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DIFFERENCES IN GDP/CAPITA, WORLD TRADE SHARES, AND MARKET CAPITALIZATION

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The Contribution of China, India and Brazil to Narrowing North-South Differences in GDP/capita, World Trade Shares, and Market Capitalization

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ABSTRACT

This paper focuses on the contribution to recent narrowing of the gap between Northern and Southern economies in GDP/capita, shares in world trade and market capitalization attributable both jointly and single to China, India, and Brazil (the three currently largest rapidly growing Southern economies). We report North-South differences in GDP/capita which (depending slightly on definition of North and South, as well as price deflators used) fall from 22 to 15.9 in constant USD between 1990 and 2009, changing Northern and Southern shares in world trade which fall for the North from 82.3% to 64.4% and rise for the South from 17.7% to 35.6%, and a changing North-South gap in stock market capitalizations from 27.6 to 3.3 over the same time. In contrast the North-China gap falls from 57.2 to 13.1 between 1990 and 2009, and India from 70.4 to 38.1 using market exchange rates and from 23.4 to 5.5 for China and from 20.7 to 11.4 for India using PPP rates. We calculate the portions of North-South gap change after 1990 which is accounted for by growth individually and jointly of China, India, and Brazil. Our calculations show that the majority of the change occurs from growth in these three economies, and the most from China. We suggest that the conventional view of a North-South bipolar world may need recasting into a tripolar world of the North, the Large South, and the rest of the South. In this, world manufacturing activity, trade, and even more rapidly, market capitalization are gravitating towards the Large Three, with a narrowing South-Large Three gap as well as a shrinking North-Large Three gap.

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1. Introduction

There is a large recent body of literature that focuses on Brazil, China and India's growing presence in the world economy (Antkiewicz & Whalley, 2005, 2006; Broadman, 2008; Bussolo et al, 2007; Jenkins & Edwards, 2006; Kaplinsky & Messner, 2008; McDonald et al, 2008; Nayyar, 2009; Nenci, 2008; Whalley, 2006; Yusuf et al, 2006). However, what is less well documented is the contribution that Brazil, China and India have made to narrowing North-South differences in GDP/capita, world trade and market capitalization. In recent years, Brazil, China and India have grown faster than other economies, their trade has expanded and they have become large recipients of FDI inflows (Amann, 2011; Baer, 2008; Naughton, 2007; Qureshi et al, 2008; Srinivasan, 2004, 2006). They also play an increasing important role in global governance (Gu et al, 2008; Qin, 2008).

Here we report calculations which (depending slightly on definitions of country groups) suggest a narrowing in the North-South gap in GDP/capita between 1990 and 2009 of roughly 28%. We suggest that much (and even most) of this change can be accounted for by growth in China, India and Brazil, and primarily China. The per capita income gap between the North and China narrows from 64.4 in 1990 to 10.6 in 2009 when calculated at market exchange rates, from 57.2 to 13.1 using constant 2000 USD, and from 23.4 to 5.5 over the same time using purchasing power parity (constant 2005 international \$) rates. Even more rapidly changing are the Southern shares in world stock market capitalization and in world trade.

In addition, interactions among the large Southern economies are proceeding even more quickly than these changes. Wang and Whalley (2011) recently presented data on China's trade and investment flows with Southern countries, which indicate China's Southern exports grew at 42% in 2007 in contrast to 26% for all exports, and that China-India trade and China-Brazil trade grew 33 fold and 18 fold respectively between 1995 and 2007. Medianu and Whalley (2010) also report that Brazil's export share to China grows from 3% in 2001 to 15% in 2010, while the US share of their exports falls from 25% to 10% over the same period.

What our calculations underline is that the world economy is shifting at an

accelerating rate towards the large South, and with it, are rapidly growing economic and financial links that are emerging among the large Southern countries. This is an expanding large South and relative shrinking North in a tripolar world in which the Large South-Rest of South gap is also rapidly changing. We also report projections which suggest a further sharp escalation of these trends over the next two decades if current relative country growth rates persist.

2. The Changing North-South Gap in GDP/capita, the Contribution of China, India, and Brazil and Forward Projections of the Gap

The North-South divide signifies a socio-economic and political division that effectively divides the world between the rich and the poor. Wealthy developed countries known collectively as the North (or the First World) and the poorer developing countries known as the South (the Third World) traverse this divide¹. Although most countries in the North are located in the Northern Hemisphere (with the exceptions of Australia and New Zealand), the divide is not wholly defined by geography since many so called Southern developing countries are geographically Northern. The terms North and South thus need careful definition. Commonly, developed countries are referred as the North and others as the South (see Dinopoulos & Segerstrom, 2006; Ratna, 2009, and etc); but as OECD (2006) emphasizes there is no established convention for the designation of individual countries or areas as developed or developing.

Here we adopt IMF country groupings in calculating North-South and also country-group gaps in GDP/capita at market prices for recent years. We also compare the size of the gap under other classifications. The IMF divides the world into 33 advanced economies and developing countries in its World Economy Outlook (WEO) report (IMF, 2010)². We take IMF advanced economies as the North, and the rest of the world as the South. We also divide the North into two sub-groups of the G7 and the Rest of North, and the South into the Large Three (China, India and Brazil, the largest Southern countries in 2007 GDP size), Oil Exporters, and Rest of South. Oil exporters are members of OPEC and Russia.

The behavior of this divide over long periods of time has also recently been

¹ The North-South debate, as it came to be known during the 1970s, was essentially over the policy changes that would enable the South to rapidly achieve self-sustaining economic growth and industrialization (Adam Sneyd, http://www.globalautonomy.ca/global1/glossary_entry.jsp?id=CO.0063). The term North-South became popularly used after the publication in 1980 of 'The Brandt Report' (The New Palgrave: A Dictionary of Economics, 1987).

² The main criteria seemingly used by the WEO to classify the world into advanced and emerging/developing economies are: (1) per capita income, (2) degree of export diversification--so oil exporters that have high per capita GDP do not make the advanced classification because around 70% of exports are oil, and (3) degree of integration into the global financial system. Under the first criteria, they look at an average over a number of years given that volatility (due to say oil production) can have a marked year-to-year effect. These are not the only factors considered in deciding the classification of countries. The WEO Statistical Appendix states "Rather than being based on strict criteria, economic or otherwise, this classification has evolved over time with the objective of facilitating analysis by providing a reasonably meaningful organization of data." Reclassification only happens when something marked changes or the case for change becomes overwhelming. For example, Malta joining the euro area was a significant change in circumstances that warranted a reclassification from an emerging and developing economy to an advanced economy. See <http://forums.imf.org/showthread.php?t=154>

studied by Maddison (2008) who divides the world into two major groups the “Rich” and the “Rest”. The countries that belong to the “Rich” are Western Europe, USA, Canada, Australia, New Zealand and Japan. The “Rest” is China, India, Other Asia, Latina America, Eastern Europe and the former USSR, and Africa. He reports GDP/capita for the “Rich”, the “Rest” as well as subgroups and a Rich/Rest spread between 1000 and 2003 AD in 1990 international dollars. Maddison a little surprisingly suggests that in 1000 AD the Rich had GDP/capita lower than the Rest with a Rich/Rest spread of 0.9:1. Their situation had reversed itself by 1820 via the industrial revolution when the Rich had GDP/capita almost twice that of the Rest. The Rich/Rest spread then increased by 1973 to 6.7:1 and to 6.9:1 by 1990. In 2003 Maddison estimates that the Rich/Rest spread had decreased to 6.1:1. Most of our later calculations produce considerably larger gaps than Maddison since they are using market exchange rates rather than PPP exchange rates, but as in his calculations we show that the differences between the Rich and the Rest narrowed in the last 2-3 decades and also as in to Maddison that they will narrow further by 2030 when the Rich/Rest spread will be 4.4:1.

Given these points of background, Table 2-1 reports our calculations of North-South and North-Large Three gaps in GDP/Capita between 1990 and 2009 in current USD terms, as well as individual country-North gaps. These show that using GDP in constant US dollar or market exchange rates the North-South GDP/capita gap narrowed from 22.1 to 15.9 (28% less) between 1990 and 2009, while the gap between the North and the Large Three narrowed from 39.3 to 16.6 (58% less). Among the Large Three, China grew the most rapidly in GDP/capita and narrowed its difference with the North from 57.2 in 1990 to 13.1 in 2009 (77% less). Smaller gaps apply if purchasing power parity rates are used (see below).

Table 2-1: North-South Gaps in GDP/Capita in Constant 2000 USD between 1990 and 2009 Using IMF Country Classifications

Gap\Year	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
North/South	22.1	21.7	21.2	21.1	21.0	20.4	19.7	19.0	18.2	17.3	16.6	15.9
North/Large Three	39.3	31.9	28.9	27.8	26.6	25.4	24.2	22.8	21.4	19.7	18.3	16.6
North/China	57.2	36.4	28.6	26.7	24.9	23.0	21.6	19.9	18.1	16.2	14.8	13.1
North/India	70.4	64.4	59.8	58.2	57.4	54.4	52.2	49.4	46.7	44.0	42.2	38.1
North/Brazil	6.7	6.6	7.3	7.4	7.3	7.5	7.3	7.3	7.3	7.0	6.7	6.5

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

Taking a longer time frame, Table 2-2 reports the North-South GDP/capita gap at market exchange rates as well as at PPP exchange rates over the decades 1960s to 2000s. The average GDP/capita gap between the North and South, as well as between North and the Large Three, widened after the 1960s, and reached a peak in 1970s and narrowed quickly in the 2000s. The average North-China gap in the 2000s was less half than in the 1960s measured in market exchange rates and less one third measured in PPP exchange rates; however, the North-Brazil gap widened slowly over time.

Table 2-2: North-South Gaps in GDP/Capita between the 1960s and 2000s Using IMF Country Classifications

	1960s	1970s	1980s	1990s	2000s	1980s	1990s	2000s
	In Constant 2000 USD					In PPP (Constant 2005 International \$)		
North/South	12.5	24.0	23.4	21.7	19.0	10.5	9.1	7.9
North-Large Three	23.1	43.9	39.2	33.6	23.2	16.6	13.8	9.4
North-China	57.7	105.7	71.7	40.4	20.7	29.4	16.6	8.6
North-India	27.4	69.1	72.2	65.6	50.2	21.2	19.3	14.9
North-Brazil	3.3	5.5	5.6	6.8	7.2	3.0	3.7	3.9

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

The GDP/capita gaps from 1990 to 2009 between Northern sub groups and the South and Large Three are reported in Table 2-3. The G7-South and G7-Large Three gaps in GDP/capita narrowed after 1990, especially in recent years. The G7-Large Three gap narrowed by 59% from 44.4 to 18.2 between 1990 and 2009, while China narrowing its gap with the G7 by 78% over the same time. The picture revealed for gap between the Rest of the North and the Large Three is similar. Though the Rest of North experienced faster growth in GDP/capita than the G7, its difference with China still narrowed by over 74% over 1990 to 2009.

Table 2-3: The G7-South and Rest of North-South Gaps in GDP/Capita in Constant 2000 USD between 1990 and 2009 Using IMF Country Classifications

Gap\Year	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
G7/South	24.9	24.4	23.7	23.5	23.3	22.7	21.9	21.1	20.2	19.1	18.3	17.5
G7/Large Three	44.4	35.9	32.2	31.0	29.7	28.2	26.9	25.3	23.7	21.7	20.2	18.2
G7/China	64.6	40.9	31.9	29.8	27.7	25.6	24.0	22.0	20.0	17.9	16.3	14.4
G7/India	79.5	72.3	66.8	64.9	63.9	60.6	58.1	54.8	51.8	48.6	46.5	42.0
G7/Brazil	7.5	7.5	8.2	8.2	8.2	8.3	8.1	8.1	8.1	7.8	7.4	7.2
Rest of North/South	13.6	13.8	13.9	13.9	14.0	13.6	13.2	12.9	12.5	12.0	11.7	11.3
Rest of North/Large Three	24.2	20.3	18.9	18.4	17.8	17.0	16.3	15.5	14.7	13.7	12.9	11.7
Rest of North/China	35.3	23.1	18.7	17.7	16.6	15.4	14.5	13.5	12.4	11.3	10.4	9.3
Rest of North/India	43.4	40.8	39.2	38.4	38.3	36.4	35.2	33.5	32.1	30.6	29.7	27.1
Rest of North/Brazil	4.1	4.2	4.8	4.9	4.9	5.0	4.9	5.0	5.0	4.9	4.7	4.6

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

To assess the sensitivity of these gaps measures to the choice of country groupings, Table 2-4 reports the North-South gap in GDP per capita in current USD terms for different country classifications. In contrast to the IMF, the World Bank (2010)¹ uses Gross National Income (GNI) per capita (calculated using a method set out in the World Bank) to divide the world into four groups. Its group of high income countries contains 69 countries (including territories) with GNI per capita in 2009 of \$12,196 or higher. The United Nation Development Programme (UNDP, 2010) classifies countries into four groups according to their human development levels but calculates their annual Human Development Index (HDI) using GNI per capita in purchasing power parity (PPP) terms along with indicators of education and health. Its group of very high human development countries is a developed country grouping and contains 42 countries in 2010. The CIA (2008) in classifying countries uses a country grouping similar to the UNDP but does not explicitly state its criteria in classifying countries.

In addition, we also consider the North as high income countries following the World Bank and the UNDP as Very High HDI economies. We then use two additional classifications of countries for sensitivity purposes. One takes OECD

¹ <http://data.worldbank.org/about/country-classifications>.

members as the North. The other takes Oil Exporters as defined above and IMF advanced economies together as the North, since many oil exporters have high income levels and some of them are developed countries in the World Bank and UNDP classifications.

Table 2-4: The North-South Gap in GDP/Capita between the 1960s and Today in Current USD Using Different Country and Group Classifications

Classification	1960s	1970s	1980s	1990s	2000s	1990	1995	2000	2005	2006	2007	2008	2009
IMF	14.4	17.0	19.2	22.5	17.9	21.8	23.1	21.2	17.9	16.0	14.3	12.7	12.7
World Bank	11.5	13.6	16.7	22.3	18.2	21.7	22.8	21.5	18.3	16.3	14.6	13.0	12.7
UNDP	10.2	13.6	16.1	17.5	13.9	18.6	17.6	15.7	14.1	12.9	11.6	10.6	9.9
OECD as North	11.3	12.6	14.3	19.0	15.9	18.7	18.9	18.6	16.1	14.4	12.8	11.4	11.0
Oil Exporter + IMF	10.8	14.2	16.3	17.5	13.6	18.8	17.5	15.6	13.8	12.6	11.4	10.4	9.8

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

Table 2-4 reports gap measures for five alternative North and South classifications. These suggest the same trend in the North-South gap and show little difference, except for the IMF based classification in the earlier years. The peak of North-South gap using IMF classification is 25 in 1988, while peaks using other classification are all shown in 1992. The gap in 1992 is the second biggest for the IMF classification over the period 1960 and 2009.

Thus, no matter what classification used, the North-South GDP/capita gap narrowed after the mid 1990s and shows convergence in recent years. Further more, the North-South GDP/capita gap between 1960s and 1980s using the IMF country classification is significantly larger than gaps based on other classifications before the 1990s and moves closer to others afterwards. Thus, the North-South gap using the IMF country classification shows a similar trend to that measured using other classifications, with a slightly less pronounced rise and fall over time. The North-South division using the IMF classification is fixed over time, while the division using other classifications changes every year. Since comparable benchmarks for the North-South GDP/capita gap are best provided on a consistent basis using the IMF classification, we use the IMF advanced economies as the North and rest of the world

as the South in the following calculations.

There is, however, substantial sensitivity in North-South gap measures for GDP per capita to both price deflators and the use of purchase power parity measures of exchange rates compared to those based on market exchange rates. Impacts on measured North-South gaps of GDP per capita are reported in Table 2-5. The gap measured in constant price terms is generally almost twice that using PPP. There are smaller differences between gaps measures using market prices or constant prices, than between PPP current price and PPP constant price measures. These differences reflect the feature that developing countries usually experience higher inflation and larger exchange rate/PPP distortions.

Table 2-5: The North-South Gap in GDP/Capita (IMF Classification) Using Different Price Deflators and PPP Measures

Measure	1960s	1970s	1980s	1990s	2000s	1990	2000	2007	2008	2009
North/South										
Current USD	14.4	17.0	19.2	22.5	17.9	21.8	21.2	14.3	12.7	12.7
Constant 2000 USD	12.5	24.0	23.4	21.7	19.0	22.1	21.2	17.3	16.6	15.9
PPP, Current International \$	NA	NA	10.8	9.3	8.0	9.2	9.2	7.1	6.8	6.5
PPP, Constant 2005 International \$	NA	NA	10.5	9.1	7.9	8.9	9.1	7.2	6.9	6.5
North/ (South - Large Three)										
Current USD	12.5	13.1	13.9	16.9	15.0	15.5	17.1	12.3	11.0	12.2
Constant 2000 USD	8.6	16.4	16.9	16.4	16.5	15.6	17.1	15.6	15.4	15.4
PPP, Current International \$	NA	NA	8.1	7.2	7.0	6.6	7.6	6.5	6.2	6.2
PPP, Constant 2005 International \$	NA	NA	7.7	6.9	7.0	6.2	7.5	6.6	6.4	6.4
G7/Large Three										
Current USD	19.4	27.1	35.8	39.5	24.8	41.8	32.2	18.2	15.8	14.1
Constant 2000 USD	25.6	49.7	44.5	37.8	25.7	44.4	32.2	21.7	20.2	18.2
PPP, Current International \$	NA	NA	18.1	14.8	10.0	17.5	12.6	8.4	7.8	7.0
PPP, Constant 2005 International \$	NA	NA	18.1	14.8	9.9	17.6	12.6	8.3	7.8	7.0

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

The trends in the North-South GDP/capita gap after 1970 that we report here are comparable to Maddison (2008) but there are significant differences in magnitude between the calculations. Maddison (2008) measures GDP/capita using different price deflators and different PPPs, and also uses a different classification of

the Rich. Our calculations are reported using current USD, constant 2000 USD, PPP current international \$ and PPP constant 2005 international \$. Our calculations in PPP are closer to Maddison’s estimates of the Rich/Rest spread which are reported in 1990 international PPP dollars. A difference from Maddison is that we include in the “Rich” group Taiwan, South Korea, Hong Kong and Singapore and this results in a slight widening of the North-South gap relative to Maddison.

The GDP/capita gap between Southern groups has also been changing over time. Table 2-6 indicates the rapidly changing GDP/capita gap between the South and Large Three. The Large Three gap relative to the South has been narrowing since the 1960s, and especially so in the 2000s. The share of the Large Three in total Southern GDP increased by 27% in the last 10 years. Among the Large Three, the South-China gap narrowed quickly after the 1960s and is only 0.8 in 2009 instead of 4.6 in the 1960s. South-India gap widened slowly before the 1990s, but has narrowed quickly in recent years.

**Table 2-6: South-Large Three Gap in GDP/Capita between the 1960s and Today
(Constant 2000 USD, IMF Country Classifications)**

Gap	1960s	1970s	1980s	1990s	2000s	1990	2000	2006	2007	2008	2009
South /Large Three	1.8	1.8	1.7	1.5	1.2	1.8	1.4	1.2	1.1	1.1	1.0
South/China	4.6	4.4	3.1	1.9	1.1	2.6	1.3	1.0	0.9	0.9	0.8
South/India	2.2	2.9	3.1	3.0	2.6	3.2	2.8	2.6	2.5	2.5	2.4
South/Brazil	0.3	0.2	0.2	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4

Source: Authors’ calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

Comparing the North-South gap in GDP/capita above with South-South gap, the common characteristic is China consistently narrowing its gap with other groups, no matter whether it is the North, South or the G7. Before the 1990s the Large Three narrowed its difference with North and G7 faster than with the South, afterward the South-Large Three gap narrowed more slowly than the North-Large Three gap. A reason is that Southern GDP/capita grew faster, driven by China’s fast growth (as well as lower population growth for China due to its population control) alongside India’s fast growth since the 1990s.

Next we turn to the contribution of China, India and Brazil to the changing North-South gap in GDP per capita. As the largest changes in the North-South GDP/capita gap have occurred after the 1990s, we calculate what the changes in the North-South gaps would have been between 1990 and 2009 under various counterfactual GDP growth assumptions for the Large Three. We assume they grew since 1990 alternatively at the same rates as the whole South, the world, the South excluding the Large Three, or zero, instead of their actual growth rates.

Table 2-7: Counterfactual North-South Gaps in GDP/capita in Constant 2000 USD between 1990 and 2009 under the Hypotheses that the Large Three Grew Alternatively as the South, the World, the South Excluding the Large Three, and Zero after 1990

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Actual North/South	22.1	21.7	21.2	21.1	21.0	20.4	19.7	19.0	18.2	17.3	16.6	15.9
Actual North/Large Three	39.3	31.9	28.9	27.8	26.6	25.4	24.2	22.8	21.4	19.7	18.3	16.6
If GDP of the Large Three Grew as the South after 1990:												
North/South	22.1	23.0	23.1	23.3	22.8	22.1	21.5	20.8	20.1	19.5	19.3	23.0
North/Large Three	39.3	38.4	37.2	36.8	36.5	35.4	34.1	32.7	31.3	29.7	28.4	27.1
If GDP of the Large Three Grew as the World after 1990:												
North/South	22.1	23.3	23.7	23.9	24.2	23.8	23.3	22.9	22.4	21.9	21.5	21.4
North/Large Three	39.3	40.3	41.2	41.3	41.2	41.1	40.8	40.6	40.2	39.8	39.3	38.8
If GDP of the Large Three Grew as the South Excluding the Large Three after 1990:												
North/South	22.1	23.5	23.8	24.0	24.4	23.9	23.3	22.7	22.0	21.4	20.9	20.9
North/Large Three	39.3	41.5	41.7	41.9	42.5	41.5	40.3	39.2	37.9	36.7	35.8	35.6
If No GDP Growth for the Large Three after 1990:												
North/South in Gap/capita	22.1	24.0	25.5	25.7	26.2	25.9	25.5	25.2	24.8	24.3	23.9	23.8
North/Large Three	39.3	45.2	54.6	55.6	56.7	58.0	60.0	61.7	63.7	65.4	65.6	63.6

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

Results are reported in Table 2-7. The North-South gap in GDP/capita presents a similar trend no matter measured in what price deflators, and here we only report results using constant 2000 USD. The counterfactual gaps in Table 2-7 show that rapid GDP growth of the Large Three contributed significantly in narrowing North-South gap in GDP/capita after 1990. If China, India and Brazil all had no GDP growth since 1990, the North-South gap in GDP/capita would have increased to 23.8

in 2009 instead of declining to 15.9. The North-Large Three gap would have increased from 39.3 in 1990 to 63.6 in 2009, instead of decreasing to 16.6. If the GDP of the Large Three had grown as the world or the South excluding Large Three after 1990, then the North-South and North-Large Three gap in GDP/capita would essentially not show any change between 1990 and 2009. If the Large Three had grown as the South, then the North-South gap would have widened slightly while the North-Large Three gap would have narrowed to 27.1 in 2009, much larger than actual gap of 16.6.

We also investigate the contribution of China, India and Brazil individually in narrowing the North-South gap in GDP/capita after 1990. Results are reported in Table 2-8. Similarly to Table 2-7, we assume that individual countries (China, India or Brazil) grew as the world or no growth since 1990 respectively and we investigate how the counterfactual North-South gaps in GDP/capita would have evolved.

If China had grown as the world in GDP after 1990, the North-South gap in GDP/capita would have only narrowed slightly instead of narrowing 30% between 1990 and 2009. Also, the North-Large Three gap would have narrowed by around 20%, instead of having narrowed 79% over the same time frame. If India or Brazil had grown at the world rate individually after 1990, the North-South gap would have widened slightly more.

Without growth in China, India or Brazil after 1990, the North-South gap in capita would have widened significantly. Among these three countries, China's high growth contributed most with an 81% contribution in narrowing the North-South gap. Without China's growth, the North-South gap would be 20.9 rather than the actual gap of 15.9 in 2009. India had contributed less than China, and Brazil the least. Without growth of India or Brazil, the North-South gap would widen from 15.9 to 16.9 or 16.5 in 2009 respectively. Another feature noticeable in the Table 2-8 is that no matter at what counterfactual speed China, India and Brazil grew individually, the North-South and North-Large Three gaps in GDP/capita show the same trend of decreasing over time less than the actual gaps. This reflects that the relative reduction of China, India and Brazil in overall GDP/capita in the South, in other words, a more balanced development among the Southern countries after 1990.

Table 2-8: Counterfactual North-South Gaps in GDP/capita in Constant 2000 USD between 1990 and 2009 under the Hypotheses that Individual Countries Grew Alternatively as the World and Zero after 1990

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Actual Gap:												
North-South	22.1	21.7	21.2	21.1	21.0	20.4	19.7	19.0	18.2	17.3	16.6	15.9
North/Large Three	39.3	31.9	28.9	27.8	26.6	25.4	24.2	22.8	21.4	19.7	18.3	16.6
North/China	57.2	36.4	28.6	26.7	24.9	23.0	21.6	19.9	18.1	16.2	14.8	13.1
North/India	70.4	64.4	59.8	58.2	57.4	54.4	52.2	49.4	46.7	44.0	42.2	38.1
North/Brazil	6.7	6.6	7.3	7.4	7.3	7.5	7.3	7.3	7.3	7.0	6.7	6.5
If GDP of China Grew as the World after 1990:												
North-South	22.1	23.0	23.4	23.5	23.7	23.3	22.7	22.2	21.7	21.0	20.5	20.2
North/Large Three	39.3	38.5	39.2	39.0	38.7	38.1	37.3	36.5	35.6	34.3	33.1	31.4
North/China	57.2	57.8	58.0	57.9	57.6	57.2	56.6	56.0	55.3	54.5	53.7	52.8
If GDP of India Grew as the World after 1990:												
North-South	22.1	21.9	21.6	21.4	21.4	20.8	20.2	19.5	18.8	17.9	17.2	16.6
North/Large Three	39.3	32.7	30.2	29.2	28.1	26.9	25.8	24.5	23.1	21.4	20.0	18.3
North/India	70.4	73.5	76.7	77.2	77.6	77.6	77.5	77.3	77.0	76.4	75.9	75.3
If GDP of Brazil Grew as the World after 1990:												
North-South	22.1	21.8	21.2	21.0	20.9	20.3	19.6	18.9	18.1	17.3	16.6	16.0
North/Large Three	39.3	32.3	28.6	27.5	26.4	25.1	24.0	22.6	21.2	19.6	18.4	16.7
North/Brazil	6.7	6.9	7.1	7.1	7.1	7.1	7.1	7.1	7.0	7.0	6.9	6.8
If No GDP Growth for China after 1990:												
North-South	22.1	23.3	24.0	24.1	24.4	24.0	23.5	23.0	22.4	21.8	21.2	20.9
North/Large Three	39.3	40.0	42.9	42.8	42.6	42.3	41.7	41.1	40.4	39.1	37.8	35.5
North/China	57.2	64.8	77.0	78.0	79.2	80.7	83.1	85.2	87.6	89.6	89.6	86.4
If No GDP Growth for India after 1990:												
North-South	22.1	22.0	21.9	21.7	21.7	21.1	20.5	19.8	19.1	18.2	17.5	16.9
North/Large Three	39.3	33.4	31.4	30.5	29.3	28.1	27.0	25.7	24.3	22.5	20.9	19.1
North/India	70.4	82.5	101.8	104.1	106.6	109.5	113.8	117.6	121.8	125.7	126.7	123.3
If No GDP Growth for Brazil after 1990:												
North-South	22.1	22.1	21.7	21.5	21.5	20.9	20.2	19.5	18.7	17.9	17.2	16.5
North/Large Three	39.3	33.3	30.8	29.6	28.5	27.1	26.0	24.6	23.1	21.3	19.9	17.9
North/Brazil	6.7	7.7	9.4	9.6	9.8	10.1	10.4	10.8	11.1	11.5	11.5	11.1

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

We have also undertaken two simple projections of future gaps assuming either unchanged country growth rates or an unchanged speed of narrowing in gaps to assess what might happen to these GDP/capita gaps in the future. If we assume

that the GDP (either measured in constant 2000 USD and in PPP constant 2005 international \$) and the population of each Southern and Northern sub group grow at the same growth rates as they did on average through 1990-2009, we can project the GDP/capita of groups and individual countries out to 2030. Results are reported in Table 2-9. The picture is a rapid narrowing of all gaps, except the North-Brazil gap. The North-China would narrow the most quickly and the North- Large Three gap the second.

Table 2-9: Projections of the North-South Gap in GDP/Capita out to 2030 under an Assumption that GDP and Population Keep Growing at Average Rates as through 1990 and 2009

	In Constant 2000 USD						In PPP Constant 2005 Int'l \$					
	2009	2010	2015	2020	2025	2030	2009	2010	2015	2020	2025	2030
North/South	15.9	15.6	13.9	12.5	11.2	10.0	6.5	6.4	5.8	5.2	4.7	4.2
North/Large Three	16.6	15.8	12.7	10.1	8.1	6.5	6.7	6.4	5.1	4.0	3.2	2.5
North/China	13.1	12.1	8.3	5.7	3.9	2.7	5.5	5.1	3.5	2.4	1.7	1.2
North/India	38.1	36.7	30.6	25.5	21.2	17.7	11.4	11.0	9.2	7.7	6.5	5.4
North/Brazil	6.5	6.5	6.5	6.5	6.4	6.4	3.6	3.6	3.6	3.6	3.6	3.6

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

An alternative projection of the North-South gap in GDP/capita out to 2030 assumes that all gaps continue to narrow at the same average speed as between 1990 and 2009. Results are reported in Table 2-10.

Table 2-10: Projections of North-South Gap in GDP/Capita out to 2030 under an Assumption that Gaps Narrow at the Same Speed as between 1990 and 2009

	In Constant 2000 USD						In PPP Constant 2005 Int'l \$					
	2009	2010	2015	2020	2025	2030	2009	2010	2015	2020	2025	2030
North/South	15.9	15.8	14.1	12.7	11.3	10.1	6.5	6.5	5.8	5.3	4.8	4.3
North/Large Three	16.6	16.2	13.0	10.4	8.3	6.6	6.7	6.6	5.2	4.1	3.3	2.6
North/China	13.1	12.6	8.7	6.0	4.1	2.8	5.5	5.3	3.6	2.5	1.7	1.2
North/India	38.1	37.6	31.3	26.1	21.7	18.1	11.4	11.2	9.4	7.9	6.6	5.5
North/Brazil	6.5	6.5	6.5	6.5	6.4	6.4	3.6	3.6	3.6	3.6	3.6	3.6

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

The picture is similar to the projection above. All gaps except North-Brazil gap narrow quickly from 2010 to 2030, the North-China gap narrows the most quickly. Results show slightly differences from assuming unchanged GDP and population growth through 1990 and 2009.

Our projections (in PPP constant 2005 international dollars) suggest that the North-South gap in 2030 will be similar to the Rich/Rest spread projections reported by Maddison (2008) in 1990 international PPP dollars. Maddison (2008) projects that between 2003 and 2030 Rich/Rest GDP per capita spread (in 1990 international dollars) will narrow from 6.1:1 to 4.4:1, a 26% fall. Our projections suggest that North-South GDP per capita will narrow by 34% between 2009 and 2030. Also our calculations suggest that North/China GDP/capita gap will narrow to 1.2 in 2030 while Maddison's Rich/China spread will narrow to 2.3. Maddison's calculations are more conservative with respect to China because he assumes that China's GDP per capita growth will decelerate from 5.6% per year before 2010 to 4.6% from 2010 and 2020 and to 3.6% per year from 2020 and 2030. The deceleration reflects the assumptions that China will have to reallocate resources from more productive activities to decrease damage from environmental degradation, wages will rise and that China's technological level will approach that of advanced countries'. We project that North/India GDP per capita gap will narrow to 5.5 in 2030. Our projections with respect to India are almost the same as the projections in Maddison who projects a Rich/India spread of 5.2 in 2030.

3. The Growing Share of China, India and Brazil in World Trade

In addition to the narrowing gap in terms of GDP/capita relative to the North, China, India and Brazil also account for a growing fraction of world trade and with it a growing share of Southern trade. Table 3-1 reports data on North and South shares in world trade between the 1960s and 2009. In the 1960s the China, India and Brazil combined share in world trade was 3.3%. Today their share is 11.8%, a 3.5 fold increase. Table 3-1 also indicates that all other South subgroups have expanded their shares in world trade in the last few decades but to a smaller degree than the Large Three. The share of the South in world trade has also grown from 23.9% in the 1960s to 35.6% in 2009. This has been accompanied by a decrease in the Northern share of world trade from 76.1% to 64.4% over the same period. The Large Three as the fastest growing group in world trade are followed by oil exporters whose shares increased from 4.5% to 7.5%, a 1.6 fold increase. The Rest of South increased their share only a little from 16.1% to 16.4%, a 1.02 fold increase.

Table 3-1: Shares in World Trade¹ 1960s-2009 (%)

Shares	1960s	1970s	1980s	1990s	2000s	1990	2000	2005	2009
North	76.1	76.2	77.7	78.8	69.1	82.3	75.8	69.6	64.4
G7	52.8	52.2	53.4	50.7	41.8	55.0	48.8	42.2	37.3
Rest of North	23.3	24.0	24.3	28.1	27.2	27.4	27.0	27.4	27.1
South	23.9	23.8	22.3	21.2	30.9	17.7	24.2	30.4	35.6
Largest Three	3.3	2.7	3.3	4.3	9.1	3.2	5.3	8.9	11.8
China	1.2	0.9	1.6	2.7	6.8	1.7	3.7	6.8	8.9
India	1.2	0.6	0.6	0.7	1.2	0.6	0.7	1.2	1.7
Brazil	0.9	1.2	1.1	0.9	1.0	0.8	0.9	0.9	1.2
Oil Exporters	4.5	8.1	6.5	4.2	6.5	4.1	4.8	6.5	7.5
Rest of South	16.1	13.1	12.5	12.7	15.3	10.4	14.1	15.0	16.4

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

¹Trade is the sum of merchandise imports and merchandise exports in current USD.

The faster growth of the Large Three and their expanding share in world trade has also resulted in a change in position relative to Oil Exporters and the Rest of South. In the 1960s the Large Three were behind Oil Exporters. In 2009 the share of Large Three was 1.6 times larger than Oil Exporters and they moved closer to the

Rest of South whose share was little changed from the 1960s. In the 1960s the share of the Large Three was 4.8 times smaller than the share of the Rest of South and in 2009 it was only 1.4 times smaller.

In the North the G7 countries in combination (US, Japan, Germany, Canada, France, Italy and UK) decreased their share from 52.8% to 37.3%, a 29% fall between the 1960s and 2009. The share of the Rest of North expanded from 23.3% to 27.1%.

Table 3-2 presents data on annual shares in world trade since 1990. In 1990 the Southern share in world trade was 17.7% and this was the lowest point of the Southern share over the period the 1960s-2009. Conversely, in 1990, North share in world trade reached a maximum of 82.3%. Between 1990 and 2009, South's share doubled from 17.7% to 35.6% and North share shrank by almost a quarter from 82.3% to 64.4%. In the North and South, the biggest changes in shares have occurred in G7 and the Large Three, and especially in China.

Table 3-2: Shares in World Trade¹ 1990-2009 (%)

Shares\Year	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
North	82.3	78.4	75.8	75.2	74.4	73.6	71.8	69.6	68.1	66.6	64.4	64.4
G7	55.0	49.4	48.8	48.2	46.9	45.5	43.8	42.2	41.1	39.5	37.6	37.3
Rest of North	27.4	29.0	27.0	27.0	27.5	28.1	27.9	27.4	27.0	27.1	26.7	27.1
South	17.7	21.6	24.2	24.8	25.6	26.4	28.2	30.4	31.9	33.4	35.6	35.6
Largest Three	3.2	4.4	5.3	5.8	6.5	7.3	8.2	8.9	9.6	10.3	10.8	11.8
China	1.7	2.8	3.7	4.1	4.8	5.7	6.3	6.8	7.3	7.8	8.0	8.9
India	0.6	0.6	0.7	0.8	0.8	0.9	1.0	1.2	1.3	1.4	1.6	1.7
Brazil	0.8	1.0	0.9	0.9	0.9	0.8	0.9	0.9	1.0	1.0	1.2	1.2
Oil Exporters	4.1	4.3	4.8	4.8	4.7	4.9	5.5	6.5	6.9	7.2	8.3	7.5
Rest of South	10.4	12.9	14.1	14.2	14.4	14.2	14.5	15.0	15.4	15.9	16.5	16.4

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

¹Trade is the sum of merchandise imports and merchandise exports in current USD.

Table 3-3 reports data on growth rates of North and South trade between the 1960s and 2009. In the 1960s and 1980s the growth rates of Southern trade were below the world average and the share of the South in world trade fell from 23.9% in the 1960s to 21.2% in the 1990s. In 1990 the Southern share in world trade was as

low as 17.7%; the lowest point over the last five decades. Since 1990, however, Southern trade has grown at rates significantly above both world and Northern trade and this has led to an expansion in the Southern share in world trade from 17.7% in 1990 to 35.6% in 2009. In the 1990s Southern trade grew 1.7 times faster than Northern trade. In the 2000s Southern trade grew twice as fast as Northern trade; the growth of Southern trade accelerated to 12.3% while Northern trade growth was only 5.6%.

Table 3-3: Growth Rates of Trade¹ 1960s-2009 (%)

	1960s	1970s	1980s	1990s	2000s	2006	2007	2008	2009
North	9.7	19.6	6.1	5.3	5.6	12.7	13.0	11.5	-22.8
G7	9.6	19.4	5.9	4.9	4.4	12.3	10.9	9.9	-23.6
Rest of North	9.8	19.9	6.7	6.1	7.6	13.4	16.2	13.8	-21.8
South	5.7	22.3	0.5	8.9	12.3	20.6	20.7	23.4	-22.9
Largest Three	1.3	21.4	7.4	11.1	17.5	23.3	23.9	21.7	-16.0
China	-2.0	22.9	12.7	13.5	18.6	23.8	23.6	17.8	-13.9
India	1.2	17.4	5.0	7.9	17.9	23.8	26.4	35.9	-20.1
Brazil	5.9	22.6	2.1	7.1	10.8	19.1	23.0	32.4	-24.6
Oil Exporters	7.6	30.5	-6.1	5.6	13.1	22.1	20.7	32.9	-30.8
Rest of South	6.2	18.7	2.4	9.3	9.4	18.4	18.8	20.2	-23.5
World	8.7	20.2	4.8	6.0	7.6	12.7	13.0	11.5	-22.8

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

¹Trade is the sum of merchandise imports and merchandise exports in current USD.

Table 3-3 also shows that since the 1980s trade growth rates for Large Three have been significantly above both the world and Southern averages. In the 1980s their trade grew at 7.4%, in the 1990s at 11.1% and in the 2000s at 17.5%. In contrast, world average growth rates were 4.8%, 6% and 7.6% and Southern growth rates were 0.5%, 8.9% and 12.3%. The Large Three share in world trade increased from 3.2% in 1990 to 5.3% in 2000 and their share jumped to 11.8% in 2009. Within the Large Three, China has the largest share in world trade which increased from 1.7% in 1990 to 3.7% in 2000 and to 8.9% in 2009, a 5 fold increase. In 2009 India's share in world trade was 5.2 times smaller than for China, even through it increased from 0.6% in 1990 to 1.7% in 2009. Brazil's share increased only in recent years from 0.9% in 2005

to 1.2% in 2009.

Through their trade and GDP growth Brazil, China and India have evolved as global powerhouses in terms of manufacturing activity and trade, while smaller countries in the South have remained largely in traditional mode. Between 1965 and 2009 Large South trade in industrial products grew faster than total trade and its share in total exports increased. China's exports of manufactures as a share of total exports increased from 26.4% in 1985 to 93.6% in 2009. Between 1965 and 2009 Brazil's exports of manufactures increased from 7.7% to 39.5% of total exports and India's from 48.2% to 66.8% of total exports. This shift in the product composition of trade towards industrial products is a reflection of both technological advance in the Large South and also improved labor quality through investment in human capital and education. Between 1965 and 2009, the share of primary products in total exports fell for all three countries; the most dramatic change being for China, from 73.6% to 6.4%.¹

Table 3-4: Shares in World Exports 1990-2009 (%)

Shares\Year	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
North	81.4	78.7	74.1	74.0	73.1	72.1	70.3	67.3	65.4	64.4	62.0	62.8
G7	54.7	49.9	46.7	46.3	44.8	43.3	41.6	39.3	38.1	37.1	35.3	35.2
Rest of North	26.7	28.9	27.4	27.7	28.4	28.8	28.6	27.9	27.3	27.3	26.8	27.7
South	18.6	21.3	25.9	26.0	26.9	27.9	29.7	32.7	34.6	35.6	38.0	37.2
Largest Three	3.4	4.5	5.5	6.1	6.9	7.7	8.5	9.5	10.3	11.1	11.5	12.3
China	1.9	2.9	4.0	4.4	5.1	5.9	6.6	7.4	8.2	8.9	9.0	9.8
India	0.5	0.6	0.7	0.7	0.8	0.8	0.8	1.0	1.0	1.1	1.2	1.3
Brazil	1.0	0.9	0.9	1.0	1.0	1.0	1.1	1.2	1.2	1.2	1.2	1.2
Oil Exporters	5.3	5.0	6.6	6.1	6.0	6.4	7.3	8.8	9.4	9.5	11.0	9.1
Rest of South	9.9	11.8	13.8	13.9	14.0	13.8	14.0	14.4	14.8	15.0	15.5	15.7

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

Tables 3-4 and 3-5 report North, South and Subgroup shares in world exports and imports between 1990 and 2009. The shares of both exports and imports are about the same as the total trade shares presented in Table 3-2. Since

¹ Source: <http://data.worldbank.org/data-catalog/world-development-indicators>.

1990 the Large Three have a higher share in world exports than in world imports. In 2009 a 12.3% export share and a 11.2% import share. The highest difference between exports and imports shares in world trade occurred in 2007 when Large Three export share was 1.7 percentage points higher than import share.

Table 3-5: Shares in World Imports 1990-2009 (%)

Shares\Year	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
North	83.3	78.2	77.4	76.3	75.7	75.0	73.2	71.8	70.7	68.9	66.6	65.9
G7	55.2	49.0	50.8	50.1	48.9	47.6	46.0	44.9	44.1	41.9	39.9	39.3
Rest of North	28.0	29.1	26.5	26.3	26.8	27.3	27.3	26.9	26.6	27.0	26.7	26.6
South	16.7	21.8	22.6	23.7	24.3	25.0	26.8	28.2	29.3	31.1	33.4	34.1
Largest Three	2.9	4.3	5.2	5.6	6.1	7.0	7.8	8.3	8.8	9.4	10.1	11.2
China	1.6	2.6	3.5	3.9	4.5	5.4	6.0	6.2	6.5	6.8	7.0	8.1
India	0.7	0.7	0.8	0.8	0.9	1.0	1.1	1.4	1.5	1.6	2.0	2.0
Brazil	0.7	1.1	0.9	0.9	0.8	0.7	0.7	0.7	0.8	0.9	1.1	1.1
Oil Exporters	3.0	3.5	3.0	3.4	3.5	3.5	3.9	4.2	4.4	5.0	5.7	5.8
Rest of South	10.8	14.0	14.5	14.6	14.7	14.5	15.1	15.6	16.0	16.7	17.6	17.1

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

Brazil, China and India as a group have played a major role in these changes and we analyze their contribution through counterfactual analyses. Table 3-6 reports actual South shares in world trade and also what South shares in world trade would have been under alternative assumptions. These are if Large Three trade had grown at Southern growth rates, if Large Three trade had grown at world average rates, if Large Three trade had grown at South growth rates excluding Large Three or if Large Three trade had remained constant. If Brazil, India and China's trade had grown at world average rates, Southern shares in world trade would have been increased from 17.7% in 1990 to 29.6% in 2009, an 11.9 percentage point increase. Actual Southern shares in world trade increased from 17.7% in 1990 to 35.6% in 2009. Large Three trade grew faster than the world average and under this analysis the contribution of the Large Three to this growth of Southern shares in world trade between 1990 and 2009 is 33.5%.

If Brazil, China and India's trade had grown at Southern growth rates after

1990, Southern shares in world trade would have been increased from 17.7% in 1990 to 31.9% in 2009. Actual Southern shares increased from 17.7% to 35.6%. Under this analysis, because the Large Three trade grew faster than Southern trade, the contribution of the Large Three to the elevated Southern shares in world trade is 20.7%. The counterfactual Southern share in world trade under the hypothesis that Large Three trade had remained constant is 27.7% in 2009. Under this analysis, the contribution of the Large Three to the growth of the Southern share is 44.1%.

Table 3-6: Counterfactual North and South Shares in World Trade¹ between 1990 and 2009 under the Hypotheses that the Large Three Grew Alternatively as the South, the World, the South Excluding the Large Three, and Zero after 1990

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Actual Shares:												
North	82.3	78.4	75.8	75.2	74.4	73.6	71.8	69.6	68.1	66.6	64.4	64.4
South	17.7	21.6	24.2	24.8	25.6	26.4	28.2	30.4	31.9	33.4	35.6	35.6
If Trade of the Large Three Grew as the South after 1990:												
North	82.3	78.9	76.5	76.2	75.9	75.5	74.1	72.1	70.8	69.6	67.3	68.1
South	17.7	21.1	23.5	23.8	24.1	24.5	25.9	27.9	29.2	30.4	32.7	31.9
If Trade of the Large Three Grew as the World after 1990:												
North	82.3	79.4	77.5	77.2	77.0	76.8	75.5	73.8	72.8	71.7	69.7	70.4
South	17.7	20.6	22.5	22.8	23.0	23.2	24.5	26.2	27.2	28.3	30.3	29.6
If Trade of the Large Three Grew as the South Excluding the Large Three after 1990:												
North	82.3	79.0	76.7	76.5	76.2	76.0	74.6	72.6	71.5	70.3	68.0	68.9
South	17.7	21.0	23.3	23.5	23.8	24.0	25.4	27.4	28.5	29.7	32.0	31.1
If No Trade Growth for the Large Three after 1990:												
North	82.3	80.3	78.7	78.4	78.2	78.2	77.2	75.5	74.6	73.6	71.6	72.3
South	17.7	19.7	21.3	21.6	21.8	21.8	22.8	24.5	25.4	26.4	28.4	27.7

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

¹Trade is the sum of merchandise imports and merchandise exports in current USD.

Table 3-7 reports actual Southern shares in world trade and the Southern shares in world trade if only one of the Large Three's trade had grown at the world average while the other two's trade had grown at actual rates; and Southern shares in world trade if one of the Large Three's trade remains constant while the other two's trade had grown at the actual rates. The calculations isolate the contribution of

each country separately to expanding Southern shares in world trade.

Table 3-7: Counterfactual North and South Shares in World Trade¹ between 1990 and 2009 under the Hypotheses that Individual Countries Grew Alternatively as the World and Zero after 1990

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Actual Shares:												
North	82.3	78.4	75.8	75.2	74.4	73.6	71.8	69.6	68.1	66.6	64.4	64.4
South	17.7	21.6	24.2	24.8	25.6	26.4	28.2	30.4	31.9	33.4	35.6	35.6
China	1.7	2.8	3.7	4.1	4.8	5.7	6.3	6.8	7.3	7.8	8.0	8.9
India	0.6	0.6	0.7	0.8	0.8	0.9	1.0	1.2	1.3	1.4	1.6	1.7
Brazil	0.8	1.0	0.9	0.9	0.9	0.8	0.9	0.9	1.0	1.0	1.2	1.2
If Trade of China Grew as the World after 1990:												
North	82.3	79.3	77.3	77.0	76.8	76.6	75.2	73.3	72.1	71.0	68.7	69.4
South	17.7	20.7	22.7	23.0	23.2	23.4	24.8	26.7	27.9	29.0	31.3	30.6
If Trade of India Grew as the World after 1990:												
North	82.3	78.5	75.9	75.3	74.6	73.7	72.0	69.9	68.5	67.1	65.0	65.1
South	17.7	21.5	24.1	24.7	25.4	26.3	28.0	30.1	31.5	32.9	35.0	34.9
If Trade of Brazil Grew as the World after 1990:												
North	82.3	78.6	75.8	75.3	74.5	73.6	71.8	69.6	68.2	66.8	64.6	64.6
South	17.7	21.4	24.2	24.7	25.5	26.4	28.2	30.4	31.8	33.2	35.4	35.4
If No Trade Growth for China after 1990:												
North	82.3	79.7	78.0	77.7	77.5	77.3	76.1	74.2	73.1	72.0	69.7	70.3
South	17.7	20.3	22.0	22.3	22.5	22.7	23.9	25.8	26.9	28.0	30.3	29.7
If No Trade Growth for India after 1990:												
North	82.3	78.6	76.1	75.5	74.8	74.0	72.3	70.2	68.8	67.5	65.3	65.4
South	17.7	21.4	23.9	24.5	25.2	26.0	27.7	29.8	31.2	32.5	34.7	34.6
If No Trade Growth for Brazil after 1990:												
North	82.3	78.8	76.1	75.6	74.7	73.9	72.2	70.0	68.6	67.2	65.0	65.0
South	17.7	21.2	23.9	24.4	25.3	26.1	27.8	30.0	31.4	32.8	35.0	35.0

Source: Authors' calculations based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

¹Trade is the sum of merchandise imports and merchandise exports in current USD.

The share of the South in world trade if Brazil or India's trade had grown at world average rates and if their trade remains constant are close to the actual shares of Southern trade. Thus their contribution seems small. However, if China's trade had grown at world average rates the South's shares of world trade would have been increased by 12.9 percentage points while the growth of the actual Southern shares

is 17.9 percentage points. Because China's trade grew at rates significantly higher than world average China's contribution to the increase of Southern share between 1990 and 2009 is 27.9%. If China's trade had remained constant over the period 1990-2009, the Southern share in world trade would be 29.7% in 2009 while the actual share is 5.9 percentage points higher. Under this hypothesis, the contribution of China is 32.9%.

4. The Narrowing North-South Gap in Stock Market Capitalization

In addition to the North-South gap in GDP/capita and the growing share of the South in world trade, there has been an even more rapid narrowing of the gap in North-South stock market capitalization to which we now turn briefly. This reflects not only more rapid GDP growth in China, India and Brazil, but also the maturation of financial structure in these countries, and the impacts of expected high future growth on market capitalization.

Changes in the North-South stock market capitalization shares are shown in Table 4-1. The South share in capitalization increased from 5.1% in the 1990s to 23.5% in 2009. The shares of the North and G7 dropped over time, with that of the G7 dropping more than the North. The share of the Large Three increased from 3.6% to 15.1% over 2002 to 2009, with China increasing the most from 2.0 to 7.3 and India increasing the fastest from 1.1% to 5.2% over the same period.

Table 4-1: North and South Shares in Stock Market Capitalization 1990 - 2009 (%)

	1990s	2000s	1990	1995	2000	2002	2004	2005	2006	2007	2008	2009
North	94.9	86.4	96.5	93.3	97.0	93.1	90.7	88.9	86.5	77.7	82.0	76.5
G7	82.6	69.8	85.8	81.0	84.2	79.5	75.2	73.1	68.6	59.0	64.0	56.8
Rest of North	12.3	16.6	10.7	12.3	12.8	13.7	15.5	15.8	17.8	18.7	18.0	19.8
South	5.1	13.6	3.5	6.7	3.0	6.9	9.3	11.1	13.5	22.3	18.0	23.5
Large Three	0.8	7.6	0.1	0.9	0.7	3.6	4.1	4.5	6.5	14.5	10.7	15.1
China	0.0	3.3	NA	NA	NA	2.0	1.2	0.9	2.2	6.9	5.3	7.3
India	0.0	2.9	NA	NA	NA	1.1	2.0	2.5	3.0	5.4	3.7	5.2
Brazil	0.8	1.4	0.1	0.9	0.7	0.5	0.9	1.1	1.3	2.1	1.8	2.7
Oil Exporters	0.0	1.7	NA	0.0	0.0	0.6	1.3	2.2	2.4	2.8	1.9	2.3
Rest of South	4.3	4.3	3.4	5.8	2.2	2.6	3.9	4.4	4.7	5.1	5.4	6.0

Note: Here we use as domestic market capitalization the total number of issued shares of domestic companies, including their several classes, multiplied by their respective prices at year-end.

Source: Authors' calculations based on data from World Federation of Exchanges.

In evaluating the contribution of the Large Three to the narrowing of the North-South gap in capitalization, we note there is a lack of data on stock market capitalization for China and India before the 2002 World Federation of Exchanges database was assembled and their contribution enters only in the most recent years. China established two stock exchanges (Shanghai SE and Shenzhen SE) in the late

1990 but had only 13 listed companies at the beginning. China's stock market experienced violent ups and downs and initially failed to provide a significant financing source. But with the enforcement of Securities Laws in 1999, Accounting Laws in 2000 and other regulations, China's stock market developed rapidly. Its capitalization has increased from 0.268 BN Yuan to 820.74 BN Yuan (over \$100 Billion) between 1990 and 2009.¹

Table 4-2 reports the growth rates of Northern and Southern country groups in stock market capitalization. The growth rates of both groups shows sharp rises and falls before 2003. China experienced negative growth in 2004 and 2005, but other groups /countries all experienced positive growth between 2003 and 2007. The difference lays in the feature that growth in capitalization of the North, G7, oil exporters and Rest of South decelerated while others accelerated over this period. The capitalization of all groups (countries) dropped sharply in 2008 and rebounded strongly in 2009. The capitalization of China grew the most rapidly in 2006 and 2007 while Brazil rebounded the most quickly in 2009.

Table 4-2: Annual Growth Rates of North and South in Stock Market Capitalization (%)

	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
North	19	-11	-14	-17	35	18	12	20	9	-45	36
G7	20	-11	-14	-18	33	16	11	16	5	-43	29
Rest of North	14	-9	-13	-9	48	26	17	39	28	-50	60
South	2	-21	0	72	67	34	36	50	101	-58	90
Large Three	-22	-1	-18	344	54	20	27	77	170	-61	106
China	NA	NA	NA	NA	11	-13	-10	185	291	-60	101
India	NA	NA	NA	NA	119	41	43	49	118	-64	103
Brazil	-22	-1	-18	-35	86	46	44	50	93	-57	126
Oil Exporters	177	-66	2091	13	122	56	89	32	43	-65	76
Rest of South	7	-26	-13	0	71	44	28	31	32	-44	62

Source: Authors' calculations based on data from World Federation of Exchanges.

Table 4-3 reports counterfactual analysis of the North-South gap in capitalization assuming that the capitalization of Large Three grew as the world, South, South excluding the Large Three and zero after 2002. Under all these

¹ Source: <http://money.cnfol.com/100621/160.1538.7887162.00.shtml>.

counterfactuals the North-South capitalization gap would decrease over time, though the counterfactual gap remains larger than the actual gap. Since the Large Three contributed over half of Southern capitalization in recent years, the North-South gap would have widened from 3.3 to 7.7 in 2009 if the Large Three had zero growth in capitalization after 2002. If the capitalization of the Large Three grew at the same rate as the world after 2002, the North-South gap in 2009 would be 21.2 instead of 3.3. Without growth in the Large Three, the North-Large Three gap would widen to 45.5 in 2009 instead of 5.1.

Table 4-3: Counterfactual North-South Gaps in Capitalization under the Hypotheses that the Capitalization of the Large Three Grew Alternatively as the South, the World, the South Excluding the Large Three, and Zero after 2002

	2002	2003	2004	2005	2006	2007	2008	2009
Actual Gap:								
North/South	13.6	11.0	9.7	8.0	6.4	3.5	4.5	3.3
North/Large Three	25.9	22.8	22.4	19.7	13.3	5.4	7.6	5.1
If Capitalization of the Large Three Grew as the South after 2002:								
North/South	13.6	10.6	8.9	7.1	6.1	4.0	4.9	3.7
North/Large Three	25.9	21.0	18.5	15.2	12.1	6.6	8.6	6.2
If Capitalization of the Large Three Grew as the World after 2002:								
North/South	13.6	11.6	10.2	8.7	8.1	6.8	7.5	6.4
North/Large Three	25.9	25.4	25.2	24.7	24.0	21.6	22.8	21.2
If Capitalization of the Large Three Grew as the South Excluding the Large Three after 2002:								
North/South	13.6	10.2	8.1	6.4	5.8	4.7	5.3	4.4
North/Large Three	25.9	19.3	15.5	12.1	11.1	8.9	10.1	8.3
If No Capitalization Growth for the Large Three after 2002:								
North/South	13.6	13.3	12.1	10.4	10.1	8.5	8.4	7.7
North/Large Three	25.9	35.0	41.3	46.3	55.3	60.5	33.4	45.5

Source: Authors' calculation based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

We next analyze the counterfactual North-South gap under a hypothesis that capitalization of individual countries (China, India, and Brazil) grows at the same rate as the world (or zero) after 2002. Results are reported in Table 4-4. North-South or North-Large Three gaps in capitalization narrow over time if China, India or Brazil grow individually as the world or zero after 2002. However, counterfactual gaps are

wider than actual gaps. Among the three countries, China contributes the most and Brazil contributes the least in narrowing the North-South gap, as well as to the North-Large Three gap in capitalization. If there is no growth of China after 2002, the North-South gap in 2009 would be 4.5 instead of 3.3 and the North-Large Three gap would be 8.7 instead of 5.1.

Table 4-4: Counterfactual North-South Gaps in Capitalization under Hypotheses that Capitalization of Individual Countries Grew Alternatively as the World or Zero after 2002 (%)

	2002	2003	2004	2005	2006	2007	2008	2009
Actual Gap:								
North/South	13.6	11.0	9.7	8.0	6.4	3.5	4.5	3.3
North/Large Three	25.9	22.8	22.4	19.7	13.3	5.4	7.6	5.1
If Capitalization of China Grew as the World after 2002:								
North/South	13.6	10.6	8.9	7.3	6.5	4.5	5.6	4.2
North/Large Three	25.9	20.8	18.6	15.9	13.6	8.1	11.0	7.7
If Capitalization of India Grew as the World after 2002:								
North/South	13.6	11.9	10.8	9.2	7.5	4.3	5.3	4.0
North/Large Three	25.9	27.0	29.1	28.7	19.0	7.7	10.1	6.9
If Capitalization of Brazil Grew as the World after 2002:								
North/South	13.6	11.3	10.1	8.4	6.8	3.7	4.9	3.6
North/Large Three	25.9	23.9	24.5	22.5	15.2	6.0	8.6	5.9
If No Capitalization Growth for China after 2002:								
North/South	13.6	11.3	9.7	7.9	7.1	4.8	5.8	4.5
North/Large Three	25.9	23.7	22.2	19.1	16.6	9.4	12.0	8.7
If No Capitalization Growth for India after 2002:								
North/South	13.6	12.4	11.4	9.7	7.9	4.5	5.4	4.1
North/Large Three	25.9	29.5	33.5	34.2	21.8	8.2	10.6	7.3
If No Capitalization Growth for Brazil after 2002:								
North/South	13.6	11.5	10.3	8.6	7.0	3.8	4.9	3.6
North/Large Three	25.9	24.9	25.9	24.0	16.0	6.2	8.8	6.0

Source: Authors' calculation based on World Development Indicators (WDI) of the World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.

Global FDI inflows also contribute to market capitalization through local subsidiaries and proportions of global FDI inflows for country groups are reported in Table 4-5 as these. Though the North still dominates FDI inflows, shares of the South in world total FDI inflows have also increased steadily over time and accounted for over 40% after 2008. The Large Three have doubled their share of world FDI inflows

over past 50 years, while the G7 has lost about a third of its share over the same period. Among the Southern groups, the Large Three had one fifth of total Southern FDI inflows in the 1970s and around one third in 2009.

Table 4-5: North and South Proportions in World FDI Inflows 1980-2009 (%)

	1980s	1990s	2000s	1990	1995	2000	2005	2006	2007	2008	2009
North	81.2	73.0	67.4	87.9	68.1	86.7	65.9	68.0	67.6	56.3	55.7
G7	58.2	43.3	39.4	54.5	37.5	54.4	46.8	42.0	37.9	33.9	29.8
Rest of North	23.0	29.7	28.0	33.4	30.6	32.2	19.0	26.0	29.7	22.4	25.9
South	18.8	27.0	32.6	12.1	31.9	13.3	34.1	32.0	32.4	43.7	44.3
Large Three	3.7	10.1	9.3	2.3	12.9	5.5	9.6	7.7	6.8	10.9	14.0
China	1.7	7.2	5.9	1.7	11.0	2.9	7.3	5.0	4.0	6.1	8.5
India	0.1	0.4	1.3	0.1	0.6	0.3	0.8	1.4	1.2	2.3	3.1
Brazil	1.9	2.5	2.1	0.5	1.3	2.3	1.5	1.3	1.6	2.5	2.3
Oil Exporters	3.2	1.8	5.8	0.8	1.8	0.7	6.0	6.3	5.9	9.4	10.1
Rest of South	12.0	15.1	17.6	9.0	17.2	7.1	18.5	18.0	19.8	23.4	20.2

Source: Authors' calculations based on UNCTAD statistics.

The South has also increased its own outward investment flows from around of 10% of world FDI outwards in 1970s to about 20% in 2009. Among the South, the Large Three have seen a rapid increase in outward investment. The outward investment of China and India increased 57 times and 2482 times respectively between 1990 and 2009 (India's outward investments grew from a small base and reached only one-third of China's investment in 2009).

5. Conclusion

The world economy is changing quickly with a notable narrowing of the North-South gap in GDP/capita, international trade and market capitalization. Our paper highlights how important China, India and Brazil are for these changes. In the Chinese case this also coincides with a growing relocation of global manufacturing industry to China.

The calculations we report suggest that China and India had GDP/capita below the average of the South before 2000 but their GDP/capita rose quickly. From the 1960s on, China's GDP/capita increased from the lowest among the Large Three and overtook India's. Over the last two decades, the North-South gap in GDP/capita measured in constant USD at market exchange rate has fallen from 22.1 to 15.9 and North-Large Three gap fallen from 39.3 to 16.6. At the same time North-China and North-India gaps in GDP/capita have fallen from 57.2 to 13.1 and from 70.4 to 38.1 respectively. If measured in PPP terms, North-South gap in GDP/capita narrowed from 8.9 in 1990 to 6.5 in 2009, which is close but bigger than estimates made by Maddison (2008). Without the growth of Large Three or China individually, the North-South gap in GDP/capita would enlarge from 15.9 to 23.9 or 20.9 respectively in 2009.

Trade shares of the South are also growing rapidly and Brazil, China and India are a big part of the change. Between 1990 and 2009 the Southern share in world trade rose from 17.7% to 35.6% with the share of the Large Three increasing from 3.2% to 11.8%. Without the growth of the Large Three, the Southern share would only account for 27.7% of world trade instead of 35.6% in 2009. Thus, the contribution of the Large Three to the increase of Southern share is 44.1%. Without the growth of China's trade, the Southern share would account for 29.7% of world trade. The contribution of China to the elevated South shares in world trade is 32.9%.

We suggest the North-South gap has narrowed the most rapidly in stock market capitalization. The South share of world market capitalization rose from 5.9% to 23.5% and the share of the Large Three has risen from 0.1% to 15.1% over 1990 to 2009. Brazil, China and India together contributed around three fourths of the

growing Southern share of world market capitalization. Without their growth, North-South gap in capitalization would widen from 3.3 to 7.7 in 2009. Among the Large Three, China contributed the most to the narrowing in the North-South gap. Without China's growth, North-South gap in capitalization would widen from 3.3 to 4.5 in 2009.

The already rapidly changing world also seems poised to change ever further. Simple projections under an assumption that growth continues at current rates suggests that North-South gaps would narrow further sharply and the North-South gap in GDP/capita could fall from 15.9 in 2009 to 10 by 2030 measured in constant price and 4 in PPP terms, and the South would be dominant in both world trade and stock market capitalization. North-China gaps are projected to fall from 13.1 in 2009 to 2.7 in 2030 at market exchange rates and from 5.5 in 2009 to 1.2 in 2030 at PPP rates.

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