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Demographic Power: Tiny Titans, Crumbling Giants, and the Missing Link Between Population & Power

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1. Introduction

By 2050, Japan, once the economic juggernaut of Asia, could see its population fall below 100 million, from 126 million today, with almost half of the population being over 60 years of age.¹ With Japan at the forefront, the advent of aging, shrinking populations in much of the developed world has exposed a staggering new challenge for international security, reigniting a perennial debate on the importance of population as a source of power in international relations. The phenomenon's relevance takes on even greater weight considering its predicted spread to engulf China, often cited as a potential challenger to the United States, by the mid 2030s.² Understanding the role that population, and demography more broadly, play in the formation of national power, and the conduct of foreign policy is critical for the continued relevance of security studies in the 21st century, and is the focus of this paper.

The history of demography in the study of international relations has a storied pedigree. Rulers and policy makers from antiquity through the early 20th century recognized the link between a large population and great power.³ Yet as realist international relations solidified into an organized academic discipline in the 20th century, the importance of population fell into the background, superseded by factors such as alignment and technology. This is in part, a consequence of the length of demographic horizons; if the period under scrutiny is such that nation

¹ United Nations, Department of Economic and Social Affairs, Population Division (2017). *World Population Prospects: The 2017 Revision, Total population (both sexes combined), Percentage total population (both sexes combined) by broad age group, Low Fertility* (June 2017)

² United Nations, *World Population Prospects. Total population, Percentage by broad age group, Low Fertility*

³ Niel Howe and Richard Jackson, "Demography and Geopolitics: Understanding Today's Debate in its Historical Context," in *Political Demography: How Population Changes Are Reshaping International Security and National Politics*. Ed Jack A. Goldstone, Eric P. Kaufmann, Monica Duffy Toft, 37-38 (Oxford New York: Oxford University Press, 2012)

states, the principal unit of analysis, are unlikely to see significant demographic change, it makes sense to treat demography as a set and unchanging condition. It is also a result of the emergence and subsequent dominance of the Demographic Transition theory in much of the social sciences.⁴

A.F.K. Organski's Power Transition is a pertinent starting point for discussing an expanded role for demography in international relations. The theory's recognition of differential growth rates between states, caused by internal changes including population growth, as the primary driver of changes in the international system, provides a lens through which the importance of demographic factors can be seen. This paper builds on Power Transition to develop an original theory of Demographic Power Construction that explores the impact of demographic variables in international relations. This framework is used to contextualize the aging, populations of the 21st century, outlining the under-appreciated nature of the threat to global stability.

2. The Demographic Transition Theory & the Decline of Global Fertility

The development of the Demographic Transition Theory and its ascendance to a place of almost unchallenged dominance within the realm of social science, has had profound global consequences. In some ways a 20th century reworking of the observations of the demographic pioneer Thomas Malthus, the Demographic Transition, essentially states that a successful transition to modernity results in, and requires, societies to transition from high birth rate, high death rate societies, to low birth rate, low death rate societies. The theory states that, typically, mortality falls first, resulting in an expansion of the

⁴ John C. Caldwell, *Demographic Transition Theory*. (2006 Springer Netherlands)

population, and a large youth cohort, before fertility decline catches up, resulting first in a demographic dividend as the working age population is maximized, and then in stability as fertility hovers around replacement rate, and along with mortality remains relatively low. What the Demographic Transition, and its extensions in economic and development studies imply then, is that an inability to reign in fertility leads to overpopulation and underdevelopment, and thus bringing excess fertility to heel is a critical task of the modern state.

The theory is convincing precisely because it mirrored the experience of the developed countries at the time of its development, many of which were still undergoing the demographic dividend phase of high growth, and its observations have largely held true for the economies that have caught up in the meantime. What was not considered at the time, likely due to the population explosion in the developing world post 1950, was the long-term consequences of continuous fertility decline, particularly as fertility rates began to fall well below replacement in the many of the developed countries.

It is these low fertility rates that are at the heart of 21st century aging populations, with the decline in most countries able to be traced to developments in the 1970s. A general consensus on the negative link between excessive population growth and poverty, along with the spread of methods for family planning, has led to a significant decline in fertility worldwide over the past forty years.

While fertility decline has been worldwide, appearing even in many of the world's least developed countries, the experience of the Asia Pacific has been one of unusually quick decline in every country except Japan (where the demographic transition began much earlier in the 20th century). In Japan and Singapore, the birthrate first fell well below replacement rate after 1975, and has been trending downward

for the majority of the last 40 years. South Korea and Taiwan underwent the same experience, with the starting point a decade later in 1985. In China, the introduction of mandatory family planning that would eventually become the One Child Policy, saw the country's birthrate cut in half during the 1970s, and fall below replacement rate in the early 1990s. Despite growing slower than China, Thailand has also seen its fertility rates fall below replacement rate at roughly the same rate as China, while Vietnam has also fallen below replacement rate in recent years.⁵

The impact of these decades of below replacement fertility in the Asia Pacific is already coming into sharp relief. As hinted at in the introduction, Japan's population is currently the most affected, having already begun shrinking in 2011. Taiwan is projected to begin shrinking in 2020, while South Korea, China and Thailand are projected to be shrinking by 2025.⁶ The crux of the problem however, is not merely the numerical decline, but that these populations are also rapidly aging.

In Japan, the median age already exceeds 47, with a staggering 1/3 of the population over the age of 60. To put things in perspective, there are more people over the age of 70 in Japan than there are under people under the age of 20. By 2025, the median ages and age distribution in South Korea, Singapore and Taiwan will approach those of Japan today, with China reaching similar levels by 2035.⁷ Under such circumstances, the population pyramid of each country will quickly come to resemble a lopsided inversion of the traditional population "pyramid," with a myriad of consequences for international security.

⁵ United Nations, *World Population Prospects. Total Fertility, Estimates*

⁶ United Nations, *World Population Prospects. Total Population, Estimates, Constant Fertility*

⁷ United Nations, *World Population Prospects. Median Age, Estimates, Constant Fertility*

3. Theoretical Foundations for Integrating Demography into International Relations Analysis

Now that an understanding the Demographic Transition Theory's impact has been established, it is necessary to outline the theoretical foundations upon which the methodology and conclusions of this work, which seeks to both quantify and qualify that impact, rests. As stated in the introduction, this research builds on the power transition theory, integrating bargaining theory and the concept of techno-economic paradigms into a unique theory of realist international relations analysis known as Demographic Power Construction.

Power Transition has two primary points of differentiation with other realist theories of international relations. First is the explicit recognition of forms of hierarchy emerging from the realist conception of anarchy in international relations. Second is the observation that the primary source of changes in the balance of power are the result of differential economic growth rates. In practice, this means that the strongest state, in a given geographic area, defines the boundaries of the regional or international sphere, until they are overtaken by another state growing exponentially faster. The majority of competition then, occurs within the bounds laid out by the dominant powers.

The Power Transition framework thus lays out a compelling rationale for the “when” and “how” of the occurrence of serious international conflict, framing it as most likely when a rising state(s), becomes increasingly dissatisfied with the status quo. As the rising state's power approaches that of the dominant state(s) in the system, the likelihood of conflict increases. This typically results from a combination of the following two factors: the rising state, feeling emboldened may lash out (often prematurely resulting in eventual

defeat) at a perceived opportunity or slight, while the dominant state has a need to maintain the existing order, constrain the rising challenger, and an incentive to strike before it is eclipsed by the challenger state.

Power transition also has the benefit, for the purposes of this research of having already taken population into account as one of the base components of power. Population, productivity, and political capacity are identified as the three main components that make up power. That said, the power transition program generally does not seek to represent productivity or political capacity, and instead relies heavily on GNP as a stand in for capacity in most analysis. Nonetheless, this provides a useful starting point for the further integration of demographic variables.

Bargaining Theory, more recently introduced into the international relations literature, has done a complimentary job providing an idea of the “what” and “why” of the occurrence of international conflict and state behavior. The fundamental thrust of the argument is that it is not merely certain distributions of power that make conflict more likely as it is certain distributions of benefits. States that are satisfied with their share of the benefits of the international system, or whose differences with it can be negotiated and resolved, are unlikely to attempt to overturn the system, even if, theoretically they have the power to do so, and in the same way, countries whose power is being eclipsed are much more likely to allow it to occur peacefully if they feel that any adjustments that are made by the newly dominant power will still maintain a distribution beneficial to themselves. Conversely, when a country perceives its share of the benefits in the system to be significantly below that of the wealth and power it possesses, and it feels this is unlikely to be resolved through negotiation, it is likely to

strike out in an attempt to overturn the system, or at the very least, make forcible changes to it.⁸

Finally, stepping outside the realm of international relations, theories stressing the critical role played by constant change and technological advancement in national development have much to contribute to a demographic study of international relations. In particular, the theory of the Field and the Forge⁹, and Techno-Economic Paradigms¹⁰ suggest that it is the very conditions of constant change that do much to shape both individual and state behavior.

The combination of Power Transition, Bargaining Theory, and theories of technological change are complementary in illustrating interstate relations in regard to major power conflict, and thus provide the following base assumptions for this research:

1. While anarchy and self-help characterize inter-state relations, the most powerful state's establish hierarchies that supersede anarchy as the dominant framework in which states typically interact.
2. Changes in, or the replacement of hierarchies, take place due to changes in the balance of power.
3. Differential growth rates are the primary source of changes in the international balance of power.
4. The dominant state(s) in the system use their position to establish a beneficial distribution of benefits that reinforces their position.

⁸ David Lake, Jeffrey Frieden, and Kenneth A. Schultz, *World politics : Interests, Interactions, Institutions*. (W.W. Norton, 2013) 84-95

⁹ John Landers, *The Field and the Forge: Population, Production, and Power in the Pre-industrial West*. (2005 Oxford University Press)

¹⁰ Carlota Pérez, *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*. (Edward Elgar Publishing, 2002)

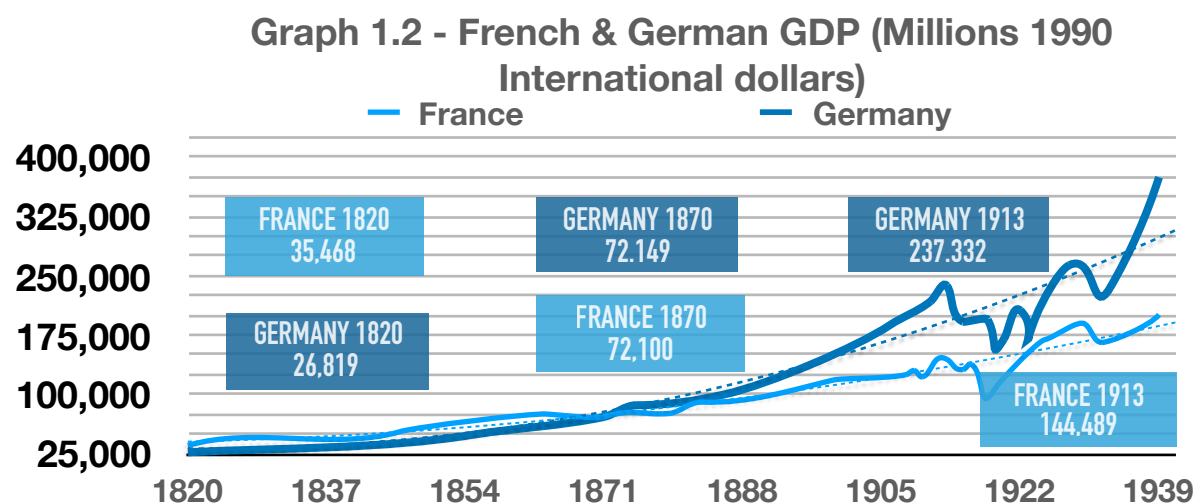
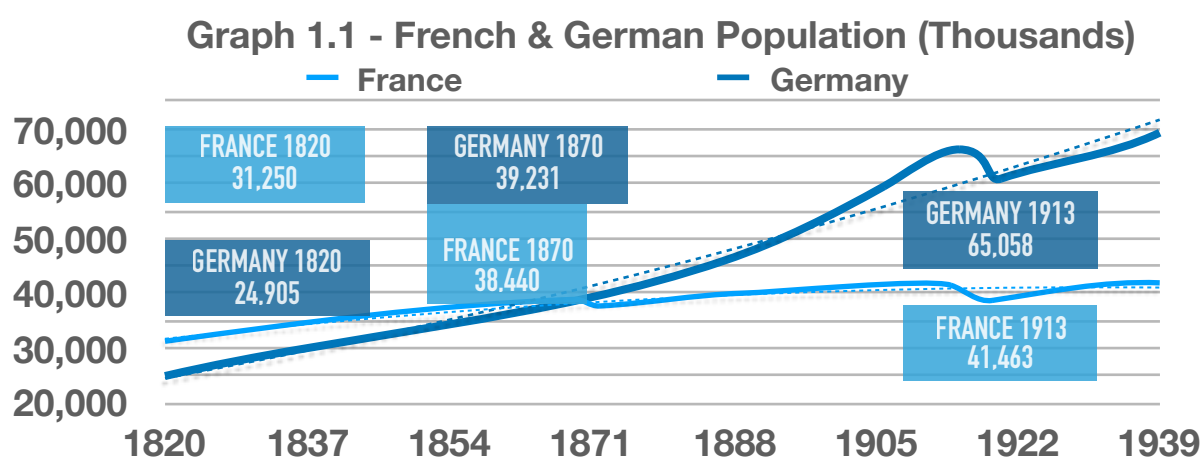
5. States, therefore, are not necessarily locked in a zero sum game of power maximization, but instead may seek to maximize their benefits within the existing hierarchy.
6. Conflict is most likely when a rising country, particularly one that is a legitimate challenger to the dominant state, feels its share of the distribution of benefits does not match its perceived power.
7. Since the Industrial Revolution, constant technological change, culminating in periodic paradigm shifts that redefine human activity, is a systemic characteristic as omnipresent, if not more so, as anarchy in interstate relations.
8. Differential growth rates are thus generally caused by a combination of: demographic change, technical innovation, and the degree of adaptation.

4.1. Demography, National Capacity and the “Distribution” of Power

Before preceding further, to say that national power is the force driving the international system, it is important to define power. For the purposes of this paper, power is defined as the ability to act or exercise influence or control to increase the chance of achieving a desired outcome. This is important because for most works, national power and national economic and military capacity are often used interchangeably. Power, however, is not merely about capacity, but about identifying goals and making the most effective use of available resources to achieve those goals. While certain goals, such as national survival, and securing a prominent share of the distribution of benefits may be universal, others such as the control of a specific territory, or the spread of certain ideologies may be unique to individual actors in the system.

In a simplified model, in which all states have access to unlimited resources, possess optimal governance, and technology capable of gainfully and productively employing the entire population, population size and growth rate, the most basic of demographic variables, could also be said to be the most basic variables in the formation and growth of power; the scale of capacity deriving from population size, and the differential growth rate deriving from the difference in the population growth rate. The Franco-German rivalry of the late 19th and early 20th centuries provides the closest approximation of the simplified model, and is briefly detailed below.

4.2. Franco-German Rivalry and the Simplified Model of Demographic Power Construction



The rivalry of France and Germany from the mid 19th to early 20th century demonstrate how, with all else being “equal,” population growth can drive economic growth, national capacity, and power. As graph 1.1 and 1.2¹¹ demonstrate, population growth and economic growth follow a very similar trend from 1820 to 1939. This results in France, which possessed overwhelming force on the European continent in the early 19th century, as evidenced by the Napoleonic Wars, being equaled by Germany at the time of the Franco-Prussian War and German unification in 1870, and completely overtaken by the advent of the First World War. This is reflected not only in national economic capacity but in France’s increasing inability to deal with Germany militarily on its own.

4.3. Toward an expanded model of Demographic Power Construction

The problem with the simplified model is that while it can be effective in analyzing two states at similar levels of development, with similar access to resources in a vacuum, its explanatory power decreases the greater the dissimilarity between the units of analysis. In the international system, dissimilarity is the norm, access to resources is a source of contention, the quality of governance varies dramatically, and rapid technological change, the hallmark of the modern era, has as much potential to destabilize as it does empower.

To rectify the deficiencies of the simplified model, it is necessary to examine a broader set of demographic variables from which can be inferred a measure of what might be termed “population quality.” Crude vital rates (fertility and mortality), along with per capita education, can provide an important barometer of human capital development, from

¹¹ Angus Maddison, *World Economy Volume 2: Historical Statistics*. (OECD Publishing, 2006)

which a concept of effective population, that is, the expected effectiveness of a given population at generating national capacity and translating it into political power, can be derived.

Demography’s shaping of the formation of national capacity however is tied with the development of human capital and is thus not a passive or automatic process. Human capital development is an ongoing process that shapes and is shaped by the behavior of nation states. Nation states develop regimes that attempt to shape human capital development, among the most important of which are the aforementioned education, and modes of interconnectivity otherwise known as infrastructure. That is, the more interconnected and educated a state’s populace are, the more effective it will be. The integration of a concept of effective population, that is human capital development, can be thought of as the expanded model of demographic power construction, an example of which is given in the section, The Russo-Japanese War and the expanded model of demographic power construction.

4.4. The Russo-Japanese War and the Expanded Model of Demographic Power Construction

TABLE 2.1 - JAPANESE & RUSSIAN POPULATION & GDP 1904

1904	Population (Thousands)	GDP (Millions of 1990 International \$)
RU	145,091	178,141
JP	49,400	55,770

GRAPH 2.2 JAPANESE & RUSSIAN FERTILITY & MORTALITY (PER 1000 PEOPLE)

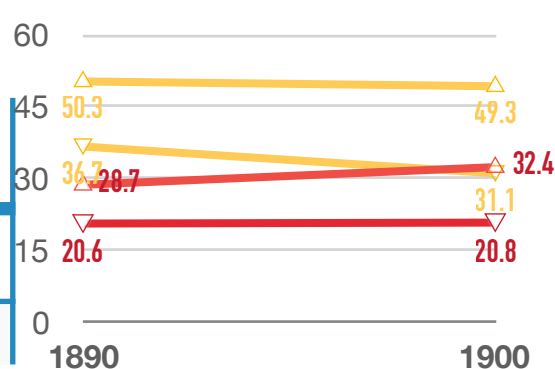


TABLE 2.3 - JAPANESE & RUSSIAN PER CAPITA COMMUNICATION & EDUCATION

1904	Postal	Telegraph	Telephone	Education (Years)
JP	26,723	470	765	2.52
RU	12,170	207	288	1.25

The Russo-Japanese War of 1904-1905 can be used to demonstrate how expanding the integration of demographic factors to include the development of human capital further hones the explanatory power of the framework, allowing it to demonstrate with clarity why a smaller, less populous nation with a smaller GDP was able to win a major conflict. Table 2.1¹² briefly summarizes the population and GDP of both countries in the decades preceding the war. Graph 2.2¹³ and Table 2.3¹⁴ delve into the key aspects of human capital development in the same time period, demonstrating that, by the time of the war, Japan had developed a significant human capital advantage that negated much of Russia's perceived advantages in population and GDP¹⁵.

4.5. The Demography of State Behavior

The previous sections demonstrate the applicability of demographic factors in the analysis of the formation of national capacity. However, as stated earlier the likelihood of conflict is rooted as much in the motivations and behavior of states as it is the absolute balance of capacity and power between those states. The following

¹² Maddison, *World Economy* (2006)

¹³ B.R. Mitchell, *International Historical Statistics: Africa, Asia & Oceania 1750-2005 Fifth Edition* (Palgrave Macmillan, New York, 2007)

¹⁴ Mitchell, *International Historical Statistics* (2007)

¹⁵ A full time series comparing the two countries is omitted due to the limited data available on the Russian Empire.

sections will thus look at how demography shapes both the distribution of benefits systems, as well as how states respond to the distribution as well as their own demographic realities.

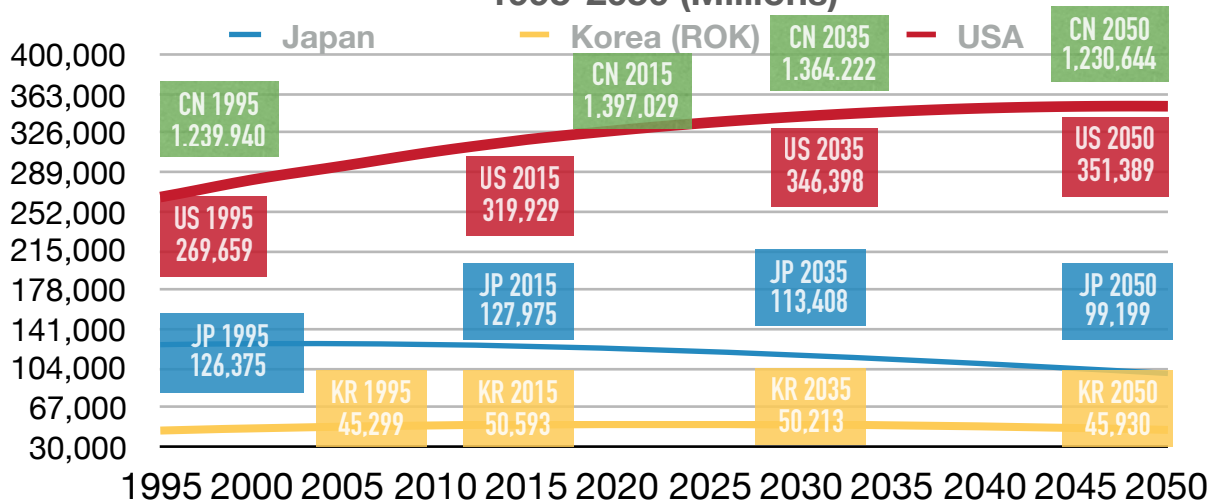
4.6. Demography and the Distribution of Benefits

Regardless of how a state comes to be the most powerful in a given system (regional or global), the type of hierarchy and thus the character of the distribution of benefits it seeks to establish is theorized to be influenced by its demographic characteristics. States with a low level of demographic pressure, that is states where growth and development are not inherently limited by a lack of local land or resources, tend toward open systems that favor the indirect application of power, while higher levels of demographic pressure often trend toward a more openly stratified distribution of benefits.

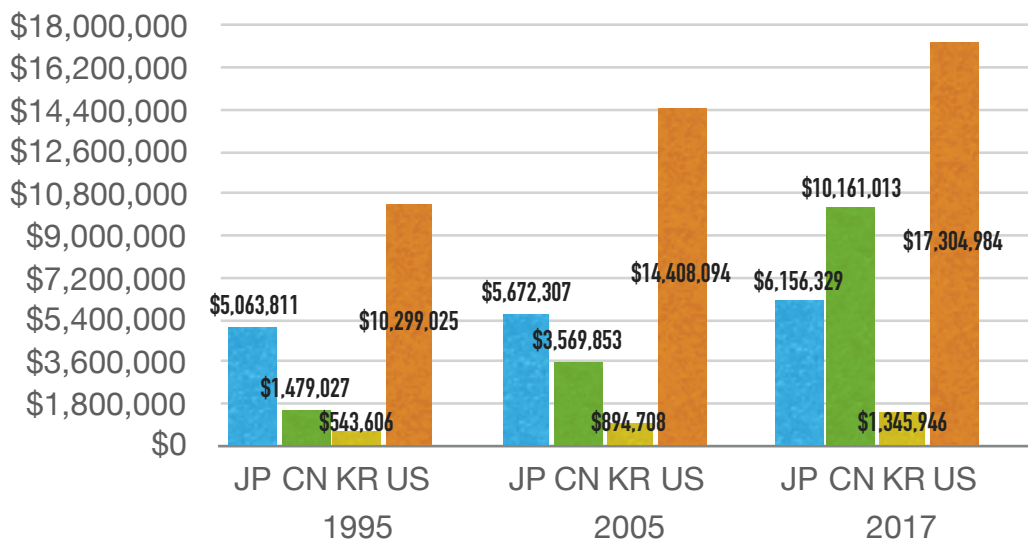
The British Empire, at its peak in the 19th century for example, had established a system of imperial free trade, in which the advanced nations of Europe (and later the United States and Japan), with Britain in the lead, used colonialism and trade to gain access to critical resources while providing an outlet for surplus population and production. When United States took over the mantle of free trade following the Second World War, it sought to jettison the colonial elements as unnecessary given that, the United States possessed such land and resources that surplus population was not a serious concern, and the colonial ambitions of other powers were costly and incompatible with American national interest. A similar trend can be seen in the way in which China managed its sphere of influence in pre-modern Asia.

4.7. Demographic Power Construction and National Capacity in 21st century Asia Pacific

Graph 3.1 - Northeast Asian and US Population 1995-2050 (Millions)



GRAPH 3.2 NORTHEAST ASIAN & US GDP AT CONSTANT 2010 USD



GRAPH 3.3 NORTHEAST ASIAN AND US CRUDE BIRTH & DEATH RATES (PER 1000 PEOPLE)

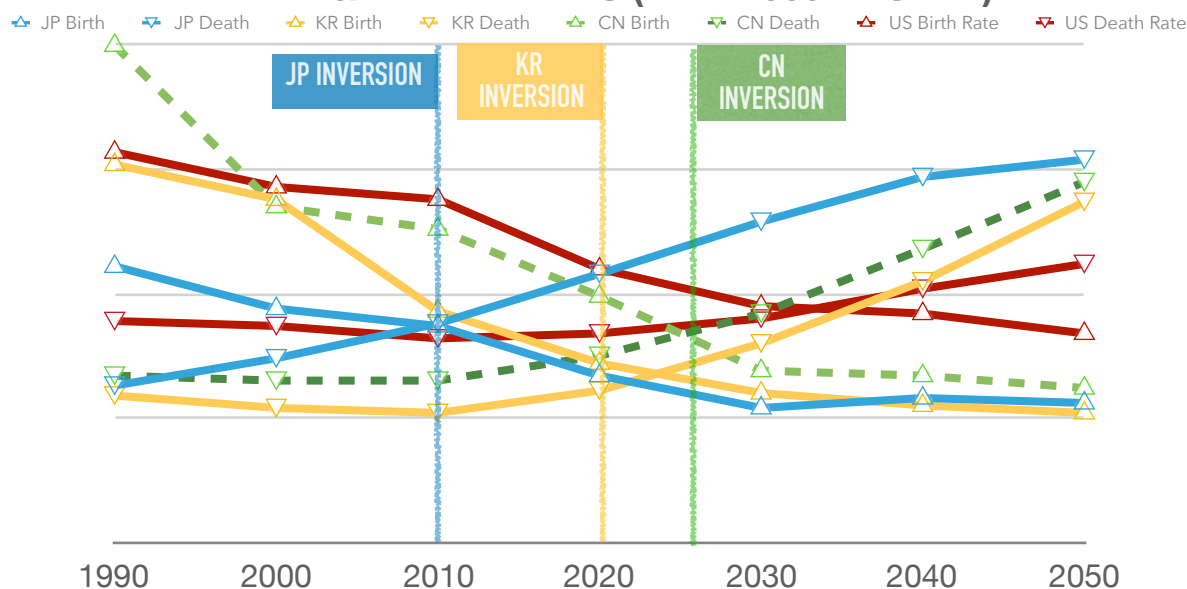


TABLE 3.4 NORTHEAST ASIAN & US ADULT

2010	%
US	41.7%
Japan	44.8%
ROK	39%
China	9.7%

TABLE 3.5 - NORTHEAST ASIAN & US INTERNET USERS % OF POPULATION

	2000	2017
US	43%	76%
Japan	30%	93%
ROK	45%	93%
China	2%	53%

Applying demographic Power Construction to the 21st century Asia Pacific results in a number of interesting observations. China’s dramatic GDP growth is clearly tied to the leveraging of its large population.¹⁶¹⁷ The advantages in human capital development possessed by the United States, Japan, South Korea, Taiwan, and Singapore relative to China and other emerging regional economies are

¹⁶ United Nations, *World Population Prospects. Total population, Low Fertility*

¹⁷ The World Bank, *World Development Indicators, GDP Constant 2010 USD, 2018*

significant.¹⁸ Education in particular being an area in which the relative weakness of China's human capital development betrays itself. While China will undoubtedly make strides in this area, its demographic advantage in the period before its population is projected to begin declining is perhaps somewhat less than it would otherwise be. The rapid advance of China's IT infrastructure by contrast, suggests that China is well positioned to catch up to many of the advanced economies, although questions of the quality of access remain relevant given the restrictions on internet access in China.

The inversion of Japan's birth and death rates is set to widen such a degree that deaths will outnumber births by a factor of three, a reversal of the rates seen during Japan's period of high-speed growth. While Japan will reach this level over a period of roughly 40 years, the onset of the aging related inversion of fertility and mortality in China will be much more rapid, beginning around 2025, and reaching a similar level of inversion to Japan by 2050.

The conclusion of an analysis based on Demographic power construction would be that while Chinese power has, as its GDP would suggest, rapidly increased relative to both Japan and the United States. That said, the difference in absolute national capacity between China and Japan is likely overstated, while that between the United States and China is likely understated. Furthermore, while China may have an initial window to capitalize on Japanese demographic weakness in the 2020s, from 2030 onward, China is may well face its own severe demographic crisis.

¹⁸ The World Bank, *World Development Indicators*, Tertiary Education, Internet Users, 2018

6. Conclusions

It is sometimes said that “demography is destiny,” and Demographic Power Construction certainly lends credence to this viewpoint. However demography is not unchangeable, and represents much more than just population size. There is no doubt however, that states approach to the challenge of population aging will have a direct and significant influence on their national capacity, the power they are able to project into the international system, and the probability of conflict.

While the positive demographic outlook of the United States is a potential bright spot, the downward trajectory of Japan, China, and other major powers, pose significant challenges to regional stability. There is a real risk that China could attempt take advantage of a weakening regional order if Japanese enfeeblement if it is allowed to continue. At the same time, as China’s challenges begin to mount in the 2030s, the possibility that it may attempt a radicle change of the status quo when it feels it has reached its apex is real. Finally, intergenerational conflict in any of the aging countries, not only Japan and China, could swell into a force that rapidly alters the policy trajectory of the country effected, destabilizing the region.

Today’s demography is not necessarily tomorrow’s destiny, but if steps are not taken to establish a solid demographic foundation, many nations may find their power deflated, and their destiny in the hands of others.

7. Policy Implications and Recommendations

Based on the conclusions of this paper, the following are proposed as guidelines for policy making going forward.

As numerous scholars have noted, the demographic position of the United States of America relative to that of the other advanced nations, as well as China, is highly advantageous. With a relatively high level of fertility often approaching replacement rate, a steady stream of immigration, and an abundance of land, the population of the United States will remain relatively young, as much of the rest of the world grows old. In spite of this privileged position however, the United States could squander its advantage if, for example poor policy reduced fertility or caused immigration to drop precariously. Furthermore, striking disparities in the levels of human capital development throughout the country, and the relatively poor health of much of its population could negate much of the country's demographic advantage if not addressed in the years ahead.

On the other end of the spectrum stands Japan, which, of all the advanced nations, and indeed great powers, faces the most acute demographic challenge in both the near and long term. While advanced technology such as AI and robotics, general productivity advancements, and immigration each have a role to play in maintaining the forward momentum of Japan's national capacity, the demographic nature of the crisis can no longer be ignored. The balancing of Japan's demographic ledger through a rise in the country's total fertility rate, and a commitment to raising its already high level of human development will be critical to its national security in the coming decades.

Finally, while it is true that the countries with the greatest capacity and motivation to threaten the existing order are likely to be demographically constrained in the coming decades, if the United States' foremost allies are similarly constrained, the result could still be a dangerously unstable distribution of power and benefits in the international system. Furthermore, countries undergoing extreme aging

could experience political and economic instability that could cause international upheaval. It is therefore in the interest of the United States to encourage and assist Japan, Europe, and other allied countries in proactively addressing their demographic difficulties.

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