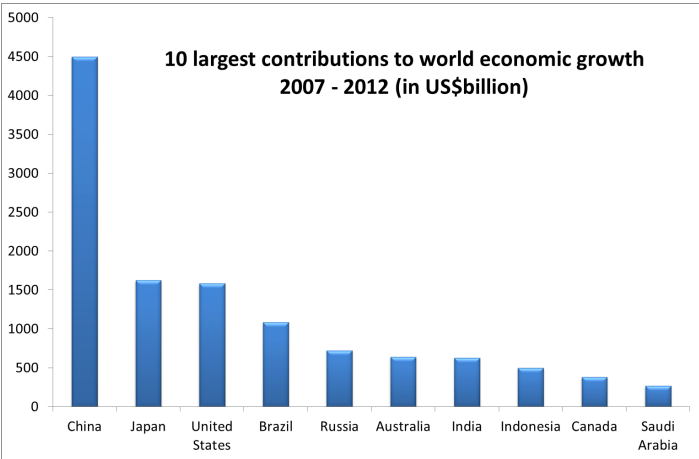
4.2 Global Distributional Shifts

When.

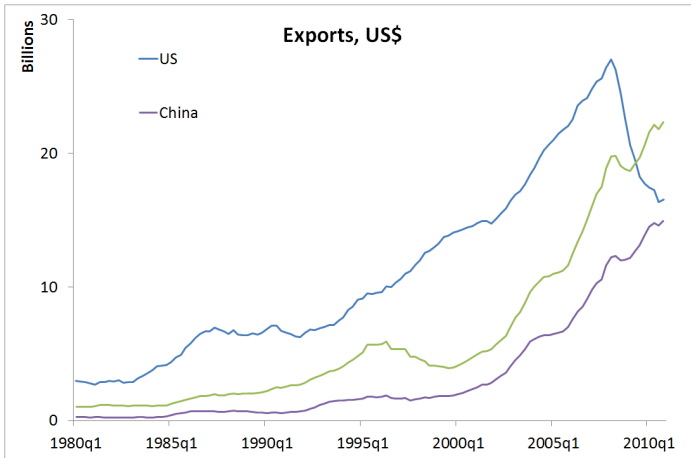
The world’s economic centre of gravity: 1980-2050



In.³

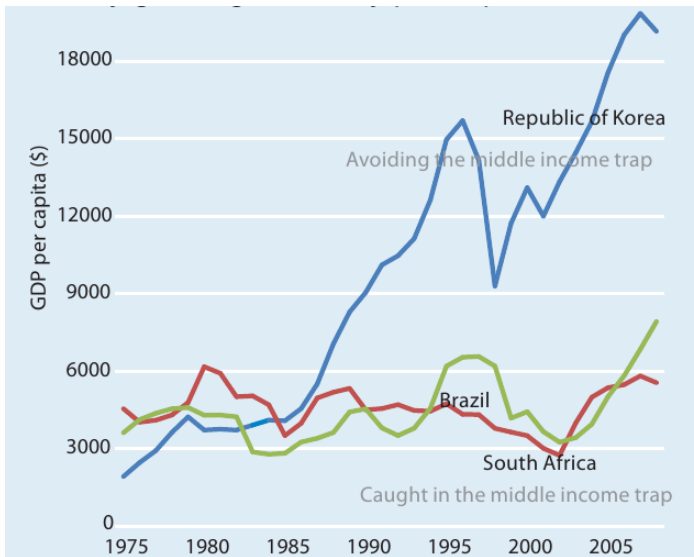


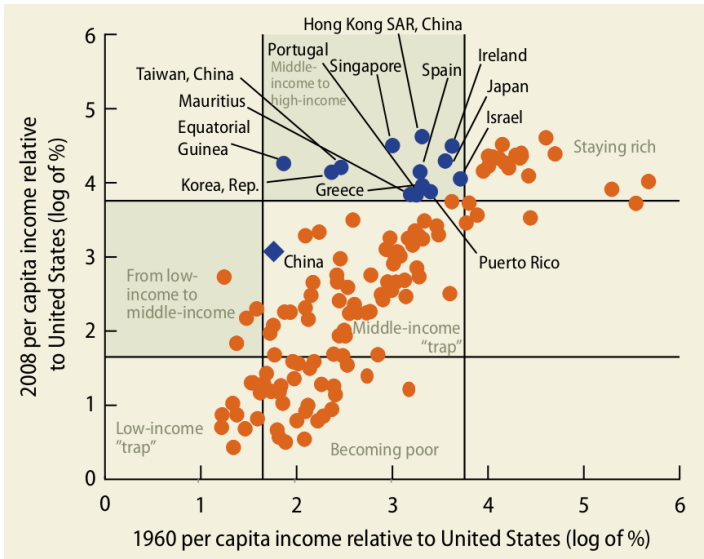
³ Richard Dobbs, Jaana Remes, James Manyika, Charles Roxburgh, Sven Smit, and Fabian Schaer. *Urban World: Cities and the Rise of the Consuming Class*. McKinsey Global Institute, Washington DC, jun 2012; Homi Kharas. *The Emerging Middle Class in Developing Countries*. *OECD Development Centre*, jan 2010. DOI: 10.1787/5kmmp8lncrns-en; and Danny Quah. *The Global Economy’s Shifting Centre of Gravity*. *Global Policy*, 2(1):3–9, jan 2011. DOI: 10.1111/j.1758-5899.2010.00066.x



4.3 The Middle Income Trap

Two compact and elegant empirical descriptions of the Middle Income Trap are





4.4 Emerging Markets

One of the most striking features in these data is how “Emerging Markets and Developing Economies” have assumed a dramatically larger footprint in the global economy. To be clear, the G7 economies, at least from the visual perspective in these graphs, have not slowed dramatically in their collective growth trajectory. Instead, it is that the emerging markets have just grown so much faster since the early 2000s.

Some of that catch-up is of course due simply (i.e., arithmetically) to China. But the graph comparing aggregate GDP for China and the US shows that that can’t be the entire explanation.

For readers accustomed to thinking of cross-country comparison in per capita GDP, it is useful to remember why these aggregate GDP statistics are useful. Obviously, they wouldn’t be what someone would want to look at for, say, convergence in a neoclassical growth model. However, they are exactly what someone would need to assess shifts in the global balance of power—economic initially of course but then perhaps more generally.

It is these statistics someone would want to use to gauge the

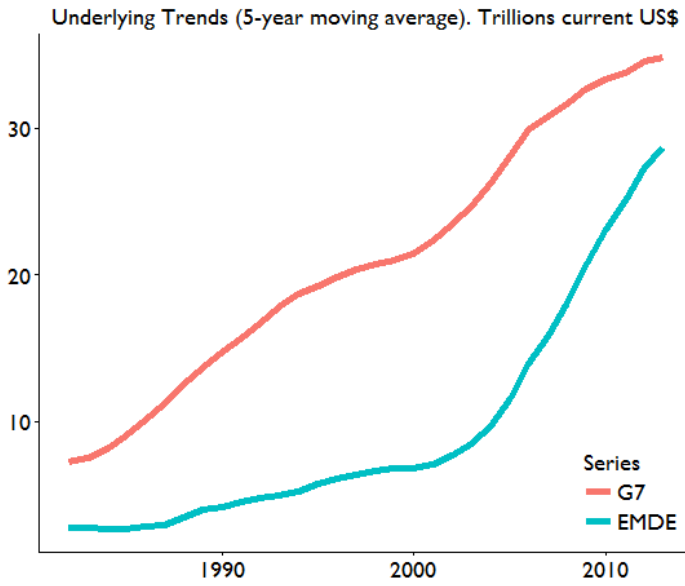


Figure 4.4: Underlying Trends (5-year moving average). Trillions current US\$. Source: Quah [2014c]

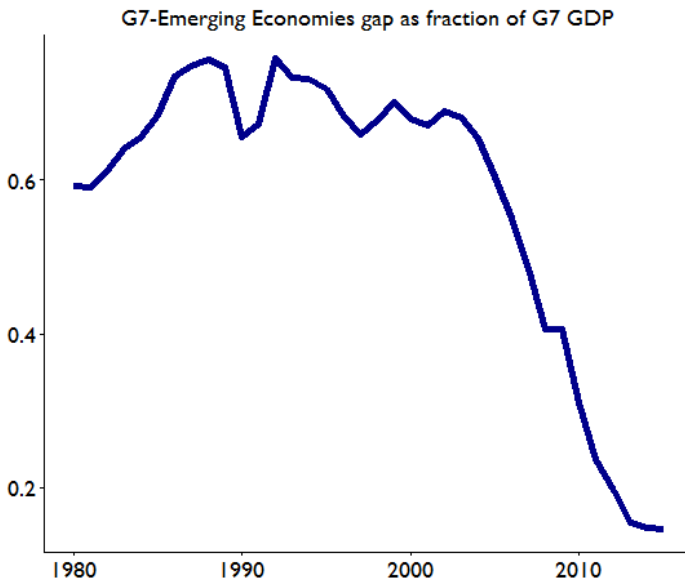


Figure 4.5: Percentage gap between GDP of G7 and of Emerging Markets and Developing Economies, from current US\$ evaluated at market exchange rates. Source: Quah [2014c]

capacity of different economies or groupings to drive or drag down global economic performance, or to measure needs and functions for appropriate global governance.

For the same reason, the analysis here looks not at GDP corrected for purchasing power parity but instead at market exchange rates. Again, it is these latter that matter for evaluating contribution to the global economy and for assessing global power shifts, while purchasing power parity adjustment is useful instead for estimating residents' well-being.

A recurrent question given this perspective is, can the emerging economies continue to grow if the advanced ones stagnate? The preceding might suggest yes. Nonetheless, that the emerging economies might slow if the G7 undergoes a more prolonged secular stagnation is often suggested by the following calculations on growth rates.

The⁴

...

4.5 *Interconnectedness*

International trade ...

...

4.6 *Institutions*

The Asian Infrastructure Investment Bank is

One Belt One Road.

Legitimacy, "consent of the governed".⁵

⁴ Lant Pritchett and Lawrence H. Summers. Asiaphoria Meets Regression to the Mean. Technical report, NBER Working Paper, Cambridge MA, oct 2014. URL <http://www.nber.org/papers/w20573>

⁵ Danny Quah. How China's Rise is Revealing the Cracks in US Claims to Legitimacy as Global Leader. *South China Morning Post* (19 August), aug 2015

5 *Democracy and Its Variants*

DEMOCRACY HAS AN ATTRACTION that is hard to over-estimate. Around the world hundreds of millions of people clamour for it, often putting their own lives at risk to do so. Non-democratic governments fear the constant calls for suffrage, transparency, and ever greater inclusiveness that they know undermine their hold on power.

Those calling for democracy realise they need not be the ones to come to power, but nonetheless find great appeal in the process itself: the ceremony of the ballot box, open electoral competition and free speech, that all candidates strive fiercely to win but no one reaches for their firearms when they lose. If political leaders fail to deliver, at least the rules of the democratic process ensure that removing those leaders does not wreak chaos.

Global demand for democracy, frenetic as it is already, is fuelled further by both popular account and scholarly research acclaiming superior performance for societies that go democratic. Such societies are said to become creative and innovative, and advance technology powerfully. They have better universities. Democracies are institutionally flexible in ways that autocracies are not. They are willing to experiment and so discover what works. Democracies serve their people right—not least the people at the bottom of the income distribution, since in a democracy those people have votes that count equally to the votes of those at the top. Democratic societies weed out corruption. They foster good governance.

World order too then ought to be democratic. Only, it is not. And no serious effort has ever been undertaken to make it so. A

hegemon-led world order or an “Age of US Unipolarity” or any other conventional model of world order, whether justified by place—“we lead because we should”—or by capacity—“might makes right”—makes no appeal to democratic process.

Why do even the greatest supporters of democracy find no difficulty supporting strong undemocratic leadership in global governance? To say “it is unrealistic to have democratic process in global governance” is like telling Eastern Europe in the mid-1980s “only Moscow can provide you the leadership that you need”. To say “the world is a dangerous place” repeats what autocratic leaders tell their people about subversive elements within and outside their societies. Are there features of the world that necessitate for global governance the strictures of what some call “illiberal democracies”—that some observers might associate with governance in, for instance, Singapore? If illiberal democracy works for the world, why can’t it work for specific nation states? Or, conversely, if the universalist principle of democracy works for individual nation states, why don’t we try it for global governance?

Some further questions naturally arise, going well beyond the matter of world order. Are non-democracies doomed? Are autocracies always inflexible? Will societies fail if they only profess to be democratic in name, but are not, in reality, completely liberal? What is the mechanism in political systems—akin to markets in competitive economic systems—where just being an open liberal system drives society to an optimum outcome? Or is it wishful thinking that unleashing all manner of political and social forces will magically give people all the things that matter to them?

More generally, are the positive claims for democracy accurate? Is the appeal of democracy mostly in its process, since in reality practice differs worldwide? Of course, for some observers democratic process might already suffice but is its output—the operating characteristics of democratic societies—also uniformly good? Is democracy robust? Does democracy equate to good governance? In short, does democracy deliver?

To be sure, these questions are deep and long-standing, and occupy scholars more generally. My goal here is to focus on these questions only to the extent their answers matter for dis-

cussing world order.

5.1 *The Magic of Forces Unleashed*

SOME OF US wake up every morning to find ourselves in a society where economic opportunity is unfairly distributed, where a narrow social elite is given everything while others endure harsh deprivation. For those of us who live in such a society, every morning our soul yearns for a system better than that we are in.¹

Some of us might live in a society where discrimination is rife, where government cronies are handed plum benefits, and where extractive elites plunder national wealth.

We say we want out of that system. We ask only for a level playing field, for a system that is fair, open, and transparent, a system that practices meritocracy.

The good news is the world has your back. The world wants for you what you want for yourself, and indeed more and more of the world has been on that delivery run for now a quarter of a century. Over twenty five years ago the Soviet Union collapsed, bringing on what some observers announced as The End of History.² The understanding that emerged was that only liberal democracy and free-market economics remained viable as ways successfully to organize society. After all, what could be fairer, more open, and more transparent than a political system that declares everyone equal in the process of selecting a leader—one person, one vote? What could be more meritocratic than a system where whether you succeed or fail is decided by a free market blind to social status, not by some prejudiced official looking over your family connections?

Liberal democracy and free-market economics are both structures that appeal to technologists and designers. In theory they have an apparent emergent intelligence that seem magical to many: You install rules in the system; you turn on the system; you stand back, and you watch the system execute to its best possible outcome. If a disturbance perturbs the system, the rules in place allow innovation, flexibility, and adaption, and the system self-stabilizes to a new best outcome.

¹ Parts of this section are from Quah [2014a].

² Francis Fukuyama. *The End of History and the Last Man*. The Free Press, Macmillan, London, 1992. ISBN 0-02-910975-2

The US, the UK, and other economies on both sides of the Atlantic to varying degree practice these principles. Indeed, many observers consider that TransAtlantic Axis to be where such principles are held safe, to be passed on to others. Thus, even though membership in the club of successful economies would be open to all, it was there, the TransAtlantic Axis, from which success would unfurl. And, indeed, that happened big-time. By one reckoning, world democracies numbered only 45 in 1970, their number ballooned to 115 by 2010.

5.2 *Illiberal Democracy and Authoritarian Capitalism*

WHAT CONSTITUTES DEMOCRACIES, however, varies. The Polity IV Project

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5.3 *The Practice of Democracy*

ON FIRST ENCOUNTERING MODERN WELFARE ECONOMICS students typically react suspiciously to Adam Smith's idea of the Invisible Hand. After all, this theory says that if society allows businessess and consumers to pursue only self interest, then the end result from all the fierce scheming, the unfettered buying and selling, the ruthless trading, is an outcome that is ultimately of great benefit to society.

Economists call that outcome socially optimal or efficient, i.e., no part of society can improve their well-being without disadvantaging someone else somewhere.³ Society might legitimately want yet other things too of course but being socially optimal is a good place to start.

Adam Smith's Invisible Hand guides selfish individuals, who intend only to go about their business, inadvertently to raise public well-being, something those individuals need never have realised they might want to do. Disrupting those selfish actions therefore hinders social efficiency. Dismantling regulations and restrictions, to allow untrammelled economic competition, must be

³ Efficient, in economics, means exactly what the text says. Being efficient does not mean "is highly productive" or "gets things done quickly" or "is not wasteful" or many other things everyday English language overloads onto the term.

actions that serve the public interest. Out of nothing more than unrestricted selfish individual actions emerges a socially efficient outcome.

Students of course go on then to learn the stringent conditions that produce this result, the so-called Fundamental Theorem of Welfare Economics. As they get to understand more how the Invisible Hand works, students appreciate the market mechanism that ties together all the different competing forces. They understand what produces social optimality. Students learn prudence in applying the efficiency result, and they develop the expertise to look for real-world circumstances—monopolies and market power, information imperfections, externalities and spillovers, confused or absent systems of property rights—that disrupt the Fundamental Theorem.

Is there in the practice of democracy a similar Invisible Hand as that in economics? Does a counterpart Fundamental Theorem apply in democracy? A casual observer might think yes, from the volume of political narrative suggesting so, not least in the confident criticism of societies viewed to be not fully democratic.

Some of that narrative is, of course, thoughtful and rigorous. Influential writers have provided empirical evidence and argued that as a practical matter, yes, close enough, democracy achieves good outcomes; non-democracy does not.⁴ Other insightful observers have felt compelled to point out that no theorem or explicit mechanism has allowed equating democracy to desired political outcomes.

Sure, there are sayings. Winston Churchill noted "... it has been said that democracy is the worst form of Government except for all those other forms that have been tried. ...".⁵ H. L. Mencken, on the other hand, wrote "Democracy is a pathetic belief in the collective wisdom of individual ignorance".⁶ Churchill's assertion presents a hypothesis to be weighed against a backdrop of empirical evidence. Mencken's statement points out that there is no analytical confirmation of an Invisible Hand hypothesis for democracy. Instead there is merely "pathetic belief." Even a seasoned interlocutor such as Tharman Shanmugaratnam, when pressed on whether Singapore is truly a democracy, felt compelled to wonder in exasperation why so

⁴ Daron Acemoglu and James Robinson. *Why Nations Fail*. Crown Publishers, New York, 2012; and Francis Fukuyama. *The End of History and the Last Man*. The Free Press, Macmillan, London, 1992. ISBN 0-02-910975-2

⁵ Winston Churchill. *Churchill by Himself: The Definitive Collection of Quotations*. Public Affairs, London, 2008. ISBN 1586486381

⁶ H. L. Mencken. *Notes on Democracy*. Knopf, New York, 1926

many observers “think simply that if all forces are let loose you are able to achieve all the liberties that matter to people”.⁷

So, is democracy synonymous with good government? In the Henry L. Stimson Lectures at Yale, the answer that political theorist John Dunn arrived at was No.⁸ Compared to the Fundamental Theorem of Welfare Economics, the narrative is only superficially similar that liberating political and social forces—free speech, free and fair elections, unfettered political competition—allows societies to achieve optimum political performance. Unlike the hard technical reasoning that assesses optimality outcomes in economics, this parallel understanding in politics remains analytically unconfirmed.

One might think then that confidence in that political belief would be less secure than in its economic counterpart. Not so. The call for democracy continues to sound, and with particular resonance when it connects to world order.

In late 2014, in response to a ruling that had come down from the China National People’s Congress, the city of Hong Kong broke out in open protest against Beijing, and for greater self-determination and democracy. For weeks tens of thousands of demonstrators would occupy Hong Kong’s central business district, disrupting the everyday lives of Hong Kong’s citizens. These Pro-Democracy protestors valiantly stood against the might of the autocratic regime run by the Chinese Communist Party. The challenge was cast.

Hong Kong is a former British colony and a small East Asian island economy. It is, on the one hand, steeped in Western traditions of free speech, democracy, and rule of law, and, on the other, sits on the doorstep of the world’s largest non-democracy. Hong Kong is part of China but together they operate a “One Country, Two Systems” arrangement.

That background made it attractive for a lot of observers in the rest of the world to make their own the contending issues in the demonstrations, in effect taking ownership away from ordinary Hong Kongers. For instance, in the words of The Economist newspaper these “Occupy Central” protests in Hong Kong would constitute a “battle for the future of China”, pitting “China against the West” in the most ominous of geopolitical

⁷ Tharman Shanmugaratnam. An Investigative Interview: Singapore 50 Years After Independence. *45th St Gallen Symposium*, may 2015. URL <https://youtu.be/hpwPciW74b8>

⁸ John Dunn. *Breaking Democracy’s Spell*. Yale University Press, New Haven, 2014

confrontations.⁹ Here would unfold the grand drama of global power shift made concrete.

But what exactly were the issues in this Pro-Democracy battle? In August 2014 the National People's Congress in Beijing proposed reforms to the system for choosing Hong Kong's Chief Executive. In the Beijing proposal, by 2017 every Hong Kong citizen would be eligible to vote for the Chief Executive, Hong Kong's top official. But the list of candidates from which the Chief Executive would be elected would be pre-approved by a 1200-member Committee made up of varied segments of Hong Kong's population.

The Pro-Democracy movement viewed this proposal as a sham: it was not true electoral reform. Although every citizen would be given the vote, in the view of the movement's leaders, candidate pre-selection violated the principle of universal suffrage that had been promised Hong Kong. Hong Kong would not have "genuine universal suffrage".

Beijing, on the other hand, maintained it was keeping to Basic Law—an agreement put together between London and Beijing in the run up to 1997, when Britain returned Hong Kong to China. The August 2014 Beijing proposal delivered universal suffrage, literally, that all citizens were eligible to vote. Since 1997 ordinary Hong Kong-ers had had no say in the selection of their Chief Executive. And they certainly had had no say under British colonial rule before then. Moreover, the August 2014 pronouncement bore no surprises: From as long ago as 1988, Article 45 of the Basic Law had stated that Hong Kong's Chief Executive would be elected by universal suffrage upon nomination by a broadly representative nominating committee. This was precisely what the proposal delivered for 2017.

Indeed, in a narrow technical sense, the 2014 Beijing proposal gave ordinary Hong Kongers more democracy than they had ever had. Rejecting the proposal electoral reform would take Hong Kong back to a system of government that gave ordinary Hong Kongers no democratic voice. Yet that was what the Pro-Democracy (and later the Pan-Democracy) movement proposed, and got the Hong Kong Legislative Committee to agree. In June 2015 Hong Kong rejected the Beijing proposal on electoral re-

⁹ The Economist. The Struggle for Hong Kong. *The Economist* (08 September), sep 2014a

form.

Democracy—in the narrow sense of citizens having access to the ballot box—could not have been the real issue of contention. Was it that the Pan-Democracy movement hoped to have both universal suffrage and open nomination, eventually, and did they feel it would be easier to get both by starting out with neither than by starting out with one? Are there deeper issues not mentioned in this discussion of proposal and counter-proposal—economic insecurity, income inequality—that are the true drivers of these protests?

Many Hong Kongers have described their fear of Beijing imposing ever tighter control over them. Is the Pan-Democracy movement standing in for a much broader range of cultural and political issues where Hong Kong has decided to reject the social mores of Mainlander Chinese?

At base, however, do Hong Kongers just want what everyone else wants, a political system that is responsive to their needs? Is the support for the Pan-Democratic movement saying that simply having universal suffrage does not guarantee that their government will be competent, transparent, and accountable? And that it is the latter that matters more.

Since the 1997-1998 Asian Financial Crisis and the 2008 Global Financial Crisis, Hong Kong's economy has suffered a range of

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5.4 *Democracy and Accountability*

IF DEMOCRACY IS MORE THAN JUST PROCESS—and for world order, of course we have nothing by way of process—which of its critical features should we preserve for global governance?¹⁰

Democracy denatures power. It removes forever the idea the something in the blood or an unobservable characteristic noticeable only in the eyes of some deity singles out those who can govern.

Democracy emphasis accountability. Leaders serve at the will of those they lead. Every leader, every day, needs to feel

¹⁰ Francis Fukuyama. At the End of History Still Stands Democracy. *Wall Street Journal* (06 June), 2014; John Keane. *The Life and Death of Democracy*. Simon and Schuster, London, 2009; and John Micklethwait. The West's Malaise. *The Economist* (20 November), nov 2014

insecure.

But, on the other hand, removing leaders does not wreak havoc on society. Democracy encourages fighting to win but then accepting loss with grace, not by reaching for a gun.

While the ballot-box process is not inconsistent with any of these, neither does it equate to their totality.¹¹

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¹¹ Daniel A. Bell. *The China Model*. Princeton University Press, Princeton, 2015. ISBN 978-0-691-16645-2

6 *Small Competent Nation States*

WHILE HARDLY ANY WRITER ON WORLD ORDER will say, bluntly, “*Might Makes Right*”, almost all dismiss the idea that small competent nation states could reasonably be candidates for global leadership.

It is, of course, tempting to cast world order as only the rise and fall of great geopolitical powers. Only, that narrative restricts the question of world order to be a linear problem: it makes world order, literally, a strict ordering or ranking. One nation state comes after another in sequence, and the greatest geopolitical power—the world leader—is the one on top. The most important changes in world order then come only in the ranking. Such a model lends itself too readily to a zero-sum perspective: one nation advances only ever at the expense of the next one higher up.

In contrast, this book has attempted to argue for a more elaborate, nuanced perspective on world order, one more akin to a complex network of nation states than to a straightforward linear ranking. In this network, critical nodes don’t have to be the ones that have the greatest geopolitical footprint. Rather, depending on the desired operating characteristics of the network, critical nodes are the ones that have greatest leverage—so not only in sheer economic mass, but instead more usefully in strategic importance, political competence, scalability of economic achievement, and ability to build cooperation with others.

Consider Singapore. At independence in 1965 this nation was barely more than a tropical swamp. The population faced constant risk of debilitating disease carried by mosquitoes swarming

from every body of stagnant water Racial riots and union disruption threatened the workforce. Singapore sat right on the doorstep of nations many many times more populous, many many times militarily more powerful, and these nation were openly opposed to Singapore. It had no natural resources to leverage for sustained. Singapore had no set of international observers cheering it on. Instead, as Singapore advanced on its development trajectory, the world's most renowned and influenced economists consistently warned how its economic policies would be its undoing.¹

By 2015 Singapore's per capita GDP exceeded that of the US. In the eyes of many visitors and residents Singapore's transportation and telecommunications infrastructure, and its public services represent an improvement on those available in Western first-world economies. Its multiracial society is peaceful. Singapore was obviously not in the circle of nations that powered the 19th-century Industrial Revolution; today it sells its Bronco All Terrain Tracked Carrier, initially developed for the Singapore Army, to the UK for service as the Warthog military carrier.

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¹ Paul Krugman. The Myth of Asia's Miracle. *Foreign Affairs*, 73(6):62–79, nov 1994. doi: 10.2307/20046929; and Alwyn Young. The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience. *Quarterly Journal of Economics*, 110(3), aug 1995

7 *Conclusions*

ANALYSIS OF WORLD ORDER has progressively gravitated towards a discourse on power—nations doing what they will because they can—and away from legitimacy—the geopolitically powerful doing what is right in the eyes of those their actions affect.

In this view the landscape of global power determines world order. And world order determines the range of global governance that is available to us. It is global governance that decides on the provision of global public goods—features of world society that benefit all humanity but, because of positive externalities, that every nation state seeks only to free-ride and that no single nation state selfishly finds worth its own while to put in place. Without global governance, the world is dangerous, unstable, and insecure. Without global governance, no regulatory and political institutions exist to enforce global antitrust regulation (indeed there is no global antitrust regulation to enforce), to serve as global lender of last resort, to provide a global social protection scheme, in short, to oversee global markets. And without such oversight, global markets are potentially distorted and unstable, attracting little popular legitimacy while putting at risk the livelihood and security of large swathes of humanity.¹

Global power is the ability to order the world.

This need be no bad thing. If we lived in a world where what is good for a great power is also good for the world, then the narratives on power and on legitimacy are aligned. Economists might argue that in such a situation because of the externality—what is socially good is not equal in magnitude to the individual

¹ Dani Rodrik. *The Globalization Paradox: Why Global Markets, States, and Democracy Can't Coexist*. Oxford University Press, Oxford, 2011

nation's gain—still world order remains suboptimal. This disparity, however, is perhaps not the key problem; at least both gains then point in the same direction. However, reality is more likely a situation where incentives are not just imperfectly aligned but instead point in opposite directions.

In Chapter 1 of *Every Nation for Itself* Ian Bremmer describes under G-Zero—his visualisation of a leaderless world economy—how one particularly unrealistic structure to world order might be imagined:²

If geopolitics were scripted by Hollywood, Brazil might take the lead on global environmental issues, India on worldwide poverty, and China on clean energy. Each has deep experience and a vested interest in the assigned subject, and all of them might help a beleaguered world make large strides forward. But G-Zero is not the feel good movie of the year, and these and other emerging powers are unlikely to bid for a bigger share of global leadership.

Why does Bremmer consider this scenario Hollywood-style fantasy? Because, in his view, emerging economies

[...] face so many formidable challenges at home in managing the next stages of economic development and in protecting their domestic political popularity. For emerging-market countries, emergence is a full-time job, and the demands it imposes on governments are often at odds with those made by other governments [...]

In other words we can rule out this alternative model of leadership and world order because capacity still determines structure.

In seeking an economics-based rational world order, however, this book has ended up with something close to Bremmer's unlikely fantasy scenario. The exact identities and roles might differ but both the book's preferred outcome and Bremmer's Hollywood-style fantasy share significant common features. Although Bremmer dismisses that scenario as nothing more than a "feel-good movie", the phrasing can also be read as Bremmer grudgingly admitting the virtue of global leadership grounded in expertise and motivation. He just does not think such an outcome feasible given the constraints under which individual nation states in the current world order operate.

² Ian Bremmer. *Every Nation for Itself*. Portfolio (Penguin Group), London, may 2012. ISBN 1591844681

However, this book has argued that that outcome is not just feasible; it is actually a good thing. ...

8 *Technical Appendix*

Obviously, no single measure of economic activity or political capacity can provide definitive motivation for one world order or another. Technical analysis, therefore, can only seek to come up with as many different ways as possible to shed light on such discussion.

A key justification for a useful world order is that that system solves problems of externalities and global public goods. From economics, we know that such challenges are not satisfactorily dealt with by individual nations acting in isolation. Consequently, even while providing useful insight and ideas, the standard demand and supply framework fails to produce an optimal solution. Conventional economic analysis turns then to the welfare optimisation problem directly: Without externalities, the solution to this problem recovers the demand and supply equilibrium; with externalities, by definition it produces the optimal outcome even when the demand and supply framework does not. Section 8.1 below provides that economic analysis.

Subsequent sections then present different empirical perspectives on shifts in the global economy, relevant for the welfare optimisation problem of Section 8.1.

8.1 *An Economic Statement of the Problem*

In the notation of Chapter 2, a **rational world order** solves the mathematical programming problem:

$$\text{Program } \mathfrak{M} \begin{cases} \max_{C, G} & U(C, G) \\ \text{s.t.} & \mathfrak{R}, S, \mathfrak{I}, \text{ and } \mathfrak{X}. \end{cases} \quad (8.1)$$

In words, maximise the well-being of the world subject to feasibility constraints.

In environments without externalities and public goods, and where certain other conditions are satisfied, a problem like (8.1) can be decentralised, i.e., implemented by individual actors on the demand and supply side, taking prices as given. With externalities, however, a system of taxes and transfers will typically be needed for the actions of individually optimising actors to bring about an optimum.

To design such a system, the policy-maker needs first to solve the optimisation problem. Moreover, as the global environment changes, so too will the solution evolve.

8.2 *Analysing the Dynamics of the Global Environment*

Conventional quantitative analyses on global changes might examine changes over time in perhaps a small collection of nation states. Comparing the economic trajectories of China and the US is a leading instance of such investigation.

However, depending on the question, pre-selecting for study only a subset of global dynamics and events runs the risk of biasing one's findings. As a consequence, a researcher might then be unable to determine the pervasiveness and generality of the results. The obvious alternative is to study the planet in its entirety, e.g., to begin from a snapshot such as Figure 8.1.

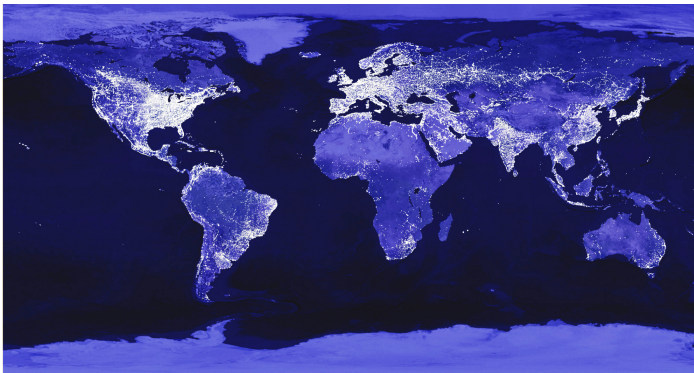


Figure 8.1: The Earth at Night, 1980. Source: DMSP data courtesy Marc Imhoff of NASA GSFC and Christopher Elvidge of NOAA NGDC. Image by Craig Mayhew and Robert Simon, NASA Earth Observatory.

The Figure shows lights in the night-time sky across Earth.

To be clear, of course, the planet is never dark all at the same instant: the picture is a false image created by splicing together a sequence of images taken from satellites encircling the planet. It is meant only to be illustrative of the points to follow.

Figure 8.1 shows where people live who are able to light up their environment at night. On this planetary scale where people live is also where they work, i.e., add value, create wealth, and engage in political activity. Lights in the night-time sky can, therefore, be informative for select planet-sized economic and political developments.

Upon scanning Figure 8.1, one's eye is drawn to the swath of lights on both the immediate east and west of the Atlantic Ocean. Therefore, that the nations of the Trans-Atlantic axis might hold a central place in international policy-making should come as no surprise. However, this is a snapshot of the planet from 1980. If impressions such as those given us by Figure 8.1 provide implicit support for a world organised around the Trans-Atlantic axis, then so too we might re-examine that perspective if we could see how the world has changed from when this photo image was taken.

Some technical observations on Figure 8.1 are relevant for our putting together a revised and more informative picture of the planet. Unlike in the picture, Earth in reality is not a flat 2-dimensional place. Therefore, locations that appear far apart in the Figure need not be as distant as suggested. Japan and California are in the picture separated by 17 timezones but their actual separation is much less: Across the Pacific Ocean, Tokyo and Los Angeles are only 9000km apart. The more extreme example is how the Bering Straits separates Russia and the US by only 82km, a fact that Figure 8.1 is unable to reveal.

Second, separations further away from the equator towards either the North or South Poles are progressively distorted in any flat-map depiction of the planet. In actuality, one degree of longitude separation at the Equator is slightly more than 111km but at the poles it is zero. Figure 8.1 cannot show this. A leading flat-map depiction would show longitudes to be equidistant across the planet; others might attempt to correct for this distortion but can never do so perfectly.

Observations like these are well-understood in navigation technology and geography research.¹ The issue here is, for the questions of interest to us, do these points matter? Simply as a technical statement, angles and distances in particular, or geometry more generally, need special treatment when projecting a 3-dimensional planet to a 2-dimensional plane.

But, further, for our purposes of analyzing data on the planet, we need to go beyond only such manipulations.

Almost all research that draws on statistical distributions begins by finding the distribution's mean. But for a spatial distribution on the surface of the 3-dimensional Earth, the mean will almost certainly not remain on that surface. Thus, we need operations that apply simultaneously to 3-dimensional space—on and off the Earth's surface in general, but with special emphasis on locations where economic and political activity actually take place. Flat-map representations cannot provide insight on such manipulations.

8.3 *The World's Economic Centre of Gravity*

To understand how the world might have changed from that described in Figure 8.1 we look at the dynamics of a key summary indicator, the weighted spatial average of the world's economic activity, or, simply the world's economic centre of gravity (WECG). That this centre of gravity is shifting has of course long been used as a metaphor to conceptualise shifts in the global economy. Here we make that metaphor literal.²

Combining different data sources (detailed below) we can track through time economic activity on all locations on the planet. The readings on many locations will naturally be zero: No economic activity is recorded in Antarctica or in the middle of the Atlantic Ocean. Moreover, what measurable activity there is will occur, to any significant extent, only on the Earth's surface. But because the planet is, approximately, a 3-dimensional ball the weighted spatial average of economic activity will normally be a point not on the planet's surface, but beneath it. (Figure 8.5).

By the same reasoning, the WECG need not itself show a great deal of economic activity. It is not necessarily a mode of

¹ John Snyder. *Flattening the Earth: Two Thousand Years of Map Projections*. University of Chicago Press, Chicago, 1998. ISBN 978-0226767475

² J M Grether and N A Mathys. Is the world's economic centre of gravity already in Asia? *Area*, 42(1): 47–50, 2010. ISSN 00040894. DOI: 10.1111/j.1475-4762.2009.00895.x; and Danny Quah. The Global Economy's Shifting Centre of Gravity. *Global Policy*, 2(1):3–9, jan 2011. DOI: 10.1111/j.1758-5899.2010.00066.x

the spatial distribution, nor need it be any significant cluster of economic value.

Conceptual difficulties and related work: Visualising the WECG

The calculation of the WECG is straightforward. Representing each location ω_j by Cartesian coordinates (x_j, y_j, z_j) and denoting the value of economic activity at ω_j by W_j , the WECG has Cartesian coordinates

$$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \left(\sum_j \begin{pmatrix} x_j \\ y_j \\ z_j \end{pmatrix} W_j \right) \times \left(\sum_j W_j \right)^{-1}. \quad (8.2)$$

It is its representation in convenient visual form that requires some subtle analysis. To see why this matters, compare WECG depictions in Quah [2011], Grether and Mathys [2010], and Dobbs et al. [2012] in Figures 8.2–8.4 respectively.

The world's economic centre of gravity: 1980-2050

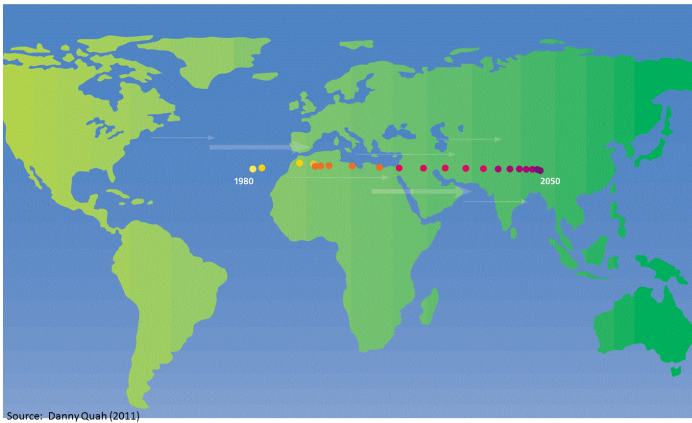


Figure 8.2: The world's economic centre of gravity goes east. Source: Quah [2011]

Details differ across the three. In Grether and Mathys [2010] cities are the basic locations for economic activity. Taking each nation in turn, that paper allocates a nation's GDP across its cities, and then uses the resulting global collection of urban locations to calculate the world's economic centre of gravity. Quah [2011] considers value produced in both cities and rural regions,

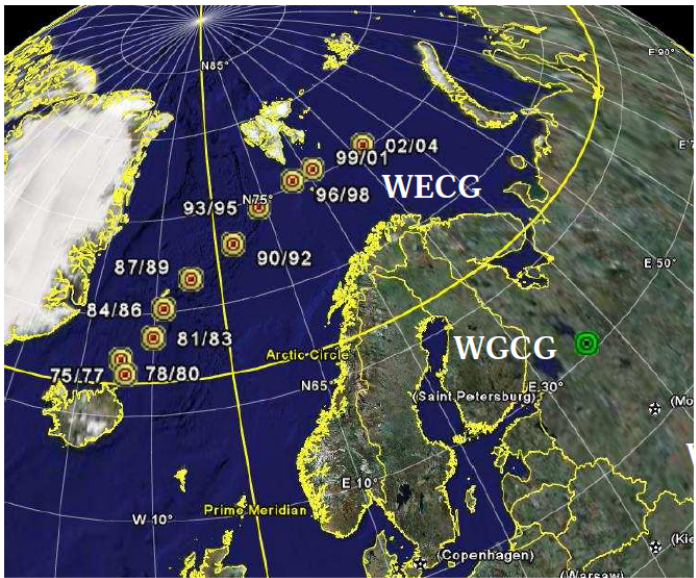


Figure 8.3: The world's economic centre of gravity shown north of the Arctic Circle. Source: Grether and Mathys [2010]

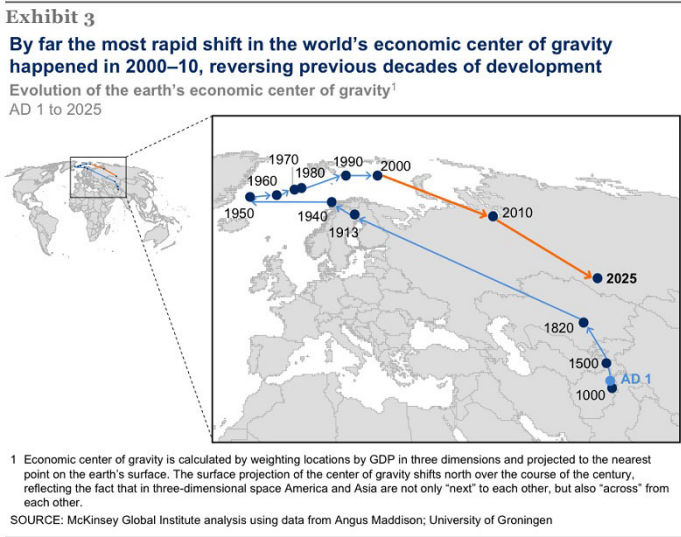


Figure 8.4: The McKinsey Projection. With a specific choice on the projection, the world's economic centre of gravity can appear very far north. Source: Dobbs et al. [2012]

so that across all countries, that paper identifies nearly 700 locations on the planet across which is distributed the production of economic value. For both these papers it is the locations of cities (together with rural concentrations in Quah [2011]) that figure in calculating the world's economic centre of gravity: Their inputs on the right side of equation (8.2) are points on the Earth's surface, precise to a resolution of two decimal-point degree latitude and longitude coordinates.

The McKinsey Global Institute report [Dobbs et al., 2012] puts centre stage cities as well and urbanisation more generally. However, that report's WECG depiction, reproduced here as Figure 8.4, draws not on cities but entire countries, thus making no distinction between urban and rural locations. That report seeks to describe the WECG over a long historical time period, and therefore uses data from the Maddison Project [Bolt and van Zanden, 2014]. Those statistics, however, are not cross-tabulated to the evolution of cities. Even if pre-1500 GDP in each national economy might have been produced in just one or two cities, that has no longer been the case for at least the last century now in the world's largest countries.

The Figure, therefore, relates shifts in the world's economic centre of gravity to faster growth taking place in particular countries, not to countries themselves becoming more urbanised. Given the goal of that McKinsey report, this is paradoxical. The Figure might well be a good illustration of the world's economic centre of gravity but it is not, by itself, an informative depiction of cities and urbanisation. Moreover, if it is misleading to ignore city locations and use only countrywide information, then Figure 8.4 will not even accurately describe WECG.

In Dobbs et al. [2012], to calculate the world's economic centre of gravity, measures of national economic activity are pinned arbitrarily to just one capital city or some other single notable location. This makes for a significant difference. While, for instance, Grether and Mathys [2010] and Quah [2011] used data that included hundreds of locations for China, India, and the US alone—those three nations have large individual cities and large rural concentrations spread across their geographies—the calculations in Dobbs et al. [2012] represent all of China, India,

and the US through only three points. The underlying data, therefore, differ importantly across Figures 8.2—8.4.

Despite these differences, for the period since 1980 when the time samples for all three studies overlap, it is a striking common feature that emerges: All three depictions show substantial and ongoing shift east in the WECG. This feature is robust, and likely would continue to appear through many different variations in the calculation.

But, at the same time, a critical difference also manifests across the different studies. While in Figure 8.2 the shift east is extensive and dominant across the temperate regions of the planet, the latter two display movement primarily about the Arctic Circle. Which depiction is right? If it's the latter two, why is the world's economic centre of gravity so far north?

To address these questions, and to introduce the calculations to be deployed later, recall that Dobbs et al. [2012] and Grether and Mathys [2010] used the latitudes of their estimated WECGs to map and track WECG dynamics in Figures 8.3 and 8.4 respectively, while Quah [2011] calculated a so-called "projected latitude" of the WECG to construct his map Figure 8.2.

Consider then, as in Figure 8.5, when solution ω determined by equation (8.2) has Cartesian coordinates (x, y, z) that imply latitude ϕ and locate the WECG in the Northern Hemisphere deep beneath the planet's surface. The true distance of the WECG north of the equator is the separation along the North-South axis between the equatorial plane and the latitudinal section indicated in the Figure in which ω rests; that distance is also z of ω 's Cartesian coordinates.

In this Figure, the latitudinal projection used in Quah [2011] gives, for where ω is located, the section through the planet perpendicular to the North-South axis. This z separation of the section evolving in time as ω moves is what is depicted as ω 's vertical location in Figure 8.2. In contrast, the latitude of ω is ϕ : it is this that is used in the three-dimensional depictions in Figures 8.3 and 8.4.

When one uses latitude ϕ to map ω 's position on the surface of the planet, ignoring how deep ω is beneath the surface, the point that is displayed is not distance z from the equator.

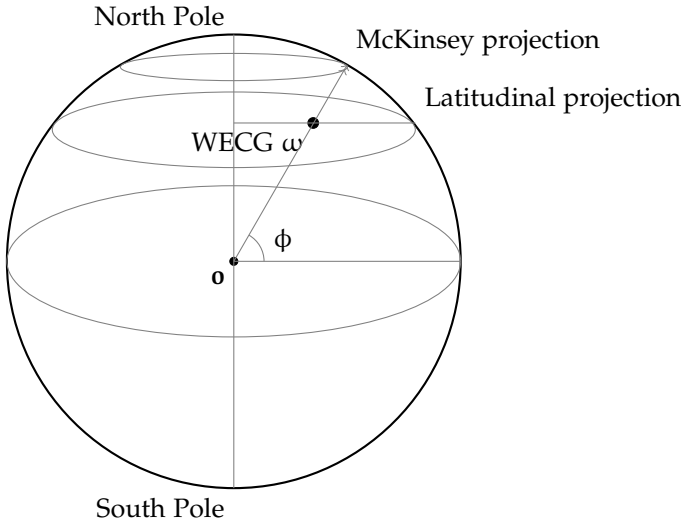


Figure 8.5: The WECG ω will typically be in the interior of the planet, not on the surface. When ω is in the Northern Hemisphere, its true distance north is the separation between the equatorial plane and the latitudinal section in which ω rests, i.e., the z Cartesian coordinate of ω . In contrast, however, using its latitude ϕ information and implicitly ignoring that ω lies beneath the Earth's surface is tantamount to looking at ϕ on the surface—as Grether-Mathys and McKinsey did—thereby displaying a location misleadingly further north than ω actually is.

Instead, it is that point denoted “McKinsey projection” in Figure 8.5, potentially far north of ω 's actual z distance above the equator.

A final example highlights the message. Suppose that in Figure 8.5 people only live on a specific circle on the planet's surface at a fixed z Cartesian coordinate. Every point on that circle has the same latitude. Regardless how people might be dispersed along this circle of life, the WECG ω must be somewhere in the plane defined by that circle. The resulting WECG will typically be inside the planet, but will have the same z coordinate as where everyone lives. In this example it is obviously misleading to show WECG anywhere but at distance z from the equator, in line with all economic activity on the planet. The indicated McKinsey projection fails this basic test: it picks out a point on the planet's surface that is not on the plane of economic activity.

We conclude from this that while all three studies produce conclusions approximately consistent with each other, the two using the McKinsey projection can potentially be visually misleading for the world's economic centre of gravity.

Estimating the WECG

Geographical data are typically provided based on latitude and longitude designations. To use such data in equation (8.2), the locations need to be transformed to Cartesian coordinates:

$$\begin{aligned}x &= R \cos \phi \cos \lambda \\y &= R \cos \phi \sin \lambda \\z &= R \sin \phi.\end{aligned}\tag{8.3}$$

To see how this works, follow the sequence of projections given in Figures 8.6 through 8.8.

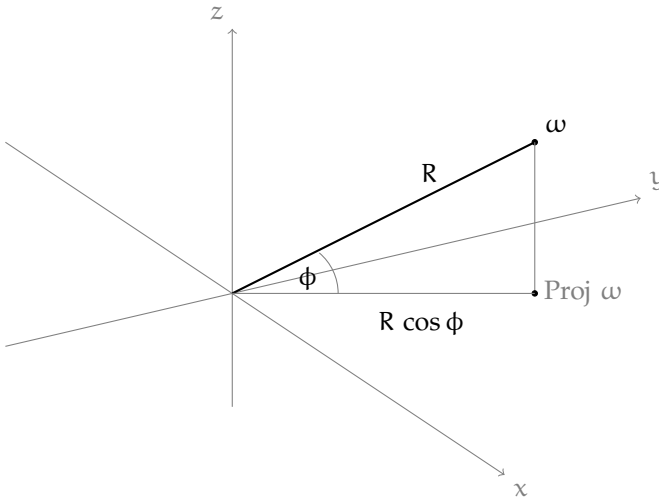
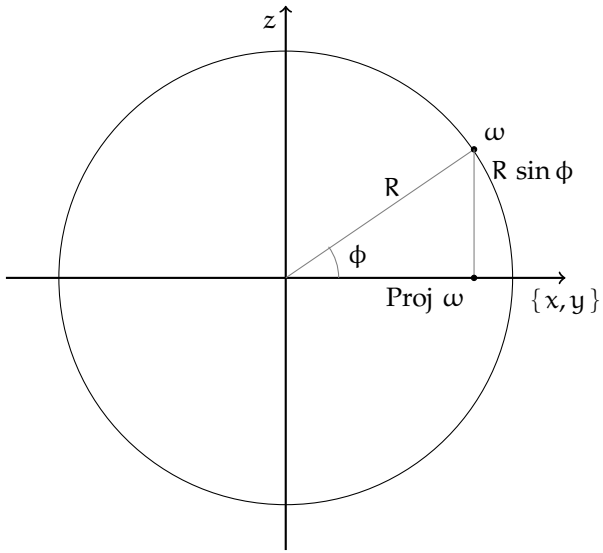


Figure 8.6: Cartesian Coordinates. Mapping the 3-Dimensional Globe

First, in Figure 8.6, identify the physical centre of the planet with \mathbf{o} the origin of 3-dimensional Euclidean space \mathbb{R}^3 , aligned so that the North Pole is located on the positive z -axis. When location ω has latitude ϕ its projection onto the equatorial plane will be $R \cos \phi$ from the planet's centre \mathbf{o} .

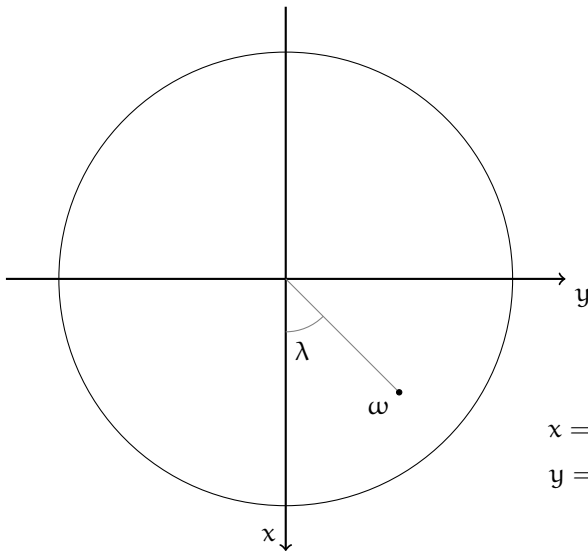
Viewing the planet, as in Figure 8.7, from the equatorial plane head-on so that the North-South great circle passing through ω is just visible shows that ω has z coordinate equal to $R \sin \phi$.

Finally, Figure 8.8 shows the perspective from the North Pole, aligned perspective so that the x axis denotes the Greenwich Meridian. Location ω has x coordinate equal to $R \cos \phi \cos \lambda$ and y coordinate $R \cos \phi \sin \lambda$. These establish the relations in equation (8.3).



Latitude ϕ
 $|\text{Proj } \omega| = R \cos \phi$

Figure 8.7: Mapping the 3-Dimensional Globe: Head-on at the Equator



Longitude λ
 $x = |\text{Proj } P| \cos \lambda$
 $y = |\text{Proj } P| \sin \lambda$

Figure 8.8: Mapping the 3-Dimensional Globe: From the North Pole

Empirical Results

The new results updated from Quah [2011] use . . .

. . .

8.4 Where People Count

The fact presented in Section 4.1 is not just a tabulation of where people live on Earth. Nor is it a statement of where the highest-population places are on the planet. For the latter, if one were interested in just the US say, one might look at Figure 8.9.

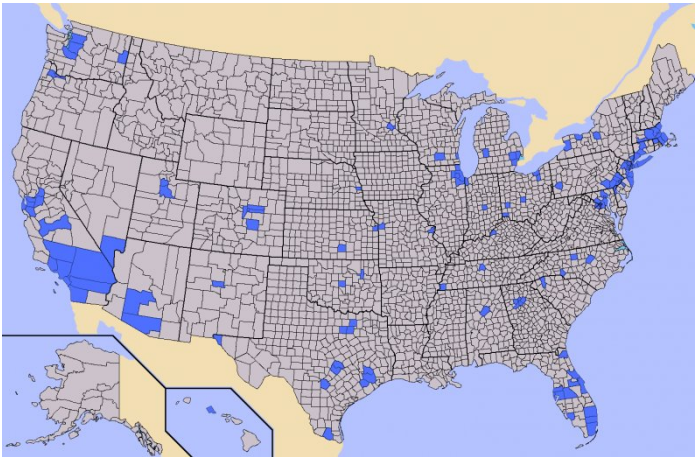


Figure 8.9: Out of over 3000, the 146 most populated counties in the US account for half the national population. Source: Hickey and Weisenthal [2013].

In that illustration one ends up with a sprawl that need not be geographically concentrated—in the US population description, the sprawl could have been spatially concentrated but happens not to be. Instead, the focus of attention wanders, simply going to wherever the most populous counties are, ranging in Figure 8.9 from the extreme northeast of the continental US to its extreme southwest.

In contrast, Section 4.1 describes the smallest circle on Earth that encloses a given fraction of the world's population. This differs from the previous depictions. The calculation in Section 4.1 solves an optimization problem; the previous ones described do not.

Take Ω to be the set of geographic locations on the surface of our three-dimensional planet, and write R for the planet's radius.

Measure distance on the planet by orthodromic or “great-circle” distance, i.e., not as a straight line in three-dimensional surface, but instead as the arc distance between two points traversed on the surface. Denote this distance by the function

$$d(\omega, \omega') \geq 0 \quad \text{for } \omega, \omega' \text{ in } \Omega.$$

Definition 8.4.1. A **spherical cap** or just a **cap** $\Gamma \subset \Omega$ is a subset of locations on Ω defined by two values, a point ω in Ω , and σ , a non-negative distance:

$$\Gamma \stackrel{\text{def}}{=} \{ \omega' \in \Omega : d(\omega', \omega) \leq \sigma \}. \quad (8.4)$$

To make explicit the subset of Ω under consideration at any time we will sometimes write $\Gamma(\omega, \sigma)$ to indicate the cap in equation (8.4). We can then refer to ω as the centre of the cap and σ as its orthodromic radius.³

Since a sphere is not Euclidean—the angles of a triangle sum to more than 180° , and not only are there no pairs of lines that never meet but every pair meets twice—some care is needed in analysis on Earth's surface. For calculating orthodromic distance from data typically available, the following is useful.⁴

Proposition 8.4.1. *Consider on Ω the pair of locations ω_1 and ω_2 with latitudes ϕ_1 and ϕ_2 , and longitudes λ_1 and λ_2 , respectively. Then their orthodromic separation is*

$$d(\omega_1, \omega_2) = \theta R \quad (8.5)$$

where

$$\cos \theta = \sin \phi_1 \sin \phi_2 + \cos \phi_1 \cos \phi_2 \cos(\lambda_1 - \lambda_2), \quad (8.6)$$

or, equivalently,

$$\text{hav } \theta = \text{hav}(\phi_1 - \phi_2) + \cos \phi_1 \cos \phi_2 \text{hav}(\lambda_1 - \lambda_2). \quad (8.7)$$

Proof. Again, identify the centre of planet Ω with \mathbf{o} the origin of 3-dimensional Euclidean space \mathbb{R}^3 , aligned so that the North Pole is located on the positive z -axis. Denote by \mathbf{V} the vector

³ At some risk of confusion, some authors might refer to Γ as defined in equation (8.4) as a *disk*, the same way that in spherical trigonometry a great circle is called simply a *line* and an arc is called a *line segment* [Todhunter, 1886]. Other authors refer to the spherical cap as a *spherical segment* as it is the subset of the sphere above a fixed plane [Harris and Stocker, 2006].

⁴ Recall that hav is the Haversine function, satisfying $\text{hav } \psi = \sin^2(\psi/2) = (1 - \cos \psi)/2$.

from \mathbf{o} to location ω on Ω . Then the orthodromic separation between any two locations ω_1 and ω_2 is given by equation (8.5) when θ is the angle between \mathbf{V}_1 and \mathbf{V}_2 (Figure 8.10). Moreover, by the definition of the inner product,

$$\mathbf{V}_1 \cdot \mathbf{V}_2 = \|\mathbf{V}_1\| \times \|\mathbf{V}_2\| \times \cos \theta,$$

where $\|\mathbf{V}\|$ denotes the length of vector \mathbf{V} . But every point ω on Ω has Cartesian coordinates:

$$x = R \cos \phi \cos \lambda$$

$$y = R \cos \phi \sin \lambda$$

$$z = R \sin \phi.$$

Therefore, evaluating explicitly:

$$\begin{aligned} \cos \theta &= \frac{\mathbf{V}_1 \cdot \mathbf{V}_2}{\|\mathbf{V}_1\| \times \|\mathbf{V}_2\|} \\ &= \begin{pmatrix} \cos \phi_1 \cos \lambda_1 \\ \cos \phi_1 \sin \lambda_1 \\ \sin \phi_1 \end{pmatrix} \cdot \begin{pmatrix} \cos \phi_2 \cos \lambda_2 \\ \cos \phi_2 \sin \lambda_2 \\ \sin \phi_2 \end{pmatrix} \\ &= \cos \phi_1 \cos \phi_2 [\cos \lambda_1 \cos \lambda_2 + \sin \lambda_1 \sin \lambda_2] + \sin \phi_1 \sin \phi_2 \\ &= \sin \phi_1 \sin \phi_2 + \cos \phi_1 \cos \phi_2 \cos(\lambda_1 - \lambda_2) \end{aligned}$$

gives equation (8.6). Finally, to obtain equation (8.7) rewrite equation (8.6) as:

$$\begin{aligned} \cos \theta &= \sin \phi_1 \sin \phi_2 + \cos \phi_1 \cos \phi_2 \\ &\quad + \cos \phi_1 \cos \phi_2 \times (\cos(\lambda_1 - \lambda_2) - 1) \\ &= \cos(\phi_1 - \phi_2) - \cos \phi_1 \cos \phi_2 \times (1 - \cos(\lambda_1 - \lambda_2)). \end{aligned}$$

But for any ψ we have $\cos \psi = 1 - 2 \operatorname{hav} \psi$, so that

$$\begin{aligned} 1 - 2 \operatorname{hav} \theta &= 1 - 2 \operatorname{hav}(\phi_1 - \phi_2) - 2 \cos \phi_1 \cos \phi_2 \operatorname{hav}(\lambda_1 - \lambda_2) \\ \implies \operatorname{hav} \theta &= \operatorname{hav}(\phi_1 - \phi_2) + \cos \phi_1 \cos \phi_2 \operatorname{hav}(\lambda_1 - \lambda_2). \end{aligned}$$

□

Equations (8.6) and (8.7) provide alternative ways to calculate θ and thus orthodromic distance. In practice, for small distances, better numerical accuracy obtains using equation (8.7) as it avoids inverting the cosine function.

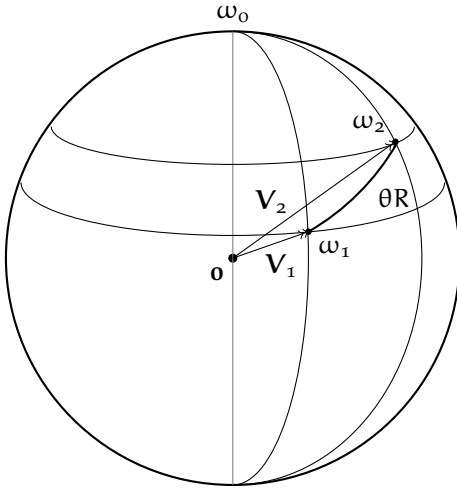


Figure 8.10: Orthodromic Distance. Directly by inner product and, alternatively, indirectly by the Spherical Law of Cosines.

The proof given here of Prop. 8.4.1 is direct and self-contained. However, the result can also be given as an implication of the Spherical Law of Cosines [Todhunter, 1886, Article 37, p. 17]. To that end, in Figure 8.10 label the North Pole ω_0 and construct longitudinal great circles from ω_0 through ω_1 and ω_2 respectively. The orthodromic distance θR , too, is taken along an arc of yet another great circle. Applying the Spherical Law of Cosines to the spherical triangle $\omega_0\omega_1\omega_2$ gives:

$$\begin{aligned}\cos \theta &= \cos(\pi/2 - \phi_1) \cos(\pi/2 - \phi_2) \\ &\quad + \sin(\pi/2 - \phi_1) \sin(\pi/2 - \phi_2) \times \cos(\lambda_1 - \lambda_2) \\ &= \sin(\phi_1) \sin(\phi_2) + \cos(\phi_1) \cos(\phi_2) \times \cos(\lambda_1 - \lambda_2),\end{aligned}$$

thereby establishing Prop. 8.4.1.

In this analysis we are concerned only with populations and activity on the Earth's surface, not high above that surface nor deep below it, inside the Earth. By contrast when we calculate, say, the world's economic centre of gravity it will be necessary to use locations beneath the Earth's surface.⁵

Let \mathfrak{A} be the sigma-algebra generated by the caps on Ω . Define on (Ω, \mathfrak{A}) the measure μ , so that for any subset of locations $A \in \mathfrak{A}$ the value $\mu(A)$ is the total number of people living within A . Since μ is a measure it is non-negative and increasing in its argument, i.e., $A \subseteq A' \implies \mu(A) \leq \mu(A')$. In a different application we might let $\mu(A)$ be, over geographical expanse

⁵ Danny Quah. The Global Economy's Shifting Centre of Gravity. *Global Policy*, 2(1):3–9, jan 2011. DOI: 10.1111/j.1758-5899.2010.00066.x

A , the value of GDP generated, pollution produced, or carbon emissions measured. For populations and GDP, μ will typically be expected to take value zero over oceans and deserts. On the other hand, for A that is London or New York City the value $\mu(A)$ will be relatively high.

Remember, in this discussion, a cap Γ sits not on a plane but on the curved surface of a three-dimensional sphere. Despite this, however, the cap's boundary on Ω remains a circle. An orthodromic radius σ can vary from zero only up to a maximum length $\bar{\sigma}$ where for any ω the cap $\Gamma(\omega, \bar{\sigma})$ is a planetary hemisphere. On the planet's surface every point ω uniquely defines its enclosing hemisphere $\Gamma(\omega, \bar{\sigma})$ and, simultaneously, the complementary hemisphere $\Omega \setminus \Gamma(\omega, \bar{\sigma})$. The boundary between the enclosing and complementary hemispheres is the great circle $\{\omega' : d(\omega', \omega) = \bar{\sigma}\}$. Rank caps by radii σ , so that we can speak of larger and smaller caps regardless of their centre ω .

Definition 8.4.2. Fix Ω . A **tightest cluster** for measure μ is a smallest cap $\Gamma^* \stackrel{\text{def}}{=} \Gamma(\omega^*, \sigma^*)$ containing at least half $\mu(\Omega)$, i.e., if for some $\omega \in \Omega$ the cap $\Gamma = \Gamma(\omega, \sigma)$ has $\mu(\Gamma) \geq \mu(\Omega)/2$ then $\sigma \geq \sigma^*$.

(More generally, one can define the world's **tightest population α -cluster** to be the smallest cap that contains α fraction of the world's population.)

Of course, depending on μ , there might be multiple such tightest clusters. And whether or not unique, a tightest cluster will not necessarily be where population density is highest. Suppose for instance that a particular neighborhood in Monaco, Singapore, Shanghai, Mexico City, or Mumbai is that location in the world where population density is highest in the world. Unless that maximally high population density in that city is sustained into the neighboring suburbs and countrysides, the enclosing cap there containing 50% of the world's population might need to be very large in orthodromic radius. It would then depend on the how the rest of the world's population is distributed whether an enclosing cap is a tightest cluster.

The mapping given in Definition 8.4.2 from measure μ to tightest cluster is in every practical sense discontinuous, i.e., the

mapping is continuous in no reasonable topology. To see this, suppose that the entire world's population lives in just two caps: 51% of the world in a cap 5km in orthodromic radius centred on New York City, the remaining 49% in an equal-sized cap centred on Beijing. Suppose further that in the two caps the spatial distribution of population is uniform, with densities equal across New York and Beijing. The world's tightest cluster is centred on New York City, with its orthodromic radius a little under 5km. But now suppose the population in Beijing grows smoothly while that in New York remains constant. Then there will be an instant of time when the world's tightest cluster switches instantaneously from New York to Beijing, even though the population measure μ changes only smoothly (in pretty much every sensible metric for families of measures).

Given the definitions above, the algorithm to find the world's tightest clusters is relatively direct. For each location ω on Ω find the orthodromic radius of the smallest enclosing cap that contains half the world:

$$\sigma_*(\omega) \stackrel{\text{def}}{=} \arg \inf \{ \sigma \in [0, \bar{\sigma}] : \mu(\Gamma(\omega, \sigma)) \geq \mu(\Omega)/2 \}.$$

Without restricting the collection of possible measures, it is difficult to provide an existence or uniqueness theorem on the minimisation here. However, it is certainly helpful that in the problem μ is non-negative and increasing in σ (although not necessarily strictly so) and the interval $[0, \bar{\sigma}]$ is compact. If a location ω has enclosing caps reach the full hemisphere and still $\mu(\Gamma(\omega, \cdot)) < \mu(\Omega)/2$, then it is an empty set over which the minimisation is taken, and thus $\sigma_*(\omega)$ is set to $+\infty$.

Next, take different locations on Ω until the orthodromic radius of the smallest enclosing cap is itself minimised, i.e., find:

$$\begin{aligned} \omega^* &\stackrel{\text{def}}{=} \arg \inf_{\omega \in \Omega} \sigma_*(\omega) \\ &= \arg \inf_{\omega \in \Omega} \{ \arg \inf \{ \sigma \in [0, \bar{\sigma}] : \mu(\Gamma(\omega, \sigma)) \geq \mu(\Omega)/2 \} \}. \end{aligned} \quad (8.8)$$

The world's tightest clusters are caps identified by solutions ω^* to equation (8.8), i.e., they are $\Gamma(\omega^*, \sigma_*(\omega^*))$. There might be multiple tightest clusters. Tightest clusters might overlap. But

they will all have the same orthodromic radius $\sigma_*(\omega^*)$ for any tightest cluster center ω^* .

It might be possible to restrict the collection of possible measures to provide existence and uniqueness statements for the solution to equation (8.8). As a practical matter, however, the solution will still come down to raw computation power: pretty much the only way to solve (8.8) is to calculate its right side on a large finite grid over Ω . Solutions are conditional on that grid. In that case existence is guaranteed—the optimization occurs only over a finite set, and uniqueness can then be directly verified.

This algorithm recovers the clusters identified in Chapter 4.

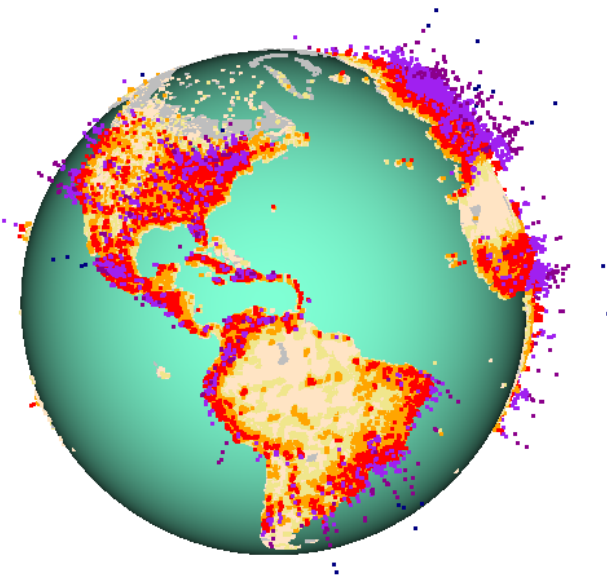


Figure 8.11: World Population (America view). Author's calculations of SEDAC Population by 100 sq km

Figure 8.12: World Population (Africa view). Author's calculations of SEDAC Population by 100 sq km

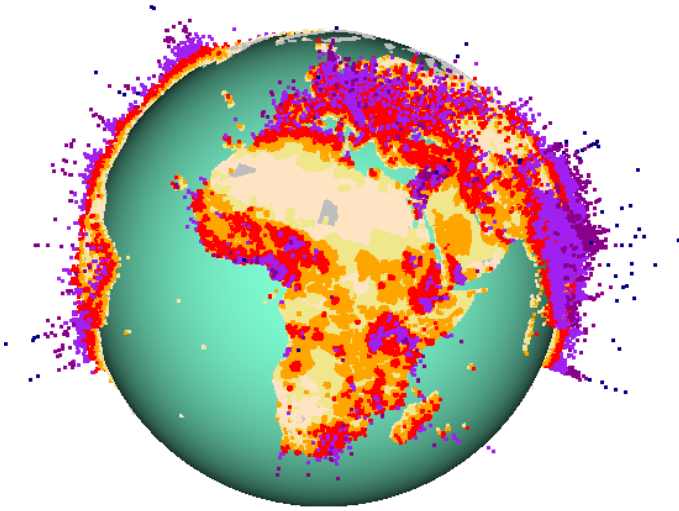
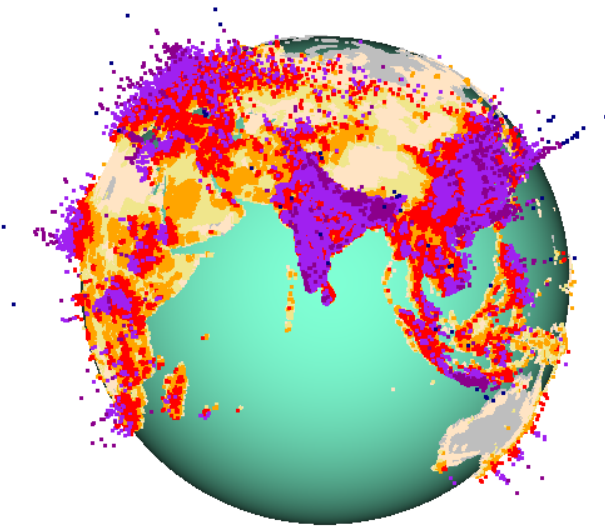


Figure 8.13: World Population (Asia view). Author's calculations of SEDAC Population by 100 sq km



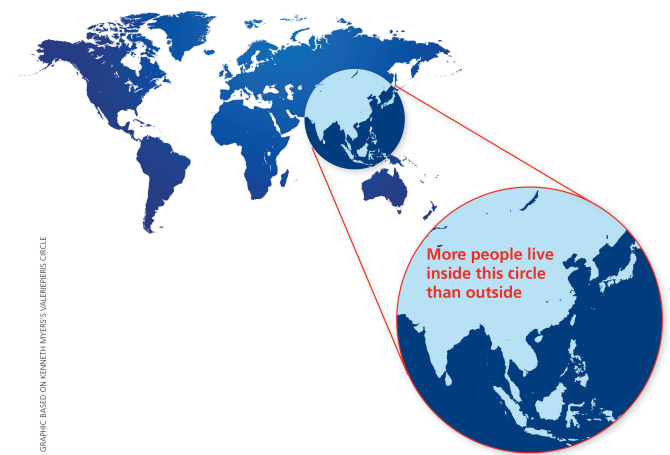


Figure 8.14: The Ken Myers Circle, appearing originally in Myers [2013].



Figure 8.15: The World's Tightest Population Cluster 2015. Shan State, eastern Myanmar; 3300km

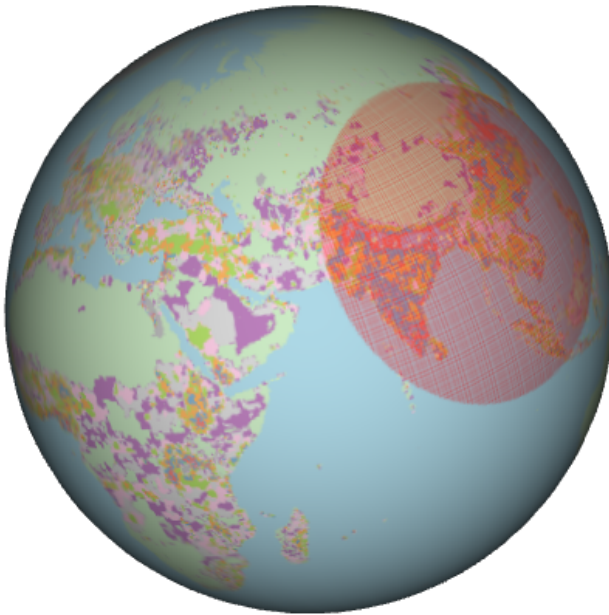


Figure 8.16: The World's
Tightest Population Cluster
2015. Shan State, eastern
Myanmar; 3300km



Figure 8.17: The World's
Tightest Population Cluster
2015. Shan State, eastern
Myanmar; 3300km

9 Bibliography

Daron Acemoglu and James Robinson. *Why Nations Fail*. Crown Publishers, New York, 2012.

Robert Axelrod. *The Evolution of Cooperation*. Basic Books, New York, revised edition, 2006.

Daniel A. Bell. *The China Model*. Princeton University Press, Princeton, 2015. ISBN 978-0-691-16645-2.

Jutta Bolt and Jan Luiten van Zanden. The Maddison Project: collaborative research on historical national accounts. *The Economic History Review*, 67(3):627–651, 2014. ISSN 1468-0289. DOI: 10.1111/1468-0289.12032.

Ian Bremmer. *Every Nation for Itself*. Portfolio (Penguin Group), London, may 2012. ISBN 1591844681.

Stephen G. Brooks and William C. Wohlforth. Reshaping the World Order: How Washington Should Reform International Institutions. *Foreign Affairs*, 88(2):49–63, mar 2009.

Menzie Chinn and Jeffrey Frankel. Why the Euro Will Rival the Dollar. *International Finance*, 11(1):49–73, 2008. DOI: 10.1111/j.1468-2362.2008.00215.x.

Winston Churchill. *Churchill by Himself: The Definitive Collection of Quotations*. Public Affairs, London, 2008. ISBN 1586486381.

Michael Cox. Power Shifts, Economic Change, and the Decline of the West? *International Relations*, 26(4):369–383, dec 2012. DOI: 10.1177/0047117812461336.

- Richard Dobbs, Jaana Remes, James Manyika, Charles Roxburgh, Sven Smit, and Fabian Schaer. *Urban World: Cities and the Rise of the Consuming Class*. McKinsey Global Institute, Washington DC, jun 2012.
- John Dunn. *Breaking Democracy's Spell*. Yale University Press, New Haven, 2014.
- Barry Eichengreen and Marc Flandreau. The Rise and Fall of the Dollar. *NBER Working Paper*, jul 2008. URL <http://www.nber.org/papers/w14154>.
- Niall Ferguson. Hegemony or Empire? *Foreign Affairs*, 82(5): 154–161, sep 2003.
- Francis Fukuyama. *The End of History and the Last Man*. The Free Press, Macmillan, London, 1992. ISBN 0-02-910975-2.
- Francis Fukuyama. At the End of History Still Stands Democracy. *Wall Street Journal* (06 June), 2014.
- Chris Giles. China Poised to Pass US as World's Leading Economic Power This Year. *Financial Times* (30 April), 2014.
- Kartik Goyal. Rajan Warns of Policy Breakdown as Emerging Markets Fall. *Bloomberg Business* (31 January), jan 2014.
- Antonio Gramsci. *Selections from the Prison Notebooks*. International Publishers, New York, 1971.
- J M Grether and N A Mathys. Is the world's economic centre of gravity already in Asia? *Area*, 42(1):47–50, 2010. ISSN 00040894. DOI: 10.1111/j.1475-4762.2009.00895.x.
- Lloyd Gruber. *Ruling the World: Power Politics and the Rise of Supranational Institutions*. Princeton University Press, Princeton, 2000. ISBN 0-691-01040-4.
- Thomas Hale, David Held, and Kevin Young. *Gridlock: Why Global Cooperation is Failing When We Need it Most*. Polity Press, Cambridge, 2013.
- Robin Harding. Yellen Says Emerging Market Turmoil Will Not Sway the Fed. *Financial Times* (11 February), feb 2014.

- John W. Harris and Horst Stocker. *Handbook of Mathematics and Computational Science*. Springer, New York, 2006.
- Walter Hickey and Joe Weisenthal. Half of the United States Lives in These Counties. *Business Insider* (04 September), sep 2013.
- Ted Hopf. Common-Sense Constructivism and Hegemony in World Politics. *International Organization*, 67(02):317–354, apr 2013. DOI: 10.1017/S0020818313000040.
- G. John Ikenberry. Liberal Hegemony or Empire? American Power in the Age of Unipolarity. In David Held and Mathias Koenig, editors, *American Power in the Twenty-First Century*, chapter 3, pages 83–113. Polity Press, Cambridge, 2004.
- G. John Ikenberry. Power and Liberal Order: America’s Postwar World Order in Transition. *International Relations of the Asia-Pacific*, 5(2):133–152, may 2005. DOI: 10.1093/irap/lci112.
- G. John Ikenberry. *Liberal Leviathan*. Princeton University Press, Princeton, 2011. ISBN 978-0-691-12558-9.
- John Keane. *The Life and Death of Democracy*. Simon and Schuster, London, 2009.
- Paul Kennedy. *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000*. Random House, New York, 1989.
- Robert O. Keohane. The Demand for International Regimes. *International Organization*, 36(2):325–355, 1982.
- Robert O. Keohane. *After Hegemony*. Princeton University Press, Princeton, 1984. ISBN 1-400809-754.
- Homi Kharas. The Emerging Middle Class in Developing Countries. *OECD Development Centre*, jan 2010. DOI: 10.1787/5kmp8lncrns-en.
- Charles P. Kindleberger. *The World in Depression, 1929-1939*. University of California Press, Berkeley, 1973. ISBN 0-520-02423-0.

- Charles P. Kindleberger. *World Economic Primacy 1500-1990*. Oxford University Press, Oxford, 1996.
- Matthew C. Klein. Janet Yellen to Emerging Markets: Good Luck. *Bloomberg View* (11 February), feb 2014.
- Donald E. Knuth. *The Art of Computer Programming. Volume 1: Fundamental Algorithms*. Addison-Wesley, 1968. ISBN 0-201-03801-3.
- Paul Krugman. The Myth of Asia's Miracle. *Foreign Affairs*, 73(6): 62-79, nov 1994. DOI: 10.2307/20046929.
- Peter Lindert. Key Currencies and Gold: 1900-1913. *Princeton Studies in International Finance*, 24, aug 1969.
- Kishore Mahbubani. *The Great Convergence: Asia, the West, and the Logic of One World*. Public Affairs, London, 2013.
- Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green. *Microeconomic Theory*. Oxford University Press, New York, 1995.
- John J. Mearsheimer. *The Tragedy of Great Power Politics*. W. W. Norton and Company, New York, 2014.
- H. L. Mencken. *Notes on Democracy*. Knopf, New York, 1926.
- John Micklethwait. The West's Malaise. *The Economist* (20 November), nov 2014.
- Kenneth Myers. The Valeriepieris Circle. *Techno Anthropology Blogspot*, may 2013.
- Joseph S. Nye. *Soft Power: The Means to Success in World Politics*. Public Affairs, New York, jun 2005.
- Joseph S. Nye. *Is the American Century Over?* Polity Press, Cambridge, 2015.
- Jim O'Neill. Building Better Global Economic BRICs. Technical report, Goldman Sachs Global Economics Papers, London, nov 2001.

- Lant Pritchett and Lawrence H. Summers. Asiaphoria Meets Regression to the Mean. Technical report, NBER Working Paper, Cambridge MA, oct 2014. URL <http://www.nber.org/papers/w20573>.
- Danny Quah. The Global Economy's Shifting Centre of Gravity. *Global Policy*, 2(1):3–9, jan 2011. DOI: 10.1111/j.1758-5899.2010.00066.x.
- Danny Quah. Economics, Democracy, and the New World Order. *TEDxKL*, aug 2014a. URL <http://youtu.be/CTRTF85ozZM>.
- Danny Quah. It is Not Easy Being Leader of the World. *Global Policy*, jul 2014b.
- Danny Quah. Convergence Determines Governance - Within and Without. In Kemal Dervis and Homi Kharas, editors, *Growth, Convergence, and Income Distribution*, pages 179–184. Brookings, Washington DC, nov 2014c.
- Danny Quah. How China's Rise is Revealing the Cracks in US Claims to Legitimacy as Global Leader. *South China Morning Post* (19 August), aug 2015.
- Gideon Rachman. *Zero-Sum Future: American Power in an Age of Anxiety*. Simon and Schuster, New York, 2011.
- Uwe Reinhardt. Economic Exceptionalism in America. *Financial Times* (13 February), feb 2014.
- Dani Rodrik. *The Globalization Paradox: Why Global Markets, States, and Democracy Can't Coexist*. Oxford University Press, Oxford, 2011.
- Paul Schroeder. Is the US an Empire? *The History News Network*, 2003.
- Tharman Shanmugaratnam. An Investigative Interview: Singapore 50 Years After Independence. *45th St Gallen Symposium*, may 2015. URL <https://youtu.be/hpwPciW74b8>.
- Kenneth A. Shepsle. *Analyzing Politics: Rationality, Behavior, and Institutions*. W. W. Norton and Company, New York, second edition, 2010.

John Snyder. *Flattening the Earth: Two Thousand Years of Map Projections*. University of Chicago Press, Chicago, 1998. ISBN 978-0226767475.

Peter Temin and David Vines. *The Leaderless Economy*. Princeton University Press, Princeton, 2013. ISBN 978-0-691-15743-6.

The Economist. The Struggle for Hong Kong. *The Economist* (08 September), sep 2014a.

The Economist. The World in Transition. *The Economist* (20 November), nov 2014b.

Isaac Todhunter. *Spherical Trigonometry*. MacMillan and Co., London, 5th edition, 1886.

Xuetong Yan. How China Can Defeat America. *The New York Times* (20 November), nov 2011.

Alwyn Young. The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience. *Quarterly Journal of Economics*, 110(3), aug 1995.