Leadership Displacement and the Redesign of Global Governance: The Race of China and India[+]

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Abstract

Although past history contains examples of the rise and fall of world leading economies, the catch-up trends of China and India are unique. The paper highlights four unique features in leadership displacement. First, when economic, demographic, and regional interactions are formally considered, leadership displacement would be of a greater magnitude than is implied by simple GDP comparisons. This is demonstrated by applying an index of interactive influence. Second, the two economies appear to be more complementary to each other than competitive, which deepens the displacement effects. Third, although any catching up tendency is subject to external and internal uncertainties, yet an assessment of the external uncertainties suggests a likely acceleration of the displacement, while a brief analysis of involved internal risks suggests that such risks have subsided and are fading. Fourth, and foremost, China and India have distinctly different socioeconomic and polity systems than today's firm-dominated leading countries such as US and EU. The systemic differences are likely to accentuate externality problems at the global level. And given these systemic differences, resolution of the externality problems would require substantive redesigns of current rules of global governance.

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

JEL classification: *F47, N15, O11, P52*

1. Introduction

Past history has many examples of the rise and fall of leading economies as world leaders. By implication, some of the back runner economies catch up and displace the front-runner as the world economic leader. Although there is

a well-documented literature on past cases where the displacement hypothesis (DH) has applied, the cases of the catch-up of China and India are unique. Centuries ago, both countries were at one time the world leading economic powers; and a comeback is new in economic history, cf. Maddison (2003). Besides, it is very likely that both would become the world economic leaders with equivalent economic powers at about the same time, which is also new.

There are four new features regarding the DH in case of the catching up of China and India, which the paper emphasizes. First, measurement of a country's leadership in terms of the relative GDP of the alternative contenders is a limited notion of leadership. 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 US and EU by China and India is of greater magnitudes than is implied by relative GDPs. Second, it is more likely that the two economies form a complementary couple rather than a competitive couple, with significant implications for displacement tendencies. Third, the catching up is occurring in an increasingly globalizing world with greater international interdependencies, agent awareness, change and uncertainties; these factors involve external and internal constraints that would further influence and shape the pace of the 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 socioeconomic and polity systems than today's firm-dominated leading economic systems of US, EU, Japan, and a few other OECD countries; the differences are likely to accentuate externality problems. New global governance rules have to be designed and negotiated between old and new economic powers, and implemented towards resolving externality problems. Such accommodations involving distinct societal systems are an unexplored territory, and if the externalities are not resolved satisfactorily all leading, and other countries, are hurt.

The paper is organized as follows. Section 2 displays forecasts of the relative growth of China and India in the global economy. Section 3 broadens the notion of a leading country by developing an index of interactive influence. The index is then applied and the results examined with respect to the magnitudes and pace of the catch-up of China and India in the global and regional contexts. In section 4, we elaborate on the issue of how far the two countries are competitive or complementary to each other in a globalizing world, and the implications thereof for the displacement tendencies. In section 5, we examine how far the increasing globalization, international interdependencies, agent awareness, change and uncertainties due to external and internal constraints would influence the displacement tendencies. In section 6, we open up a new subject for analysis by outlining different prototypes of economic systems, and examine the positioning of

China and India among these systems. The section elaborates on theoretical foundations and empirics in support of distinct driving forces that apply for China and India, as compared to US and EU. Global interactions between the different systems would accentuate externality problems. In section 7, our examination of the resolution of externality problems suggests that the ways in which global governance is currently conducted (mainly driven by market settings and commercial interests prominent in the US and EU economic systems) may have to change profoundly under a 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 increase, it can be expected that the typical multi-polar driving forces characteristic of their socioeconomic systems would gain momentum over commercial forces in the design of global governance. The findings suggest the emergence of a more balanced distribution of power and influence, which can be conducive to more cooperation. Finally, section 8 adds concluding remarks.

2. Future Economic Growth of China and India

In historical terms, China and India shared together the fact they were once the largest economies in the world before being outpaced from about the 18th century by European countries, US and others, and falling back to the status of developing countries in the 20th century. Both countries are entering the 21st 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 Puroshothaman (2003) was a first attempt to use simple country models, for Brazil, Russia, India and China among others, hence BRIC, to examine the likely outcomes of displacement scenarios for major countries. The authors used a standard five equations and five variables model for each country they treat. 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 of 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 benefits of the developing country from positive externalities. 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 US, thus, $\Delta \ln (E) = \Delta \ln (Y/L) - $ (growth of Y/L in US). Currencies tend to approach their purchasing power parity exchange rates as higher productivities are achieved.

The results obtained for 2040 or 2050 are startling. The BRIC countries would overtake OECD countries in terms of GDP; especially the economies of China and India will be bigger than those of US and EU, respectively. But the income per capita gaps would remain, though lower. The framework sees countries go richer at the back of real growth, and at the back of 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 criticized on grounds that their 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, and gains of one country meaning a loss for the other, are excluded. 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 are excluded. The main argument in defence of the BRIC results is that the authors looked at ways to cross check the plausibility of the forecasts, which proved to be positive.[1] More studies on the prospects of the emerging economies by investment as well as academic circles have come out in support of a conditional displacement hypothesis.[2]

Figure 1 gives trends of the percentage distributions of the world GDP for US, EU, China, and India from the 10th and into the 21st century. China and US are forecasted to have equal shares of the world GDP, about 23 per cent, in 2040, but China would surpass US by some 5 percentage points in 2050. By then, India would surpass EU by 4 percentage points. The top four countries in 2050 are thus China, US, India and EU, with the following GDP shares: 26.0, 20.6, 16.3 and 10.4. After 2050 the growth rate in 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

Use of the world's distribution of the GDP in Figure 1 as an indication of the interactive influence of competing countries, is not well founded theoretically. Measurement of the interactive influence of competing countries in the world stage requires developing 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 who inhibit the settings, and (b) the economic transformations which economic agents undertake, and eventually exchange. Examples of interacting settings are households, firms, governments, or, in the present context,

Figure 1 The Fall and Rise of China and India
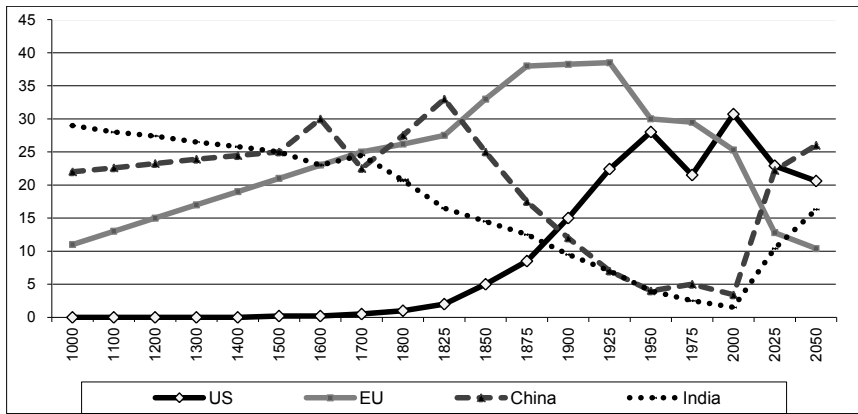
Notes: The vertical axis denotes the percentage share of a country's share in the world GDP. The horizontal axis denotes years.

Sources: Years 1000 to 1975 are reported in OECD, see Maddison (2003). Year 2000 and forecasts for 2040 and 2050 are from Table 1.

countries. In this section we develop an index of interactive influence that applies for 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'*. An index of the interactive influence of country *g*, denoted by I_g, is thus expressed in relative terms, and has two components: (a) the relative share of agents (i.e. population) of country *g* in the total world population, and (b) the relative share of economic transformations (i.e. GDP) of country *g* in the 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 shares of transformed commodities (i.e. GDP) present 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 prevail over the others. The weights ω_1 and ω_2 applying to these two shares are given equal weights, $\omega_1=\omega_2=0.5$, so as to keep the formulation to its basics.

$$I_g = (\omega_1 A_g + \omega_2 C_g) \tag{1}$$

Country *g* achieves dominance when $I_g \geq I^*$.

The equation states further that the probability that the norms, conducts and structures characteristic of a particular country *g* becomes most influential, i.e. achieves dominance, and thus eventually prevailing over those of other countries is likely once a critical value of the index is reached at I^*. In this equation, I^* is a proportion, which represents a critical mass. Once a country's index surpasses the critical mass, the country's interactive influence and dissemination of its set of norms, conduct and structures to other countries will be strengthened further via network externalities. There are different views concerning the likely value of the critical mass. Values of 2/3rd and 3/4th are among the most quoted in the literature relating to a critical mass.[3] There is thus justification for fixing the value of I^* at around 0.7.

Summarizing, the two shares 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 generalized and applied for a more general analysis of economic systems as will be shown in a later section. The index is applied in Table 1 to highlight the relative influence of the alternate contenders in 2000 and in a future year, 2050.

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

Table 1 indicates a reduction in the interactive influence of US, EU and Japan, who represent firm-led economic system, some marginal increase for Russia that is closest to a state-led economic system. But the significant gainers in interactive influence are China and India, with scores of 20.7 and 17.2. Their interactive influences are almost doubled, with India's increment greater than China's. These changes in relative influences will not pass unmarked in a globalizing economy.[4] 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 to a lower population growth in China than in the world population.

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 the size of the economic transformation in the leading country the greater the influence will be of the leading country over its neighbours. It becomes

also more likely that its neighbours adopt the systemic features of the leading country, once the index passes the threshold value of 0.7.

China, with a population in 2000 constituting 70 per cent of EAP, and a GDP that is also about 70 per cent of all EAP's GDP, gives a country index of interactive influence for China of 70 per cent, suggesting an overwhelming Chinese influence in the region. The next country with some influence is Indonesia with an index of only 10 per cent. Given the above figures it is likely that the future development of the economies of the EAP region will mirror the impact of the Chinese economy; and increasingly more systemic features of China will be adopted in the EAP region.

India, having the biggest population and economy in South Asia, with 75 per cent of the total population and 76 per cent of the total GDP, has an index of interactive influence of 75 per cent, which is an overwhelming

Table 1 Future Outlook of Major Countries as Reflected by the Index of Interactive Influence

	2000			2050		
	Population (millions) %	GDP (USD bn) %	Index of Interactive Influence, %	Population (millions) %	GDP (USD bn) %	Index of Interactive Influence ,%
World total	(6124)	(31800)		(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 Puroshothaman (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 = (col. 1 + col. 2)/2. Col. 6 = (col. 4 + col. 5)/2.

Table 2 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 Col. 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*>.

figure that predicts an eminent stronghold of the Indian economy on the SA region. The next country is Pakistan with an index of only 11 per cent. The case for regional dominance of India is as strong as for China, and is likely to be more secure.

Table 2 shows also the Chinese GDP per capita in US$ and in ppp$ to be equivalent to the average for EAP. The equivalence is also present in the case of India and SA, though of course, at lower levels. Having equivalent levels of economic welfare is known to contribute to greater regional interactions and alignment to the leading country. In conclusion, consideration of regional influence and alignments would further 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 such as a greater command of foreign exchange reserves and ability to lend and invest abroad, greater ability to influence trade and investment decisions in recipient countries, an enhanced role for the state and state agents nationally and abroad; and so on. Many of these influential features cannot be adequately modelled or quantified, however.

4. Complementarity Strengthening Displacement

In an analysis of the scope of the world displacement of leading incumbents by leading newcomers in terms of the size of the GDP, it is important to determine whether the economies of China and India are tending more towards becoming fierce competitors of each other or tending more towards filling complementary positions in a globalizing 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, when both the economies of China and India have tendencies to occupy complementary positions in a globalizing world, and grow rapidly in more or less equivalent rates, both countries would at some time become leading newcomers resulting in the displacement of *two* incumbents. A complementary relationship between the economies of China and India viewed in a global perspective is likely to intensify the displacement effects for the leading incumbents.

The underlying tendencies can be highlighted from both the demand and supply sides. Regarding the demand side, countries at about the same level of income per head, say France, Germany, Netherlands or UK, have similar demand patterns and would be competitors of each other in that respect. Countries with differing levels of economic welfare demand differently, and thus minimizing demand competition. This latter situation would apply

more to China and India. The GDP per capita in US$ in China in 2000, was slightly more than twice that of India, 950 compared to 453 US$. Expressed in purchasing power parity dollars the ratio is slightly less than half (see Table 2). Major differences in the composition of wants of China and India, due to a striking wedge in income levels, minimizes demand competition between the two countries.

Turning to the supply side, a division of labour appears to be already taking place between China and India in supplying the rest of the world with exports of goods and services, very much in line with comparative advantages. The trade and investment relations of China with the rest of the world focused on accelerated exports as the source of foreign exchange income, the predominance of manufactured goods in these exports, and the increased alignment of these manufactured exports with foreign direct investment and joint ventures. The higher comparative advantage of China in supplying industrial merchandise came less as a surprise to many than India's higher comparative advantage in supplying modern services over industrial merchandise.[5] India's comparative advantage was not intended by the policy makers, and not predicted either by observers two decades ago. *Ex post*, this comparative advantage can be viewed as a process of natural selection influenced by internal and external developments.[6] Among the internal factors that offer an explanation is that there were likely less growth incentives in the heavily state controlled industry in India, and specially manufacturing, as contrasted with the less controllable services sector, and especially if they are electronically allied services. Among the external factors, India was not in a position to compete with major exporters of manufactured merchandise, for instance, China or East Asian forerunners that have invested significantly in cost-saving industry-oriented physical infrastructures and that 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 cost.[7]

Table 3 shows for 2004 the composition of China's exports to be 90 per cent in goods and only 10 per cent in services. The composition of Indian exports was about two-thirds in goods and one-third in services. As in China so also in India the incoming foreign direct investment tended to be invested in lines that associate with the lines of exports.

The table highlights also the different country accents on GDP growth of industry and services. Furthermore, the break-up of the growth by sector in accounting contributions of growth in factor inputs and factor productivity, shows growth in factor productivity in industry in China is to be about 5.7 times higher than in India. Turning to services the opposite is noted. Growth in factor productivity in services in India is about 4.3 times as high as in

Table 3 Export and GDP Performance in Industry and Services, China and India, 1993-2004

	Annual growth rate of exports (%)		Share in total exports (%)		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

Sources: 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. The table emphasizes different paths that China and India have walked on. China's path was a matter of choice and imitation. India's path was more accidental and circumstantial.

In conclusion, if both economies of China and India would continue to have less competitive and more complementary positions in the global economy, the likelihoods of both becoming new leading economies at about the same time, and more displacements occurring at the top, are enhanced. Even though the two countries occupy for now 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 at one time making economic choices between the two giant economies. The then would-be-held expectations of the relative future prospects of the two economies 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 become larger and contribute more 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 the displacement hypothesis are conditional on the absence of major external and internal constraints. At the external front, assumed is the absence of economic calamities caused by

world recessions, credit crunch, trade protectionism, inelastic supply of energy resources; and at the internal front assumed is absence of social and political instability caused by inequality divides, poverty hazards, ethnic conflicts, civil disorder, polity shake-up, or financial mismanagement. We shall single for comment the risks of world economic recessions, being the foremost external constraint; and the growth-equality trade-off, being the most vocal internal constraint.

5.1. 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 the other countries through less trade and less investment. World economic recessions have also been caused by currency crises, speculative bubbles, excessive interest rates, substantive national debt of leading countries, as well as price hikes of oil, and major wars involving leading countries. Recessions are always accompanied with a loss of confidence in recovery, and thus affecting the consumption and investment climates in negative ways, and fuelling the recession tendencies.

Take the latest world economic recession that started in mid-2008 and has cut through 2009. It was triggered in 2006-8 in the US, by over-lending among other causes, and spread worldwide thereafter. Its effects on the displacement hypothesis are now taking shape. It is likely that the recession would hasten rather than delay the displacement, as evident from various IMF forecasts of GDP growth for 2009 for leading countries. The estimates put China and India at growth rates which are several percentage points higher than for US, UK, Germany and Japan.

5.2. Internal Constraints

Ultimately, realization of the future economic prospects would require stable and sustainable societies and polities. While these issues are more complex and less predictable, it can be logically proposed that in situations where the trade-offs between growth and equality are within tolerably experienced fair values the risk of social and political instability is least. When the trade-offs are unfair the 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, since agents, rightly or wrongly and justified or not justified, do compare their lots with the lots of others. And if the gaps in living go beyond some reference range, agents will be inclined to object, voice, or exit. The result is that the sustained development of the social system is challenged and is at risk.

The growth dimension is readily available in the growth rate of the 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. 21 points in EAP in China as against 2 points in EAP. But China did better than EAP in economic growth. However, the assessment of increases in income inequality cannot be done in isolation from the 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 the trade-off measure are indicative of greater conflicts between equality and growth; and falling values over time is indicative of a satisfactory resolution of the trade-off. China shows 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, within China itself there is the positive signal that the trade-off is shown to be falling down over the 25 years from 1.77 to 0.77; which suggests that the critical threshold of growth-inequality disruption crises has already passed without disrupting crises.

The table shows India to do better than average within its region of South Asia. In spite of the higher growth in India, the Gini index is slightly lower in the period 2001-5. According to the reported data India has been more able to combine growth with least negative redistribution than the other SA countries as shown in the inequality-growth propensities that are calculated in columns 7 and 8 of Table 4. In 1981-2000 a one per cent growth is coupled to a 0.78 increase in the Gini index, and this falls down in 1991-2000 to 0.4. The propensity for the SA region is higher at 1.12 and 1.00. These tendencies are comforting and suggest that India, as well as China, have survived and gone through the critical threshold.

In conclusion, a comparison between China and India with respect to the trade-off measure would support the statement that China's pattern of growth was realized with a more negative redistribution, than the case of India's growth pattern that so far has been realized with less negative redistribution. The calculated trade-off measure for China for the two periods are high at 1.77 and 0.77, compared to India at the lower rates of 0.78 and 0.40. Most importantly, in both cases the trade-offs are falling over time, which suggests that the internal constraints are not likely to be in a position to obstruct the

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 %			Change in Gini index / growth of GDP per capita	
	Col. 1 1981-90	Col. 2 1991-2000	Col. 3 2001-5	Col. 4 1981-90	Col. 5 1991-2000	Col. 6 2001-5	Col. 7 1981-2000	Col. 8 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.

displacement tendencies. Both countries seem to have passed the critical test of balancing growth with inequality in a sustainable stable society.

Notwithstanding, consideration needs to be given to the extent of poverty, which is closely related to inequality perceptions. 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) give for the year 2004 a national PHS of 34 per cent of the population. The risks of voice and exit to the stability and development of the social system can thus be relevant in the Indian context, and may reduce the fair values of the trade-off between growth and equity that characterized the Indian economic system so far.

6. The Different Economic Systems of China and India Compared to US and EU, and Their Impact for Global Governance

This section maintains that (1) China and India have distinctively different economic systems than US and EU; and (2) when countries belonging to distinctive and competing economic systems interact globally, collective failures due to occurring externalities are accentuated. New designs of global governance would have to accommodate to displacement facts.

6.1. Different Economic Systems

In what sense, do China and India have different economic systems than US and EU? And what is the significance of that? Satisfactory answers to these questions cannot be done without displaying several notions and elaborating on their application. Our starting point is the 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 relevant for economic analysis are those that generate for their participants added value from the transformation of some activity. Agents inhabiting such a setting 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 of interest for economic analysis are the *household*, *firm*, and *state* settings, to be denoted by $g = \{h, f, s\}$. There are more behavioural settings that are not engaged in economic transformations, and other behavioural settings that have significant bearings for economic transformations, as will become clear 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 that circumscribes the setting. While 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 are most frequently pursued in state and related settings. While the coordination mechanism in households is typically sociologic in character, in firms coordination is economically motivated, and in state settings coordination is politically motivated.

The three distinct behavioural motives can be modelled, as done in equations 2, 3 and 4. In the household setting the agents lump together their benefits and costs in an effort to make total benefits exceed total costs. In eq. 2, V_h 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 would thrive to distribute these benefits and costs between i and i' in ways that contribute to a positive value added for the whole setting. The resulting distribution can be affected by personal and relational circumstances.

$$V_h \equiv B_i + B_{i'} - Q_i - Q_{i'} \geq 0 \tag{2}$$

In the firm setting each agent would like to realize the highest positive returns to oneself. In eq. 3, V_f 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 latter 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 returns of one agent higher than the other.

$$V_f \equiv \Sigma(B_i - Q_i)/\Sigma Q_i \geq \rho \tag{3}$$

To model the state setting we employ for variables B, Q, V subscript s, and for the pre-state setting subscript ps. We also employ $k = 1,...,K$ to represent agents with state authority. The equations below show a higher value added 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 $\Sigma B_i > \Sigma B_{psi}$ and/or $\Sigma Q_i + \Sigma Q_{ik} < \Sigma Q_{psi}$. Part of ΣQ_i is a privately incurred cost and the other part is the collectively invested expenditure that allows for the higher value added transformation.

$$V_{ps} \equiv \Sigma B_{psi} - \Sigma Q_{psi} \leq 0 \tag{4.1}$$

$$V_s \equiv \Sigma B_i - \Sigma Q_i - \Sigma Q_{ik} \geq 0 \tag{4.2}$$

Agents in the state setting, $k = 1,...,K$, acquire an authority to extract a remuneration from all other agents denoted by Q_{ik}, such that the average remuneration for k is higher than the average level of benefits left over for

agents *i,...,I*. Distribution of incomes will manifest on the average a higher level for the authority agent *k* than for subordinate agents *i*.

In any country there are households, firms and state settings co-existing in large numbers side to side. The same agents can be members of more than one setting simultaneously. Agents communicate with agents within their own settings and 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 taking place among agents in or between the organizations, as well as 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 an evaluation that participating agents regularly do, and which guides them in their decision to continue in the setting, voice or exit and enter another setting. The propensity to move and

Figure 2 (a,b,c) Configurations of Socioeconomic Systems: HIM, FIM, SIM
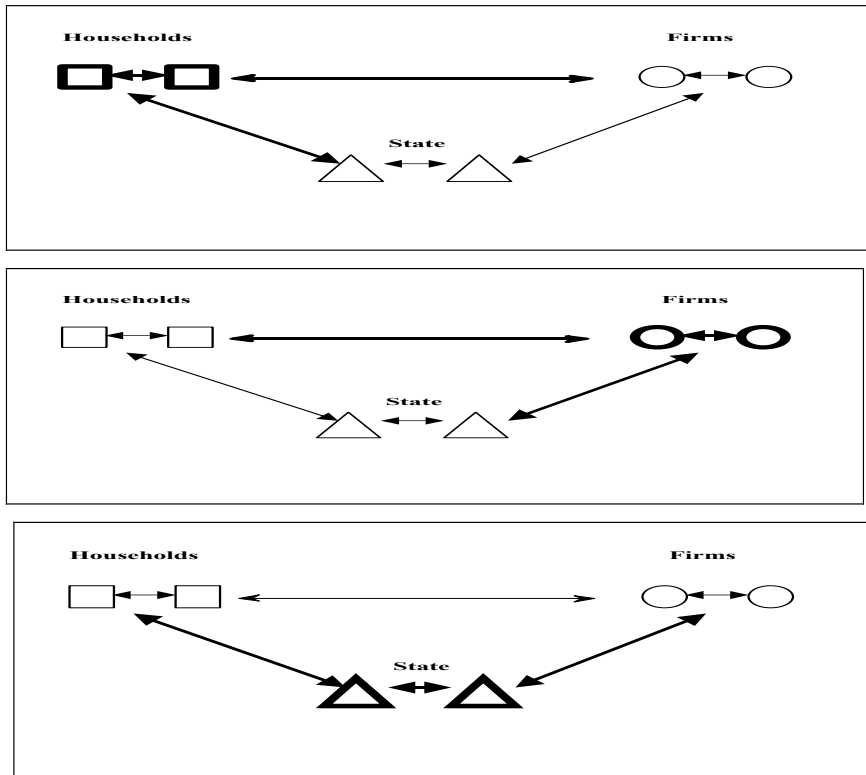
participate in alternative settings satiates when the marginal utility of the agent of shifting a unit of effort between settings is equal to the marginal cost of the shift. The engagement lines in the figures can accordingly be given an additional meaning: agent mobility across alternative settings occurs along the engagement lines.

Processes of 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', opening 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, and will spread further 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 literature.[8]

What makes the network of interactions among the many settings com-prehensible as a distinct system is the prevalence of *common* behavioural traits among agents in the settings. Five factors are behind how the *common* forms and 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 prospect that the typical behaviour of the advantaged setting becoming prevalent; (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 inhibit most, and the tendencies for one setting to overshadow other settings through vast volumes of 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 the economic system that circles around households and in which 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 would qualify as HIM. At the country level there are limited examples that fully operate along the lines of HIM. The second type, as in Figure 2b, is the economic system where agents adopt a firm-like behavioural type, i.e. maximization of material returns

at least material cost. The firm intensive system, FIM, has many copies in the real world; US is the best example. The third type, as in Figure 2c, is the economic system where 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 more so during the communist regime.[9]

The index of interactive influence, Eq. 1, can be recalled here to determine for a particular country which of the three settings is most dominant. In a country where the relative shares of agents and of economic transformations in firm settings are much higher than in other settings that country is most likely to operate along the lines of FIM. In a country where agents interactions and economic transformations concentrate most in state settings the index of interactive influence will show state settings as most influential and an orientation towards the 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, the external environment associated with value maximizing settings, and FIM in general, tend to be materially better off, is characterized by an open world with frequent changes, product discoveries, and choice opportunities; and a high mobility of agents. The external environment typical of state settings, and SIM in general, is usually characterized by highly skewed human endowments and rank among differentiated population groups, often generating conflicting interests and requiring authoritarian rules to resolve them. The external environment contains also barriers that obstruct openness, choice and mobility.

Economists give alternative interpretations to the formation and perpetuation of institutional behaviour into an economic system. In one view conformism is the product of processes of strategic interaction of agents watching how other informed agents behave. An alternative view is that the driving force behind conformity is the desire to be accepted in a group and not undergo loss due to exclusion. Another interpretation sees the origin of institutional behaviour as a necessary outcome for economic functionality (Jones, 1984). It is important to underline our basic fundament that conformism to *best practise* in a *given environment* implies that *differing best practices* would emerge and persist in the *different given environments of HIM*, *FIM* and *SIM*. One related question that can be raised is the following: since the starting point was conveniently the situation where household settings were already there, how and when firm and state settings have

become dominant and in which order? Economists and anthropologists tend to have different answers to the question. Cohen (2009) develops a general model of long-range systemic development that allows for alternative scenarios.

Next to the three socioeconomic 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, standing for multi-poles system. MPM is more typical of China and India. Specific conditions exist that hinder convergence towards one dominant behavioural type. Where absorption of agents from households in firms or state is limited because of the sheer large numbers involved, as in China or India, the result is a loosely linked multi-poles system. The two countries have vast rural populations that are bound to household settings, but also significant urban populations manifesting subcultures relating to the firm and state behavioural types. The distribution of agents on the three settings has been historically stable, more so for India than China, and given the involved magnitudes the distribution may not change much in the future. China and India constitute thus cases where 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 leaders that lead 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 commit their fellow members in their settings, simultaneously and mutually. Such deals and endorsements can be interpreted to contain value added transformations conceived as such by leading persons representing their constituent settings, and usually backed by their fellow members in the concerned settings. Although persuasion settings do not constitute economic transformation settings in the conventional sense, they can be vital for rationalizing and endorsing multi-polar behavioural patterns within the same borders, for binding loosely linked settings into one whole, and for the smooth operation of the economic system in a diversified country. There is little known as yet on these persuasion settings concerning the nature of the leader-followers relationship within an interest group, as well as aspects concerning inter-group leaders: their compositions, functioning, reach and effects. These are very

promising areas in the investigation of intra-group and inter-group economic transformations and national coordination.[10]

Persuasion modes of coordinating actions have a long history in China and are closely interknitted in cultural tradition and social norms that foster positive inter-group attitudes. In general, a social system with divisions of labour among its members that conform to their abilities allow members of that system 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 Confucius views on running society, forms the basis for bestowing due respect to each other, despite alignment with contrarian groups. This outlook on social relationships shares elements with Platonic views on work stratification in the economy and on 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, and appoints the right authorities to lead, defend and implement the 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 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 side, and modern attitudes of agents in metropolitan cities on the other side, limit inter-agent interactions, and result in making the intra-agent interactions within the separated groups to be more intensive than inter-agent interactions. The outcome is a lesser degree of communication and coordination between major groups in the national context. The coordination gaps are filled by persuasion actions from top leaders of the major groups. State sponsored councils of knowledgeable experts to resolve specific issues are another form of persuasion settings. The Indian Parliament can be seen as one form of persuasion setting where leaders of major groups try to reach consensus.

The MPM system is sketched Figure 2d, which emphasizes location of the population in two segments: rural and urban. Agents interacting in the rural segment do that in household settings with little interaction with firms and state settings. In situations where very large numbers of agents are rural, these village agents cannot be possibly absorbed in the urban segment for a long time to come, and hence it is unlikely that they would converge to either firm or state behavioural types typical of urban areas. The figure is a fair representation of big countries such as China, India and some other

Figure 2 (d) Configurations of the MPM Socioeconomic System
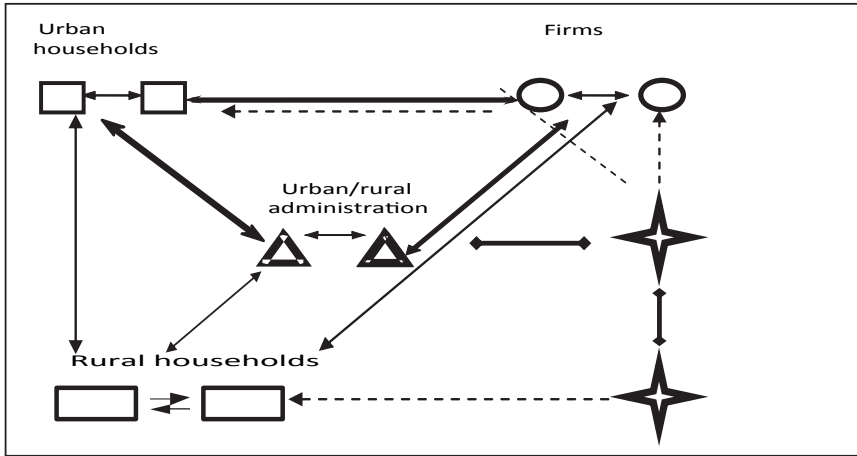
Asian countries. Persuasion settings are introduced in the figure via *stars*. The connecting lines are indicative of the feedbacks and influence of persuasion settings on other settings.

Recapitulating for the world at large, the study of a large number of empirical indicators on household, firm, state and persuasion settings, Cohen (2009), shows US to be most close to FIM, while Japan and West European countries, also identifiable as FIM, yet showing differing inclinations to the other two poles. The indicators show Russia to fit most to 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 in relative terms closer to HIM, but there are significant differentiations by region. Figure 3 proposes the positioning of various country regions along the three axes, and reserving special positions for India and China to reflect their MPM system. It is noted that India is realistically placed closer to the HIM system compared to China, which is more evenly balanced between the three systemic poles.

Generally speaking, it is easier to make predictions over countries that associate with HIM, FIM or SIM, and less so for MPM. For example, the modelling and analysis of the conduct and performance in FIM relating countries along lines of profit maximization, and in SIM relating countries along lines of rent appropriation, can be seen as workable approximations made possible by over majorities of the agents behaving along these two distinguishable lines in the two systems, respectively. In the US the high concentration of agent interactions in firms pushes intrinsic motivations in the household and state settings aside and get replaced over time by profit

Figure 3 Positioning of Economies along Axis of Dominant Systemic
          Interactions
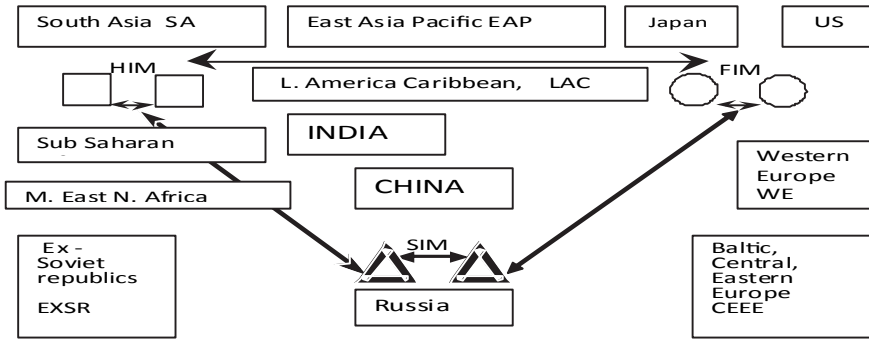
maximization typical of the firm settings. In contrast, the same processes oblige agents in household and firm settings in Russia to follow a politicized motive typical of state settings. As a result, all three settings in US behave in ways typical of firm settings, while in Russia they manifest behaviour typical of state settings. In US the economic motive dominates, and the polity can be described to have adapted itself to the economic motive. Modelling and prediction of structural change are much more difficult to apply in countries belonging to MPM, i.e. China and India, where the various poles in such a socioeconomic 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 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 hand by hand with a displacement of systems. We examine here four implications of the double displacement for global management.

7.1. Externality Problems Becoming More Severe with Interacting 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 compared to today because of more leading countries that have distinctly different economic systems.

The severity of externalities is very well evident in the credit crunch of 2007, followed by the financial meltdown of 2008 and the economic recession

of 2008-9. The regulated foreign finance in non-FIM leading countries allowed their governments to accumulate enormous USD foreign exchange reserves (FER) from exports while simultaneously holding 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, some of this spending is backed by financially very risky warrants and regulatory loopholes. As some of the spending is also on more import from non-FIM countries, the cycle of consecutive transactions among the main leading countries is reinforced, and thus permitting high economic growth for all countries. The credit crunch in the US that started with defaults in mortgage payments was sufficient to expose the financial risks of a world economy based on regulated underspending and accumulated reserves in non-FIM countries and unregulated overspending and excessive indebtedness in 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 regarding solutions of the problem, too. Although all countries want to stop the recession, most of the leading countries have taken protectionist measures, which can deepen the recession.[11] Besides, they show disagreements on solutions of the crises powered by the different economic systems. US, which is the typical FIM country, excludes nationalizing banks and is cautious on regulating banks, and is more for expanding bank liquidity, enhancing aggregate demand, and floating exchange rates. Some countries have gone for greater state control on banks via nationalization and regulation. At the other extreme, most emerging countries hold to their current policy of accumulating FER and out-flowing it back bypassing their domestic economies.

Another area of tension between FIM, SIM and MPM related countries is in the desire of state-allied companies in SIM and MPM countries to buy, own and manage US and EU free companies; which is seen in the latter as unfair play that allows foreign states to mingle with their commercial sector. In reaction to related threats by sovereign funds of China, Russia, and others, authorities in US and EU have taken concerted action and protective measures to obstruct foreign takeovers.[12] It is usually difficult to ascertain whether in such situations the national loss is the result of fair play or strategic trespassing. And whether protectionism is justified or not, counter-protection usually follows.

Because the economic systems to which incumbent and newcomers belong are distinctly different a period of non-collaborative systems competition between FIM, SIM and MPM relating countries, i.e. protectionism, cannot be excluded. The implications for the FIM are that many of the well established institutions in US and 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 transfer of decision-making powers takes place from open parliaments to appointed commissions, and 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 come closer to each other in organizing and raising the performance of their national economies.[13]

A new non-collaborative system competition would also have consequences for the SIM and MPM related countries. It is likely to expect here 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.

7.2. Overlapping Prioritizations of Externality Problems

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 would change significantly from that 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 the other)? 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 as priority areas irrespective of the power balance between leading countries. The priority ranking for other world problems differs appreciably by leading countries. FIM countries i.e. US and EU, give high ranking for problems of human rights, health, poverty and refugees, EU more than US on global warming, and US more than EU on cyber security. Most of the leading non-FIM countries do not see these areas as of highest priority since fair global settlements in these areas can be detrimental to other objectives they are persuading: for example, in the case of global warming, less pollutant emissions by China and India would 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 the inequitable access to ocean resources and space insecurity, which countries like China and India are very eager to solve globally. Especially, the lucrative

exploitation of the North Pole is being claimed by the borderline countries of Russia, US, Canada and Denmark. This is seen by China and India, with the world's two largest populations, as an unfair and arbitrary distribution of global wealth.

7.3. The Need to Redesign Current Rules of 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 the FIM conjectures given the dominance of the FIM related US and EU partnership, how would the rules of the game change with a dominance of the MPM related China and India? We described the bigger and highly dualistic countries of China and India as less fitted to the classification into HIM, FIM and SIM. We emphasized the significant and stable extent of rural household settings in these countries as well as significant roles for firm and state settings; a highly segmented system with low degrees of communication between the segments. In such multi-polar systems there is an important role laid for persuasion settings in the coordination and streamlining of responses between the segments. Besides the persuasion motive another typical principle of the MPM system is that of 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, it is likely that the principle gains in importance under influence of the newcomers (see Roser and Roser, 1999).

7.4. 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 that do not exceed the 20 per cent for any particular country-system in any year. Our results have shown for 2050 that the Index of Interactive Influence would vary at around twenty percentage points for any country and its related system, suggesting that a strong dominance of any one system can be excluded. Even if the FIM configuration consisting of US, EU, Japan and a few smaller countries is added together, 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 forward, India and China are forecasted to reverse positions, but within and around the 20 per cent range. The table suggests the evolvement of an equitable balance of power between the countries and related systems. Looking at the world future from the systemic viewpoint it will be less influenced or dominated by any one system in the future than today.

Would 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 perceive the situation as such, the parties are more inclined to use reason and knowledge and adopt cooperative attitudes in resolving frictions between them. Under a skew distribution of influential powers it is more likely that a non-collaborative attitude emerges. The paper predicts a future world in 2050 with a much more equal balance of powers than in 2000; and thus feeds the expectation that in the long run the new systems competition will be more of the collaborative type, in which, sharing, reason, knowledge and learning are major components.

8. Concluding Remarks

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

Two implications require further scrutiny. First, some elements of the systemic behaviour patterns the MPM system associated with the newcomers are bound to be incorporated in 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; but persuasion settings can be handicapped by lack of transparency as regards separation of decision making when joint familial, commercial and state interests are involved. Notwithstanding, the dealings and wheeling can be viewed as an unavoidable real world political process, though controllable to some degree on transparency. There is evidence that persuasion settings at the global level are active regarding issues of climatic changes, free trade, stability of 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 headways 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 perceive the situation as such, the parties are more inclined to use reason and knowledge and adopt cooperative attitudes in resolving frictions between them. The table predicts a future world in 2050 with a much more equal balance of powers than in 2000; and thus feeds the expectation that the new systems competition ahead will be more of the collaborative than the non-collaborative type with a greater role of reason and knowledge.

Notes

[+]   This article is a refined and extended version of an earlier paper published in *The Journal of Comparative Economic Studies*, March 2011.

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1.   Their forecasts for the first ten years show that they were not out of line with IMF estimates of potential growth. Furthermore, they generated similar results from applying an econometrically estimated economic growth equation with related arguments to theirs such us the initial income per capita, investment rates, population growth and educational effort. See Wilson and Puroshothaman (2003).

2.   More studies along the same lines have focused on second-rank countries in the developing world; see Cooper, Antkiewic 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, 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 exclude developing comparative advantages in other areas of industry and construction, but not totally.

7. For instance, India's stock of human resources leans more towards higher education than China's. Salary rates of ICT related operating jobs India are lower 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 and wide scales that allow making 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 and that give support and background to our hypothesis. Mention can be made of the following mechanisms: 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 agents of different settings get accommodated to behave in line with the behavioural type, which 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. But if state agents function in a SIM environment, then state agents will excel in rent seeking and political behaviour, and 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 or Egypt; they are also crucial in smaller countries with pockets of quickened modernization next to relatively larger numbers of agents living in traditional household and kinship settings, i.e. 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 countries out of the G20 countries have taken 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 Uncoal. However, in less strategic sectors, no obstacles were laid down when parts of American IBM were sold to China's LP.

13. See Sinn (2002) for elaborations on consequences of the new systems competition and protectionism.

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