

Breaking Features in Economic Displacements and Global Governance: the Cases of China and India

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Abstract: Although history contains examples of the rise and fall of world leading economies, the catch-ups of China and India are unique. This paper highlights four unique features. First, when economic, demographic, and regional interactions are formally considered, displacement is of greater magnitude than is implied by simple GDP comparisons. Second, the two economies appear to be more complementary than competitive, which deepens the displacement effects. Third, although the catching-up is subject to external and internal uncertainties, the implications of these uncertainties point to a likely acceleration of the displacement. Fourth, China and India have distinctly different socio-economic and polity systems than today's firm-dominated leading countries; these differences are likely to accentuate externality problems and pave the way for redesigning global governance.

Keywords: economic systems, leading economies, global governance, China, India

JEL Classification Numbers: F02, O53, P47, P51

1. Introduction

History has many examples of the rise and fall of world-leading economies. By implication, the back-runner economy catches up with and displaces the front-runner as the world economic leader. Although there is a well-documented literature on past cases in which the displacement hypothesis (DH) can be applied, the catch-ups of China and India are unique. Centuries ago, both countries were once world-leading economic powers; as a result, an economic comeback is novel, cf. Maddison (2003). Besides, both are very likely to become world economic leaders with equivalent economic powers at about the same time, which is also novel.

The DH in the case of the China and India has four new features that this paper emphasizes. First, the measurement of a country's leadership in terms of GDP relative to that of alternative contenders is limited. When due consideration is given to economic, demographic, and regional interactions in an index of interactive influence that we develop and apply, the displacement of the US and the EU by China and India is of greater magnitude than is implied by relative GDPs.

Second, the two economies (India and China) are more likely to form a complementary couple than a competitive couple, with significant implications for displacement tendencies. Third, the catching up is occurring in an increasingly globalised world that has greater international interdependencies, agent awareness, change, and uncertainties than that in the past. These factors have external and internal constraints that further influence and shape the pace of displacement; the impact of these constraints is likely to strengthen rather than weaken the displacement tendencies. Fourth, and most importantly, China and India have distinctly different socio-economic and polity systems from the current firm-dominated leading economic systems of the US, the EU, Japan, and a few other OECD countries: these differences are likely to accentuate externality problems. New global governance rules have to be designed and negotiated between old and new economic powers. They then have to be implemented towards resolving externality problems. Such accommodations involving distinct societal systems are an unexplored territory, and if these externalities are not resolved satisfactorily, all leading countries and other countries will be adversely affected.

This paper is organised as follows. Section 2 contains forecasts of the relative growth of China and India in the global economy. In Section 3, we broaden the notion of a leading country by developing an index of interactive influence. This index is then applied and the results are examined with respect to the magnitude and pace of catch-up of China and India in the global and regional contexts. In Section 4, we elaborate on how far the two countries are competitive or complementary to each other in a globalising world, and the implications thereof for the displacement tendencies. In Section 5, we examine how far increasing globalisation, international interdependencies, agent awareness, change, and uncertainties due to external and internal constraints will influence the displacement tendencies. In Section 6, we open up a new subject for analysis by outlining the different prototypes of economic systems; we then examine the positions of China and India among these systems. In this section, we elaborate on the theoretical foundation and empirics that support the distinct driving forces that apply to China and India, as compared to the US and the EU. Global interactions between the different systems accentuate externality problems. In Section 7, our examination of the resolution of externality problems shows that the manner in which global governance is currently conducted is mainly driven by market settings and commercial interests prominent in US and EU economic systems. Our findings suggest that this may change profoundly under the quasi-dominance of China and India, whose economic systems are driven by multi-polar motivations typical of familial, state, and persuasion settings as well as market settings and commercial interests. As the interactive influence of China and India increases, the multi-polar driving forces characteristic of their socio-economic systems can be expected to gain momentum over commercial forces in the design of global governance. These findings suggest the emergence of a more balanced distribution of power and influence that is more conducive to cooperation. Finally, Section 8

contains concluding remarks.

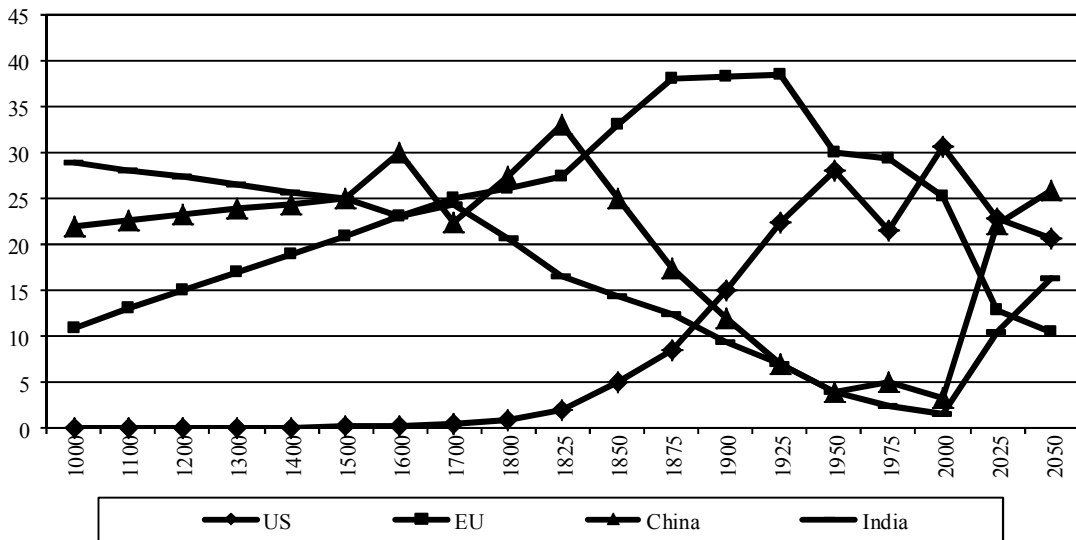
2. Future economic growth of China and India

In historical terms, China and India both share the fact that they were once the largest economies in the world before they were outpaced from about the eighteenth century onwards by European countries, the US, and others. They fell back to the status of developing countries by the twentieth century. Both countries are entering the twenty-first century as major players in the world economy.

After two centuries of downfall, the two economies have risen again and are forecasted to regain their leading positions by 2050. The BRIC model by Wilson and Purushothaman (2003) was the first attempt to use simple country models for Brazil, Russia, India, and China, among others, to examine the likely outcomes of displacement scenarios for major countries. The authors used a standard five-equation and five-variable model for each country. The first equation is a Cobb-Douglas production function $Y = AK^\alpha L^{1-\alpha}$ where Y is GDP, K is capital stock, L is working age labour, and A is technical progress. The second, third, and fourth equations lay out projections for L, K, and A. L is exogenously taken over. K grows on the basis of assumed depreciation and investment rates. A is positively related to the catch-up achieved in GDP per capita, reflecting the benefits of positive externalities that the developing country enjoys. Finally, there is an important equation that determines the country's real relative exchange rate to the US dollar, E. The assumption is that E is determined by the differential in labour productivity with the US, thus, $\Delta \ln(E) = \Delta \ln(Y/L) - (\text{growth of } Y/L \text{ in the US})$. Currencies tend to approach their purchasing power parity exchange rates as they achieve higher productivities.

The results obtained for 2040 or 2050 are startling. BRIC countries will overtake OECD countries in terms of GDP. Specifically, the economies of China and India will be bigger than those of the US and the EU, respectively. However, the income per capita gaps will remain, although they will be smaller. In this framework, countries become richer on the back of real growth and appreciating currencies. About two-thirds of the increase in BRIC's GDP in USD is from real growth, and one-third is from appreciating currencies.

Compared to economy-wide economy models commonly used at the World Bank and UN, the BRIC model can be criticised on the grounds that its projections are based on individual country models that are not linked to each other in a world model. Price and volume interactions between the individual countries are excluded, as are the gains of one country that indicate a loss for another country. For example, as higher growth leads to higher returns, it can be speculated that capital flows will move accordingly, prompting shifts in portfolio investments, currency realignments, and, possibly, further currency appreciation. The latter may affect economic growth negatively. These interactions have been excluded. The main argument in defence of

Figure 1 The fall and rise of China and India

Source: The vertical axis denotes the percentage share of a country's share in the world GDP. The horizontal axis denotes years. Years 1000 to 1975 are reported in OECD, see Maddison (2003). Year 2000 and forecasts for 2040 and 2050 are from table 1 below.

the BRIC results is that the authors looked at ways to cross-check the plausibility of the forecasts, which proved to be positive¹. More studies on the prospects of emerging economies, conducted in investment as well as academic circles, have come out in support of the conditional displacement hypothesis².

Figure 1 provides the trends of the percentage distributions of GDP for the US, the EU, China, and India from the tenth century to the twenty-first century. China and the US are forecasted to have equal shares of world GDP (about 23% each) in 2040, but China will surpass the US by approximately 5 percentage points in 2050. By then, India will surpass the EU by 4 percentage points. The top four countries in 2050 are thus China, the US, India, and the EU, with their respective GDP shares: 26.0%, 20.6%, 16.3%, and 10.4%. After 2050, the growth rate of India's GDP is forecasted to be higher than that of China's GDP.

3. Measuring dominance by an index of interactive influence at the global and regional levels: Results show strengthened displacement

The global distribution of the GDP shown in Figure 1, as an indication of the interactive

influence of competing countries, is not theoretically well-founded. The measurement of the interactive influence of competing countries on the world stage requires the development of an index of interactive influence that draws on the foundations of microeconomic behaviour. In general, the driving forces within and between interacting economic settings are (a) the economic agents that inhabit the settings, and (b) the economic transformations that economic agents undertake and eventually exchange. Examples of interacting settings are households, firms, governments, and, in the present context, countries. In this section, we develop an index of interactive influence that applies to countries.

An interacting setting (i.e. country g) exercises its influence relative to other settings (i.e. other countries g') through two channels: (a) the extent and intensity of agents engaged in the economic transformation of goods and services in g compared to g' , and (b) the volume of economic transformations realized in g compared to g' . The index of interactive influence of country g , denoted by I_g , is thus expressed in relative terms and has two components: (a) the ratio of agents (i.e. population) of country g to total world population, and (b) the ratio of economic transformations (i.e. GDP) of country g to total world GDP, respectively, A_g and C_g . While A_g is the share of agents in country g , with respect to all agents in all countries, C_g is the share of commodities transformed in country g , with respect to all transformed commodities in all countries. Eq. 1 proposes that the greater the shares of interactive agents (i.e. population) and transformed commodities (i.e. GDP) in a particular country, the greater is the interactive influence of that country and the probability that that country's set of norms, conducts, and structures will prevail over others. The weights ω_1 and ω_2 applied to these two shares are given equal weights, $\omega_1 = \omega_2 = 0.5$, so as to keep the formulation basic.

$$I_g = (\omega_1 A_g + \omega_2 C_g) \quad (1); \quad \text{Country } g \text{ achieves dominance when } I_g \geq I^* .$$

The equation also states that the probability that the norms, conducts, and structures characteristic to a particular country g become most influential (i.e. achieve dominance) and thus prevail over those of other countries is higher when the critical value of the index is reached at I^* . In this equation, I^* is a proportion that represents critical mass. Once a country's index surpasses the critical mass, the country's interactive influence and the dissemination of its set of norms, conduct, and structures to other countries is strengthened via network externalities. There are different views concerning the likely value of the critical mass. Values of two-third and three-fourth are among the most quoted in literature relating to critical mass³. There is thus justification for fixing the value of I^* at around 0.7.

Summarizing, the two shares of A_g and C_g and their weights form an *Index of Interactive Influence*, I_g , which is indicative of the assertive power of entity g (this can be a country) over other interacting entities (other countries). This index can be generalised and applied in a more

Table 1 Future outlook of major countries as reflected by the Index of Interactive Influence

	2000			2050		
	Population (millions) percent	GDP (USD bn) percent	Index of Interactive Influence, %	Population (millions) percent	GDP (USD bn) percent	Index of Interactive Influence, %
World total	(6124)	(31,800)		(9191)	(170721)	
US	4.7	30.7	17.7	4.4	20.6	12.5
EU	6.9	25.3	16.1	4.8	10.4	7.6
Japan	2.1	14.6	8.4	1.1	3.9	2.5
Russia	2.4	1.2	1.8	4.2	3.4	3.8
China	20.7	3.4	12.1	15.3	26.0	20.7
India	17.1	1.5	9.3	18.0	16.3	17.2
Rest of world	46.1	23.3	34.7	52.1	19.4	35.8
World	100.0	100.0	100.0	100.0	100.0	100.0
US+EU+Japan	13.7	70.6	42.2	10.3	34.9	22.6

Sources: Population figures are from UN Population Division at <http://esa.un.org/unpp/> GDP figures for 2000 are from World Bank at <http://devdata.worldbank.org/query>. GDP projections for 2050 for the individual countries, expressed in constant price of 2003, are from Wilson and Purosothaman (2003). We used their projected aggregated growth path for France, Germany, Italy and UK to obtain the projections for the EU, which consists of the 15 Western European countries. The projections for the Rest of World Group are from Fogel (2007). The projected world total for the GDP is thus obtained by summing the regions, and the percentage distribution by region is calculated. The index of interactive influence in column 3= $(\text{col.1} + \text{col. 2})/2$. Col. 6= $(\text{col4} + \text{col.5})/2$.

general analysis of economic systems, as will be shown in a later section. The index has been applied in Table 1 to highlight the relative influence of the alternate contenders in 2000 and in 2050.

What are the expected relative magnitudes of the agents and economies of the major competing countries about four decades from now? As regards the number of agents, past and present experience indicates that UN demographic projections tend to be realised and can be trusted. The current ranking of the population size of China and India as one and two will be reversed by 2050. Their population shares will be 15.3% and 18.0% of world population, respectively. The US and the EU will follow at 4.4% and 4.8%, respectively. These GDP shares were reported in the previous section.

Table 1 indicates a reduction in the interactive influence of the US, the EU, and Japan, which

Table 2 The regional Index of Interactive Influence: positions of China in EAP, and India in SA.

Year: 2000	Population		GDP US\$		Country Index of interactive influence (Average of 2, 4)	GDP per capita US\$	GDP per capita ppp\$
	Million	%	Million	%			
Total EAP	1806	100.0%	1713600	100.0%	100.0%	949	3747
China	1263	70.0%	1200000	70.0%	70.0%	950	3939
Indonesia	206.3	11.4%	165000	9.6%	10.5%	800	2904
Total SA	1351	100.0%	608891	100.0%	100.0%	450	2209
India	1016	75.1%	460200	75.6%	75.3%	453	2364
Pakistan	138	10.2%	73300	12.0%	11.1%	531	1880

Source: Population and GDP figures from World Bank at <http://devdata.worldbank.org/query>

represent firm-led economic systems. Table 1 also indicates a marginal increase for Russia, which is the closest to a state-led economic system. However, the significant gainers in interactive influence are China and India, with scores of 20.7 and 17.2, respectively. Their interactive influences almost double, with India’s increment being greater than China’s. These changes in relative influences will not go unnoticed in a globalising economy⁴. It is also interesting to note the moderation in the dominance of China, following the index, as compared to an assessment based on GDP only. This is due China having a lower population growth than the rest of the world.

The index of interactive influence allows for more applications and results, such as drawing conclusions on the relative dominance of China and India within their surrounding regions, East Asia and Pacific (EAP) and South Asia (SA), respectively (see Table 2). The larger the number of agents and size of economic transformation in the leading country, the greater the influence the leading country will have over its neighbours. When the index passes the threshold value of 0.7, neighbours of the leading country become more likely to adopt the leader’s systemic features.

China’s population in 2000 constituted 70% of EAP; its GDP was also about 70% of EAP’s GDP. This gives China a country index of interactive influence of 70%, suggesting an overwhelming Chinese influence in the region. The next country with influence in the region is Indonesia, which has an index of only 10%. Given the above figures, the future development of economies in the EAP region is likely to depend on the impact of the Chinese economy; China’s systemic features will be increasingly adopted in the EAP region.

India has the largest population and economy in South Asia, with 75% of total population and 76% of total GDP. India’s index of interactive influence is 75%, which is an overwhelming

proportion and which predicts the eminent stronghold of the Indian economy in the SA region. The next country is Pakistan, which has an index of only 11%. The regional dominance of India is as strong as that of China, and is likely to be more secure.

Table 2 also shows the Chinese GDP per capita in US\$ and in ppp\$ to be equivalent to the average for EAP. This equivalence is also present in the case of India and SA, though, of course, at lower levels. Equivalent levels of economic welfare are known to contribute to greater regional interactions and alignment for the leading country. In conclusion, the consideration of regional influence and alignments will bolster the leadership positions of China and India.

The above magnitudes aside, both China and India possess important commercial and political influences as major exporters and investors. This is evidenced in greater command of foreign exchange reserves, ability to lend and invest abroad, greater ability to influence trade and investment decisions in recipient countries, enhanced roles for state and state agents nationally and abroad, etc. Many of these influential features cannot be adequately modelled or quantified, however.

4. Complementary relationship between the economies strengthening displacement

In an analysis of the scope of the displacement of leading incumbents by leading newcomers in terms of size of GDP, it is important to determine whether the economies of China and India are tending more towards fierce competition with each other than complementary positions in a globalising economy. If they are fierce competitors, then one of the two will probably be more successful than the other in the long run, and the group of world-leading economies will be joined by one newcomer, resulting in the displacement of *one* incumbent. On the other hand, if the economies of China and India occupy complementary positions and grow at more or less equivalent rates, both will at some point become leading newcomers, resulting in the displacement of *two* incumbents. A complementary relationship between the economies of China and India is likely to intensify the displacement effects for the leading incumbents.

The underlying tendencies can be highlighted from both sides: demand and supply. Regarding the demand side, countries at about the same level of income per head, say France, Germany, Netherlands, and the UK, have similar demand patterns and are competitors of each other. Countries with differing levels of economic welfare have different levels of demand, thus minimizing demand competition. The latter situation is applicable to China and India. The GDP per capita in US\$ in China in 2000 was slightly more than twice that of India, at US\$ 950 compared to US\$ 453. Expressed in ppp\$, the ratio is slightly less than half; see Table 2. Major differences in the composition of wants in China and India, which are due to a striking difference in income levels, minimize demand competition between the two countries.

With regard to the supply side, a division of labour appears to already be taking place between

Table 3 Export and GDP performance in industry and services, China and India, 1993-2004

	Annual growth rate of exports, percent		Share in total exports, percent		Annual growth of GDP	Of which due to growth in factor productivity
	1995-2000	2000-2004	2000	2004	1993-2004	1993-2004
China						
Industry	14.2	24.2	89.1	90.5	11.0	6.3
Services	9.7	19.7	10.9	9.5	9.8	0.9
India						
Industry	6.7	14.5	72.2	67.1	6.7	1.1
Services	19.8	21.6	27.8	32.9	9.1	3.9

Source: Columns 1 to 4 from World Bank at <http://devdata.worldbank.org/query/>. Columns 5,6 adapted from NEBR Working Paper 12943 by Bosworth and Collins (2007).

China and India, in supplying the rest of the world with exports of goods and services, are very much in line with comparative advantages. China focuses on accelerated exports as a source of foreign exchange income; these exports are predominantly composed of manufactured goods, which are increasingly aligned with foreign direct investment and joint ventures. China’s comparative advantage in supplying industrial merchandise came less as a surprise than did India’s higher comparative advantage in supplying modern services over industrial merchandise⁵. India’s comparative advantage was not intended by the policy makers and was not predicted by observers two decades ago. Ex-post, this comparative advantage can be viewed as a process of natural selection influenced by internal and external developments⁶. Among the internal factors that can explain this, India’s low growth incentives in the heavily state-controlled industry, especially manufacturing, contrasted with the less controlled services sector, especially electronically allied services. Among external factors, India was not in a position to compete with major exporters of manufactured merchandise such as, for instance, China or East Asia. These forerunners had invested significantly in cost-saving industry-oriented physical infrastructure and were about a decade or more ahead in liberalizing their economies and utilizing extended networks of commercial relations and foreign-funded industrial enterprises. In contrast, India was more prepared for exporting modern services at a cheaper cost⁷.

Table 3 shows the composition of China’s exports for 2004; as seen, 90% of exports were goods and only 10% were services. The composition of Indian exports was about two-thirds goods and one-third services. In China as well as India, the incoming foreign direct investment tends to be

invested along the lines of exports.

The table also highlights the different country accents on the GDP growth of industry and services. Furthermore, the break-up of growth by sector and the contributions of growth in factor inputs and factor productivity show that growth in factor productivity in industry in China will be about 5.7 times higher than that in India. In services, the opposite is noted. Growth in factor productivity in services in India is about 4.3 times higher than that in China. The table emphasizes the different paths that China and India have taken. China's path was a matter of choice and imitation. India's path was more accidental and circumstantial.

In conclusion, if the economies of both China and India continue to be less competitive and more complementary in the global economy, the likelihood is higher of both becoming new leading economies at about the same time and of more displacements occurring at the top. Even though the two countries currently occupy complementary positions in the global economy, they still compete for foreign sources of trade and investment from the rest of the world (ROW). Under austere scarcity conditions, ROW cannot escape making an economic choice between the two giant economies. The then expectations of each economy with regard to future prospects could play a significant role in determining the future courses of the two economies. In the meantime, however, as the domestic components of these economies grow and contribute to self-propelling growth mechanisms, dependence on foreign trade and financial inflows may diminish.

5. Risk factors not hindering displacement

As usual, the above forecasts and analysis on displacement hypothesis are conditional on the absence of major external and internal constraints. On the external front is the assumption that economic calamities caused by world recessions, credit crunches, trade protectionism, and inelastic supply of energy resources will be absent; on the internal front, the absence of social and political instability caused by inequality divides, poverty hazards, ethnic conflicts, civil disorder, polity shake-up, or financial mismanagement is assumed. The risk of world economic recessions is the foremost external constraint, and the growth-equality trade-off is the foremost internal constraint.

External constraints. World economic recessions are examples of externality failures. Recessions can be due to substantive imbalances in spending (either under-spending causing an initial fall in consumption or over-spending causing inflation) and/or imbalances in lending (either under-lending causing an initial fall in production or over-lending causing an initial over-production and inventory surge) in a leading country, followed by chain effects in other countries through lower trade and investment. World economic recessions have also been caused by currency crises, speculative bubbles, excessive interest rates, substantive national debt

Table 4 Trade-off between economic growth and Gini index: China, India, 1980-2000 and 1990-2005.

	Average annual growth in GDP per capita %, in constant prices			Gini index, percent			Change in Gini index// growth of GDP per capita	
	Col. 1	Col.2	Col.3	Col.4	Col. 5	Col. 6	Col.7	Col. 8
	1981-90	1991-2000	2001-5	1981-90	1991-2000	2001-5	1981-2000	1991-2005
EAP	5.8	7.1	7.3	38.3	42.6	43.3	0.67	0.10
China	7.8	8.7	8.5	25.7	40.3	46.9	1.77	0.77
China/EAP							2.6	7.7
SA	3.4	3.2	4.6	30.0	33.7	37.6	1.12	1.00
India	3.6	3.8	5.3	32.1	35.0	36.8	0.78	0.40
India/SA							0.70	0.40

Source: Col.1 to 6 from <http://devdata.worldbank.org/query>. Col. 7= (Col. 5- Col. 4)/ (Col. 1+ Col. 2)/2. Col 8=(Col. 6- Col. 5)/ (Col. 2+ Col. 3)/2.

of leading countries, price hikes of oil, and major wars involving leading countries. Recessions are always accompanied by a loss of confidence in recovery, thus affecting consumption and investment climates in negative ways and fuelling recession tendencies.

The latest world economic recession started in mid 2008 and extended through 2009. It was triggered in 2006–08 in the US by over-lending, among other causes, and then spread worldwide. Its effects on the displacement hypothesis are now taking shape. It is likely that the recession will hasten rather than delay the displacement, as is evident from various IMF forecasts of GDP growth for 2009 for leading countries. The estimates put China and India at growth rates that are several percentage points higher than that of the US, the UK, Germany, and Japan.

Internal constraints. Ultimately, the realisation of future economic prospects requires stable and sustainable societies and polities. Although these issues are more complex and less predictable, it can be proposed that in situations where trade-offs between growth and equality are within tolerably experienced fair values, the risk of social and political instability is lower. When trade-offs are unfair, risks of instability tend to mount. Achieving economic growth *with* income redistribution, i.e. *reducing the growth- inequality trade-offs over time*, is essential for the sustained development of the economic system. Converging tendencies in the economic welfare of agents belonging to the same national economic system is a necessary condition. This is because these agents, rightly or wrongly, compare their lots with those of others. If the gaps in living conditions exceed a reference range, these agents will be inclined to object, voice, or exit.

As a result, the sustained development of the social system will be at risk.

The growth dimension is readily available in the growth rate of GDP per capita. The equality dimension is best described by the Gini index. Table 4 shows that the concentration of income in the richer portion of the population has increased in the period between 1980 and 2005 at a greater rate in China than in EAP, i.e. by 21 points in China as against 2 points in EAP. China did better than EAP in economic growth. However, an assessment of increases in income inequality cannot be conducted without considering growth in income per capita, since both interact in development. A relative measure of the *trade-off* is obtained by *dividing the change in the Gini index between t and t-1 by the average growth rate of GDP per capita in t and t-1*, which is found in the last columns of Table 4. Higher values of trade-off are indicative of greater conflicts between equality and growth; falling values over time are indicative of a satisfactory resolution of the trade-off. China displays values that are much higher than EAP, moving from 2.6 times to 7.7 times higher over a period of 25 years. On the other hand, China itself shows that the trade-off has fallen over these 25 years from 1.77 to 0.77. This suggests that the critical threshold of growth-inequality disruption crises has been already crossed without disrupting crises.

The table shows that India does better than the average in the South Asia region. In spite of higher growth in India, the Gini index is slightly lower in the period 2001–05. According to reported data, India has been more able to combine growth with minimal negative redistribution than other SA countries, as shown in the inequality-growth propensities that are calculated in Columns 7 and 8 of Table 4. In 1981–2000, 1% growth is coupled with a 0.78 increase in the Gini index; this falls to 0.4 in 1991–2000. The propensity in the SA region is higher, at 1.12 and 1.00. These tendencies are comforting, and suggest that India and China have survived and crossed the critical threshold.

In conclusion, a comparison between China and India with respect to the trade-off measure supports the fact that China's pattern of growth was realised with a more negative redistribution than India's pattern of growth, which, so far, has been realised with less negative redistribution. The calculated trade-off measures for China for the two periods are high, at 1.77 and 0.77. India's measures, in comparison, are lower, at 0.78 and 0.40. Most importantly, the trade-offs in both cases have been falling over time, which suggests that the internal constraints are not likely to obstruct displacement tendencies. Both countries seem to have passed the critical test of balancing growth with inequality in a sustainably stable society.

Nonetheless, the extent of poverty, which is closely related to inequality perceptions, needs to be considered. Measurements of absolute poverty in China show significant reductions in poverty, which is normal in view of the very high economic growth. As for India, measures of poverty based on an expenditure of \$1 a day (ppp) in the year 2004 provide a national PHS of 34% of the population. The risks of voice and exit to the stability and development of the social system are thus relevant in the Indian context; they can reduce the fair values of the trade-off

between growth and equity that have characterised the Indian economic system so far.

6. The different economic systems of China and India compared to the US and the EU, and their impact on global governance

In this section, we maintain that (1) China and India have distinctively different economic systems than the US and the EU; and (2) when countries that belong to distinctive and competing economic systems interact globally, collective failures due to occurring externalities are accentuated. New designs of global governance then have to accommodate displacement.

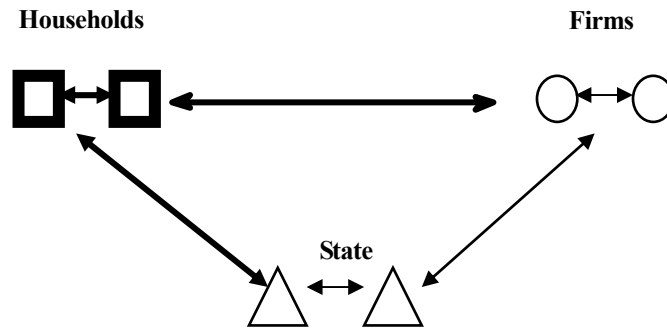
Different economic systems. In what sense do China and India have different economic systems than the US and the EU? What is the significance of this difference? Satisfactory answers to these questions cannot be provided without elaborating on several notions and their applications. We start with behavioural setting, which is the basic microeconomic component of an economic system. A behavioural setting g is defined as a physical site populated by interacting agents who have become members of the setting by accident and/or choice. Behavioural settings that are relevant in economic analysis generate for their participants added value from the transformation of some activity. Agents that inhabit such settings engage in a value-added transformation of goods and services, subject to institutional rules, information flows, and physical and technological boundaries. The most common examples of behavioural settings studied in economic analysis are the *household*, *firm*, and *state*, which are denoted by $g = \{h, f, s\}$. There are also behavioural settings that are not engaged in economic transformations, as well as other behavioural settings that have significant bearings on economic transformations, as will be clarified later on.

Transformation processes in the household, firm, and state settings are driven by *intrinsically* different behavioural motives that are typical of the given environment; these circumscribe the setting. Social sharing and reciprocal exchanges are the underlying motives in household settings, profit maximization is the rule in firm and market settings, and political returns prevail in state and related settings. While the coordination mechanism in households is typically sociologic in character, coordination is economically motivated in firms and politically motivated in state settings.

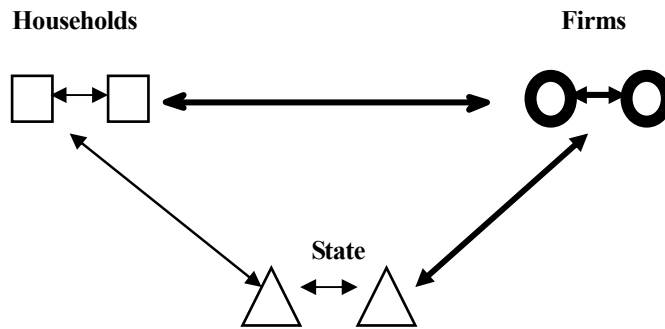
Three distinct behavioural motives can be modelled, as shown in Equations 2, 3, and 4. In the household setting, the agents lump their benefits and costs together in an effort to make total benefits exceed total costs. In Equation 2, Vh stands for the value added in the household setting, while benefits B and costs Q of agents i and i' are lumped together and somehow shared among all i . The agents strive to distribute these benefits and costs between i and i' in ways that contribute to a positive value add for the entire setting. The resulting distribution can be affected by personal and relational circumstances.

Figure 2 (a,b,c) Configurations of socio-economic systems: HIM, FIM, SIM

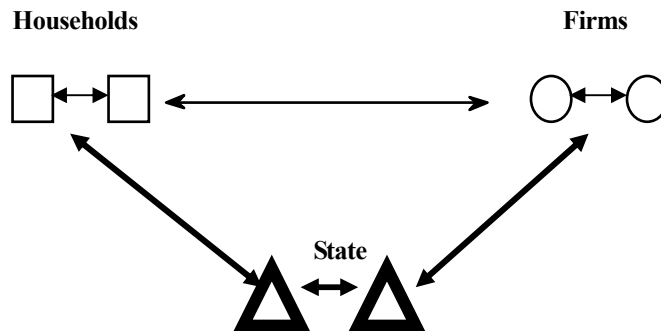
a) HIM



b) FIM



c) SIM



$$Vh \equiv Bi + Bi' - Qi - Qi' \geq 0. \quad (2)$$

In the firm setting, each agent would like to realize the highest positive returns. In Equation 3, Vf stands for the value added in the firm when agents i and j maximize their relative returns, defined as benefits less costs per unit of capital invested. The capital invested can be approximated by taking multiples of the total costs, or, to simplify things, we set the total costs as the denominator. The resulting income distribution is likely to show the returns of one agent as higher than those of another.

$$Vf \equiv \Sigma(Bi - Qi) / \Sigma Qi \geq \rho \quad (3)$$

To model the state setting, we employ variables B , Q , V , and subscript s (for the pre-state setting, subscript ps). We also employ $k = 1, \dots, K$ to represent agents with state authority. The equations below show a higher value add in the state setting, (Eq. 4.2), as compared to the pre-state setting, (Eq.4.1). This is due to a reorganized transformation, with intervention of state agents k , that results in $\Sigma Bi > \Sigma Bpsi$ and/or $\Sigma Qi + \Sigma Qik < \Sigma Qpsi$. Part of ΣQi is a privately incurred cost and another part is collectively invested expenditure that allows for higher value-added transformation.

$$Vps \equiv \Sigma Bpsi - \Sigma Qpsi \leq 0, \quad (4.1)$$

$$Vs \equiv \Sigma Bi - \Sigma Qi - \Sigma Qik \geq 0 \quad (4.2)$$

Agents in the state setting, $k = 1, \dots, K$, acquire authority to extract remuneration from all other agents denoted by Qik , such that the average remuneration for k is higher than the average level of benefits left over for agents i, \dots, I . Distribution of incomes will manifest in the average, with a higher level for the authority agent k than for subordinate agents i .

In any country there are households, firms, and state settings that co-exist in large numbers. The agents can simultaneously be members of more than one setting. Agents communicate with agents both within their own settings and in other settings. In Figure 2, the squares, triangles, and circles refer to the three behavioural settings, each with its own members. The *engagement lines* linking them indicate transformation and mutual exchanges among agents within or between organizations and communicated behaviours. As shown in Figure 2, the engagement lines can be drawn lightly or heavily, so as to reflect the relative strength of the engagement lines.

A setting generates material and immaterial outcomes that are distributed as material and immaterial rewards to its members. The distributed rewards in competing settings are crucial for the evaluation that participating agents regularly conduct to guide them in their decision to continue in the setting, or to voice, exit, or enter another setting. The propensity to move and

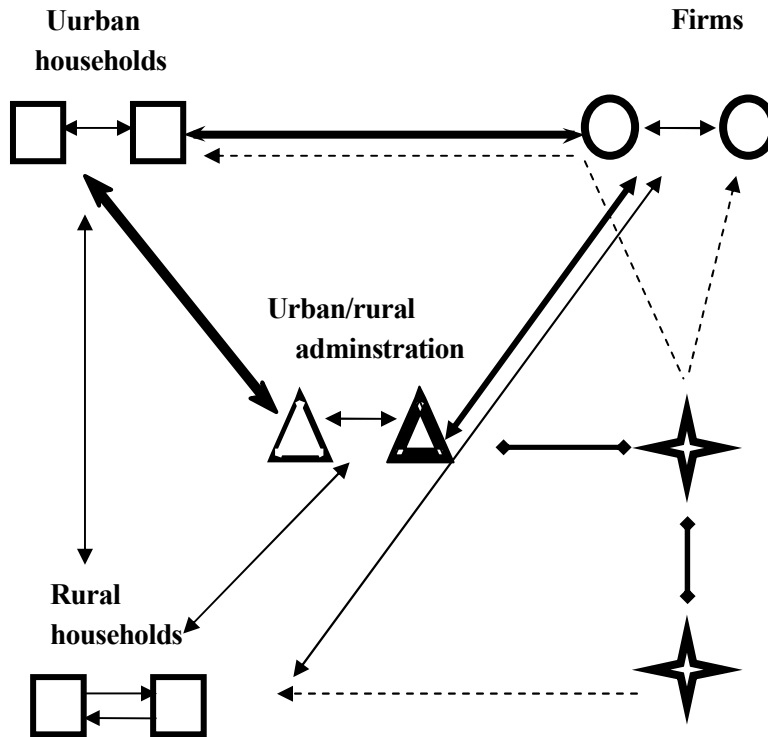
participate in alternative settings is satiated when the marginal utility of the agent of shifting a unit of effort between settings is equal to the marginal cost of the shift. The engagement lines in the figures can accordingly be given an additional meaning: agent mobility across alternative settings occurs along the engagement lines.

Exchanged transformations, communicated traits, and agent reallocations over lengthy periods lead to greater concentrations of agents in one behavioural setting type g than others g' . This paves the way for the spread and dominance of the behavioural type G that coincides with behavioural setting type g . Once a threshold is reached with regard to accepting a specific behavioural type G , this G can be expected to gain momentum in view of network externalities; it will then spread and subordinate other G' . The adoption and spread of a particular behavioural type among more agents has been studied in many contexts, and there are well-known relating mechanisms in the literature⁸.

The prevalence of *common* behavioural traits among agents in the settings makes the network of interactions among the many settings comprehensible as a distinct system. Five factors govern how the *common* is formed and how it prevails: (a) sharing of common external environment and past history fosters convergence towards a common behavioural type; (b) intensive and extensive interactions and communications of agents participating in more settings extend the prevalence of the advantaged behavioural type; (c) agents observe the transformation outcomes in alternative settings and *move* to the advantaged setting or *copy* its behaviour, thus resulting in the likelihood of the typical behaviour of the advantaged setting becoming prevalent; and (d) network externalities enforce convergence towards the advantaged behavioural type. Furthermore, (e) when a behavioural setting g happens to stand higher than g' in the hierarchy of settings, then g is also able to set behavioural rules typical of g that other settings g' would follow. In this way, behavioural type G overrides G' , allowing a further dominance of G on G' .

Given the three prominent behavioural settings of households, firms, and state that agents most inhabit, and the tendency of one setting to overshadow others through transformations and communications over long periods of time, it is not surprising that three broad types of economic systems have become dominant in different parts of the world. The first type, the oldest, is centred on households; other settings have adapted to household behavioural traits. This can be called the household intensive system, HIM, as in Figure 2a. In the real world, many rural regions within developing countries qualify as HIMs. There are limited examples of HIM at the country level. The second type, as in Figure 2b, is an economic system in which agents adopt a firm-like behavioural type, i.e. maximization of material returns at least material cost. The firm intensive system, FIM, has many examples in the real world: the US is the best example. The third type, as in Figure 2c, is an economic system in which agents have adapted to a state-like behavioural type guided by rent appropriation and political returns. In the real world, Russia is a close example of countries that operate along the state intensive system, SIM, though this was

Figure 2 (d) Configurations of the MPM socio-economic system



more so during the communist regime⁹.

The index of interactive influence, Equation 1, can be used here to determine for a particular country which of the three settings is most dominant. A country in which the relative shares of agents and economic transformations in firm settings are much higher than in other settings is most likely to operate along the lines of FIM. In a country in which agents interactions and economic transformations are most concentrated in state settings, the index of interactive influence will show that state settings are most influential and that the country is orientated towards SIM.

Different external environments generate typical coordination structures that coincide and fit with typical behavioural settings and motivations. A closed world, homogeneous population, strong kinship, severe scarcity of resources, and low levels of material welfare characterize the external environments of household settings and HIM, in general. This external environment promotes sharing behaviour and solidarity structures. In contrast, an external environment that is associated with value-maximizing settings and FIM, in general, tends to be better off materially.

It is characterized by an open world with frequent changes, product discoveries, choice opportunities, and a high mobility of agents. An external environment typical of state settings and SIM, in general, is usually characterized by highly skewed human endowments and ranks among differentiated population groups, often generating conflicting interests and requiring authoritarian rules to resolve them. The external environment also contains barriers that obstruct openness, choice, and mobility.

Economists have alternative interpretations of the formation and perpetuation of institutional behaviour into an economic system. In one view, conformism is the product of agents observing the behaviour of other informed agents. An alternative view is that the driving force behind conformity is the desire to be accepted in a group and to not undergo loss due to exclusion. Yet another interpretation sees the origin of institutional behaviour as a necessary outcome of economic functionality (Jones 1984). It is important to underline the basic fundament that conformity to *best practise* in a *given environment* implies that *differing best practices* will emerge and persist in the *different given environments* of HIM, FIM, and SIM. The following question arises: since the starting point conveniently was a situation in which household settings already existed, how and when did firm and state settings become dominant, and in which order? Economists and anthropologists tend to have different answers to this question. Cohen (2009) develops a general model of long-range systemic development that allows for alternative scenarios.

Besides the three socio-economic systems of HIM, FIM, and SIM, distinguished above, there are arguments for drawing up a fourth configuration. This is displayed in Figure 2d and is denoted by MPM, which stands for multi-poles system. MPM is more typical of China and India. Specific conditions hinder convergence towards one dominant behavioural type. When absorption of agents from households in firms or state is limited because of the sheer numbers involved, as in China and India, the result is a loosely-linked multi-poles system. These two countries have vast rural populations that are bound to household settings, as well as significant urban populations that manifest subcultures related to the firm and state behavioural types. The distribution of agents in the three settings has been historically stable, more so for India than for China. Given the involved magnitudes, the distribution may not change much in the future. In China and India, thus, convergence towards one dominant behavioural type may be delayed for a long time, and the eventual outcome is not predictable.

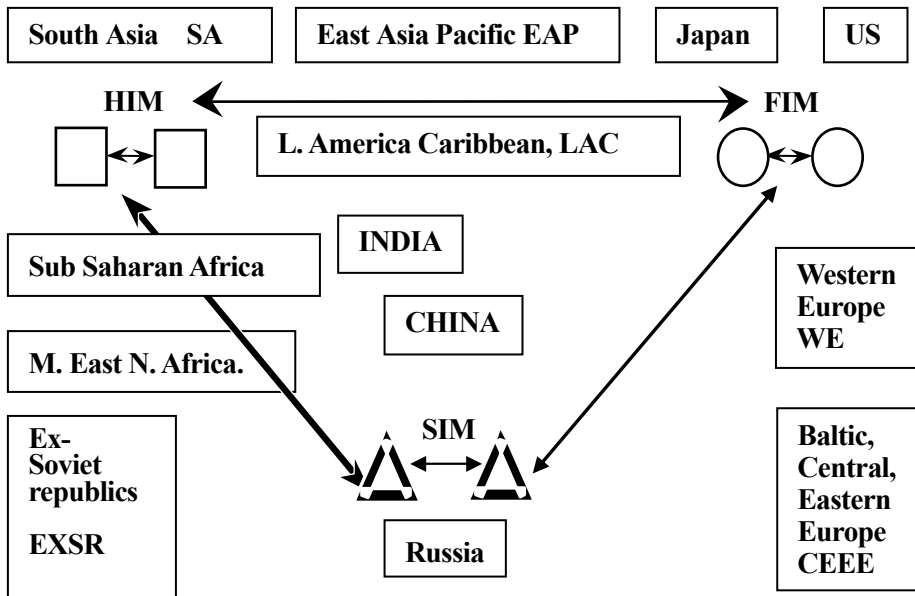
In this multi-polar environment, the need to streamline and coordinate the vast heterogeneity of agents has enhanced the significance of what can be called *persuasion settings*. Persuasion settings are exclusive settings, wherein participating agents are highly talented leaders who are able to place themselves as leaders in various contexts: household, firm, state, religious, intellectual, and judiciary settings. They are the so-called ‘wise men’, and they are able to obtain the support of the leaders of different settings. They have the natural authority to affirm

the status quo and anticipated changes. Persuasion settings are usually much higher up in the hierarchy of settings. Once in a while, leading persons from different settings would sit down together and forge crucial deals and endorsements that committed their fellow members in their settings, simultaneously and mutually. Such deals and endorsements can be interpreted to contain value added transformations conceived by leading persons who represent their constituent settings; these deals and endorsements are usually backed by fellow members in the concerned settings. Although persuasion settings do not constitute economic transformation settings in the conventional sense, they can be vital for: rationalising and endorsing multi-polar behavioural patterns within the same borders, binding loosely-linked settings into one whole, and the smooth operation of the economic system in a diversified country. As of now, there is little data on these persuasion settings with regard to the leader-followers relationship within an interest group, and aspects that concern inter-group leaders: composition, functioning, reach, and effects. These are very promising areas of study in the investigation of intra-group and inter-group economic transformations and national coordination¹⁰.

Persuasion modes of coordinating actions have a long history in China and are closely knitted into cultural tradition and social norms that foster positive inter-group attitudes. In general, a social system with division of labour among members who conform to their abilities allows its members to recognize individual differences in ability and leadership, without ignoring the fact that the whole needs all parts. This outlook on social relationships, very common in China, and very close to Confucian views on society, forms the basis for individuals respecting each other despite alignment with contrarian groups. This outlook on social relationships shares elements with Platonic views on work stratification in the economy and leadership of the wisest in polity matters. At a higher level, the Congress of the Communist Party, held every five years, is a major persuasion setting that outlines future actions to be taken in terms of institutions and policies; it appoints the right authorities to lead, defend, and implement actions. Other very popular settings in China are councils of knowledgeable experts that attempt to reach consensus solutions to outstanding problems. A scientific outlook is emphasized in these deliberations. Because of the simultaneous participation of the party and the government in these deliberations, the outcomes of these councils are better described as compromised commitments and not as counselling recommendations.

In India, more than in China, daily life and activity coordination in rural areas and urban areas are totally different. The traditional attitudes of agents in village and kinship settings on the one hand, and the modern attitudes of agents in metropolitan cities on the other, limit inter-agent interactions. They also result in intensifying intra-agent interactions within separated groups more than inter-agent interactions. The outcome is a lower degree of communication and coordination between major groups in the national context. The coordination gaps are bridged by persuasion actions from top leaders of the major groups. State sponsored councils of

Figure 3 Positioning of economies along axis of dominant systemic interactions



knowledgeable experts to resolve specific issues are another form of persuasion settings. The Indian Parliament can be seen as a form of persuasion setting in which leaders of major groups try to reach consensus.

The MPM system is shown in Figure 2d. It divides the population into two segments: rural and urban. Agents in the rural segment interact in household settings and have little interaction with firms and state settings. Large numbers of rural agents cannot be absorbed in the urban segment for a long time; hence, they are unlikely to convert to either firm or state behavioural types that are typical of urban areas. This figure is a fair representation of big countries such as China, India, and some other Asian countries. Persuasion settings have been introduced in the figure via *stars*. The connecting lines are indicative of the feedback and influence of persuasion settings on other settings.

Recapitulating, the study of a large number of empirical indicators on household, firm, state, and persuasion settings (Cohen 2009) shows the US to be closest to FIM, with Japan and West European countries also identifiable as FIM, showing differing inclinations to the two other poles. These indicators show Russia to fit most in SIM, with the Ex-Soviet Republics and East European countries also manifesting SIM, but showing differing inclinations to the other two poles. As can be expected, various indicators show developing countries to be relatively closer to HIM, but there are significant differentiations by region. Figure 3 proposes the positioning of

various country regions along the three axes, and reserves special positions for India and China to reflect their MPM systems. India is realistically closer to the HIM system than China, which is more evenly balanced between the three systemic poles.

Generally speaking, it is easier to make predictions about countries that associate with HIM, FIM, or SIM, and, to a lesser extent, MPM. For example, the modelling and analysis of conduct and performance in FIM countries along lines of profit maximization, and in SIM countries along lines of rent appropriation, can be seen as workable approximations made possible by the majority of agents acting along these two distinguishable lines in the two systems, respectively. In the US, the high concentration of agent interactions in firms pushes aside intrinsic motivations in household and state settings; this is replaced over time by profit maximization typical of firm settings. In contrast, the same processes oblige agents in household and firm settings in Russia to follow a politicized motive typical of state settings. As a result, all three settings in the US behave in ways typical of firm settings, while in Russia they manifest behaviour typical of state settings. In the US, the economic motive dominates, and the polity can be said to have adapted itself to the economic motive. The modelling and prediction of structural change is much more difficult to apply in countries belonging to MPM, i.e. China and India, where the various poles in such a socio-economic system do not have, and may not acquire, one common behavioural code.

7. Externality problems and global governance

An important conclusion from the above analysis on the displacements of leading countries and the association of leading countries with distinct economic systems is that the displacement of countries can be expected to be accompanied by a displacement of systems. We now examine four implications of the double displacement for global management.

(1) Externality problems becoming more severe between distinct systems. Global interactions between basically different economic systems are bound to create externality problems. These are likely to be more severe in the future than today because of more leading countries that have distinctly different economic systems.

The severity of externalities is evident in the credit crunch of 2007, the financial meltdown of 2008, and the economic recession of 2008–09. The regulated foreign finance in non-FIM leading countries has allowed their governments to accumulate enormous USD foreign exchange reserves (FER) from exports while simultaneously keeping their currencies and their domestic economies from inflating. These USD reserves are mostly loaned back to the US economy, allowing it to finance much more spending than economically permissible. Financially risky warrants and regulatory loopholes back some of this spending. As some of the spending is on more import from non-FIM countries, the cycle of consecutive transactions among the main leading countries is reinforced, thus permitting high economic growth for all countries. The

credit crunch in the US, which started with defaults in mortgage payments, was sufficient to expose the financial risks of a world economy based on regulated under-spending and accumulated reserves in non-FIM countries and unregulated overspending and excessive indebtedness in the US. The interdependent interactions between two systems with different rules of coordination and motivations (state versus firm) are thus the basic ingredients of the externality failures behind the financial crises and the economic recession. The differences persist in the solutions to the problem as well. Although all countries want to stop the recession, most leading countries have implemented protectionist measures, which can deepen the recession¹¹. Besides, they disagree on solutions to the crises due to their different economic systems. The US, which is a typical FIM country, excludes nationalizing banks, is cautious about regulating banks, and is in favour of expanding bank liquidity, enhancing aggregate demand, and floating exchange rates. Some countries have gone for greater state control over banks via nationalization and regulation. At the other extreme, most emerging countries hold to their current policy of accumulating FER and investing it abroad; this, bypassing their domestic economies.

Another area of tension between FIM, SIM, and MPM countries is the desire of state-allied companies in SIM and MPM countries to buy, own, and manage US and EU free companies. This is seen in the EU as unfair play that allows foreign states to mix with their commercial sector. In reaction to related threats by the sovereign funds of China, Russia, and others, authorities in the US and the EU have taken concerted action and protective measures to obstruct foreign takeovers¹². It is usually difficult to ascertain whether, in such situations, the national loss is the result of fair play or strategic trespassing. Whether or not protectionism is justified, counter-protection usually follows.

Because the economic systems to which incumbents and newcomers belong are distinctly different, a period of non-collaborative systems competition between FIM, SIM, and MPM countries, i.e. protectionism, cannot be avoided. The implications for FIM are that many well-established institutions in the US and the EU may come under pressure such as separation between business and government, free competition, transparent governance, merit goods, and social benefits of the welfare state. The fiscal budget may shift in favour of capital and firms at the cost of labour and consumers. The national economies will likely apply more protectionism, cartelism, and state corporatism. The polity may also be affected as decision-making powers are transferred from open parliaments to appointed commissions, and as new forms of non-elected political leaderships are introduced. Personal leadership, social trust, and family-based networks tend to regain importance when such shifts take place. The new non-collaborative systems competition may force agents, firms, and states in FIM nations to unite in organising and raising the performance of their national economies¹³.

New, non-collaborative system competition will also have consequences for the SIM and MPM

countries. A reduction in incentives to incorporate, test, or adapt some of the institutions that proved successful in the FIM context (such as those of the free market, welfare state, and parliamentary democracy) can be expected here.

(2) Different prioritisations. Because the most influential country/system plays a salient role in prioritizing the collective agenda, and because the relative influences of the competing countries/systems are expected to change in the future, the future priorities for resolving externalities will change significantly from those of today.

How would the different leading systems/countries prioritize the resolution of the externality problems (since what is a high priority for one system is less so for another)? It is understandable that all countries are better off in a world without economic recession, trade protection, financial uncertainty, and misuse of nuclear capability. These four areas are likely to continue being priority areas irrespective of the power balance between leading countries. The priority ranking for other world problems differs appreciably in leading countries. FIM countries, i.e. the US and the EU, rank problems of human rights, health, poverty and refugees highly. The EU ranks global warming higher than the US does, and the US ranks cyber security higher than the EU does. Most leading non-FIM countries do not see these areas as high priority because fair global settlements in these areas can be detrimental to other objectives they are pursuing: for example, in the case of global warming, lower pollutant emissions by China and India obstruct their economic growth. The low priority given to these global problems can be expected to continue, with China and India gaining more influence.

On the other hand, there are emerging externality problems such as space insecurity and inequitable access to ocean resources, which countries like China and India are very eager to solve globally. Specifically, the lucrative exploitation of the North Pole is being claimed by the border countries of Russia, the US, Canada, and Denmark. This is seen by China and India, the world's two largest populations, as an unfair and arbitrary distribution of global wealth.

(3) New designs for global governance. Usually, the most influential country/system dictates the rules of the game in resolving externalities and shaping global governance. Because of expected prospective changes in the leadership of countries/systems, settings (consensus motives) will gain importance over firm (commercial motives) and state (political motives) in the design and management of global governance.

If the current rules of the game for designing global governance are dominated by FIM conjectures, given the dominance of the FIM-related US and EU partnership, how would the rules of the game change with the dominance of MPM-related China and India? We described the bigger and highly dualistic countries of China and India as less fitted to classification into HIM, FIM, and SIM. We emphasized the significant extent of rural household settings in these countries, as well as significant roles for firm and state settings; there is a highly segmented system with low degrees of communication between the segments. In such multi-polar systems,

there is an important role for persuasion settings in the coordination and streamlining of responses between segments. Besides the persuasion motive, another typical principle of the MPM system is the sharing motive, which is associated with the substantive pole of household settings. Although there is yet little evidence of the spread of the sharing principle in global governance, this principle is likely to become more important under the influence of the newcomers (see Roser and Roser 1999).

(4) Equally-shared dominance may foster cooperative global management in the long run.

Is there a probability of dominance or convergence towards one global system, whatever that may be? The chance may be remote, given the values of the Index of Interactive Influence, which do not exceed 20% for any particular country-system in any year. Our results have shown for 2050 that the Index of Interactive Influence will vary at around 20 percentage points for any country and its related system, suggesting that there will be no strong dominance of any one system. Even if the FIM configuration consists of the US, the EU, Japan, and a few smaller countries, their influence will be limited to some 23 percentage points. The China system is stuck at 21 percentage points, and India at 17 percentage points. Ten years on, India and China are forecasted to reverse positions, but within and around the 20% range. The table suggests the evolution of an equitable balance of power between the countries and related systems. World future, from this systemic viewpoint, will be less influenced or dominated by any one system in the future than today.

Will intercourse between parties with equal influential powers lead to more confrontation or more understanding? It is generally true that when the contending parties have influential powers that are more or less equal, and when they perceive the situation as such, they are more inclined to use reason and knowledge and to adopt cooperative attitudes in resolving frictions between themselves. Under a skew distribution of influential powers, it is more likely that a non-collaborative attitude will emerge. This paper predicts a future in 2050 with a much more equal balance of powers than in 2000; this feeds the expectation that, in the long run, the new systems competition will be more collaborative, in which sharing, reason, knowledge, and learning will be the major components.

8. Concluding remarks

Our examination of a globalising world suggests that rules of global governance to resolve international externalities may have to change profoundly with the emerging leading economies of China and India. These rules are mainly driven by market settings and commercial interests that are prominent in the US and the EU, these being the present leading world economies. The economic systems of the newcomers are driven by multi-polar motivations typical of familial and state settings as well as market settings and interests.

Two implications require further scrutiny. First, some elements of the systemic behaviour patterns of the MPM system associated with the newcomers are bound to be incorporated into the future design of global governance. Persuasion settings play a central role in coordinating the MPM system. Persuasion settings are economically beneficial and can accomplish greater cooperation between political, business, and other leading circles. However, persuasion settings can be handicapped by lack of transparency as regards separation of decision-making when joint familial, commercial, and state interests are involved. Nonetheless, this wheeling and dealing can be viewed as an unavoidable real-world political process, though controllable on transparency, to some degree. There is evidence that persuasion settings at the global level are active in issues of climatic changes, free trade, stability of the international financial market, and poverty reduction, to name a few. Sharing mechanisms, also typical of MPM systems with a substantive pole of household settings, can be expected to make headway in global governance.

Second, it is generally true that when negotiating parties have influential powers that are more or less equal, as suggested in Table 2, and when they perceive the situation as such, they are more inclined to use reason and knowledge and to adopt cooperative attitudes in resolving frictions between them. The table predicts the future in 2050 to have a much more equal balance of powers than that in 2000. This thus feeds the expectation that the new systems competition will be more collaborative than non-collaborative, with a greater role of reason and knowledge.

Notes

¹ Their forecasts for the first ten years show that they were aligned with IMF estimates of potential growth. Furthermore, they generated similar results by applying an econometrically estimated economic growth equation with arguments related to their argument, such as the initial income per capita, investment rates, population growth, and educational effort. See Wilson and Purushothaman (2003).

² More studies along the same lines have focused on second-rank countries in the developing world; see Cooper, Antkiewicz, and Shaw (2006), among others.

³ See Simon (1993).

⁴ When the projections are extended for another decade, results for the index show India to surpass China.

⁵ Exports of modern services include software development and information communication technologies (ICT)-enabled services, ranging from back office operations, revenue accounting, data entry and conversion, and database development to the processing of medical transcriptions, insurance claims, educational content, and publications, remote maintenance and support, and call centres.

⁶ Of course, having a comparative advantage in the export of ICT services does not prevent the

development of comparative advantages in other areas of industry and construction.

- ⁷ For instance, India's stock of human resources leans more towards higher education than China's. Salary rates of ICT-related operating jobs are lower in India than elsewhere. Educational and training costs in ICT are relatively cheap in India. Knowledge and practice of English in India is a premium. Furthermore, the new age of the information economy and ICT induced vast imports of tradable services that fitted with India's supply and that could be delivered on a large scale, allowing the use of benefits of economies of scale and scope.
- ⁸ Literature relating to logarithms of convergence lays emphasis on mechanisms of integration, causing the spread and dominance of particular behavioural types that support and provide a background to our hypothesis. The following mechanisms can be mentioned: imitation, convention, focal points, information cascades, reciprocal behaviour, group learning, and Markov chain inversions.
- ⁹ A basic presumption for convergence towards one behavioural type is that the behaviour of agents in different settings is accommodated in the behavioural type that is most dominant. For example, most state agents will pursue benevolent motives when their state settings are embedded in a household intensive system, HIM, and will seek no more than their opportunity cost if they are embedded in a firm intensive system, FIM. However, if state agents function in an SIM environment, then they will excel in rent seeking and political behaviour and will cause other agents within SIM to accommodate and adopt the SIM behavioural type.
- ¹⁰ Persuasion settings are not restricted to big developing countries like China, India, Indonesia, Pakistan, Bangladesh, and Egypt: they are also crucial in smaller countries with pockets of modernization beside large numbers of agents in traditional household and kinship settings, e.g. Iran and the Arabian Peninsula. For a discussion of the active role of persuasion settings in market economies, see Murphy and Shleifer (2004).
- ¹¹ According to the World Bank, in response to the financial and recession crises, 17 G20 countries implemented protectionist measures on the eve of the G20 convention in London, 31st March, 2009.
- ¹² The call by Germany to veto takeovers of EU companies by Chinese and Russian state-controlled companies is a case in point. The French opposition to India's Mittal takeover of Arcelor is another, as well as the French policy of close collaboration between companies and the state to strengthen and consolidate French global industrial players. In the US, Chinese takeovers in the energy sector were prohibited, as in the case of the unsuccessful bid by the Chinese oil company CNOOC for the California-based oil producer Unocal. However, in less strategic sectors, no obstacles were laid when parts of American IBM were sold to China's LP.
- ¹³ See Sinn (2002) for elaboration on the consequences of the new systems competition and protectionism.

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