The Politics of Population

TADEUSZ KUGLER AND SIDDHARTH SWAMINATHAN
School of Business La Sierra University

This essay evaluates the implications of international political development on demographic transitions and economic outcomes from 1980 to 2050. Countries with high levels of political capacity experience the sharpest declines in birth and death rates as well as the greatest gains in income. Politics indirectly and directly affects the environment within which individuals make decisions about the size of families; these decisions, in turn, change the future economic dynamics of a country. We find that political capacity ensures that rules are evenly applied, allowing investment for long-term gain. Our projections show that under conditions of high political capacity, anticipated demographic and economic transformations will allow China to superease the dominance of the United States by the end of this century and will also enable the rise of India into the ranks of the dominant powers. We assess the consequences of these changes in world politics.

The dynamic interaction among population structures and economic and political development is a subject that has been extensively researched by economists, political demographers, and political scientists (for example, Organski et al. 1984; Arbetman and Kugler 1997; Feng, Kugler, and Zak 2000, 2002; Prezworski et al. 2000). In 1945, Notestein established that after undergoing a process of demographic transition, developed societies are characterized by low birth and death rates, high life expectancy, and a fertility rate at replacement levels. Feng, Kugler, and Zak (2000) have further shown that stable, comparatively large active populations lead to increases in productivity through the effective transmission of human capital across generations. In turn, higher levels of economic development result in higher standards of living, in part by lowering infant and adult mortality rates, and in part by motivating changes in fertility decisions within households. Angus Maddison (2001) has found that developed nations that have achieved demographic stability, such as France, Germany, Japan, the United Kingdom, and the United States, are also among the most productive.

The connection between income, fertility, and mortality has been established for some time. Following Notestein (1945), analyses of fertility patterns have shown that with growing income, mortality and then fertility inevitably fall. During a demographic transition, the challenge facing the developing nation is twofold: their elites must simultaneously stabilize the population and increase productivity. The fundamental puzzle is whether this dual challenge can be met and how.

Political demography suggests that capable governments can reduce both fertility and mortality patterns even at the lowest levels of socio-economic development (Organski et al. 1984; Arbetman and Kugler 1997; Feng, Kugler, and Zak 2000, 2002). In other words, through the provision of public programs politically capable governments can, in principle, mobilize their population and reduce mortality. The specifics of such programs vary widely. Early policy interventions range from the provision of clean water and sewer facilities to basic health programs, particularly...
vaccinations. More advanced policy actions include population planning and the institution of laws that increase education and employment opportunities, particularly for women. Political capacity induces stability by reducing risk in economic interactions and prompts productivity growth by increasing personal income, which, in turn, influences fertility choices.

Developing countries that have the right combinations of size, skill, and youth expand the size of the active population. Navaneetham (2002) has demonstrated that nations undergoing a demographic transition have a window of opportunity of approximately 45 years during which their active population is far larger than normal, while their dependent population shrinks. Thus, before their population ages, these nations have the highest potential for fast economic growth. Beyond restructuring populations, a complex mixture of political, economic, and demographic characteristics is needed to generate and sustain growth (Feng, Kugler, and Zak 2002). Countries that have the right combinations of population size, human capital, and population distribution along with high political capacity and effective investment opportunities can expect the largest amount of future economic success.

China and India are the two rising giants of Asia that seem to fit these patterns. The sheer size of their populations, combined with increasing access to technology and education, leads to projections that these developing giants will become contenders for international dominance even before they reach the income per capita levels of current developed societies. In the previous essay in this symposium, Ronald Tammen has shown that China and India are the two developing nations at the forefront of international competition for dominance in world politics. In this essay, we will argue that the ability of these two Asian giants to ascend to the top of the global hierarchy in the coming years depends in large part on the political capacity of their governments to implement effective policies. Without such capacity, they cannot take advantage of their enormous population potential.

Forecasting is a dangerous business. During the last century, neither China nor India was the center of interest for researchers concerned with the economic success of developing nations. Instead, in the mid-1960s, economists believed that Africa would emerge as the greatest economic success. Africa possessed higher levels of infrastructure, investment, and education as well as closer ties to the markets of the developed world. Yet, this continent, more than any other, has suffered significant economic hardships. Likewise, during the past century, many—including the World Bank—isolated Japan and the Philippines as the two large potential breakthrough nations within Asia. Again, Japan has stagnated and the Philippines have fallen behind the Asian tigers.

We argue here that the two Asian giants China and India are at the threshold of potential economic success because their level of political capacity has risen and can be sustained. Indeed, we contend that economic growth can only come when the political structure utilizes its economic inputs and population effectively. Beyond an interest in populations and growth, we focus on the consequences of dynamic changes on world politics. Power Transition Theory proponents argue that at parity—given dissatisfaction—severe conflicts are likely (Organski 1968; Organski and Kugler 1980; Tammen et al. 2000). If the dynamic changes we are observing and forecasting are transformed with the help of politically effective governments into economic productivity, then power transitions are likely in this century within Asia and across the globe. Assuming continued dissatisfaction, the conflict potential following such dynamic changes could be severe and devastating.

Population

Projections of demographic change have been fraught with problems. The famous Malthusian projection would have had us believe that as a species, we would have run out of food by the mid-twentieth century (Malthus [1798]1994). The reason for
this stark and dramatic projection lay in his estimations of an exponential change in population and a linear increase in food production. Malthusian forecasts are a prime example of how oversimplified projections of the future can go terribly wrong. His projections did not take into account that societies change from both an organizational and a technological standpoint, and that such changes allow for a far greater degree of resource utilization. Regardless of their complexity, all projections simplify and are prone to serious errors if extended beyond realistic limits. We attempt to remain within these limits.

The modern starting point for assessing the effects of politics on demographic change is provided by the classic demographic transition model (Thompson 1929; Notestein 1945). The model develops a set of generalizations focusing on demographic change from a state of high to low birth and death rates and stable population through a transition stage of population explosion and ending in low birth and death rates with high life expectancy, all associated with changes in economic development within a nation.

In relatively poor developing societies, inadequate nutrition, limited health services, unsanitary living, and limited population planning result in high birth and death rates. As Figure 1 shows, populations are stable as high fertility is balanced by high infant mortality, resulting in a low life expectancy.

As levels of economic development, industrialization, and urbanization as well as the provision of preventive medicines and potable water improve health standards, they depress mortality rates. The decline in mortality increases life expectancy, but without a similar decline in fertility it produces the bulge in population growth. Experience shows that in a global economy, reductions in mortality can be achieved rapidly while changes in birth rates remain at high levels. Population explosions occur during this stage if the gap between fertility and mortality is not bridged. In the long run, increased standards of living, greater availability of family planning alternatives, increased educational opportunities, and the relatively high marginal costs of additional children affect fertility decisions. With lower birth rates, demographic stability is typically achieved and, for this reason, stable populations are associated with higher levels of income.

The significant transition from natural to controlled fertility achieved by relatively poor nations has prompted scholars to evaluate the effects of political factors on fertility change. A large number of studies have utilized socio-economic factors such as level of economic development, the quality of life, motivation to regulate births, and effective networks for the delivery of contraceptive information and services to explain variation in fertility (for example, Barro and Becker 1989; Becker, Murphy, and Tamura 1990; Bongaarts 1992; Easterlin 2005). Organski et al. (1984) have shown that political capacity affects mortality first and also helps to increase birth rates but if sustained reduces fertility in the absence of economic success. Initially, therefore, the resulting population boom can outpace gross domestic product (GDP) growth, causing problems in generational income growth. If, the political system collapses during this dangerous period, a country can find itself slipping into a poverty trap. If, on the contrary, political capacity is sustained, a stable population that balances low mortality with low fertility will emerge, allowing a society to achieve economic gains.

The demographic experiences of China, India, and other developing societies show that relatively poor nations can achieve stable populations before major gains...
in income accrue. The possibility of a poverty trap can be contained and minimized by an effective political system. To test this inference explicitly, we generate forecasts for India and China using Feng, Kugler, and Zak’s (2000) formal dynamic model of politics and economic growth (POFED). Based on fertility decisions as well as physical and human capital accumulation, POFED shows a chain of effects stemming from politics. The model indicates the effects of fertility choices, which then determine the transmission of human capital from parents to children, providing the foundation for sustained increases in living standards as individuals with new ideas enter into the production processes. Examining these connections, politics is identified as a primary cause of countries falling into a low-income poverty trap. An expectation of political instability increases the likelihood of a poverty trap because it adversely affects income and raises fertility, thus allowing human capital to decrease over generations and causing reductions in future output.

Previous studies that have estimated the global and country effects of relative political capacity on birth rates have found support for the hypothesized relationships between politics and fertility decline. Organski and his colleagues (1984) show that political capacity has strong negative effects on birth rates. Rouyer (1987) extended this line of inquiry within India and demonstrated that specific declines in fertility varied with the political capacity of state governments. By applying the POFED perspective, we hope to create a new system that examines the interactions among political and demographic changes by forecasting demographic changes in the context of political change, human capital augmentation, and economic growth.

We propose that politics both indirectly and directly affects the environment within which a population makes its decisions. It is the recreation of opportunity costs for an actor that changes the future dynamics of a country. Stability in politics creates stability in the rules of the game, which, in turn, creates the ability to invest for long-term gain. This increase in investment then leads to higher amounts of future growth, and to yet more actors engaged in actions that build upon that work.

Figure 2 shows the linkages associated with the cycle of growth. The basic tenets come from political capacity. The POFED dynamic formulation indicates that politics critically affects fertility choices and determines the transmission of human capital from parents to children. Human capital provides the foundation for sustained increases in living standards as individuals with new ideas enter into the production process. Politics is, from this perspective, a primary cause of countries failing to maintain growth. Let us test these propositions in Asia.

India

India was one of the first nations to adopt a population control policy, which it did in 1952. Having recognized rapid population expansion as a serious national concern (National Population Policy 2000), successive policies have emphasized not only the provision of basic needs such as sanitation, immunization, reproductive health, and family planning services but the enhancement of women’s education and
employment opportunities as well. While these policies have led to rapid reductions in mortality, particular maternal and infant mortality rates as well as fertility and birth rates have lagged behind and resulted in a rapid expansion of the population. India’s birth rate now stands at approximately 23 births per 1,000 population. The total fertility rate (TFR) is at 2.98. By contrast in 1970, the birth rate was approximately 40.6 and the TFR was 5.88. Thus, India has undergone much of the demographic transition process and experienced a sharp decline of approximately 48% in its TFR over the past 30 years. India’s mortality rates have declined even more sharply from approximately 17 deaths per 1,000 population in the early 1970s to 8.5 in 2000 (representing a 50% decline). Consequently, India’s population, despite dramatic improvements in life expectancy, continues to grow rapidly, inhibiting economic development.

These changes in vital rates at the aggregate level mask a greater degree of variation at the subnational level. As Zachariah and Patel (1984) have noted, birth rates in the four southern states of Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu have shown far greater declines relative to similar declines in the northern states of Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh. These patterns are consistent with those of economic growth—in general, the lower the fertility rate, the higher the economic growth. Furthermore, declines in aggregate mortality and fertility in India have been relatively smooth and not as steep as seen in the case of China detailed later in this essay. This pattern potentially has a connection to economic growth as aging populations enter the picture in the mid-twenty-first century.

Past studies on fertility and mortality in India have typically focused on the proximate determinants of fertility behavior and analyzed levels of socio-economic development as well as the provision of contraceptive information and services. Such studies have produced mixed results (Jain and Adhlaka 1982; Srinivasan et al. 1984; Zachariah and Patel 1984; Rele 1987). While some find family planning programs play a key role through the provision of contraceptive methods, others find that levels of economic development have had a greater impact on family planning practices.

Here, we follow Rouyer (1987), who focuses on the effects of politics in reducing fertility in 15 Indian states. Using tax revenues (as a percent of state domestic product) as a measure of political capacity, he finds that the politically capable states in India have been more successful at reducing fertility relative to the less capable ones. He, then, generalizes that politically capable governments can successfully implement policies leading to an improved quality of life, greater control for women over marriage decisions, and availability of and access to family planning alternatives. Improved quality of life tends to reduce infant mortality rates, while
legislation increasing the marriage age tends to reduce the number of children in households. He adds that, while the effects of contraception cannot be denied, the ability of a government to provide such services has a significant effect on reducing fertility in societies at relatively low levels of development.

Extending these arguments by linking high and low political capacity to the dynamics of population, we develop two scenarios to anticipate births and deaths in India over the next 50 years. As expected, Figure 3 shows that political capacity has limited effect on already low death rates. Further reinforcing this result, the effect of political capacity on mortality declines when income levels rise. Indeed, at higher levels of development, income effects dominate and political effects diminish. From a policy perspective, when a country is already at low levels of mortality, further reductions are difficult to achieve (see also Bongaarts 2002).

Figure 3 also shows that the effects of political capacity on births are robust. Higher political capacity generates sharp declines in fertility. Forecasts suggest that these effects are expected to continue over the next 50 years. Note that the decline in fertility is steeper under conditions of high political capacity. Assuming high political capacity will be maintained, estimates suggest that India can fully complete the demographic transition within the next half-century. In the interim, India will continue to experience an expanding population, given the large cohort in the reproductive age.

The implication is that by increasing its political ability, India can achieve significant acceleration in the reduction of birth rates. Our estimate suggests that with higher political capacity, India can lower its birth rates to about 17 births per 1,000 in the next 50 years. By way of contrast, the low-capacity forecast suggests that birth rates will remain around 25 births per 1,000 over the same time period.

While these forecasts incorporate a certain degree of uncertainty, the high growth scenario is plausible given the experiences of China and Japan, and predicts a growth rate of approximately 8% until 2050. We are comfortable with this estimate

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2The reader should note that the RPC indicated in Figure 3 and in a number of the figures to follow refers to relative political capacity.

3Bajpai (2001) suggests that it is possible for India to experience sustained high growth in the region of 8–10%, given a commitment to continued reforms.
as the outside range. Recall that the implementation of economic reforms in 1991 helped India attain a 6% GDP per capita growth rate. This economic opening has also produced greater opportunities in key sectors including information technology and biotechnology. These gains have been accompanied by high political capacity that seems critical for India to continue the current pace of economic reforms.

In Figure 4, we see the most dramatic effects of higher political capacity on individual productivity. The difference in growth is substantial. With this higher capacity in 2050, we see India’s per capita income at nearly $16,000 as opposed to only $4,000. This is a stark example of the power of political capacity to produce a higher growth level.

We have shown that in the case of births, political capacity allows societies to implement population policies effectively. The same is true for economic reform. Consensus has now emerged among successive Indian governments that the processes of deregulation and liberalization need to deepen. Examples of such commitments to reforms include reduction in the fiscal deficit and federal subsidies to agriculture, continuing reforms in the banking sector, large-scale disinvestments in the public sector, product dereservation for small-scale industry, elimination of price control mechanisms, reform of the power sector, and so forth. Successful reorientation of governmental spending toward high-priority areas of health, education, and infrastructure development is also likely to lead to higher rates of economic growth (Bajpai 2001). In addition to continuing reforms, demographic stability will also likely propel India into the stages of higher economic growth.

To summarize, we argue that demographic transitions and economic expansions are associated with political changes. India is entering this demographic and economic transition. Later, we will show that because of its size, India has the potential to catch up with the rising power of the United States and China and to challenge for global dominance.

China

The growth of China has surprised many and is now the subject of endless, contentious debates (see previous essay by Tammen). Forecasting China’s future is,
however, no more hazardous than that of any other nation. Yet, the global implications of how China may gain its level of economic success are fundamental. Building on the work of Arbetman and Kugler (1997), Feng and Swaminathan (2004), and Feng in this symposium, we posit that the incorporation of efficient political systems will allow for the growth of this new power. Chinese birth rates have been a source of much interest. The question has been how could this country move from economic stagnation to rapid growth? We believe that a sequence of interrelated events accounts for this pattern. First, effectively implemented government policies of birth control in the early 1960s have had an important effect. Birth rates dropped from nearly 45 births per 1,000 in 1962 to half that by 1972. To achieve these goals, China created a massive political population-planning program (Feng and Swaminathan 2004).

This population-planning program could not have been successful without an unprecedentedly powerful political system to oversee its creation and administration. The reductions in fertility attained were so drastic that the fertility patterns reported by China were dismissed; demographers reasoned early on that the population reduction claims made by China were implausible, given the slow economic growth that accompanied the early massive reductions. China had achieved through politics what other nations were only able to attain through massive economic growth.

The POFED model produced accurate fertility results derived as a result of the change in policy by incorporating the political capacity of the Chinese state in addition to weak effects from their feeble economic growth—see Figure 5. Unlike in the previous analysis of India, we do not detect nearly as strong an effect for relative political capacity on China’s mortality level. This is because the push of such political capacity is weighted toward the lowest levels of development. The marginal change creates a limiting effect once a country has gotten past the poverty trap and into mid-level GDP.

In the mid-1980s, the previously universal birth control regime changed to one of localized regional control. By this, we mean that the laws pertaining to child production were different if you happened to be an urban educated family as opposed to an uneducated collective farm worker. Because of this lessening in restrictions, births increased. Countering the growth due to this political change, economic success in the mid-1990s resulted in a decline in birth rates. As the opportunities increased for income production, the opportunity costs associated with child production also increased. These increasing costs led to a decrease in the production of children. The best method of birth control is increased access to both income and entertainment (Zak, Feng, and Kugler 2001).

Alongside these trends, the lifespan of those born has also been affected by the economic and political factors of the past four decades. As expected, death rates were the first to fall with the creation of an efficient political structure. In fact, death rates showed a dramatic decline in the early 1960s but quickly leveled off by the middle of the decade. The model is supported by the mortality effects in China. This dramatic decline in death rates due to an effective political structure is the first outcome of increased political capacity. By 2050 with a high political capacity, China can hope to see a decline from a 15 per 1,000 birth rate down to nearly 10. Without the increase in political capacity, China’s birth rates would have remained nearly the same and may even have risen.

We now turn to a first look at the changes in income per capita in China due to increasing political capacity. Figure 6 shows, much like in the India case, a dramatic shift in income. The potential difference between China with low and high political capacity over the next 45 years is nearly $30,000 in a society whose current income approaches $5,000. China has the potential to increase its income per capita close to the astonishing growth rate it evidenced during the 1990s. We see that the income of this nation doubled since the 1980s from $1,786 to $3,747. During this period,
Chinese income showed a steady and increasing growth with only a slight dip in the late 1980s as China opened up to world trade. If these patterns continue, and indications are they will, China will be a relatively developed nation by the middle of the twenty-first century.

The combination of these demography and income projections show that China can move from developing to developed status over the next 50 years. Under the
high political capacity scenario, China could move from nearly $5,000 per capita income up to $38,000 per capita. But even under the low-capacity scenario, China will become a major economic power. The only question is whether China will dominate the economic system starting in the first half of the twenty-first century (high capacity) or in the second half (low capacity)?

**Power and Intentional Transition**

National power, or the ability of a nation to influence the behavior of others (Organski 1968), is comprised of three elements: the size of the national population, economic productivity, and political capacity. As power derives from a combination of these elements, it is useful to combine the forecasting techniques for overall income with the theoretical outcomes identified by power transition theory.4

Population is one of the most important criteria for great power status, providing the potential resource pool from which a nation can mobilize and extract resources. Without a relatively large population, a nation cannot hope to become either a great power or a dominant state. The size of the population ultimately determines the power potential of a nation and is the element that determines which will remain major powers. Consider the global hierarchy.5 France, England, and Germany were great powers that competed for global dominance when the rest of the world had not yet joined in the industrial revolution. Today, Western European countries cannot compete with populations that are the size of the United States, Russia, China, or India.

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4The power transition perspective emphasizes the relative growth among nations as the key motivator for conflict and change in world politics. The original articulation of the theory was outlined in Organski (1958, 1968); the first systematic empirical tests of the theoretical arguments as applied to major power wars were undertaken in Organski and Kugler (1980). Over the years, there have been theoretical extensions as well as more empirical tests of propositions arising out of the theory (see Kim 1992, 1996; Kim and Morrow 1992; Kugler and Lemke 1996; Lemke and Reed 1996; Lemke and Werner 1996; Werner and Kugler 1996; Efird 2000; Lemke 2002). Lemke (2002) has provided an important theoretical extension of the theory to account for both major and minor power wars. Another recent, but significant, extension focuses on regional integration and is reported in Efird, Genna, and Kugler (2003). Benson and Kugler (1998) have applied the ideas to account for outbreaks of violence among domestic groups, that is, groups competing within a nation. Power transition propositions have also been modeled using game theory in Abdollahian (1996) and Alsharabati (1997). The policy implications of power transition theory have been outlined in Tammen et al. (2000), Kugler, Tammen, and Swaminathan (2001), and Kugler in this symposium. A comprehensive elaboration of the multiple facets of power transition theory with applications and extensions to political economy, security policy, and nuclear deterrence is presented in Tammen et al. (2000). Other scholars of international politics including Keohane (1984), and Lake (2005), among others, have also adopted the central ideas proposed by A. F. K. Organski almost 50 years ago.

5Power transition theory conceives of world politics as a hierarchical system. The position occupied by any nation within the global hierarchy is determined by the relative distribution of national power. The most powerful nation, referred to as the dominant nation, is at the apex of the global hierarchy. The key player since the collapse of the Soviet Union, the United States has emerged as the undisputed dominant nation in the present global hierarchy. The dominant nation maintains its position by assembling and managing a coalition of nations with similar preferences for the status quo—or, in other words, the rules that structure international interactions. The dominant nation plays a pivotal role in the creation of the status quo and hence it seeks to defend the status quo. Great powers populate the second tier of the global hierarchy. These nations possess a significant proportion of power in the international system. Current great powers include China, Japan, the EU, Russia, and, potentially, India. Most, but not all, great powers are satisfied with the status quo created and managed by the dominant nation. For instance, the EU and Japan are committed to maintaining the established status quo under US leadership. However, great powers such as China and India are not fully integrated into the dominant power’s coalition. The unresolved issue over the territorial status of Taiwan is an important source of dissatisfaction for China with likely significant consequences in the future (Kugler and Tammen 2004; Tammen and Kugler 2005). Beneath the great powers are the middle powers. These include states of the size of France, Italy, Poland, South Africa, Indonesia, and Brazil, each with substantial resources. Middle powers do not have the capabilities to challenge the dominant power for control of the global hierarchy. The lowest rung of the global hierarchy is populated by small powers. Although large in numbers, they have few resources and hence very limited power. These nations, such as Malaysia and Iraq, pose no direct threat to the dominant nation’s leadership of the global hierarchy. Small powers, however, can challenge other small powers leading to regional wars.
Population structures are critical in understanding how power fluctuates in world politics. Developed nations have undergone a demographic transition and have acquired stable populations that are unlikely to expand rapidly (Organski et al. 1984; Kugler and Arbetman 1997). In fact, many developed nations such as Germany, France, and Italy in the EU and Japan in Asia face the prospect of declining populations in the next century. Unless augmented by immigration, as is the case in the United States, the populations in these societies are expected to decline in absolute and relative terms when compared with other regions of the world.

In contrast, large developing nations such as China and India that continue to undergo the demographic transition have populations that will expand for approximately 15–20 years. Even after reducing fertility patterns to replacement levels, the momentum produced by the very large young cohorts will be reflected in total population growth. These dynamics have very important implications. To understand the success of the developing world, you first have to know how they are dealing with the demographic transition.

When two societies with comparable populations are at different stages in their developmental trajectories, the more productive dominates the other. However, when they are at the same stage, they are at parity. Population dynamics interacting with economic development alter these relative structural positions within a hierarchy, with such changes having significant implications for war and peace. Power transition theory contends that the likelihood of nations engaging in war, peace, or integration is driven by (a) changes in the relative power of the challenger and the dominant nation prompted by differential growth in populations and output and (b) the challenger’s degree of dissatisfaction with the status quo. Dissatisfied challengers will challenge for the leadership of the global hierarchy at the stage when they have power parity with the dominant nation. Thus, while relative power parity can lead to severe conflicts among dissatisfied states and stability and even integration can result among the satisfied, a condition of power preponderance ensures peace within any hierarchy and results in limited conflicts generated by dissatisfaction.

Consider, then, comparisons between China, India, and the United States. Today, China and India produce a smaller share of total output relative to the United States. However, this will change by the middle part of the twenty-first century. Our forecasts indicate that China is set to overtake the United States in terms of total production by 2050. This is consistent with other forecasts of China’s growth in this century (Wilson and Purushothaman 2003).6

The story for India is somewhat different. First, production levels in India are expected to increase, but relatively more slowly than those of China. Second, we do not anticipate that India can catch up with China over the next 50 years but the gap between India and the United States will close substantially. Third, while bridging total production levels between India and the United States (and China and the United States), the large populations in both Asian nations keep per capita productivity levels much lower than those of the United States. That is, despite large gains in total product, the Asian nations will remain relatively poor.7

Figure 7 shows the transformation of the international system into a China-dominant system and the eclipsing of US dominance at mid-century. Notice that we make two different projections. The first and highest in the figure is the forecast where there is a high level of political capacity. The slightly lower bubble shows the extent of China’s performance assuming low levels of political capacity. Our high-capacity projections suggest that the power transition between the United States and China is well under way by the middle of the twenty-first century. However, in

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6To make these determinations, we used a combination of our own income forecasts along with the US Census projections for total population.

7Our forecasts do not evidence a dramatic change when we make comparisons across India, China, and the G6 nations as a group.
the low-capacity scenario, China’s rise to dominance is delayed. Given our forecasts, China can start to see a full transition with the United States starting at best in 2035 and at worst following 2060. What this means is that the twenty-first century will start to belong to China in the middle of the century. Following that, the only possible future change in the political structure of the world could occur with a transition between China and India.

Toward the bottom of Figure 7, we see India’s slow rise to prominence. The high-capacity estimates for India suggest that its rise occurs later in the twenty-first century. It is only by 2050 that India has the possibility of starting a transition with China—and only given a collapse in China’s political structures. The low-capacity scenario for India vividly describes potential economic stagnation preventing the rise of India into the highest echelons of the global hierarchy.

The implications of the changes in the structure of the international system shown here are significant when seen through power transition theory. Recall that this theory postulates that the outbreak of conflict is associated with relative power parity between a dominant nation and challenger dissatisfied with the international status quo. The United States with a coalition of other relatively wealthy nations including the EU and Japan has been instrumental in shaping the rules that govern international interactions over the past 50 years. As the Asian transition looms, headed by China (and followed by India later in the century), the likelihood of war increases. While war is not inevitable, China’s satisfaction with the international status quo can by no means be assumed. A key foreign policy goal for the United States should be to ensure that China joins the group of satisfied nations. A future policy goal also should be to gain as close an association with India is feasible due to the possibility of its emergence as another dominant power.

Conclusion

Demographic change results in changes in national power and changes in the structure of the world. To have power, a state needs both population and politics. Our forecasts reinforce the premise that if its political development continues, by
mid-century China will have eclipsed the United States in total power. Interestingly, this transition will not be the last. India must also be regarded as a possible contender for dominance in world politics. Unless a new massive political consolidation creates new actors, the only possible transition after the eclipse of the United States by China lies in the rise of India. These massive transformations can occur only if China maintains its relatively high political capacity and after significant increases in India’s capacity as well as nearly a full century of growth. The future is not set in stone. Countries change, people move, but people and politics are the underlying reason for growth and power transitions.

One wonders whether the rise of a new dominant power would produce new incentives for political consolidation. Will the eclipsing of the United States cause a change in NAFTA or the EU that will be strong enough to nullify such an eclipsing? Yesilada and his colleagues (in this symposium) show that this change is unlikely. Thus, in the next century, we anticipate that the assent of Asia will lead to economic and political dominance by the new giants. The key question is whether the change in stewardship will have the same peaceful effects that followed US dominance or whether conflict may follow. This is the fundamental, unanswered question posed by our work.

Appendix

POFED Estimations

The forecasts presented here derive from the POFED model. The formal dynamics of POFED are outlined in Feng, Kugler, and Zak (2000, 2002). The estimation builds on insights from the endogenous growth literature whereby income is determined by investments and human capital. In addition, while the original POFED specification includes political capacity, political stability, and birth rates, our estimation omits political stability and includes death rates as a component. We use the following set of equations to derive estimates for births, deaths, and income:

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\begin{align*}
    CBR_{i,t} & = \alpha_0 + \alpha_1 RGDPC_{i,t} + \alpha_2 PC_{i,t} + u_{1t} \\
    CDR_{i,t} & = \beta_0 + \beta_1 RGDPC_{i,t} + \beta_2 PC_{i,t} + \beta_3 PC \times RGDPC_{i,t} + u_{2t} \\
    RGDPC_{i,t} & = \gamma_0 + \gamma_1 RGDPC_{i,t-1} + \gamma_2 PC_{i,t-1} + u_{3t}
\end{align*}
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These equations show that (1) births depend on levels of income and political capacity, (2) death rates are influenced by income, political capacity, and the conditional effect of political capacity across income levels, and (3) income depends on past income levels and political conditions. This set of equations is estimated using seemingly unrelated regressions (SUR), and the estimation results are presented in Table A1.

The coefficients carry expected signs and the interactions are consistent with deductions from POFED. We find that political capacity exerts a significant negative effect on birth rates as do income levels. We also find that the interaction between income and political capacity has a negative effect on death rates at relatively lower levels of income; this effect loses statistical significance at income levels greater than $4,500. Current income levels are largely determined by past income levels, while political capacity has a statistically significant positive effect on income.

Our forecasts represent two scenarios: crude birth and death rates and income levels using current levels of political capacity, and the same set using political capacity at three standard deviations above the mean value. In addition, forecasts of total GDP are derived using population projections from the US Census. We present the summary measures for the global sample as well as for India and China in Table A2.

The countries used in the estimation sample include the following: Algeria, Angola, Argentina, Australia, Austria, Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Benin, Bolivia, Botswana, Brazil, Cameroon, Canada, Central African
TABLE A1. Global POFED Estimates
(Seemingly Unrelated Regressions; N = 1383)

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Births</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income$_t$</td>
<td>-0.28***</td>
<td>0.01</td>
</tr>
<tr>
<td>$PC_t$</td>
<td>-0.05***</td>
<td>0.01</td>
</tr>
<tr>
<td>Constant</td>
<td>4.31***</td>
<td>0.10</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.80</td>
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</tr>
<tr>
<td>Root MSE</td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>5884.8</td>
<td></td>
</tr>
<tr>
<td><strong>Deaths</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income$_t$</td>
<td>-0.27***</td>
<td>0.01</td>
</tr>
<tr>
<td>$PC_t$</td>
<td>-0.04***</td>
<td>0.01</td>
</tr>
<tr>
<td>Income $\times PC_t$</td>
<td>0.000002***</td>
<td>0.000001</td>
</tr>
<tr>
<td>Constant</td>
<td>4.49</td>
<td>0.09</td>
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<tr>
<td>$R^2$</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>Root MSE</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>3756.5</td>
<td></td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income$_{t-1}$</td>
<td>0.99***</td>
<td>0.002</td>
</tr>
<tr>
<td>$PC_{t-1}$</td>
<td>0.01**</td>
<td>0.003</td>
</tr>
<tr>
<td>Constant</td>
<td>0.07***</td>
<td>0.02</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.99</td>
<td></td>
</tr>
<tr>
<td>Root MSE</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>827146.5</td>
<td></td>
</tr>
</tbody>
</table>

***1% and **5% error levels.
Regional fixed effects not shown.

Republic, Chad, Chile, China, Colombia, Congo, Costa Rica, Cote d’Ivoire, Cyprus, Democratic Republic of Congo, Denmark, Dominican Republic, Ecuador, El Salvador, Egypt, Ethiopia, Finland, France, Gabon, Gambia, Ghana, Germany, Greece, Guatemala, Haiti, Honduras, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Korea South, Lesotho, Luxembourg, Madagascar, Malaysia, Malawi, Mali, Mauritania, Mauritius, Mexico, Morocco, Myanmar, Nepal, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Panama, Pakistan, Paraguay, Peru, Philippines, Portugal, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, Somalia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syria, Tanzania, Thailand, Togo, Trinidad, Tunisia, Turkey, Uganda, UK, USA, Uruguay, Venezuela, Yemen, Zambia, and Zimbabwe.

Data on births per 1,000 were determined using both the World Development Indicators and US Census Department data. From 1960 to 1980, these data were only available every 5 years and have some limitations when it comes to China during the 1990s. To compensate for these missing data, we used the two data sets. Data on deaths per 1,000 were taken from the World Development Indicators data set, with additional fill-in observations from the CIA World Fact book and US Census Department data. Once again, a 5-year system was used to compile the data. We had difficulty in finding these data for the full 120 nations in the data set. Indeed, many countries seemed to have very limited compilation of deaths within their borders. As alternative measures, we tried to use child mortality and infantry mortality but these, too, had significant data limitations.

Data on income (real GDP per capita) were gathered using the World Development Indicators and were pegged to 1992 dollars. This variable was by far the easiest on which to collect data.
### Table A2. Birth and Death Rates, GDP Per Capita, and Political Capacity for China, India, and the World

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Max/Min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crude birth rates</td>
<td>24.3</td>
<td>12.3</td>
<td>57.2/7.0</td>
</tr>
<tr>
<td>Crude death rates</td>
<td>10.3</td>
<td>4.6</td>
<td>32.3/2.9</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>6448.9</td>
<td>6911.4</td>
<td>44354.0/281.2</td>
</tr>
<tr>
<td>Political capacity</td>
<td>1.00</td>
<td>0.43</td>
<td>4.1/0.03</td>
</tr>
<tr>
<td><strong>China</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crude birth rates</td>
<td>23.9</td>
<td>8.3</td>
<td>43.4/14.5</td>
</tr>
<tr>
<td>Crude death rates</td>
<td>8.1</td>
<td>3.3</td>
<td>25.4/6.2</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>1685.7</td>
<td>1072.4</td>
<td>3798/622.8</td>
</tr>
<tr>
<td>Political capacity</td>
<td>0.95</td>
<td>0.23</td>
<td>1.3/0.56</td>
</tr>
<tr>
<td><strong>India</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crude birth rates</td>
<td>31.2</td>
<td>5.5</td>
<td>47.1/24.4</td>
</tr>
<tr>
<td>Crude death rates</td>
<td>11.2</td>
<td>3.4</td>
<td>22.2/8.1</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>1472.0</td>
<td>558.9</td>
<td>2667/847.1</td>
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<tr>
<td>Political capacity</td>
<td>0.57</td>
<td>0.18</td>
<td>0.8/0.19</td>
</tr>
</tbody>
</table>

GDP, gross domestic project.

### References


