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Working Paper

Economic performance, power potential and global governance: Towards a new international order

Working Paper, No. 150

Provided in Cooperation with:

Indian Council for Research on International Economic Relations (ICRIER)

Suggested Citation: Virmani, Arvind (2004) : Economic performance, power potential and global governance: Towards a new international order, Working Paper, No. 150, Indian Council for Research on International Economic Relations (ICRIER), New Delhi

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WORKING PAPER NO. 150

**ECONOMIC PERFORMANCE, POWER POTENTIAL AND GLOBAL GOVERNANCE:
TOWARDS A NEW INTERNATIONAL ORDER**

Arvind Virmani

DECEMBER, 2004



INDIAN COUNCIL FOR RESEARCH ON INTERNATIONAL ECONOMIC RELATIONS

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The views expressed in the ICRIER Working Paper Series are those of the author(s) and do not necessarily reflect those of the Indian Council for Research on International Economic Relations

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FOREWORD

The founder Chairman of ICRIER, the late Shri K B Lall believed that an analytical approach was needed for the determination of India's economic relations with other countries. This was one of the reasons he founded ICRIER in 1981 along with all the leading lights of the economic profession in India at that time. Though economic relations have to be grounded in economic facts, economic laws and economic impact, international relations go beyond these to incorporate geopolitical and other issues. The current paper draws inspiration from this literature, and attempts to link and ground geopolitical interactions in economic reality. The starting point is the economic size of Nation states and their relative economic power. The paper starts by analysing past trends and ends by projecting them into the future to define a global economic scenario for the next 30 years. Implications are then drawn for geo-political evolution.

The paper proposes a definition of economic power that can be widely applied using easily available published data. This is characterised by one parameter, variations in which can yield different sub-scenarios of relative economic power. The paper goes on to argue that this relative power represents the "Natural Power Potential" of a Nation. It is argued that the system of Global Governance must be based on a fair sharing of the rights and responsibilities and that the 'natural power potential' represents such a fair metric. If global power is shared in proportion to this power potential not only will it be fair, it will also give the right incentive to Nation States to compete in terms of economic advancement rather than in terms of military might. As many have written before, the current UN system reflects neither the current economic realities nor the democratic impulse that has characterised the 20th century. It goes on to define certain principle and then applies them to show what a reformed system of global governance would look like, based on the relative position in 2002.

The projections of economic size and power potential show that tectonic shifts are under way and will occur over the 1st half of the 21st century. These will result in a shift in global economic and political power. Asia, in particular China, followed a decade later by India, will become an important driver of World economic growth. The weight of the World economy will gradually shift from the Atlantic to the Pacific and from Europe to Asia. Within Asia, the relative weight of China and India will rise and that of Japan will decline. This will mean a dilution of the super-power status of the USA and possibly a move to a bipolar World (China) followed gradually by the emergence of tri-polarity as India begins to catch up with China. Eventual multi-polarity would depend on the emergence of the EU as a virtual Nation State with independent defence forces and taxation power. Because of the very sharp ascent of China, the relative decline of the USA and a large gap between China and the rest of Asia, the second quarter of the 21st century will be a period of heightened risk to peace in Asia. Use of an alternative parameter to represents power potential, however, yields a different sub-scenario in which the World will remain uni-polar for at least 25 years.

The USA, EU and India are democratic, free and culturally open societies that share fundamental human values. It will be in the interests of the USA and EU to strengthen India's economic and technological capability over the next two decades for mutual benefit, peace and stability in Asia. The scenarios presented in this paper are merely one among many possibilities that so often surprise forecasters. The USA, EU, Japan, India and other democratic countries can by their enlightened and determined actions help bring about a World that is much more beneficial to all its citizens than is suggested by some of these scenarios.

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December 2004

1 INTRODUCTION*

State power is the “extent that (one) effects others more than they affect [one]”[Waltz (1979)]. It is therefore a “combination of its capacity to resist the unwelcome influence of others and conversely to influence others to behave as it wants them to.”¹ In the long sweep of history power plays have been represented by warfare and consequently analysts have argued that military power is the most important element of national power [Levy (1983)]. It has also been pointed out that even in war the state with the most military strength does not necessarily prevail [Mearshiemer (2001)].

The end of the colonial era, coinciding with the end of the second world-war, has led in the second half of the 20th century to a post colonial world in which conquest of other nations and peoples is no longer seen as a legitimate means of expressing national power. As Francis Fukuyama noted (1989, 1992) the strengthening of the democratic impulse and recognition of individual (as against States’) rights has played an important role in this process. Over the same period the forces of globalisation have increased the mobility of capital, goods & services and technology across countries. Temporary movement of people across countries in the form of tourism has increased dramatically. As a result both competition and co-operation among countries and their peoples has increasingly focussed on the economic domain. Social cultural interaction has increased and ‘soft power’ has become more important.²

This does not, however, mean that the role of military power in relations between states has been eliminated. The threat of use of force can itself increase risk and thus harm economic interests and well being. The nature of this role therefore needs to be redefined in the 21st century. As Paul Kennedy (1988) emphasised, Economic Power is the foundation of National Power. Even though military power disproportionate to economic power can be used to enhance national power for a certain period of time, this is not sustainable over long

* Some of these ideas were first outlined in remarks made while chairing a session of the Indo-German Dialogue on Security Issues: “Dynamics of the Future International Order,” organised by Institute of Defence Studies & Analysis and Konrad Adenauer Foundation, at IIC annex on November 29-30, 1999. The relationship to Global Governance Issues was outlined at an EU-India-USA Trilogue organised by the Hans Siedel & Konrad Adenauer Foundations in Brussels on 30th September 2004. My thanks to Mr. K Subrahmanyam, Vice Admiral Prem Vir Das (retd), Mr B. K Zutshi and Nitin Desai for their detailed comments and to Air Commodore (retd) Jasjit Singh Messers Henry A. Kissinger, Shashank, Lalit Mansingh, Alexander Nicoll, Amr Gulab Hirnandani (retd), Bharat Karnad, and Brahma Chellaney for comments on earlier versions of the paper. Any shortcomings remain the author’s responsibility.

¹ These and other introductory references are based on Perkovich’s (2003) answer to the question, ‘What Makes a Great Power?’

² The first use of this word is attributed to Joseph Nye. See also Held et al (1999).

periods. This is particularly so in the post-colonial world, as the option of colonial conquest to expand economic power and thus eliminate the discrepancy has virtually disappeared.

Diplomacy, partnerships, strategic relationships and alliances also retain their relevance. Gerald Segal (1999) pointed to the skill with which China has mastered what he called the *Diplomacy of Power*. The skill lay in making the established world powers believe that China is the second most powerful nation in the world (which it is in GDPppp) rather than the seventh (as per GDPus\$). India in contrast has been singularly ineffective in making the World recognise it as one of the five largest powers.³ Its democratic, open and free civic & political system would entitle it to be part of a new democratic concert, perhaps an expansion or modification of the G7 (G8).

This paper argues that the new order must be based on natural power potential defined primarily in economic terms. The nineteenth century concept of 'Balance of power' must gradually give way to the "Natural Balance of Power" that has economic size at its base. This balance of power can also be a "Stable Balance" if the International order recognises, promotes and preserves the natural balance. There will however be heightened risks during the transition because of the tectonic shifts taking place in power potential. To minimise the risks we need to build a new system of global governance that reflects the natural power potential. The old systems of global governance like the United Nations and its institutions are widely recognised to reflect the power relations that existed at the end of the Second World War. The world has changed dramatically since then. The most important of these is the rise in the share of Asia in the global economy and the gradual decline of the shares of the USA and Europe. This trend will continue in the 21st century and become more prominent. The new global system of governance must reflect these shifts in the global economy if a stable and peaceful World order is to be established in the 21st century. Global institutions must either be reformed to reflect the new realities or new institutions built.

The rest of the paper is in four sections. The next section defines and presents trends in the relative size of large countries. It then goes on to define a simple measure of power potential based on economic concepts. Section 3 explores the concept of Natural Balance of Power. Section 4 spells out the implications of these for reforming the structures of Global Governance in the light of certain principles of fairness and realism. Section 5 presents economic projections for the largest economies and their likely power potential. Based on

³ It has been included in the Group of 20 (G20) formed in 1999.

these it suggests the likely shift in the global balance of power and explores some of the implications for the USA, EU, Japan and India. Section 6 concludes the paper.

2 ECONOMIC SIZE AND POWER

Tellis et al (2000) have developed a comprehensive and complex model for measuring power in terms of the ability of a State to achieve and sustain global hegemony. In their model military capability is the outcome of an interaction between national resources and national performance. National resources consist of five building blocks of power, technology enterprise, human resources, financial/capital resources and physical resources. National performance contains three factors, infrastructural capacity, ideational resources and ideational resources that augment or detract from the utilisation of these natural resources.

This paper takes an economics perspective and applies the principle of Occam's razor, that is it presents the simplest possible indicators of power grounded in economic reasoning. The factors mentioned in the Tellis model are all inputs into the productive capacity of an economy, though their economics nomenclature and definition may be different. Thus a country's natural resource (e.g. oil), physical capital stock (including the stock of infrastructure), human capital (education & skills) and technology (including management, marketing and entrepreneurship) are all inputs into the production of national output and are formally included in the aggregate production function of the economy.⁴ The Gross Domestic Product of a country, which is the output produced by all these inputs, given the external (e.g. technology denial) and internal (e.g. quality of governance, social divisions/conflicts) constraints facing economic agents, is therefore a summary index of its 'national resources' and 'national capacity.' Even more broadly the growth of a country's GDP and the level it has reached reflects both the strengths and weakness of its Society (Social capital, religion, culture, family) and Institutions (Political, market regulating, Non-profit organisations, civil) in addition to the its National Policies.⁵

The GDP of a country contains different types of goods & services among which 'public goods' like Defence/military (Police, roads). The potential for producing military related goods & services is therefore also captured by the total GDP. Military capability is however the outcome of an interaction between this potential, the special external constraints

⁴ $y = f(k, h, r, T)$, where y is GDP, k is the stock of physical capital, h is the stock of human capital, r represents natural resources (e.g. oil, minerals), and T is the level of technology (broadly defined).

⁵ The quality of institutions is an important determinant of growth. Social capital and related variables are also found to be significant.

that apply to military technology and a nation's choice on how much of the output should be in the form of military goods & services. The GDP of a country is therefore a good measure of economic strength and a basic measure of military potential. The relative GDP of two countries is therefore the simplest measure of relative power potential. A more general measure of overall power potential is presented subsequently that has this as a special case.

2.1 Relative Size: GDP AT PPP

The Gross Domestic Product of an economy combines population (N) and per capita income (y), in the most natural way. Namely,

Equation 1: **$GDP (Y) = Population * Per Capita GDP = N * y$**

Population N represents the manpower potential which can be used for both economic (workers) and military (soldiers) purposes. Per capita GDP y represents the average productivity of the population and summarises its diverse capabilities. These two variables have often been used historically as indicators of national power, along with GDP.⁶

The GDP of each country is normally measured in local currency units (LCU) and must be converted to a common unit of account before it can be compared with another. The best way to compare two country's economic size & per capita income is to measure GDP (Y) and per capita GDP (y) at purchasing power parity. Technically this method solves the Index Number Problem of comparing two different baskets of goods and services? Normally this is done by using a common set of prices to aggregate all goods and services in each basket. This is the approach taken by Heston-Summers in deriving PPP estimates for countries. These estimates are available for most countries from 1975 onwards. The ratio of GDP measured at purchasing power parity is therefore the best available measure of relative economic size and the simplest measure of relative power potential.

A common method of converting GDP measured in LCU to a common currency (US\$ say) is by using the current US\$/LCU exchange rate. The argument of those using this measure of GDP (X) is based on a theoretical construct that is applicable in the (very) long run. That is, if there are no controls or taxes on imports and exports, relative prices of all goods in all countries will converge and the exchange rate will reach a purchasing power parity (PPP) equilibrium. Clearly if and when all prices converge across countries this measure is equally good or even better and can be used to compare GDP of different

⁶ Singer, Bremer and Stuckey (1972)

countries. It can therefore be used to convert and compare the different baskets of goods & services (X). Econometric tests have however shown that the exchange rate reaches a PPP equilibrium (even for the set of OECD economies) only over long periods (20-30 years). For countries at very different levels of development, relative prices of non-tradable services will not converge as long as per-capita incomes have not converged. Nevertheless the GDP at current exchange rate (X) is relevant for comparing international trade (exports and imports) and financial flows between countries as these take place at the current exchange rate.

2.2 Evolution of Global Economy

2.2.1 Trend in Shares of World GDP

During the last 30 years or so the weight of the world economy has shifted from the USA and developed Europe (OECD) to Asia (South, Southeast & East). Within Asia the weight has similarly shifted from Japan towards China and India (Figure 1 & Figure 2). OECD Europe has seen the greatest decline in global GDP share by 4.9% points followed by USA and Japan with a decline of about 1% points each. The share of Latin America and Africa in World GDP has also declined by about 1% point each. With the gradual inclusion of much of E. Europe (former USSR) in the European Union and the faster growth of these economies the sharp downtrend in European Union (and Europe's) share is likely to be halted and perhaps reversed. Any reversal is however likely to be short-lived because of declining populations in many European countries.

Within Asia the declining global share of Japan since 1990 has been more than made up by the rising share of China and India (Figure 2). During the seventies and eighties ASEAN and during the eighties S. Korea along with China & India also contributed to the rising share of Asia in world GDP. Between 1975 and 2002 Japan's share of world GDP fell by 1% point while that of S. Korea, ASEAN, India and China rose by 1%, 1.2%, 2.2% and 9.2% respectively. Thus India's gains since 1980 have been much larger than ASEAN & S. Korea but much less than those of China.

Figure 1: Shifts in the World Economy – GDP Shares at PPP (current int \$)

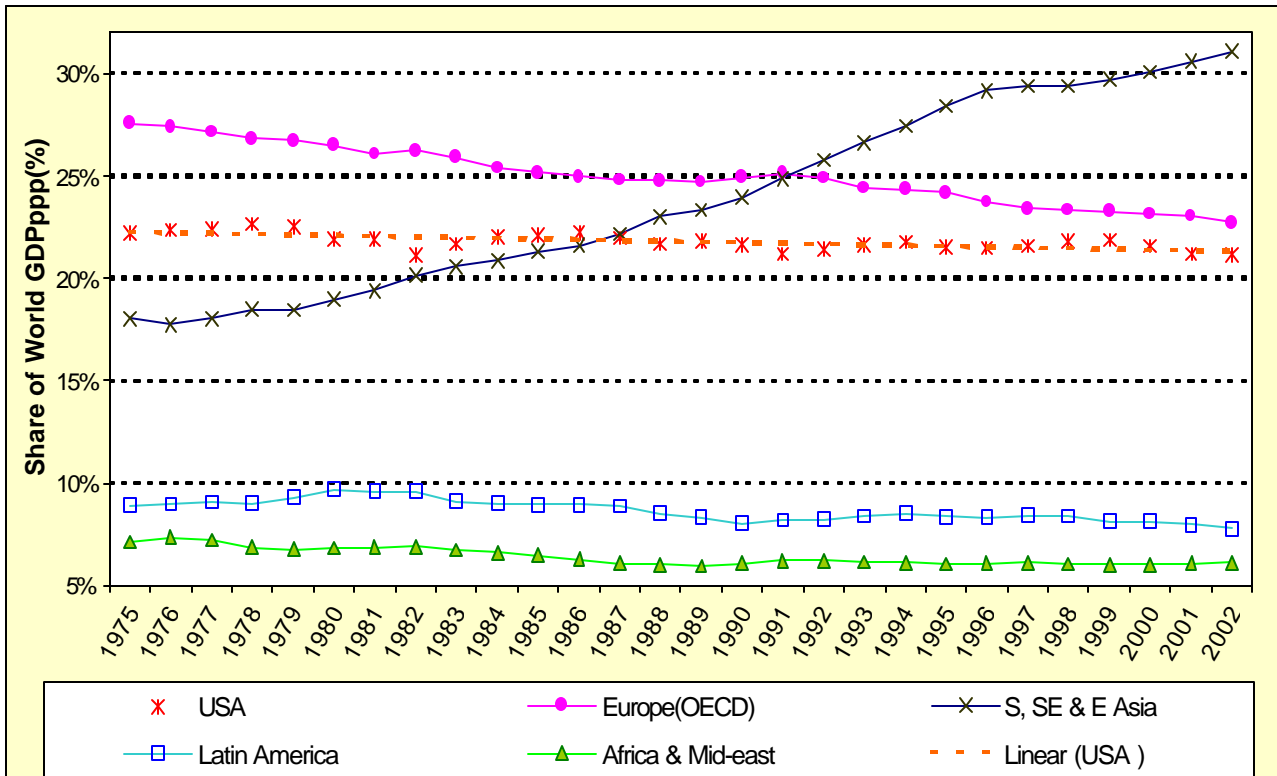
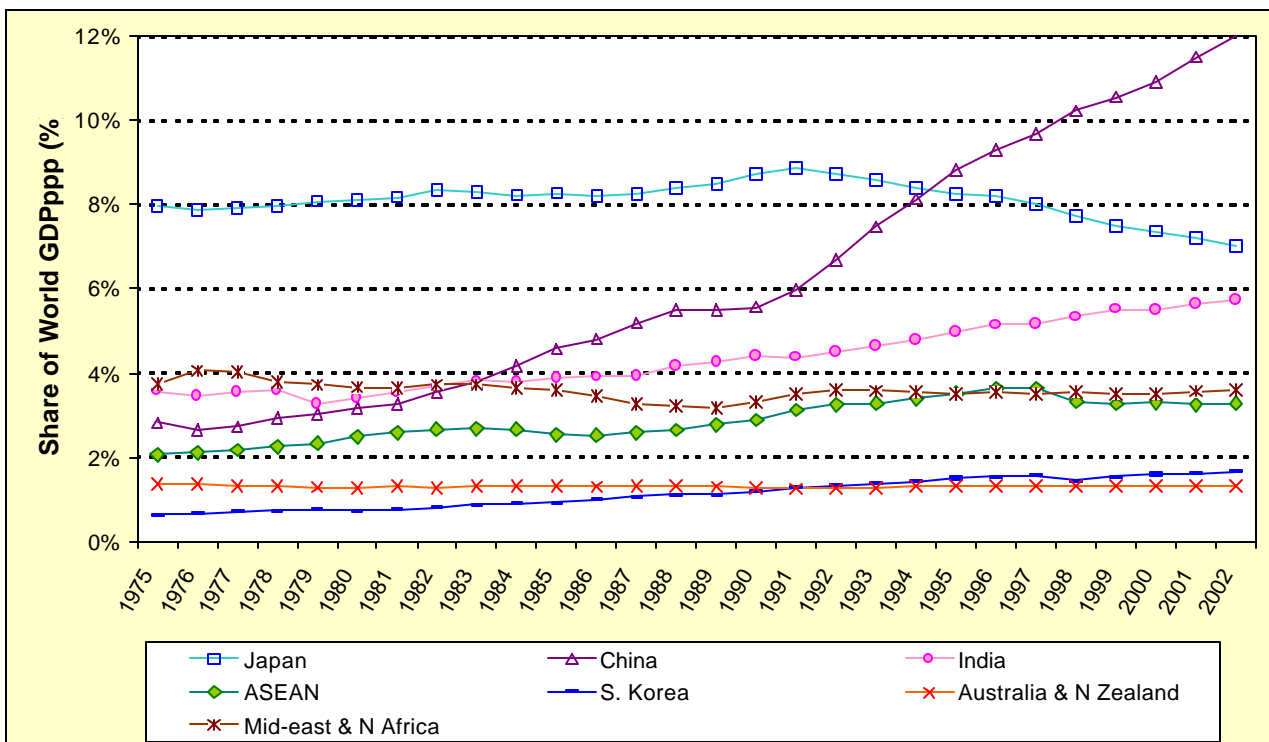


Figure 2: Share of Asian Countries in World GDP at PPP (in current int \$)



2.2.2 High Growth Economies

Underpinning these trends in the rising share of Asia in the global economy are the fastest growing economies in the World. The ten fastest growing economies in the World during the period 1980 to 2003 were in Asia (including the mid-east). Though several scholars have pointed out, and the IMF and World Bank have acknowledged, the growth rate of the Chinese economy may be over-estimated by about 2% points during the 1980s and 1990s, no adjustment has been made for this factor in Table 1. Even with such an adjustment China with an average growth rate of 7.5% per annum is the fastest growing economy during this period. The growth performance of what were called the NICs, Singapore, S. Korea, Taiwan, China and Hong Kong has long been recognised, even though the last is no longer in the top ten (12th rank). The growth performance of the ASEAN countries, Malaysia, Thailand, and Indonesia was recognised and appreciated, along with that of the NICs in the World Bank's Asia Miracle Study.

Vietnam ranked 4th and India 9th have been referred to along with China as the New Asian Miracle economies. Few still know that India has been the 9th fastest growing economy for the 24 years from 1980 and not just since 1992. There is also very little volatility in this growth rate, compared to the other Asian economies that have grown faster than India. As a consequence of the Asian crisis of 1998 and the competitive pressure from China in terms of manufacturing FDI and Exports, most of the ASEAN economies as well as S Korea have slowed and are unlikely to grow as fast as they have in the past. Thus India is likely to move up the growth rankings even if its growth rate remains unchanged.

Table 1: Average GDP Growth during 1980 to 2003

<u>Table1a: GDP Growth</u> 1980 to 2003			<u>Table1b: Per capita GDP Growth</u> 1980 to 2003		
<u>Economy</u>	<u>Rank</u>	<u>Avg</u> %	<u>Economy</u>	<u>Rank</u>	<u>Avg</u> %
China, PRC	1	9.5	China, PR	1	8.2
Singapore	2	6.7	Korea, Rep.	2	5.6
Korea, Rep.	3	6.7	Taiwan, China	3	5.3
Vietnam	4	6.5	Thailand	4	4.7
Taiwan, China	5	6.5	Vietnam	5	4.6
Oman	6	6.5	Ireland	6	4.5
Malaysia	7	6.2	Singapore	7	4.2
Thailand	8	6.0	Hong Kong	8	3.9
India	9	5.7	India	9	3.7
Indonesia	10	5.3	Luxembourg	10	3.7
Authors calculations based on data from WDI 2003 & WEO April 2004			Indonesia	11	3.6
			Malaysia	12	3.6

2.2.3 Relative Size in 2002

At the start of the new millennium the ranking of the 20 largest economies in terms of size is shown in Table 2. USA the largest economy is almost 2 times the size of the next largest economy China and about three times the third largest economy Japan. The fourth largest economy India is a little over one-quarter the size of the US economy. The next five positions are taken by the big four of Europe. Germany which was overtaken by India at the end of the decade, UK, France and Italy. Brazil and Russia bring up the rear of the 10 largest economies. It should be noted that Japan, India, Germany, and Brazil have staked their (joint) claim to permanent seats on a reformed UN Security Council. This would leave Italy, whose economy is 12.5% larger than that of Brazil as the only one among the top ten without a permanent seat on a 'new' Security Council.

Relative size should not however be confused with average income. As the size of GDP is the product of population and per capita income and India and China are the two poorest among the 10 largest economies their large economic size is based on their large populations. These two along with Indonesia are the three poorest among the 20 largest economies (table 2). The fact that two of the five largest economies in the world have much lower per capita income than the other large economies is historically speaking a very unusual situation, however. *Despite the increase in their size and power they will remain much poorer than the currently rich countries for at least a century. This may affect the interplay between them in a manner different from what has been historically observed.*

2.3 Power Potential

Many have argued that technological prowess is a separate input into the relative power of a country. This argument has weakened with globalisation. Technological mobility with regard to civilian technology has increased dramatically during the 20th century. The extent of this mobility is apparent from the fact that the USA (and EU) have, during the 1980s and 1990s, encouraged transfer of sophisticated technology to NPT nuclear member China, the country most likely to challenge their power in the 21st century. To the extent technology is mobile it is already reflected in GDP (and in growth). There are, however, restrictions on transfer of "Dual use" technologies and on advanced military technology, technologies that can be referred to as the *"technologies of power."* These restrictions are imposed so as to maintain an oligopoly or monopoly over strategic technology that can be translated into military power. Therefore inherent technological prowess is still a factor in determining national power.

2.3.1 Power Potential Index

We can define a measure that gives much greater weight to technological achievement. In economic terms, per capita GDP (y), is closely correlated with capital intensity (average capital stock k), level of education/skills (h) and level of technology (T). Formally, the aggregate production function defines the relationship between these as,

$$\text{Equation 2: } y = T f(k, h, r),$$

Where f is a function of k the per capita capital stock and h the per capita human capital (combination of education and skills) and r the per capita domestic availability of natural resources. Therefore technology level T is not directly measurable, but is implicitly defined by inverting the production function, i.e.

$$\text{Equation 3: } T = y/f(k, h, r)$$

The level of technology is formally defined by T . Per capita GDP y however captures the level of technology along with the physical and human capital needed to convert this potential into actual goods and services (including military) as well as the efficiency with which it is being done. Power potential (PP) can therefore be defined as a weighted average of population (N) and per capita GDP at purchasing power parity (y):

$$\text{Equation 4: } PP = (\text{Population}) * (\text{Per capita GDP})^{\alpha} = N * y^{\alpha}, \text{ with } 1 < \alpha < \alpha_m$$

α_m is the maximum value of α , which in this paper we will take as 1.4. If $\alpha=1$, PP is identical to GDP at purchasing power parity. A value of α greater than 1 would give greater weight to technology than GDPppp, with the weight given to technology increasing with the value of α . On rearranging Equation 4 we obtain,

$$\text{Equation 5: } PP = T_f * Y, T_f = y^{\alpha}, \text{ with } 0 < \alpha = 1 - \alpha_m < 1 - \alpha_m$$

This equation shows that the Power Potential PP is the product of a technology factor T_f and the GDP at purchasing power parity Y (same as in Equation 1). We can convert the PP into an index PPI by dividing the PP of each country j by the implicit PP for the World i.e. Average per capita GDP at PPP for the World (y_w) and World population (N_w):

$$\text{Equation 6: } PPI_j = A * (N_j * y_j^{\alpha}) / (N_w * y_w^{\alpha}) = A * (T_f j / T_{fw}) * (Y_j / Y_w)$$

This index is similar in form to the share of a country's GDP in world GDP ($A=0.713$ in this paper).

2.3.2 GDP At Exchange Rate

The gap between Per capita GDP measured at current exchange rates (x) and the per capita GDP measured at purchasing power parity (y) is found to be inversely related to the latter. That is the gap is the highest at low incomes and declines as income rises. This can be summarised as follows:

Equation 7: $x = C y^a$

The log form of this equation $\log(x) = \text{Log}(C) + a * \log(y)$ can be estimated using the cross-country data for medium-large countries in 2002 to yield $C = 0.0147$, $a = 1.38$.⁷ Thus Equation 7 becomes:

Equation 8: $x = 0.0147 y^{1.4}$

On comparing this with equation 4 for PP it is seen that if the value of $\alpha=1.4$, PP is identical to Per capita GDP at current exchange rate, except for a multiplicative constant (0.0147).⁸ In other words the relative share and relative ranking given by the two (X and PP with $\alpha=1.4$) will be broadly the same except for short-term deviations arising from large devaluation. For instance, India because of a devaluation of 25% in 1992, which at one stroke reduced the USD value of its GDP (X), ranks much lower in terms of X than in terms of PP with $\alpha=1.4$ (Table 2).

In general however the relative share of World GDP at purchasing power parity and the relative share of World GDP at current exchange rate represent the range of possibilities for measuring the relative power potential of nation states (if $\alpha_m = 1.4$)

⁷ That is all countries with GDP at PPP of \$15 bi or more.

⁸ In any regression estimate there is also an error term. In other words individual countries will not lie exactly on the estimated curve but above and below it. For instance India, because of a major devaluation in 1992 lies below the long term curve. In other words its ranking in terms of GDP_{XR} is lower than would arise from the index which represents the long run position.

Table 2: Relative Size of the 20 Largest Economies in 2002

Economy	GDP at PPP				GDP at exchange rate				Z=(Y+X)/2		PPI ($\alpha=1.4$)		Pop
	(Int\$bi)	Rnk	Wshare	Pcpita	(US\$bi)	Rnk	Wshare	Pcpita	Wshr	Rnk	Share	Rnk	Wshare
USA	10308	1	21.3%	35746	10383	1	32.3%	36006	25.7%	1	27.2%	1	4.7%
China PR	5861	2	12.1%	4577	1266	6	3.9%	989	8.8%	3	6.8%	3	20.7%
Japan	3425	3	7.1%	26937	3993	2	12%	31407	9.2%	2	8.1%	2	2.1%
India	2800	4	5.8%	2670	510	11	1.6%	487	4.1%	5	2.6%	8	16.9%
Germany	2236	5	4.6%	27102	1984	3	6.2%	24051	5.2%	4	5.3%	4	1.3%
France	1601	6	3.3%	26921	1431	5	4.5%	24061	3.8%	7	3.8%	5	1.0%
UK	1549	7	3.2%	26155	1566	4	4.9%	26445	3.9%	6	3.6%	6	1.0%
Italy	1525	8	3.1%	26429	1184	7	3.7%	20528	3.4%	8	3.6%	7	0.9%
Brazil	1355	9	2.8%	7766	452	13	1.4%	2593	2.2%	9	1.9%	10	2.8%
Russia	1186	10	2.4%	8229	347	16	1.1%	2405	1.9%	12	1.7%	12	2.3%
Canada	925	11	1.9%	29484	714	8	2.2%	22777	2.0%	10	2.3%	9	0.5%
Mexico	905	12	1.9%	8972	637	10	2.0%	6320	1.9%	11	1.4%	14	1.6%
Spain	878	13	1.8%	21457	653	9	2.0%	15961	1.9%	13	1.9%	11	0.7%
Korea, S	807	14	1.7%	16946	477	12	1.5%	10006	1.6%	14	1.6%	13	0.8%
Indonesia	683	15	1.4%	3225	173	27	0.5%	817	1.1%	17	0.7%	18	3.4%
Australia	556	16	1.1%	28262	409	15	1.3%	20822	1.2%	15	1.3%	15	0.3%
Taiwan,China	477	17	1.0%	21293	282	17	0.9%	12586	0.9%	18	1.0%	17	0.4%
Netherlands	470	18	1.0%	29105	418	14	1.3%	25886	1.1%	16	1.1%	16	0.3%
South Africa	457	19	0.9%	10074	104	35	0.3%	2299	0.7%	21			0.7%
Turkey	445	20	0.9%	6388	184	25	0.6%	2638	0.8%	19			1.1%
Iran	438	21	0.9%	6687	108	34	0.3%	1652	0.7%	23			1.1%
Thailand	432	22	0.9%	7009	127	31	0.4%	2060	0.7%	22			1.0%
Argentina	413	23	0.9%	11312	102	37	0.3%	2797	0.6%	25			0.6%
Poland	408	24	0.8%	10556	189	23	0.6%	4894	0.7%	20			0.6%
Philippines	333	25	0.7%	4171	78	43	0.2%	975	0.5%	30			1.3%

2.4 Actual Power: Strategic Public Goods

2.4.1 Military Power

PP is a measure of power potential not actual power, because the technological capability associated with higher per capita income has to be used to develop military & dual use technology and translated into military strength before it becomes effective. The starting point is the ‘will to power’ (i.e. national motivation to achieve national power and the organisation of national security systems to achieve it). From this arises a strategic vision and the appropriate allocation of public resources for strategic purpose. As military expenditure and military R&D are technically “Public goods,” two countries with the same level of “potential power” may choose to spend different amounts on different types of public goods. One country may spend more on military R&D and armaments and another on highways, urban amenities, forest conservation and the environment. We expect actual power to rise with the ratio of strategic expenditure to public welfare expenditure up to some limit after which it starts declining (inverted U shape). In the rising portion of the curve therefore, of two countries with equal power potential, a country that spends more on strategic public goods would be more powerful than one that spends more on other public goods. If the expenditure ratio (strategic to other public goods) moves beyond the peak it would represent *strategic over-stretch* and would ultimately undermine actual power.

The ‘actual’ power of Russia and Japan relative to their power potential illustrates these aspects. Russia’s effective/actual power appears to be higher than its 16th rank in GDP at current exchange rate, 12th rank in PP1.4 (i.e. with $\alpha=1.4$) and perhaps even its 10th rank in GDP at PPP (PP1 $\alpha=1$). This is because of its historical legacy of the USSR, whose global ambition converted the world into a bi-polar one, and the R&D and military development that it undertook to achieve this goal. Similarly Japan’s power is lower than that indicated by its ranking according to either criteria (Y 3rd rank, X 2nd rank) because of its Pacifism since World War II and its deliberate policy (till very recently) of underplaying its own strength.

2.4.2 Alliances

Formal alliances and informal arrangements have been used to overcome inherent technological differentials through transfer of strategic technology and thus change the ‘actual’ power and to some extent the ‘power potential’. The transfer of military technology allows the recipient country to spend less on developing these technologies and to divert revenues to other public goods including weapons. For instance, transfer of missile and

nuclear technology from the USSR to China during the fifties and sixties was a major factor in the development of China's strategic defence capabilities. China in turn is reported to have informally passed on these technologies including an atomic bomb design to Pakistan.⁹ Pakistan is a State whose inherent technological potential is not even in the top 25. It in turn has passed on elements of this technology to Iran, Libya, S. Arabia and N. Korea (which also received technology directly from China) that are even further down the technology ladder.¹⁰

India acquired nuclear weapons capability in 1974 (first nuclear test), six years after China (1968), because its inherent technological potential (as measured by PPI) was higher than that of China's till the mid-1980s.¹¹ The denial of technology to India by the West since then, contrasts sharply with China's favoured access during the eighties and nineties and has been a factor in the growth of China's power vis-à-vis India.¹² Formal and informal alliances can therefore play an important role in determining 'actual power' vis-à-vis 'potential power' and if used productively (i.e. to promote growth instead of consumption) can also affect the power potential of the recipient country.

2.4.3 Index

Though a standardised approach to measurement of power is useful it can be partially negated by geopolitical arrangements. An alternative would, therefore be to construct a completely separate index of military technology and capabilities and then combine it with measure of relative size (Y) to get a measure of power. A new global system based on this would, however, give too much incentive to develop military technologies, convert them into arms and to assert military power. The post-war UN Security Council reflects such a system based largely on military and technological achievements and the views of the World War II victors.

⁹ Pakistan had the additional advantage of complete designs for a uranium enrichment plant from Netherlands (a la A Q Khan Xeroxing activity in URENCO) and access to the supply network of URENCO spread over Germany, Netherlands, UK etc. for critical components.

¹⁰ K Subramaniam raised the possibility of such transfer when Saudi Arabia purchased M19 and other missiles from China decades ago. Both Saudi Arabia and Libya were identified by him and others as financiers of the Pakistan nuclear program and the possibility of a quid pro quo was also raised in discussion of Bhutto's "Islamic Bomb." Sale of technology to Iran was, however, less anticipated by Indian strategic analysts.

¹¹ The NPT was signed in 1972, only two years earlier by all major powers except India. One option would therefore be to extend the NPT cut-off date for acceptance of nuclear status to 1974 and thus incorporate India as a nuclear power under the NPT.

¹² What K Subramaniam dubbed "Nuclear Apartheid" a word later picked up by Jaswant Singh.

3 NATURE OF POWER IN THE 21ST CENTURY

The world is gradually moving towards the recognition of democratic rights of all human beings living in this world and globalisation has increased the interdependence between economies. The world will, in our view, gradually move towards a concept of power grounded in relative economic strength and economic inducements rather than on military might and military threats. The concepts of “realism” and “balance of power” will however continue to have relevance in the relations between nation states for the foreseeable future. These two concepts can be synthesised to derive the concept of “Natural Balance of Power.”

3.1 Globalisation And Interdependence

The Globalisation that has occurred in the 20th century will influence the evolution of the New Global Order in the 21st century. The essence of globalisation from this perspective is the removal of barriers to and the reduction of costs and risks of, the flow of commercial technology, financial capital, goods & services and people between countries. The last mostly covers temporary flow e.g. tourism, while medium-long term migration flows remain much smaller than they were in the 19th century. The global economy, including both the rich & powerful countries and the relatively poor and less developed ones, depend on such global flows. Thus there is much greater economic inter-dependence on a continuing basis than in earlier centuries. The dark side of globalisation is the increased access to Weapons of Mass Destruction (WMD) and greater ease in undertaking cross-border terrorism. It is now easier for determined individuals with sufficient funds, to procure WMDs and to cross international borders to engage in terrorist acts.¹³

3.2 Realism

Prof. Kissinger (1994, 1995) the best known recent practitioner of “Realism” and analyst of the “Balance of Power” in International relations has said: “In the emerging international order, nationalism has gained a new lease of life.” “Nations have pursued self-interest more frequently than high minded principle and have competed more than they have co-operated. There is little evidence to suggest that this age-old mode of behaviour has changed, or that it is likely to change in the decades ahead.”¹⁴ “The balance-of-power system...when working properly, ...was meant to limit both the ability of states to dominate

¹³ Though the issues of Terrorism/Fundamentalism and WMD are outside the scope of this paper, both these factors will tend to reinforce one of the conclusions of this paper, that the powerful democracies of N. America and Europe need to strengthen India (with which they share many fundamental human values) in their own interest and for mutual benefit. See also Huntington(193,1996).

¹⁴ Page 19 of Kissinger (1995).

others and the scope of conflicts. Its goal was not peace so much as stability and moderation.”¹⁵ The observations of Professors Kissinger and Kennedy have to be integrated and modified to account for the influence of democratic forces in truly open and democratic societies, countries where people’s sovereignty is not just a façade and elections a ritual for propaganda purposes.

An ideal (but unrealistic) world order could legitimately be based on the democratic principle of one-person one vote, no matter what the ethnic or national identity of the person. This would effectively mean that power is proportional to population.¹⁶ This is clearly unacceptable to those populations, which have greater achievements in the field of economics, technology or military. Economic and technological achievements of a nation translate directly into per capita GDP and are closely correlated with per capita income. Economic size ($Y = \text{GDPppp}$), based as it is on a multiplicative combination of population and economic achievement (per capita GDP) is therefore a more realistic basis for a world order.

3.3 Natural Balance of Power

The 19th century power balance was conceived largely in terms of military power (essence of ‘Realism’). The development of nuclear weapons has made conventional military balance less important. For instance, even though Russia’s economic power is a fraction ($1/5^{\text{th}}$) of that of China the latter is unlikely to threaten the former militarily because of its formidable nuclear deterrence. Military power does not however free it completely from economic and diplomatic pressures.¹⁷ Military strength and conventional balance of power have therefore not necessarily become irrelevant as some analysts have implied. For instance, a pacifist Japan without nuclear weapons and small defence forces and with an economy about half the size of China’s would likely bend to Chinese pressures if it was not covered by the US nuclear umbrella.¹⁸ India with an economy less than half China’s will not be able to maintain its decision-making autonomy if the size gap widens, unless it has a credible Nuclear Deterrent and sufficient military power.

¹⁵ Page 21 of Kissinger (1995).

¹⁶ At the other extreme, a colonial world was based purely on the military superiority of nations, philosophically justified by ideas similar to those that justified slavery & serfdom.

¹⁷ For instance China’s controlled media recently objected to the visit of the Dalai Lama, a Buddhist leader to Russia (despite his having repeatedly and publicly declared that his objective is to preserve the cultural and religious autonomy of Tibet within China). It is doubtful if Russia would be able to resist such pressures if it did not still have some of its historical military and technological power.

¹⁸ Despite this Japanese Prime Ministers have repeatedly and routinely apologised to China for World War II and given aid under pressure, while China (reportedly) supported the development of WMDs by North Korea.

To discriminate between legitimate and illegitimate use of national power in the modern world we can define a concept of, “Natural Balance of Power” based on the economic definition of power potential PP (Equation 5). The Natural Balance of Power can be defined as one in which National Power, International standing and Global rights and responsibility are proportional to relative power potential (Equation 6).¹⁹ Such a system would be consistent with peaceful economic competition among states and provide an incentive for diverting competition from the military to economic dimension.

The Natural Balance of Power can be a Stable Balance of Power if,

- a) Relative Military strength is proportionate to relative economic strength. Such a military posture is in general rational and legitimate.
- b) Initiators of “Disproportionate/Aggressive” Military Build-up (i.e. in excess of economic strength) can in principle be identified and isolated by the International System / Global power(s) *before* a “Defensive/Reactive” build-up by potential victims.
- c) Changes in relative economic power are accommodated by mutual adjustment of international power relations. The international standing of high growth economies is allowed by the established powers, to rise while (established) low growth economies gracefully accept the fall in their international standing. The system of global governance is periodically (every decade or two) is adjusted in accordance with the changes that are taking place.
- d) Co-operative and inclusive regional and global structure of economic relations exist, which increase interdependence and raise the costs to any Nation that disrupts the global economy through aggressive actions.

Cataclysmic changes in the economic balance can however disturb the natural balance. More than in the domestic context, “Power corrupts and absolute power corrupts absolutely.” So too the sudden acquisition of enormous national power in the hands of a ruling oligarchy can corrupt its intentions and global ambitions for the Nation. In such a period of transition, the classical 19th century concepts of ‘Balance of Power’ may still be relevant for avoiding hegemony and maintaining peace.²⁰

During the 21st century the world is likely to move towards this concept of ‘Natural balance of power’ in global relations. The speed with which it does so depends partly on the adoption and propagation of this concept by the global community and partly on the spread of democratic ideals and practices.

¹⁹ Adjustments would have to be made for unsettled borders and number of hostile neighbours.

²⁰ An imbalance of power allows a hegemonic power to fearlessly proliferate nuclear and missile technology to a potential rival’s hostile neighbour and thus undermine the rival’s security without directly threatening it militarily. The net result is the same. Such 19th century real politics requires offsetting arrangements by the adversely affected nations.

4 Global Governance

The current institution of global governance is the UN system (Security Council & General Assembly) along with the associate organisations like the World Bank and the IMF. The UN Security Council reflects the power balance at the mid-point of the 20th century. As the World economy has changed considerably since then, there is a widely felt need to review the entire system. A credible reform has to be based on the principles of democratic legitimacy and natural power potential.

4.1 *Global Parliament: Double Majority*

Global governance in the 21st century must be based on two principles: One is the Democratic Principle, that “All men are created equal.” In the domestic context this means one person one-vote and that all are equal before law (rule of law). In the global context we can interpret this to mean proportional representation of World population in institutions that will take decisions regarding social & human development policies (health, environment, education etc.) that have direct bearing on people e.g. Policy regarding negative global externalities such as global warming and HIV-AIDs.

On the basis of population in 2002, the people resident in China would have the highest vote share of 21%, followed by residents of India with 17%, USA with 5% and Indonesia and Brazil with about 3% each and Russia and Japan with over 2%.

The proportional representation can be implemented in two ways: Either country governments would have a weighted vote in such organisations that are proportional to their population or that people would democratically elect representatives to such global body/bodies under rules, regulations and procedures that are globally determined and monitored. The former is more realistic to start with, but gives undue power to dictatorial regime vis-à-vis their own citizens as well as the citizens of the world. The latter would be closer to genuine democracy and empowerment of global citizenship. It is an extension of what is beginning to happen in the European Parliament to a World parliament.

Unlike in a National Parliament the Global Parliament is unlikely to have in the near future any independent revenue sources, as richer States are unlikely to cede the right of taxation of their citizens to a global authority. The global parliament will therefore be dependent on the contributions of member States. Each Member State would have to contribute in proportion to its ‘natural power’ and would be entitled to a weighted vote in

proportion to this power.²¹ A weighted majority vote would be required for passing the social budget, which would include expenditures on global public goods and global social concerns.

There could, however, be a conflict of interest between the economic majority that contributes the finances and the population majority that decides what social policies are in the best interests of global citizens. As double majority vote could therefore be required to pass the social (non-security) expenditure budget.

4.2 Global Security Council

4.2.1 Principles: Democracy & Power

The second issue is that of global security and the reality of power. In the domestic context, the Nation State has the monopoly of violence over its citizens. It uses this power (or is supposed to use) for protecting its citizens from deviants and from external aggressors. No State is going to cede this monopoly of violence over its own citizens to a global government, in the foreseeable future. Thus the power of global government to ensure global security can only be a co-operative aggregation of the power of nation states for global purpose. Thus each nation must have a fair share of power in a new global Security Council responsible for global security. We have argued that the natural balance of power based on relative economic strength represents such a fair sharing of power in a peaceful world. A fair and equitable system of global governance is therefore one in which each Nations' rights and responsibility for global security are commensurate with the natural balance of global power.

The above principle has two major implications, one relating to permanent membership and veto power, and the other relating to regional representation. Permanent (P-V) membership and 'veto' power must go together, with the 'veto' re-formulated as follows. Each P-V member would be assigned a weighted vote in proportion to its natural power potential. A total weighted vote of $y\%$ by the permanent members would constitute a veto, where y could be $1/3^{\text{rd}}$ or $1/2$. The P-V members have to be selected from a set of countries ranked according to their ability to act globally by applying a cut-off to this ranking. The cut-off point has to be based on a trade-off between compactness of the council and the comprehensiveness of the power represented. The vote shares would be updated at pre-determined intervals (every decade say) to account for continuing changes.

Regional organisations cannot be P-V members because they neither have the security forces or the right to taxation of their citizens. Even the EU, which is just starting on this

²¹ If a country does not want to contribute as much as its vote share its voting rights must be correspondingly reduced.

path, may take decades to reach a point where it has exclusive rights over the security forces and the right to taxation of EU citizens. Regional representation must therefore be in the form of non-veto yielding non-permanent membership (NP-NV). The system for selecting regional representatives must be fair to the regional powers. Either the probability of being in the council or the proportion of years that they are on the Council must therefore be proportional to the nations' relative power. Thus for instance Nigeria and S. Africa are both important regional powers in Sub-Saharan Africa, but their Natural power is relatively weak (table 2). Though they cannot be P-V members, they should be represented on the Sub-Saharan NP-NV seat in proportion to their 'natural power potential' in Sub-Saharan Africa.

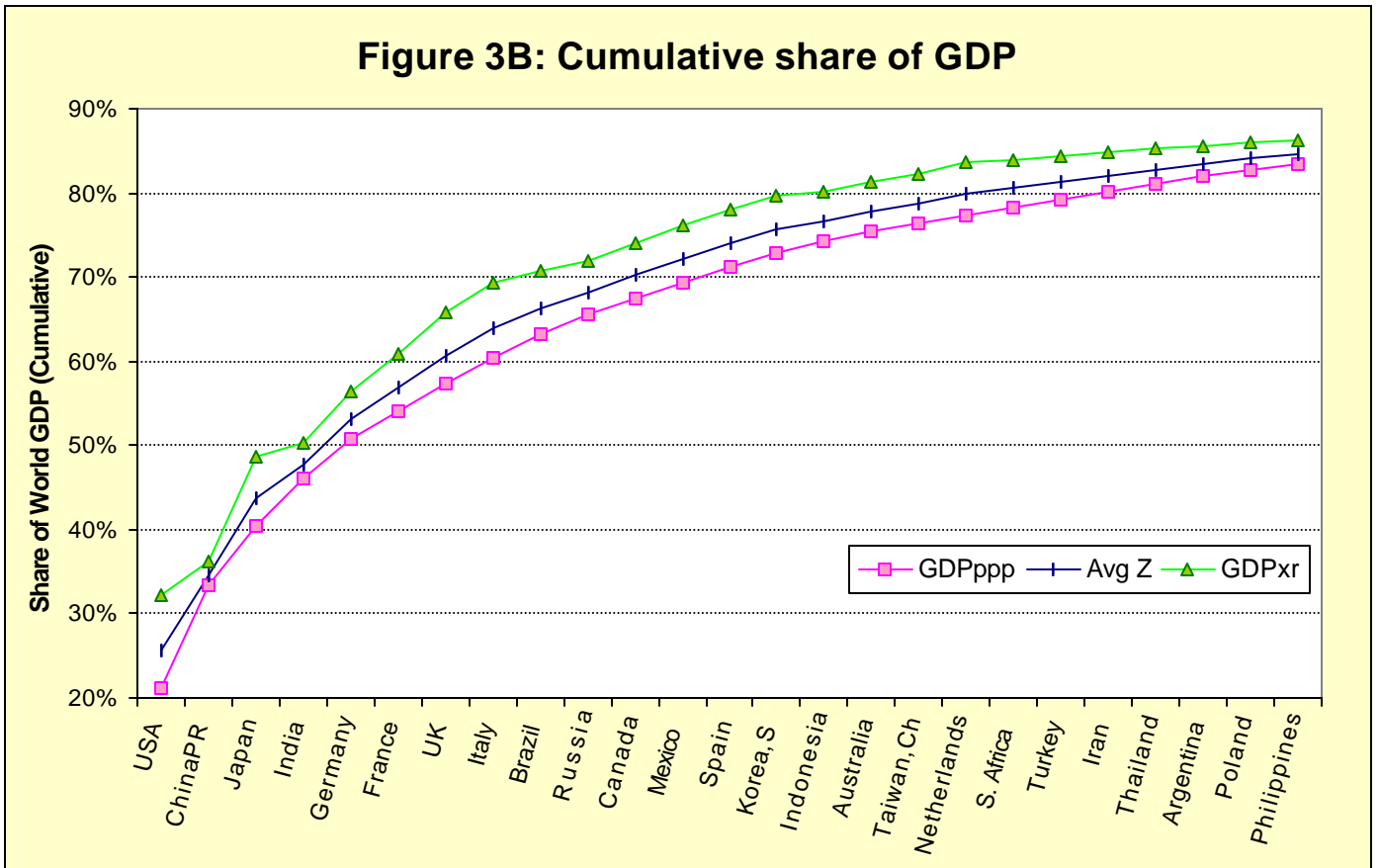
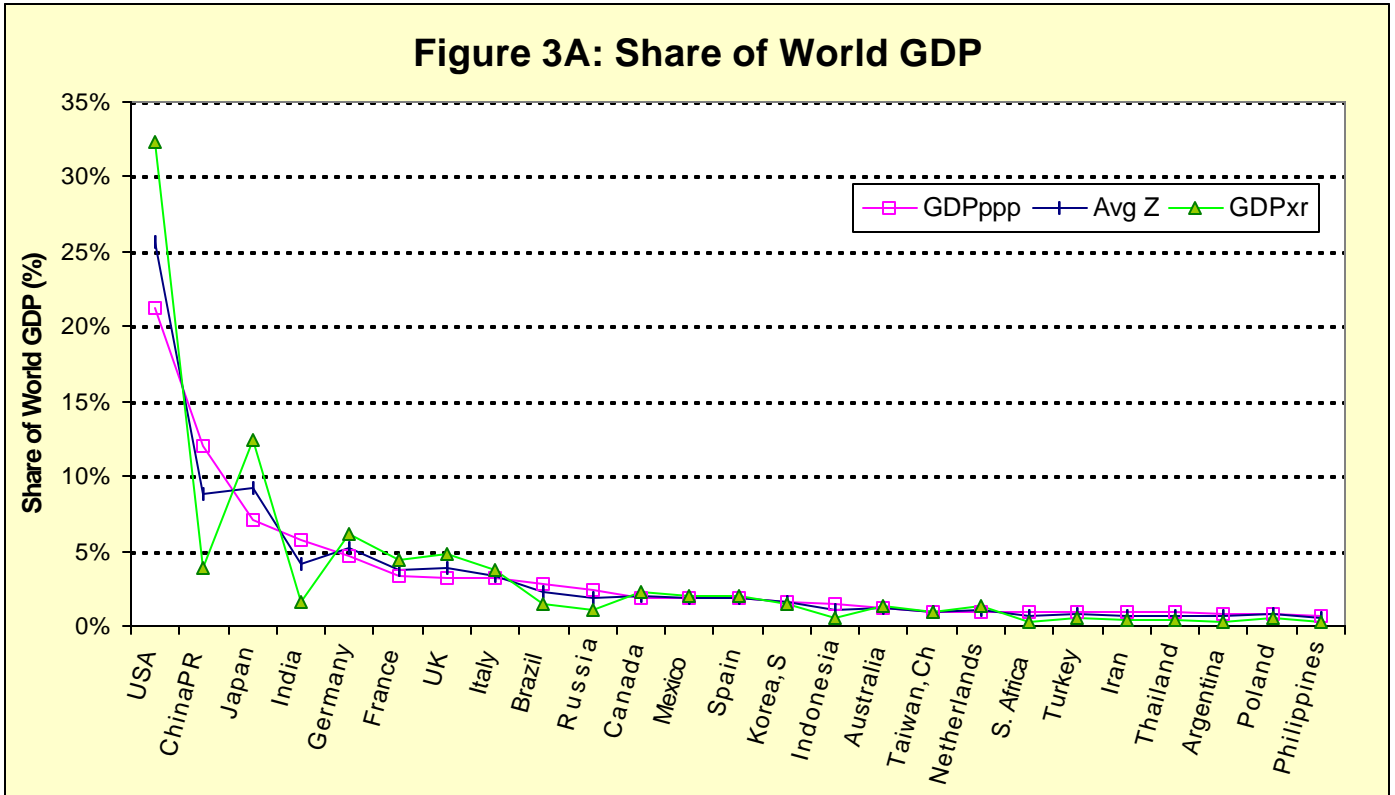
4.2.2 Permanent Members, Weighted Veto

As outlined in section 2.3 the Power Potential of a country can be characterised by the parameter α , which ranges from 1 to 1.4. When $\alpha=1$ the relative power potential of a nation can be represented by its share of world GDP measured at purchasing power parity (Y). When $\alpha=1.4$, the power potential of a nation can be approximated by its share of world GDP at current exchange rates (X).²² We can also define an intermediate case in which the power potential is defined by the average $Z=(Y+X)/2$ of the two extremes.

The shares calculated for the year 2002 are shown in Table 2 with the countries ordered by country size (i.e. Y). Figure 3 (A & B) also show the share of GDP (Y, X and Z) on the vertical axis with the countries ordered by size on the horizontal axis. The greatest changes occur in the relative ranking of India, China, Russia and Brazil, if we move from one measure of power potential to another. Thus to an extent the choice of a measure cannot be divorced from a decision on what role these countries will play on the global stage.

²² Recall that a large devaluation disturbs the concordance by reducing ranking sharply. For instance India in 2002 is correctly ranked 8th according to PP ($\alpha=1.4$) and wrongly at 11th according to X.

Figure 3: DISTRIBUTION OF WORLD GDP (PPP, Exch Rt & Average)



The cumulative GDP share of countries included grows fairly rapidly with the addition of the first 10 countries but much more slowly after the 15th (Figure 3B). Thus the share of world GDP at purchasing power parity (Y) of the top 5, 10 and 15 countries is about 51%, 66% and 74% respectively. Adding another 5 members adds only 5% of World GDP (Y). The share of the top 5, 10 and 15 countries in World GDP at current exchange rate (X) is about 56%, 72% and 80% respectively. Adding another 5 members adds only 4% of World GDP (X). This suggests there should be around 10 permanent members of the global Security Council along with a similar number of regional non-permanent members representing the rest of world GDP.²³

The choice of the measure for applying the cut-off runs into the Russia problem. Russia is the 10th largest country in terms of GDPppp (Y), 16th largest in terms of GDP at current exchange rate (X) and 12th ranked in terms of the average Z. The second criteria (X) applied fairly while including Russia would make the Security Council too unwieldy, unless there is no regional representation. We are therefore left with a choice of either Y or Z as the cut-off criteria. The vote shares of the selected countries could, however, lie between that determined using relative size Y or that determined using X. Thus the US share would be between 21% and 32%, China's share between 4% and 12%, Japan's between 7% and 12% and India's between 1.5% and 5.8%.

Though many variations are possible, there are two basic options; One is a hybrid that uses the Y ranking to determine those who will become permanent members and uses Z to assign the weighted voter or voter share. The other is to use only Z for both purposes. If we use the first option there could be 10 permanent members with the following shares: USA (25.7%), Japan (9.2%), China (8.8%), Germany (5.2%), India (4.1%), UK (3.9%), France (3.8%), Italy (3.4%), Brazil (2.2%) and Russia (1.9%). In the second option there would be 12 members. This option has the interesting property that the top 7th, 8th, 9th and 12th ranked countries (as per Z) are identical to the top 7th, 8th, 9th and 12th ranked countries according to Y.

²³ Under the conventional approach. An alternative is to have only the 20 largest countries as members, with no regional representation.

4.3 The United Nations

The system of representation used in the United Nations is clearly outdated. Representation in the General Assembly is based on the concept of one nation one vote. This violates both the principles outlined earlier. It is clearly undemocratic in that a nation with 100,000 people has the same vote as a nation of 1 million and a nation of 1 billion people. Such a system provides an incentive for nations to split into smaller and smaller units to get greater representation. It also violates the principle of fair division of power by giving the same vote to a country with a GDP of \$1 million as that to one with \$1 billion or \$100 billion. It gives an incentive for those nations with higher GDP to purchase the votes of those with lower GDP by bribing them through aid and other inducements.²⁴ If the UN is to have any legitimacy it must be reformed to give nations a vote share in the General assembly that reflects the distribution of population. An adjustment may have to be made for the fact that authoritarian governments cannot be assumed to reflect the will of their people. Initially there could also be a minimum (e.g. 1 mil) and maximum (1bi) cut-off. Tiny nations would be allowed to band together to attain this minimum size and claim one vote in the General assembly.

The UN Security Council similarly fails to reflect the power reality of today. The reality is that in 2002 the share of World GDP at PPP (Y) of the USA and other four permanent members of the Security Council is 21% and 21.3% respectively. In contrast the GDP of the other five members of the top ten who are not permanent members is 23.4% of World GDP. Further Japan, India and Germany with 7.1%, 5.8% and 4.6% of World GDP respectively are not permanent members while France and UK with 3.3% and 3.2% of world GDP respectively are. A Security Council with 12 of the largest countries as permanent members would encompass 69.4% of world GDP. Similarly the USA has started ignoring the UN Security Council, because its single positive vote or the (effectively) 100% negative vote of the other permanent members, does not reflect the current balance of power. If we want the USA to be bound by the discipline of the global governance structure, its vote share in the Council must at least reflect its relative economic power (i.e. about 1/4th of the vote).

²⁴ The bribe need not distribute income from the richest to the poorest, as nations with low population can be bribed at lower cost even if they are better off.

The nature of the veto would also change. Either a 33.1% or a 50.1% vote against a proposal by the permanent members of the Council could constitute a veto. If the vote share is as proposed in the last paragraph of the previous sub-section, the sole super power would have to garner another 8% or 25% vote from the permanent members if it wants the Security Council to support its actions. Conversely for any other nation to veto its proposal would require getting the vote of a number of permanent members. This will make it much more difficult for China, Russia, France and UK to veto US action than it is at present. This will be both a recognition of the USA's primacy as well as of the limits on its ability to act unilaterally without losing its legitimacy and primacy. A majority vote (in terms of assigned vote shares) of the full council would also be required for any action ('double majority'). There could also be certain types of decisions requiring a higher vote share (e.g. Pre-emptive attack or rules changes).

The non-permanent seats to represent the remaining 30.6% of the World economy could be assigned on a regional basis. On this basis and excluding the 10 permanent members the vote shares would be as follows: Western or OECD Europe would have the highest vote share of 7.7%, followed by East Asia with about 5.1%, Latin America (LAC) with 4.5%, E. Europe and Central Asia with 3.6%. The Middle East and N Africa would have a vote share of 3%, Sub-Saharan Africa 1.9%, Australia, New Zealand and Pacific about 1.4% and S Asia 1%. Mexico and Canada with a combined share of 3.9% could in principle be classed in N America.

The representative of each region should, logically, be elected by the nations constituting the region with their vote share proportional to their size. The election should be transparent and supervised by the UN if necessary. OECD Europe could in principle be assigned three seats with an average vote share of 2.56% and E. Asia two seats with an average vote share of about 2.55%. LAC is a borderline region that could also have two non-permanent seats. Thus there would be about 10 non-permanent seats (i.e. without veto power) representing regional interests. However, some regions could choose to have a different format of representation. For instance the EU may prefer a single seat to represent its non-permanent members (from W. & E. Europe) with the vote share of the member States assigned to it. In this case it

would be a non-veto yielding renewable semi-permanent membership (in that its constituents would repeatedly elect it).²⁵

With rights come responsibilities. Contributions to UN security operations would have to be in proportion to the vote share. Any country that desires to contribute less than its vote share would have to have a commensurate reduction in its vote share.

4.3.1 Reform Reality

UN reform cannot happen unless the five permanent members of the Security Council as well as a majority of members of the General assembly approve of the reform. Any reform means that there will be some losers in the process. The losers will not only oppose the reform but also generate opposition by raking up old rivalries. The permanent members can of course veto any reform that weakens their role in the UN. It is therefore useful to ask what would be the best compromise between the principles and analysis given in the previous sub-section and the reality.

Firstly reform of the General Assembly along the lines proposed appears unlikely and therefore would have to be abandoned so as to get the best possible outcome on reform of the Security Council. Radical reform of the Security Council in the form of weighted voting shares is likely to be vetoed by one or more of the permanent members. Thus the most realistic option during the next few years is to add some permanent members to the Security Council. In our judgement the following is a possible compromise: (a) Add Japan, Germany and India as permanent members of the Security Council with veto power. (b) Add Brazil as a permanent member without veto. (c) Have a permanent seat without veto to be shared by S. Africa and Nigeria (ie a rotating semi-permanent seat).

As none of the existing powers will be very keen to undertake any reform that dilutes their own power, UN reform may in any case take a decade. An alternative would therefore be to support these natural instincts of the current veto powers so that it does not take place during the next ten years. A radical transformation of the UN structure may become feasible in 10-15 years, when the transformation of the World along the lines spelled out below, would be too clear for any country to ignore.

²⁵ Though EU may prefer a single permanent seat with the total vote share of all its members, the UK and France and perhaps even Germany are unlikely to agree.

India's diplomatic focus should be on publicising the likely shape of the world in 10-15 years time when India will be major player. It should highlight how absurd it would be for India to be a second class member of such a UN security council in the World of 2015/2020.

4.4 World Bank, IMF and WTO

Unlike the Global Security Council there is no veto power in the economic institutions. The current system of representation is broadly acceptable, but the voting rights and responsibilities need to be updated to reflect the current situation. Because these organisations deal with the interactions between States (Aid & BOP support respectively) and the high income countries that are the source of funds have a right to a greater say in how these funds are used, GDP at current exchange rates is relevant.²⁶ On the other hand the World Bank deals extensively with internal policies that affect the population of these countries, while the IMF has imposed conditions on its lending that relate to domestic policies. Such policies affect people and GDP at PPP, which gives equal weight to population and per capita income remains relevant. Therefore for these economic organisations the option of using Z both to determine inclusion and vote shares is probably the most realistic.

The 20 top ranked countries in terms of Z with about 81.4% of the global share in 2002 could be directly represented on the board of directors of these bodies, with a weighted vote share in proportion to their share of Z (Table 2). As is the practice today, the remaining countries could select the large member from their sub-region to represent them, with their Z share added to its own share. For instance if India continues to represent Bangladesh, Sri Lanka and Nepal their share would be added to its own share of 4.1%. The weighted share would be adjusted periodically, perhaps every 10 years to reflect changes in the global economy.

In the WTO voting rights are based on one country one vote and are therefore clearly undemocratic. The General Agreement on Trade and Tariffs (GATT) was a purely trade related organisation and a vote share based on the share in World trade could have been a basis of representation. But even in this case the deviations from zero tariffs, the subject of GATT's attention, are justified in by their impact on the economy of the country and on others. Thus GDP at current exchange rate would have been the natural basis for weighted vote share. The WTO has in contrast extended

²⁶ Recall that this will give greater weight to countries with higher per capita income.

itself into many areas besides merchandise trade, such as internal subsidies, TRIMS, TRIPS and GATS (modes 3 & 4). The so-called Singapore issues go even deeper into domestic policy matters and domestic social and development concerns, blurring the distinction between trade and domestic issues. The share of world GDP at PPP would therefore be a candidate for determining the vote share weights given that the population that is likely to be affected by such basic changes in the scope of WTO (rules of the game). Given the current situation the use of a weighted vote share based on Z, as in the case of the World Bank and IMF would be a fair balancing of interests.

4.5 Time Lags

The detailed vote shares based on 2002 should be used if reforms are expected to be completed before further data become available. In practice any reforms e.g. UN reforms would be preceded by years of discussion and negotiation. The latest available data should be used. There should also be a provision for periodic update of vote shares based on changing shares. An imperfect alternative would be to base the share on the projected data for the mid-point of the expected duration of the new system. For instance, if the new system was assumed to last unchanged for 30 years then it must be based on the GDP shares (Y or Z) that are expected to prevail 15 years later.

5 NEW INTERNATIONAL ORDER

A New Global Order will emerge during the 21st century, along with new institutions of global governance. Some of these will be adaptations of existing institutions, while others may be completely new ones. This is not likely to happen very quickly however because of resistance from declining powers, which currently have disproportionate power in the current system. It is therefore important to project the past economic developments into the future to see how the distortions in the current system will grow. At some point these distortions will force a re-alignment.

5.1 Economic Forces & Projections

5.1.1 Population

Population has reached stable or declining levels in the rich, developed and Eastern European countries. European population has peaked in 2000 and is now declining. The population of other continents will continue to grow during the first half of the century but the rate of growth is decelerating. Within Asia, Japan's population will

peak in 2010 and that of China will peak in 2030 while that of India will continue to rise till 2050. Sub-Saharan Africa, North Africa and W. Asia will have the most rapid expansion of population during this period. By 2025 both N America's and Asia's share of the world's population will decline marginally by 0.2% point to 5% and 60.2% respectively. The population share of Europe and China will decline substantially by 3.1% points and 2.6% points (to 18.4%) respectively. USA's share of the World population will remain almost unchanged. The population share of India will increase to 17.4% by 2025 and stabilise at that level, so that China's share (17.3%) will fall below India's by 2035.

In 2025 the USA's population will be about 1/4th that of India or China's. The population of the next three most populated countries (Brazil, Russia & Japan) will be 16%, 9% and 9% of India's respectively. The population of Europe will be about half of India or China's.

The share of population aged 15 to 64, which forms the base (catchment area) of the active labour forces follows broadly the same pattern (UN projections). In 2030, China and India will have 18.3% and 18.1% respectively of the world population aged 15 to 64. China's share of potential workers will fall sharply to 17.1% by 2035 when India's share peaks at 18.2%. Thus India will have the largest share of the world's potential workers around 2030 about five years before its share of total population peaks. As far as this element of relative economic size & power is concerned, India will catch up with China between 2025 and 2035.

5.1.2 Globalisation & Catch-up

The last two decades of the 20th century have been characterised by a rising share of Asia in World GDP. This has been driven by the phenomenon of fast "*Catch-up*" growth. A set of countries which had relatively low income in the middle of the century stepped up their growth rate well above that of the high income countries and started closing the gap between the two. These countries were labelled as "Emerging Markets" [Garten (1997)]. Among the reasons are Globalisation and economic policy reforms. The "Catch-up" phenomenon has occurred in the most sustained and effective way in Asia. Among the reasons is the fact that Asia's civilisations are millennial and most countries of Asia have had governing institutions for centuries. Over the centuries these institutions have evolved and adapted to the changing

environment with varying speed and effectiveness. The presence of these institutions is a source of great strength and continuity. For instance, it has been shown in global cross-country regressions that India's per capita income is about one-fourth of that predicted by the quality of its institutions, implying that further policy reforms will accelerate growth.²⁷

Globalisation has resulted in freer flow of commercial technology, financial capital, goods & services and people (tourism) between countries. Though the precise national policies needed to convert this potential into a reality in any specific country are still a matter of discussion and debate it is quite clear that policy reform has played a role in converting the potential of globalisation into "catch-up" economic growth.

5.1.3 Per-capita GDP Growth

The last two decades of the 20th Century (1980-2003), eight of the ten best performing economies in the World in terms of growth of per capita GDP were in Asia. India ranked 9th (Table 3). In the first decade of the 21st Century, China and India will be among the five best performing economies. Nine of the ten best performers are also likely to be from Asia. Despite this fast growth there will still be, in 2025, a substantial gap between the per capita GDP of China and India on the one hand and the USA, Japan Germany and other OECD countries.

Asian economies (Singapore, Hong Kong, Taiwan China, Thailand, Malaysia, China PR, Vietnam and India) have benefited the most from globalisation during the last quarter of the 20th century. India has been the most cautious and slowest growing among them. Given its comparative advantage in services & 'labour-medium skill' intensive manufacturing and young labour force, it is poised for a bolder opening & globalisation to accelerate growth above that of the others.²⁸

The rate of growth of GDP and GDP per capita is projected till 2035 based on past performance. These growth assumptions are given in Appendix tables A1 and A2 and discussed there. Population growth rates are taken from the UN (mean) projections. These growth rates are used to project GDP at purchasing power parity (which forms the basis for appendix table A3, table 4 & figure 4) and per capita GDP

²⁷ Rodrik and Subramaniam (2004)

²⁸ FDI should be allowed in currently closed service sectors with a phased increase of foreign equity limits in the service sectors in which it is currently less than 100% (manufacturing is already 100%). Peak tariffs should be reduced to 10% by 2006 and to 5% by 2008. Above-peak exceptions should be limited to 60% and brought down proportionately to 30% by 2006 and 15% by 2008.

at PPP. The latter is used along with the population projections to derive the power potential and GDP at 2002 exchange rates according the formulas presented in section 2.3 (which forms the basis of appendix table A4, table 4 & figure 5).

5.1.4 Relative Size And Power

The economic development of the major countries during the next few decades has been projected and is depicted in Table 4, Figure 4 & Figure 5²⁹ A historic transformation of the World Economy is underway, with a dramatic rise in the relative size of China to be followed some decades later by that of India. This will be offset by a decline in the relative size of Europe and Latin America. The World economy will however, continue to grow at around the same average rate it has in the past 25 years, so that there is no structural break in growth of demand for natural resources.³⁰

China will become the largest economy in the World within 15 years. At that point it will also be the second strongest power after the USA [in terms of Z, table 4]. Its size (Y) will be almost double that of the USA by 2035 (figure 4). This scenario assumes that China will be able to sustain the 'FDI-Export' cum 'Zero capital cost' model of fast growth that gives it a knife edge character.³¹ Though the decline in USA's share will be more gradual, its power will inevitably be challenged in Asia. This phenomenal change in relative power poses major challenge to the economies of Europe, N America, and Asia that very few seem to fully understand or appreciate.

India's economy will become larger than Japan's in about five years taking it to 3rd place behind USA and China. By 2015 it will become the fourth strongest power in terms of power potential measured by Z. Within a few years thereafter its size (Y) will be larger than the total of the three largest European powers and a little less than half that of the USA (figure 4). By 2035 the Indian economy is likely to be larger than that of W. Europe and by 2050 that of the US.

²⁹ A number of caveats apply. First the range of uncertainty increases as we project further out into the future. Second the precise numbers are less important than the relative position of the different countries and the changes in these over time i.e. trends in these ratios. There can be other equally valid scenarios of economic evolution.

³⁰ Energy demand could still grow faster than in the past if the energy efficiency of the fastest growing economy China is lower than that of countries that will be growing slower. This aspect needs to be investigated further.

³¹ The Asian crises exposed the weakness of this model. It is heavily dependent on creating and sustaining optimistic expectations and in burying firm level inefficiencies in the government controlled banking system (implicit fiscal subsidies). It is however hard to predict what kind of exogenous shock will knock the economy of the high growth knife-edge path to more normal sustainable growth rates.

Table 3: PER CAPITA GDP GROWTH RATE (Average)

Economy	1980 to 2003		2005 to 2010	
	Rank	Gr rt %	Rank	Gr rt %
China, P.R.	1	8.2	1	6.9
Korea, Rep.	2	5.6	4	4.6
Taiwan,China	3	5.3		
Thailand	4	4.7	3	5.3
Vietnam	5	4.6	2	6.3
Ireland	6	4.5		
Singapore	7	4.2		
Hong Kong	8	3.9		
India	9	3.7	5	4.6
Luxembourg	10	3.7		
Indonesia	11	3.6		
Malaysia	12	3.6		

Data Source: WDI CD ROM 2003 and WEO 2004

Table 4: RELATIVE SIZE AND POWER POTENTIAL IN 2015

[In 2002 \$; 18 largest economies in 2002]

Economy	GDP at PPP (Y)				GDP Exch Rt (X)				Z=(X+Y)/2		Pop W share
	Rank	Value	Wshr	Pcapita	Value	rank	Increment	rank	Value	rank	
USA	1	15152	19.6%	45962	16752	1	592	1	15952	1	4.6%
China	2	15087	19.5%	10759	4542	3	396	2	9814	2	19.5%
India	3	6389	8.2%	5126	1495	8	223	3	3942	4	17.3%
Japan	4	4786	6.2%	37622	6349	2	127	4	5567	3	1.8%
Germany	5	2721	3.5%	32980	2602	4	67	5	2662	5	1.1%
France	6	2145	2.8%	34139	2080	6	59	8	2113	7	0.9%
UK	7	2090	2.7%	34110	2337	5	64	6	2214	6	0.9%
Russia	8	2050	2.6%	15368	761	13	44	10	1406	9	1.9%
Italy	9	1904	2.5%	34296	1631	7	17	18	1768	8	0.8%
Brazil	10	1700	2.2%	8416	587	16	42	11	1144	14	2.8%
Korea, S	11	1464	1.9%	29467	1066	11	40	12	1265	11	0.7%
Canada	12	1367	1.8%	40047	1186	9	38	13	1276	10	0.5%
Mexico	13	1331	1.7%	11125	1022	12	45	9	1176	13	1.7%
Spain	14	1326	1.7%	32211	1121	10	62	7	1223	12	0.6%
Indonesia	15	1325	1.7%	5738	418	18	28	14	872	15	3.2%
Australia	16	837	1.1%	38484	692	14	27	15	765	16	0.3%
Taiwan,Chi	17	740	1.0%	32697	544	17	26	16	642	17	0.3%
Netherlands	18	634	0.8%	37772	622	15	21	17	628	18	0.2%

Figure 4: PROJECTED RATIO OF COUNTRY TO USA GDP AT PPP (2002 Int. \$)

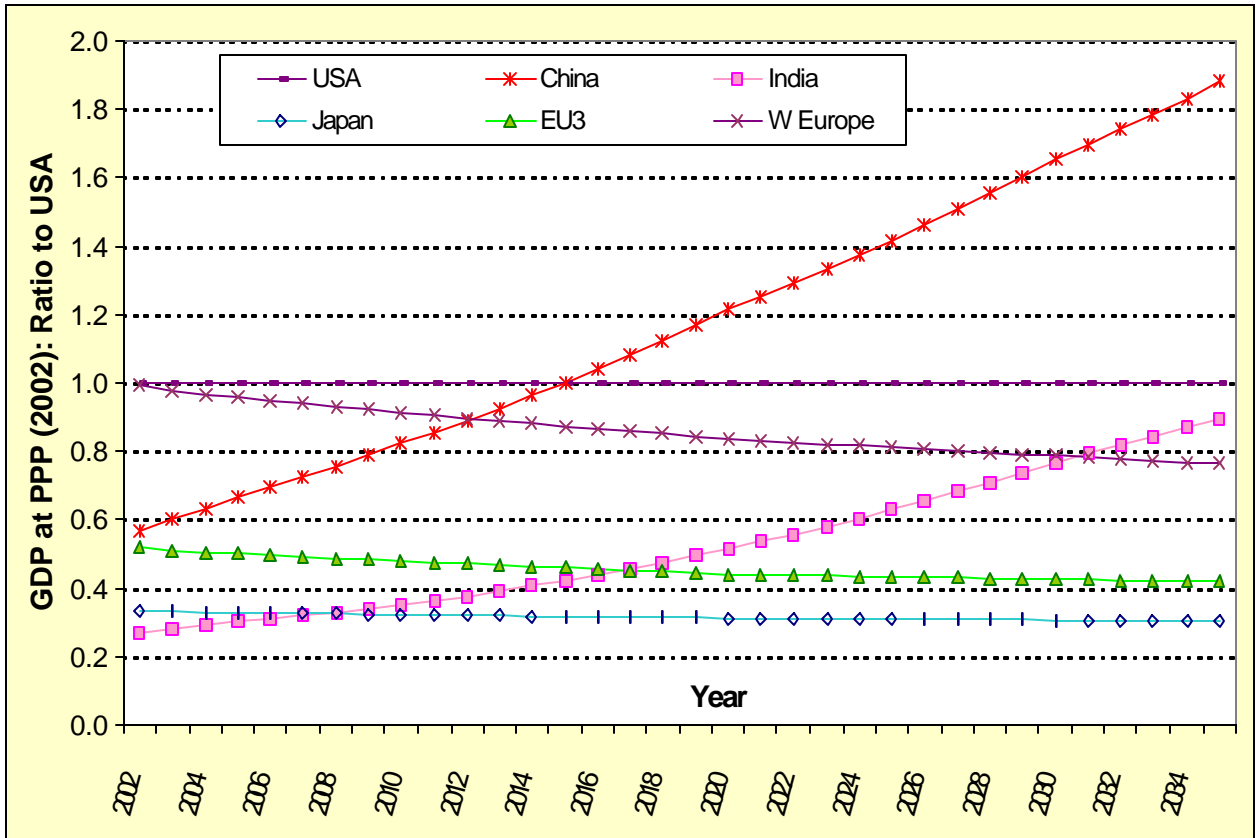
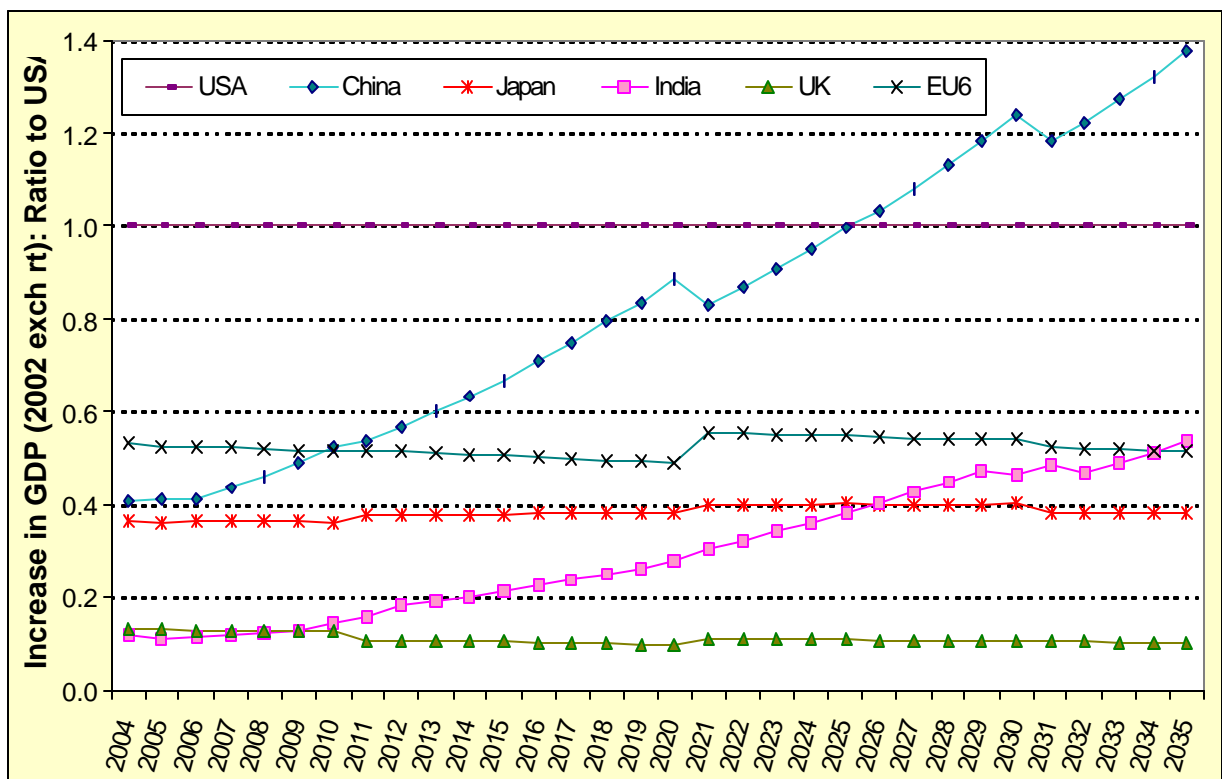


Figure 5: Projected Impact of Country Growth on World Economy (GDP at 2002 exchange rate)



5.1.5 Global Growth Engines

Because the western economies grew relatively slowly in the last few years, while China has continued to boom, the latter was described in the press as a new engine of growth for the World economy. Cyclical factors clearly played a role in this perception. Our long-term projections allow us to explore whether this is a permanent phenomenon and more generally whether Asia is likely to replace the USA and Europe as the driver of growth for the World economy. In this case we are interested not in the relative size of the economy but the impact on the rest of the World. We had noted earlier that the GDP converted to US\$ at the exchange rate is the best measure of the potential for trade and financial interaction between countries. Changes in this measure of GDP give us an idea of the growth impact (world demand and supply of goods) of an economy on the rest of the World economy.

The trends in the impact of the global growth poles over the next 30 years are shown in Figure 5. Thus by the end of the decade, China will become a larger driver of global growth than the European Union's six largest economies and India will be a larger growth driver than the United Kingdom the most significant growth pole in the EU. At this time the combined impact of the three Asian giants will exceed that of the USA. By around 2025 China's impact on World growth is likely to be larger than that of the USA and India's larger than that of Japan. By 2035 even India is likely to be a larger growth driver than the EU6, though its impact will be a little over half that of the USA. China's impact will, however be about 40% more than that of the USA, if China is able to maintain its knife edge growth path. Table 4 also shows the global impact of the other large economies in 2015. For instance Canada and Russia are ranked 11 and 12 in terms of impact, which is less than a third of that of India at that time. The S Korean economy in contrast comes in at 7th rank with an impact that is half that of India's. Brazil's impact is projected to be much lower than that of Mexico.

5.2 *Shift in Balance of Power*

Several observers have talked about the emerging shift of global power from the Atlantic to the Pacific dubbing it a 'Pacific century,' while others have referred to the 'Asian Century' a shift in the weight of the World economy towards Asia [(Mahbubani (1995)]. By the end of the first quarter of the 21st century, China's communist oligarchy will have the economic power to actively challenge the USA's predominance in Asia, even though it will not be in a position to challenge its

predominance outside Asia till the middle of the century. By the end of this quarter India will also start playing an important role in Asian affairs and by the middle of the century in Global affairs. Though the EU matches the USA in size its institutional capacity to translate this into commensurate global power is uncertain given the strength of national sentiment among its constituent nation states.

The power potential of a country lies in a band indexed by a parameter lying between 1 (PP1) and 1.4 (PP1.4). As noted the relative country share of GDP at PPP (Y) and GDP at exchange rate (X) approximate the limits of the band.³² We explore each of these in turn to trace the possible evolution of global power balances over the first half of the 21st century. The actual power balances are likely to lie within this band.

5.2.1 Bipolar or Tri-polar World?

The 'Power Potential' (PP1) captured by the size distribution of GDP at PPP (Y) puts the power of China & India at the upper limit of the band vis-à-vis USA, Japan and W. Europe. The World will become bipolar in terms of size during the next two decades and tri-polar over the subsequent two decades. Figure 3A shows clearly the Uni-polar nature of the World in 2002 with the GDP share dropping sharply as we move from the USA to the lower ranked countries. The evolution of this distribution over the 1st half of the 21st century is projected in Figure 6A (base scenario). While the uni-polar nature of the size distribution is quite clear in 2005, the distribution becomes bipolar by 2015 with the emergence of China.

As the relative share of the USA falls and that of India rises, the latter emerges as third pole in terms of relative size of GDP. If power-potential is accurately measured by PP1 (i.e. $\alpha=1$), then the World will become tri-polar by 2050 with China, USA and India constituting the three poles. At that point China's economy is projected to equal that of the USA and India combined.

All the other countries that are either currently members of the Security Council or aspire to become so will therefore have relatively small shares. Japan the largest among them will have a share of about 5% while the others (including Russia) will each have 2.5%. They would be considered regional players but be greatly in demand as partners

³² This was true in 2002 except for an error term. The parameter that was estimated to be 1.38 in 2002 may change in future.

and allies by the weaker pole(s). The forecast based on PP1, therefore, contrasts sharply with an earlier forecast by Prof. Kissinger that there would be five great powers in the 21st century, namely USA, European Union (EU), Russia and China, with a possible sixth India in the latter half of the century. The possibility of the EU acquiring most of the characteristics of a Nation-State in the next two decades is low but cannot be ruled out. Another scenario in which the EU emerges as a fourth pole converting the World into a multi-polar one is possible. In this case India and EU, as the weakest of the four poles (PP1), would have a great incentive to become strategic partners if not Allies.

5.2.2 Half Century of Uni-Polarity!

The upper limit of the power potential band represented by PP1.4 (i.e. with $\alpha=1.4$), puts the power of China & India at its lowest level vis-à-vis the USA, Japan & W. Europe. Figure 6B shows the projected changes in PP1.4 ordered by the projected ranking in 2025.³³ The uni-polar nature of the World in 2005 is again quite clear from this graph, with 2nd ranked Japan having about 40% of the potential of the USA.³⁴ If power-potential is more accurately reflected by PP1.4, then the uni-polar World will last about 30 years longer than if power is better measured by PP1. In 2035, China would have 70% of the power potential of the USA, Japan 40% and India 25%.³⁵ Though the USA's lead over China is reduced substantially it can retain its sole super-power status well into the middle of the century by strategic alignment with India. The USA's traditional ally Japan can contribute if it throws off its earlier diffidence to develop its power in accordance with its potential.³⁶

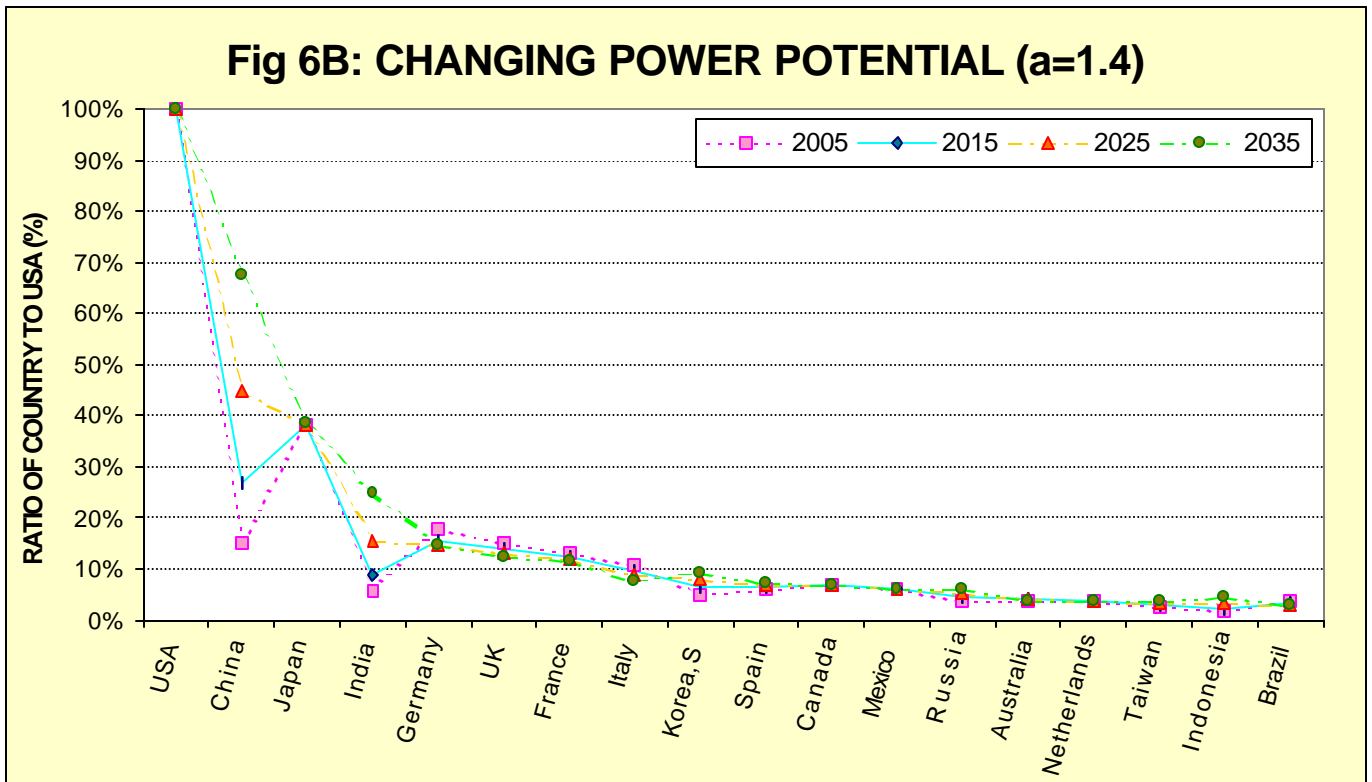
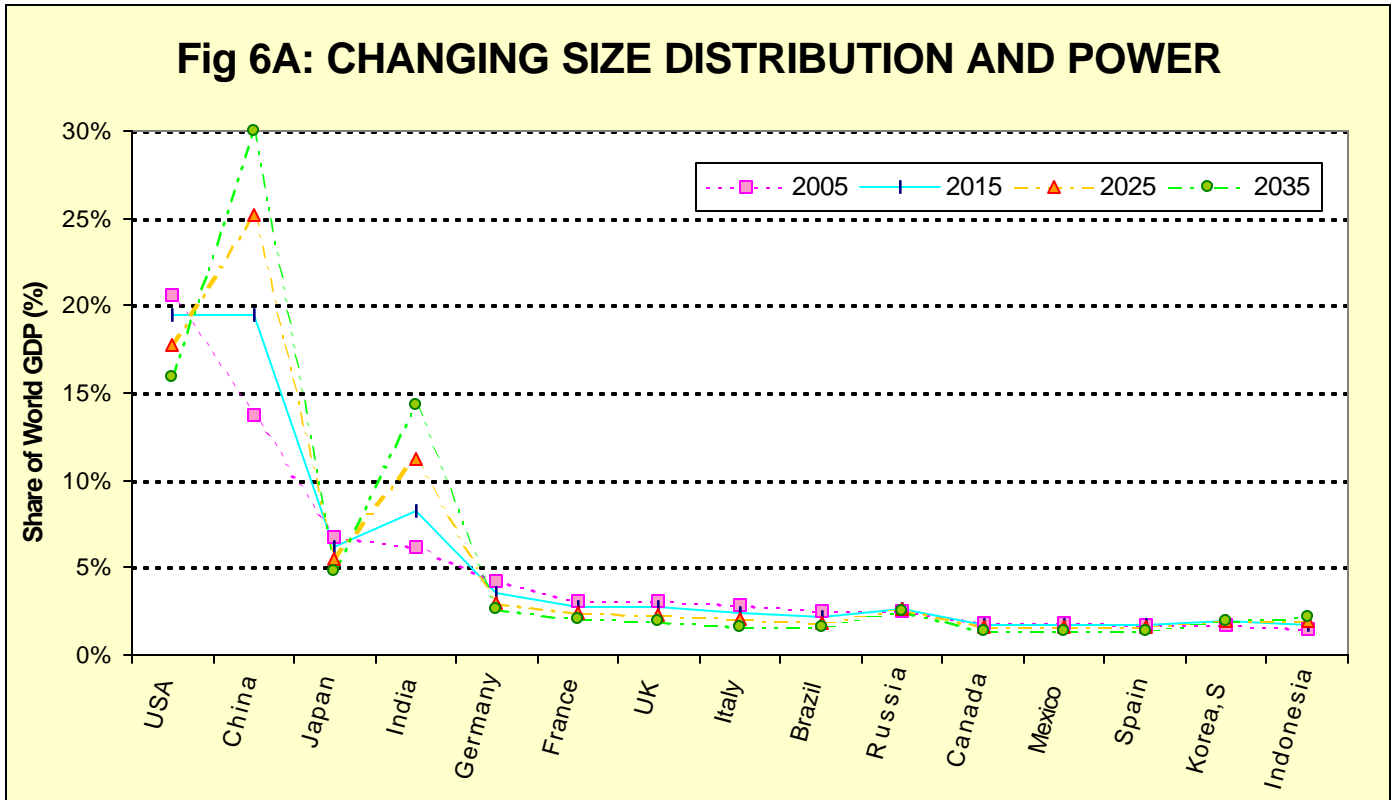
³³ This is calculated from projected per capita GDP at PP by using the equation for power potential with $\alpha=1.4$.

³⁴ Which it has never translated into actual power.

³⁵ Japans potential relative to USA is the same as in PP1.

³⁶ This is particularly so given the other challenges it faces (Terrorism and WMD) that are not considered in this paper.

Figure 6: CHANGING SIZE DISTRIBUTION OF GDP AND POWER POTENTIAL



The relative power potential of Germany (14.7%), France (11.6%), UK (12.4%), Italy (7.8%), Russia (6.1%) and Brazil (2.9%) would be lower than under PP1.³⁷ Thus even if the power potential is more accurately measured by pp1.4 Brazil would remain a regional player and Russia seems headed in that direction.

The trend in power potential PP1.4 for India represents the lower bound scenario for its rise as a global power. The gap between India's relative size and relative PP1.4 arises from the gap between the inherent technological capability represented by the gap in productivity per person or per capita GDP y. Even by this measure, India's power potential will over take that of Mexico, Spain and Canada within the next 10 years Figure 7. In the subsequent 10 years it will go on to overtake Italy, France, UK and Germany. During that period China would (likely) have overtaken Japan in terms of this measure (PP1.4), so that India would be fourth ranked behind Japan.

5.2.3 Asian Balance

A stable balance of power in Asia will be critical to Asian and consequently World peace in the second half of the 21st century. The second quarter of the 21st century is likely to be the most sensitive period for Asian stability. During this period the relative position of India vis-à-vis China will be unbalanced while the uni-polar system with the USA as the sole super-power will be under strong challenge from China. According to our base scenario the gap between (ratio of) China and India's per capita GDP will be the highest around 2020. Given the logic of catch-up the gap is likely to start closing thereafter and to be significantly narrowed by 2050. The gap between China's GDP will be highest around 2015, but the gap between China's power potential and India's potential power will reach a peak around 2020 (Figure 8). The weakness of China's model of development ('FDI-export led' plus 'Zero capital cost' intermediate supply) is bound to show itself some time after 2020. That is, the probability of China falling off the knife-edge growth path will increase progressively after 2020 if the growth rate has not moderated to normal levels.

³⁷ Numbers in bracket are for 2035.

Figure 7: Trends in Power Potential as Measured by PP1.4

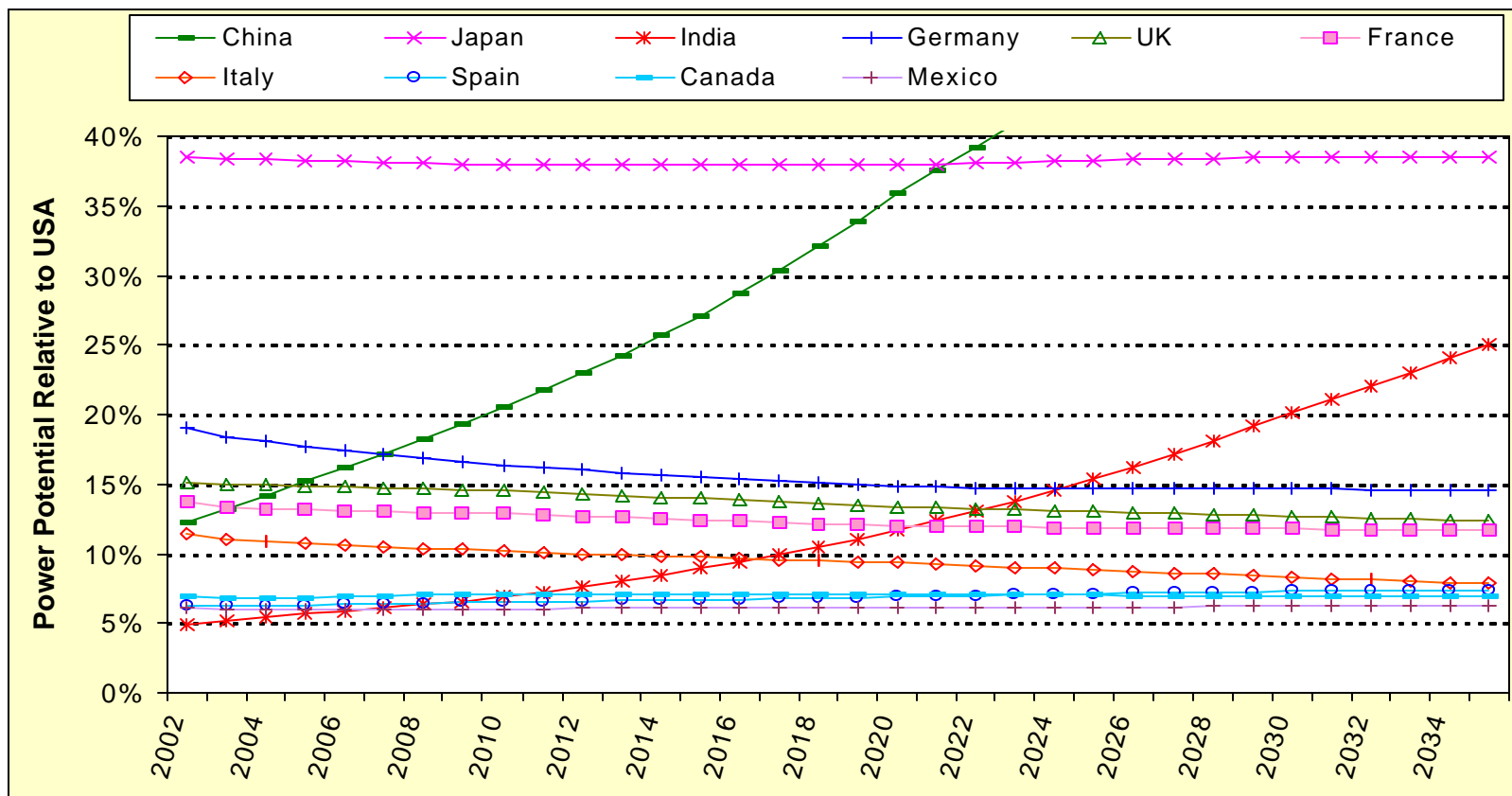


Figure 8: PROJECTED SIZE OF CHINA RELATIVE TO INDIA

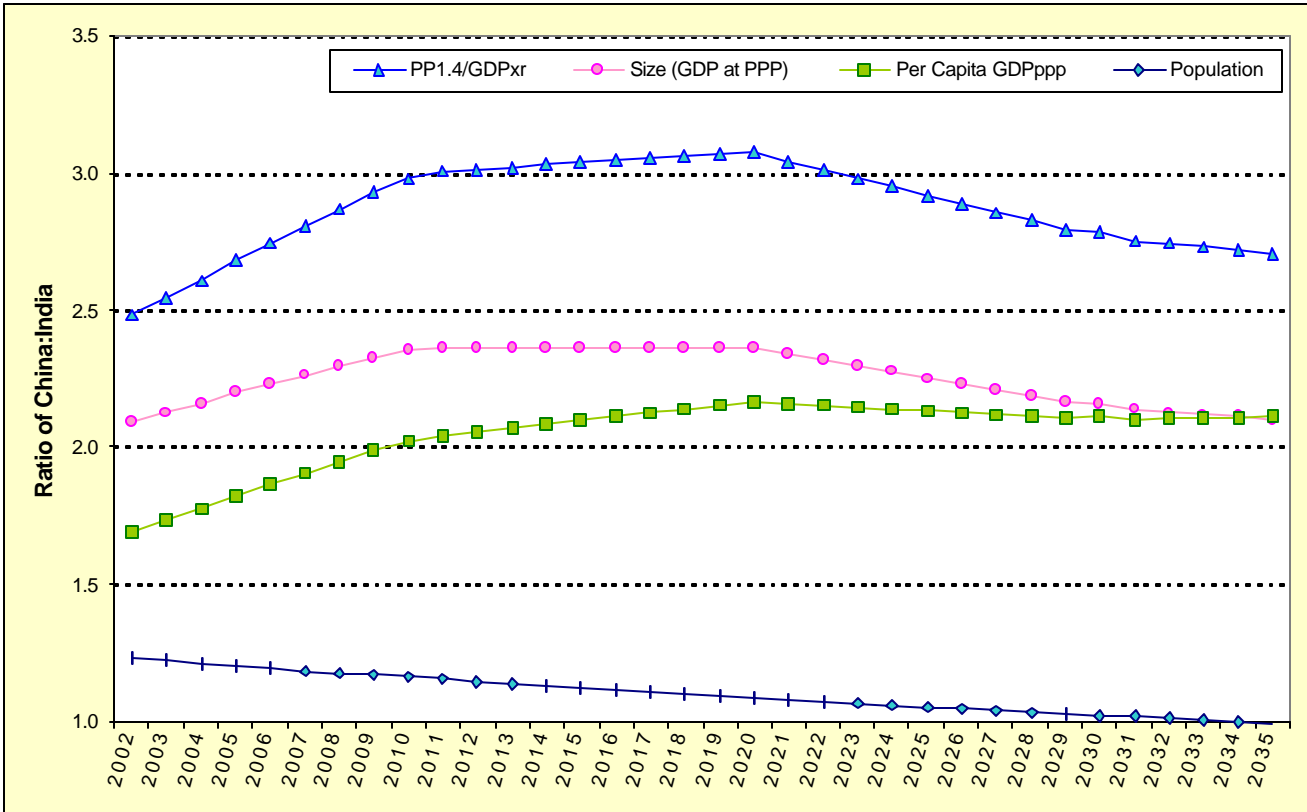
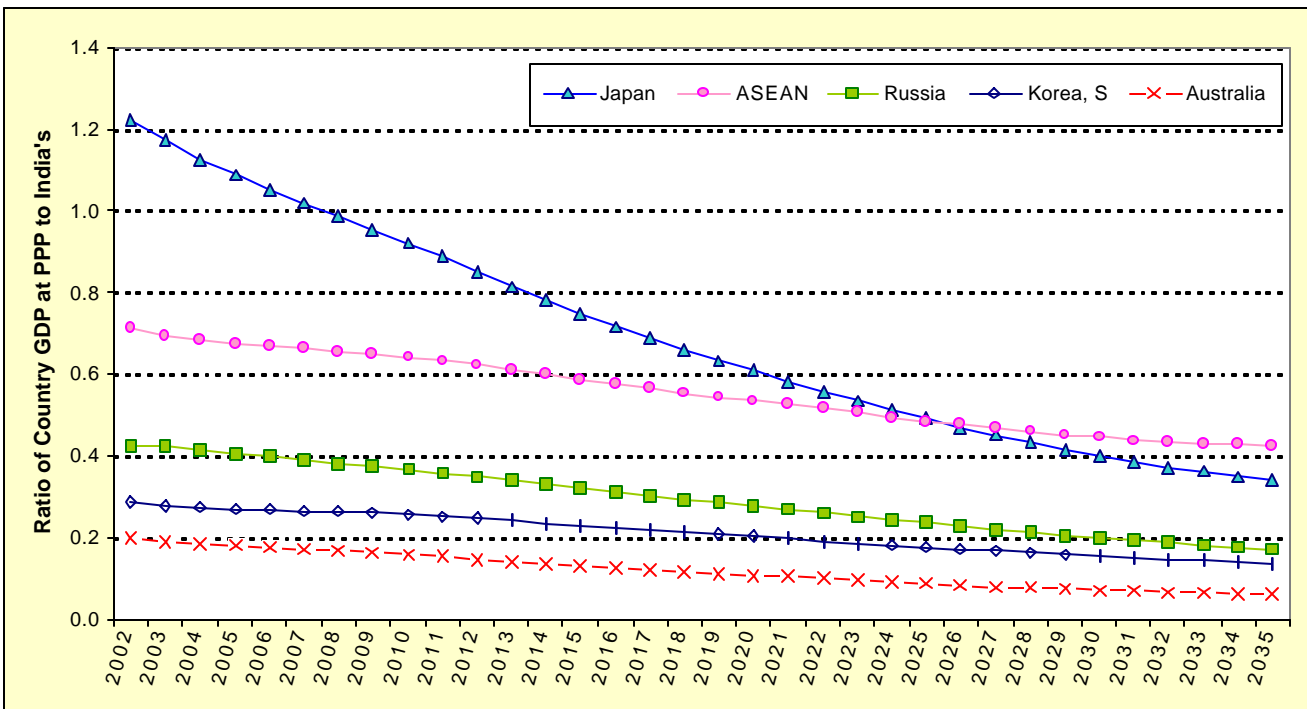


Figure 9: PROJECTED SIZE OF ASIAN COUNTRIES RELATIVE TO INDIA



In contrast, some of the weakness of governance in India, which results in poor supply of public goods & services, will reduce as incomes increase and poverty declines. The entrepreneurial, social (capital) and institutional strengths of India will then assert themselves more strongly. By 2035 India's population will have reached that of China and the population balance restored (Figure 8). China's dependency ratio as well as the average age of its labour force will also be rising relative to that of India.

As a stable balance of power in Asia will be critical to peace in Asia in the first half of the 21st century, it is useful to look at the relative balances in Asia. Figure 9 shows the size of the major countries of Asia relative to the size of India. There are two interesting facts that emerge from these projections. Firstly, there is great imbalance in the relative size of large Asian countries and this imbalance will be accentuated in future.³⁸ Thus China's size is more than twice that of India. Japan's economy in 2005-6 will be approximately the same size as India (while ASEAN countries together are about 70% of India). The next largest economy Russia is about 40%, S. Korea and Indonesia about 1/4th and Australia about 1/5th of India's size respectively. The size of these economies is projected to decline relative to that of India with Japan 3/4th and Russia 1/3rd the size of India by 2015 (Figure 9).

The second noteworthy fact is that China's economy (PP1) in 2004 will be marginally larger than that of India and Japan together. By 2017, China's economy/PP1 will be larger than the combined economy/PP1 of India, Japan, ASEAN, Russia, S. Korea and Australia. If PP1.4 is a better measure of power potential, then China's power potential will not exceed that of Japan till after 2020. In this case Japan still has time to realign its actual power with its power potential to produce a 'Natural Balance of Power,' in Asia that is also more stable. In the 19th century world of military oriented 'balance of power' an alliance between the middle powers would have appeared inevitable. The 21st century version of 'realism' requires more imaginative responses.

As India and China will be the two most populous countries in the World by a wide margin, establishment of a "natural balance of power" between the two will be

³⁸ The imbalance is however nowhere near what it was in the Americas with respect to the USA.

critical to Asian & global stability. Our projections suggest that the relative size and power (PP1) of China vis-à-vis India will rise during the current decade, stabilise during the next decade and start declining during the third decade of this century (fig 7). China's relative size and power (PP1) is projected to peak at 2.5 to 2.8 times that of India's. The USA and the EU can play a critical role in ensuring that the rising power with its governing nationalist-communist oligarchy is not tempted to assert its power by force of arms. They can do this through whole hearted and unambiguous support to a democratic and free India with which it shares fundamental human values and belief in the rule of law. The main focus of this support has to be in terms of technology transfer to correct emerging imbalances (such as the need for nuclear power to moderate oil demand) and FDI that helps close the per capita income gap faster than projected. If as a consequence India were in a position to balance the economic power of China by 2025, the temptation for aggressive nationalists within its power structure to assert their hegemony in Asia in the second quarter of the century would be moderated. This would allow the peaceful evolution of Asia and the global power structure.

5.2.4 Imbalance and Hegemony?

As the Appendix indicates, there is a possibility that the rate of growth of India and Japan may be lower than in the base forecast. The maintenance of high growth in China for a longer period than assumed (helped by euphoric expectations among OECD countries), cannot also be ruled out. In this case the imbalances in Asia would be accentuated and the risks would be much greater, as historically major changes in global power have been marked by violent upheaval.

The global system will be severely challenged to ensure that the rise of China is peaceful.³⁹ Though incorporation of Taiwan (China) into the mainland by force poses risks to mainland China's FDI-Export driven growth, the communist party may be tempted, particularly if its authority is being undermined (e.g. by democratic pressures within the mainland). As China establishes its paramount status in Asia its approach to various issues will reveal the extent to which its attitude is non-hegemonic. For instance,

³⁹ The phrase, "The Peaceful rise of China," that was mentioned by the General Secretary and other officials of the Chinese Communist party, and the President and Prime Minister of China have subsequently replaced by the, "Peaceful Development of China."

attempts to exclude specific countries from regional economic co-operation arrangements could indicate a hegemonic intent to deny them a due role in Asia. Among the issues are, (a) The development of an East Asian community that excludes potential rivals so that Japan's financial resources can reinforce its own to establish ASEAN's financial dependence on it. (b) Use of bilateral and regional Free Trade Arrangements to undermine support of other countries' claims on the South China Sea and ensure an effective take over of its natural resources. (c) Creation of a nuclear capable N. Korea that undermines the security of S. Korea and Japan.⁴⁰ (d) Use of Pakistan as a conduit for proliferation of China's nuclear technology and as a 'Trojan horse' to undermine the security of potential rivals. (e) A nuclear Iran that strengthens its position in W Asia vis-à-vis Israel/USA. (f) Choice of approach (reason and mutual respect or economic/military power) to solution of border disputes. If the hegemonic impulse that has characterised such historical shifts in power cannot be diffused and de-fanged, 19th century balance of power politics may become inevitable.

In our view, *the risk of conflict can be reduced by building co-operative and inclusive structures and systems in Asia that respect the natural balance of power and give a due share of power (& responsibility) to each nation.* It is in the interest of Asian countries, including a China that believes in "peaceful rise," to build an inclusive system that ties the major Asian powers and ASEAN into co-operative economic systems. One such structure could be an *Asian Economic Community* (eventually Asian Common Market). A positive approach by the most powerful nation in Asia, for example with respect to border settlement, can ensure that neighbours are not pressured to look outside the region for alliances to strengthen their security.

⁴⁰ This assumes a US veto of S Korean & Japanese nuclearisation.

6 CONCLUSION

Significant changes have taken place in the global economic power since the Second World War. These changes are grounded in the differential economic performance of Nations spurred in part by economic globalisation and economic reforms. The pace of change has accelerated in the last few decades. Consequently changes in the natural balance of power during the first quarter of the 21st century are likely to be larger than in the latter half of the 20th century. There is an urgent need to reform the institutions of global governance to reflect the changes in global power balances (past and projected). Co-operative economic structures would have to be built in Asia to minimise the risks of conflict and demonstrate peaceful intent towards each other.

Because the tectonic nature of the changes underway, global governance reforms may not be enough to avoid conflict. A 21st century version of 19th century balance of power politics may be temporarily needed to minimise hegemony and avoid violent upheaval during the high-risk period between 2025 and 2050. A particular responsibility devolves on free, democratic nations in North America and Europe to strengthen those democratic Nations in Asia who share their fundamental human values and can help insure its peaceful evolution. This requires recognition of the changes taking place in Asia and perhaps the evolution of a long-term vision to temper the universal temptation of short-term gains from exports of embodied & disembodied technology to the fastest growing economy in the world.

The projections in this paper indicate that India will have the potential to become a global power in a couple of decades, while other nations (besides USA & China) will be reduced to regional status. To what extent it does so will depend on its 'will to power.' Historically Indian forays into the outside World have been driven by commerce and culture. Even the culturally Indian Kingdoms that came to be established in S.E. Asia had no connection with India – they were neither colonies controlled from India nor paid tribute or bore allegiance to any ruler in India. India therefore lacks a tradition of strategic thought and experience. The extent to which India is able to translate its power potential into actual power will depend on the success of its political system and its elite in developing a strategic culture and an understanding of global power politics.

The USA, EU and India are democratic, free and culturally open societies that share fundamental human values. It will be in the interests of the USA and EU to strengthen India's economic and technological capability over the next two decades for mutual benefit, peace and stability in Asia. The Indian elite and political system must abandon the lingering cold war mentality, suspicions and approach that still survives in some corners. A true partnership requires mutual dependence.⁴¹ India must be willing to share the US (& EU's) global responsibilities in return for USA and EU's willingness to modify the national laws and international arrangements they have put in place (after India's first nuclear test in 1974) to cut India's access to strategic technology. The scenarios presented in this paper are merely one among many possibilities that so often surprise forecasters. The USA, EU, Japan, India and other democratic countries can by their enlightened and determined actions help bring about a World that is much more beneficial to all their citizens than is suggested by these scenarios.

7 APPENDIX: FORECASTS

7.1 India and China

The rate of growth of GDP and GDP per capita is projected till 2035 based on past performance. These growth assumptions are given below in tables A1 and A2. The most significant departure from past trends, the assumed spurt in the Indian economy, and the slow down in the Chinese economy need some elaboration. According to India's National accounts data GDP and per capita GDP have grown at an average of 5.8% per annum and 3.7% per annum respectively during the last 24 years (1980-1 to 2003-4).⁴² The comprehensive reforms instituted in the 1990s have increased competitive pressures on the Indian economy while at the same time enhancing its ability to compete globally. In our view an opening of the economy to international trade produces a J-curve effect: The direct negative effects of competition appear immediately as capacity utilisation falls in un-competitive product lines as capital is immobile (so reduction is limited by the rate of depreciation). The positive effects of competition on productivity appear only after

⁴¹ According to K Subramaniam, instead of fearing India's dependence on the USA, India must strive to develop a 'reverse dependence' of the USA on India.

⁴² The WDI data underestimate the GDP growth rate substantially though the per capita GDP growth rate is almost the same.

new technology adopted by the pioneers and fructifies through new investment and gradually diffuses to the rest of the industry.⁴³ Improvements in productivity will therefore appear at the aggregate level only after a lag and we expect the underlying trend rate of growth to gradually move up to around 6.5%.

There are a number of other factors that suggest India's growth rate could accelerate further. One area in which the improved competitiveness of the Indian economy is clearly visible is in the double-digit (20% to 30% per year) growth of non-traditional service exports (commonly referred to as IT & ITES exports).⁴⁴ Though such exports are already a significant share of India's total exports of goods and services, this sector constituted a very small part of the economy. Therefore the impact of the impact on GDP growth was limited. The sector is now becoming a significant part of the economy and it contribute between 0.5 to 1.5 per cent points per year to aggregate GDP growth rates.⁴⁵

The second factor is the un-exploited potential of foreign direct investment (FDI). The proportion of FDI in total investment and GDP is very low in India compared to other high growth Asian countries such as Singapore, Malaysia, Thailand, China, Indonesia and Vietnam. In contrast to China, which has followed an FDI-export led growth model, India's growth has been led by domestic investment and entrepreneurship. The positive role of FDI in growth (marketing, technology, management systems) is therefore largely un-exploited. A doubling of FDI flows from the current low levels of \$4 bi to \$8bi to \$10bi per annum could have a substantial positive effect on the growth rate of the economy. India is already a highly attractive location for skill-intensive manufacturing because of the high quality and availability of middle management/technical skills and knowledge workers. With China's per capita income more than twice that of India's we would normally expect hourly/daily wages to be twice that in India. China has so far kept monthly wages lower than that in India by allowing workers in FDI invested enterprises to work 60 to 80 hours a week (double that permitted in India). This advantage will dis-appear very soon. India could therefore become a more attractive

⁴³ There are numerous cases of firms that have transformed their systems and shown large increases in productivity. The effects of these are not however available in the sector data.

⁴⁴ We call Transport, Tourism and Communication as traditional service exports and the rest as non-traditional.

location for labour-intensive manufactured exports than China if the new Special Economic Zone law can reduce red tape/bureaucracy and introduce much needed flexibility in labour laws, rules and procedures.

The third important factor is the demographic transition that is taking place across the World. The high growth of E & S.E. Asian countries was to a substantial degree due to the demographic transition (the U shaped curve followed by the dependency ratio/ inverted U of the labour force to population ratio). China is now near the end of its demographic transition while India has entered its most positive phase. This could add between 0.5% to 0.8% points to the growth of the Indian economy. In addition the population of Europe and Japan is aging rapidly and there will be a great demand from these economies for 'youth-intensive' goods and services.⁴⁶ Over the next half century India will have the youngest labour force in the world. India is therefore likely to become the largest exporter of such items. As China's population will age much earlier than that of India it is not in a position to exploit this opportunity.

The biggest downside risk to Indian growth scenario come from the infirmities in its political system that have led to a deterioration in the quality and quantity of public goods (roads, policing, legal system.) and quasi-public goods over the last four decades. The high fiscal deficit is merely a symptom of this deterioration in governance. It is necessary however to distinguish between levels and trends. The quality and diversity of India's institutions and its social capital built over centuries, is very high. The democratic system, including the free media and the non-governmental institutions is a great source of long term strength. Dani Rodick has estimated that India's growth is 2% to 2.5% lower than predicted be the quality of its institutions. The trends in governance are however disturbing and need to be corrected: There is however still enough time for the Indian political system and civil society to reform the governance system.

On China, Bosworth and Collins (1996) followed by the World Bank and IMF have shown that its growth from 1980 to end-nineties was overestimated by 1% to 2%. Young has asserted that China's growth is over-estimated by as much as 3%. If we assume an over estimation of 2%, China seems to have the ability to sustain growth at

⁴⁵ Starting at the lower end and going up to the higher end of the range.

⁴⁶ For instance a study has shown that Nobel prize winners in Physics did their most productive work below the age of 25-30.

about 7.5% per annum over decades. Most observers have, however, been forecasting a slow down in this growth rate (see e.g. Virmani (1999)). The 1990s were a period of above average international trade growth and the current decade will see a slower growth. China's export growth will therefore slow as its share of World exports rises to the top and per capita income/wages reach upper-middle income levels.

China has used a dual model of high growth that combines FDI-export led growth (like Thailand & Indonesia) with zero-capital cost for critical intermediates.⁴⁷ The latter represents a channelling of subsidies through the banking system (which is effectively like a govt department) into State enterprises producing intermediate goods and infrastructure services and from there, through low prices, into the FDI-export complex.⁴⁸ Though the labour intensive (LI) export goods produced by Hong Kong, Taiwanese and other non-resident Chinese entrepreneurs are highly competitive this is not so for other (non-LI) exports. The FDI-export drive is critically dependent on building and sustaining optimistic expectations about the economy and the Asian crises demonstrated the vulnerability of this model. Given the continuing generation of non-performing assets (50% to 100% of GDP), which are in reality an implicit cross-tax subsidy, China is somewhat more vulnerable. On the other hand its large economy has domestic strengths that were absent in the smaller Asian countries. It is therefore very difficult to predict if and when a growth crisis could occur in China. We therefore assume a gradual slowing down of China's economy.

Our assumption for Japan are perhaps more optimistic than justified by its growth over the last 25 years. They should therefore be viewed as upper bounds. If Japan's growth is slower than assumed (as is quite likely) and India's growth does not match up to the forecast, Asian and Global balance of power will be even more unbalanced than in our base scenario.

⁴⁷ S. Korea has used the latter approach to a much more limited extent in that the subsidies were restrained.

⁴⁸ The prices of intermediate goods in China is reportedly less than their price on the high seas outside India – i.e before taxes, delays or red tape.

7.2 Appendix Tables

	Average growth rate			Projected growth rate		
	1980- 2002	1990- 2002	1998- 2002	2003- 2015	2016- 2025	2026- 2035
China	9.5%	9.3%	7.6%	7.5%	6.5%	5.8%
USA	2.9%	2.8%	3.0%	3.0%	2.9%	2.8%
India	5.6%	5.4%	5.4%	6.6%	7.0%	6.5%
Japan	2.5%	1.4%	0.1%	2.6%	2.6%	2.6%
Germany	1.8%	1.6%	1.5%	1.5%	2.2%	2.5%
France	2.1%	1.9%	2.6%	2.2%	2.4%	2.5%
UK	2.2%	2.1%	2.4%	2.3%	2.2%	2.3%
Russia	-0.1%	-2.4%	3.8%	4.3%	3.8%	3.3%
Italy	1.9%	1.5%	1.7%	1.7%	1.8%	1.6%
Brazil	2.4%	2.0%	1.6%	1.8%	2.2%	2.0%
Korea, S.	6.8%	6.2%	4.6%	4.7%	4.3%	3.8%
Canada	2.7%	2.6%	3.8%	3.1%	2.7%	2.7%
Mexico	2.8%	3.1%	3.2%	3.0%	3.0%	2.8%

Source: Authors calculations based on WDI 2003

	Average growth rate			Projected growth rate		
	1980- 2002	1990- 2002	1998- 2002	2003- 2015	2016- 2025	2026- 2035
China	8.2%	8.2%	6.8%	6.9%	6.2%	5.7%
USA	1.8%	1.8%	1.9%	2.0%	2.0%	2.2%
India	3.6%	3.6%	3.6%	5.2%	6.0%	5.9%
Japan	2.0%	1.1%	-0.1%	2.6%	2.9%	3.0%
Germany	1.6%	1.3%	1.4%	1.5%	2.3%	2.6%
France	1.6%	1.4%	2.2%	1.8%	2.1%	2.4%
UK	2.0%	1.8%	2.0%	2.0%	1.9%	2.0%
Russia		-2.1%	4.2%	4.9%	4.5%	4.1%
Italy	1.8%	1.4%	1.7%	2.0%	2.2%	2.2%
Brazil	0.7%	0.5%	0.3%	0.7%	1.5%	1.5%
Korea, S	5.7%	5.3%	3.9%	4.3%	4.1%	3.9%
Canada	1.6%	1.5%	2.9%	2.4%	2.1%	2.3%
Mexico	0.8%	1.4%	1.6%	1.8%	2.1%	2.3%

Source: Authors calculations based on WDI 2003

Table A3: World Share of GDP at Purchasing Power Parity									
	Current: Uni polar			Projected (2002 prices)					
	2002			2015:Bipolar		2025		2035:Tripolar	
Economy	(Int\$bi)	Share	Rank	Share	Rank	Share	Rank	Share	Rank
China	5861	12.1%	2	19.5%	1	25.2%	1	30.0%	1
USA	10308	21.3%	1	19.5%	2	17.8%	2	16.0%	2
India	2800	5.8%	4	8.2%	3	11.2%	3	14.3%	3
Japan	3425	7.1%	3	6.2%	4	5.5%	4	4.8%	4
Germany	2236	4.6%	5	3.5%	5	3.0%	5	2.6%	5
France	1601	3.3%	6	2.7%	6	2.4%	7	2.1%	8
UK	1549	3.2%	7	2.7%	7	2.3%	8	2.0%	9
Russia	1186	2.4%	10	2.6%	8	2.6%	6	2.5%	6
Italy	1525	3.1%	8	2.5%	9	2.0%	9	1.6%	11
Brazil	1355	2.8%	9	2.2%	10	1.9%	12	1.6%	12

Table A4: GDP at 2002 Exchange Rate Relative To USA									
	Actual			Projected					
	2002			2015		2025		2035	
Country	Ratio	Rank	Ratio	Rank	Ratio	Rank	Ratio	Rank	
USA	1.00	1	1.00	1	1.00	1	1.00	1	
China	0.12	6	0.27	3	0.45	2	0.68	2	
Japan	0.38	2	0.38	2	0.38	3	0.39	3	
India	0.05	11	0.09	8	0.15	4	0.25	4	
Germany	0.19	3	0.16	4	0.15	5	0.15	5	
UK	0.15	4	0.14	5	0.13	6	0.12	6	
France	0.14	5	0.12	6	0.12	7	0.12	7	
Italy	0.11	7	0.10	7	0.09	8	0.08	9	
Korea, S	0.05	12	0.06	11	0.08	9	0.09	8	
Spain	0.06	9	0.07	10	0.07	10	0.07	10	
Canada	0.07	8	0.07	9	0.07	11	0.07	11	
Mexico	0.06	10	0.06	12	0.06	12	0.06	12	

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