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China and India:

Openness, Trade and Effects on Economic Growth

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Abstract[3]

The purpose of this paper is to analyse the economic growth of China and India in terms of their integration in the global economy. We begin with a discussion of some stylized facts concerning their recent economic growth, the most significant institutional reforms, with particular reference to trade relations, and their impact on their economic development. We then propose a descriptive analysis of economic growth, opening up of the economies and trade specialisation, by comparing the features and trends of the two countries (by considering trade and foreign direct investment data).

We have also estimated some econometric relations between economic growth and trade/openness, with the addition of control variables (such as the gross fixed capital formation). We initially used a panel data model for the two countries, to be estimated with fixed effects; to test for reverse causality, we re-estimated the fixed effects model by 2SLS (with the inclusion of specific instrumental variables). The effect on economic growth (in terms of GDP per capita) of our variables of interest - Openness and FDI – remains positive and statistically significant in all specifications, which confirms our findings even if we treat these variables as endogenous variables.

The results prove the positive growth effects, for the two countries, of opening up and integrating in the world economy. Note that the robust growth of these two "giants" has contained the initial impact of the recent global crisis and is now sustaining the recovery of the entire world economy. Other policy relevant implications are discussed in the concluding section.

JEL: P52, P33, F14, O53

Keywords: China and India, economic growth, trade opening, trade specialisation, trade and growth

1. Introduction

In demographic terms, China and India are the two most important countries in the world and they are also rapidly becoming the leading powers in economic terms. Although the two countries have many common features, their recent economic take-off differs in timing, intensity and key characteristics of the development processes. In a long-run perspective both countries have benefited from opening up to international

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trade and foreign relations, although they initiated liberalization policies only when their domestic economies were sufficiently strong to face foreign competition.

Their integration in the global economy means that they are certainly affected by world economic developments, such as the last economic crisis.[4] On the other hand, the growth of China and India has a great influence on the world economy, not only in good times (as is well documented, for instance, by Srinivasan 2006) but also in bad times. In fact, the two Asian countries are helping to pull the world out of recession through their imports, despite persisting imbalances in specific trade relations (e.g. between China and the US). The short-run forecasts are also quite promising.[5]

A first aim of this paper is to quantify and characterize the impact of trade on the economic growth of China and India by focusing on trade dynamics, degree of openness, FDI flows and specialisation patterns. A second aim is to econometrically estimate the links between openness and growth, for the two countries, in the last three decades.

The structure of the paper is the following. In Section 2 we shall present some stylized facts – together with a partial review of the main literature – concerning the most significant institutional reforms, with particular reference to trade relations and their impact on economic growth. Section 3 presents a descriptive analysis of economic growth, opening of the economies and trade specialisation. In Section 4 an attempt is made to estimate econometric relations between economic growth and trade/openness (and other control variables). The conclusions highlight key results and policy implications.

2. Reforms, opening and recent economic growth in China and India

China and India share some key common elements: geographically, they share the same continent and are separated by a common border; demographically, they are "giants", with populations exceeding one billion; historically, the two countries have a rich and long history, making them world leaders until the 19th Century. Their development is also similar in economic terms, although key differences are also clear (as will be shown later). The main difference is probably that the two countries have different political systems (with democracy being well rooted in India).[6]

The economic development of China and India has been investigated largely according to very different time periods and comparative perspectives.[7] The long-run

[4] In effect the crisis only implied a slight deceleration in the two countries. According to IMF data (October 2010), the real growth rates were, in China and India respectively: 9.7% and 6.8% (average rates) in the 2000-06 period; 13% and 9.3% in 2007; 9.6% and 6.4% in 2008; 9.1% and 5.7% in 2009.

[5] According to IMF (October 2010) forecasts, the rate of growth will be, in 2010 and 2011, 10.5% and 9.6% in China; 9.7% and 8.4% in India.

[6] Keren (2009) highlights the possible role of the different "architecture of economic systems" for economic growth and investigates the differences between the development paths of India, the largest democracy, and China, the largest of the few remaining communist ruled economies.

[7] To recall only a part of the huge recent literature, see Basu (2009), Bensidoun et al. (2009), Bosworth and Collins (2008), Choudhry and Elhorst (2010), Cohen (2009), Herd and Dougherty (2007), Holsher et al. (2010), Keren (2009), Maddison (2007a, 2007b and 2008), Patnaik and Shah (2009), Srinivasan (2004 and 2006), Valli and Saccone (2009), Wagener (2009), Winters et al. (2006).

historical view highlights that the two economies accounted for nearly half of the world output from 1000 to 1820. Then, after a decline that started in the 19th century and an increasing gap – relative to Europe and the US in the first three quarters of the 20th century – the two countries have caught up considerably over the last three decades.[8] Since 1980 the Chinese and Indian GDP has increased at annual rates close to 10% and 6% respectively, while economic growth in the US and, especially, Europe and Japan has been significantly lower. Also during the global recession 2008-09, China and India showed only a deceleration in their positive growth rates, therefore the two giants continued to catch up also during the last crisis.[9]

The investigation of the recent determinants of Chinese and Indian economic growth is quite complex and involves institutional, supply and demand factors.[10] We highlight here the main institutional changes and reforms, in particular leading to opening up of the two economies.

First of all, it should be noted that "gradualism" is a common feature of Chinese and Indian transition (e.g. Srinivasan 2004) and it is one of the key differences with respect to the "great transformation" – characterised by high speed – that occurred in Eastern Europe in the early '90s.[11]

In China the evolution from an inefficient planned economy began in 1978 and the long period of economic reforms can be divided into five periods (see Chiarlone and Amighini, 2007). In the period 1978-1984, a reform in the agricultural sector introduced a new form of collective firm and allowed distribution to households of the revenues deriving from production exceeding the planned level. This reform favoured an increase in the production and productivity of the primary sector. In the second period (1985-88), the reforms mainly concerned the industrial sector and consisted of prices and wages liberalisation, accompanied by the possibility of firms keeping the profits for self-financing. The increase in productivity and wages in this sector attracted labour force underemployed in the agricultural sector, contributing to the overall productivity growth. It was during this period that the "*open door policy"* started, thus supporting the beginning of integration of China in the world economy through both trade and FDI. Foreign firms were initially attracted by fiscal incentives in four "special economic areas" and later by international trade and FDI liberalisations in 14 large cities and coastal regions. The gradual openness and extension of strong incentives to FDI was, however, accompanied by persisting rigid conditions for admitting FDI.[12] In the third and fourth periods (1988-91 and 1992-97), reforms involved all economic sectors.[13] The last period, before the 2009 world recession and trade decline (1998-2008), was

[8] See Holscher et al. (2010) based on Maddison (2009) online database.

[9] For the future, some studies have focused on the growth capabilities of the two countries, highlighting in some cases the greater growth potential of India relative to China (e.g. Srinivasan, 2006).

[10] See for example Chiarlone (2008), and Chiarlone and Amighini (2007).

[11] For some key features and consequences of the "speed of transition" in Eastern Europe, see for example Marelli and Signorelli (2010) and Kornai (2006).

[12] The rigid conditions encouraged FDI inflows especially in sectors able to produce important (i) learning by doing and learning by interacting phenomena and (ii) local and regional spillovers (see Chiarlone and Amighini, 2007).

[13] The positive role of market economy and private property was officially recognised at the Communist Party Congress in 1992, bolstering less gradual economic reforms.

characterised by a growing openness of the Chinese economy, especially after 2001 with admission to the WTO.

It should be noted that a crucial role in favouring the recent Chinese economic "miracle" is usually attributed to the increasing degree of trade openness, especially regarding exports, while the liberalisation of imports has been more gradual. In addition, huge FDI inflows, mainly attracted by much lower labour costs, probably engendered spillover effects and contributed to transformation of the production specialisation model.

The Indian transition has also been "gradual", but quite different. First of all, the Indian institutional change and the reform policies began later, contributing to a significant delay in integration of this country in the global economy with respect to China. Some reforms, for example the partial liberalisation of imports (especially of intermediate and investment goods) were introduced in the 80s[14] and were followed by progressive privatisations, but it was only after 1992 that the institutional change and the reform policies gradually accelerated, including reforms of the fiscal system and the creation of "special economic zones". Secondly, in addition to persisting rigidities and weaknesses[15], the integration of India in the world economy is much less intense than that of China.[16]

The "gradual" and partly different institutional change and reform policies that occurred in China and India in the last three decades produced a significant increase (especially in China) in the openness to international relations (trade[17] and FDI) of the two economies.[18] However, not only has the opening been gradual, but there are some limitations, e.g. in the case of FDI because of the obligation of local content requirements or favouring joint ventures, in order to develop domestic capabilities.

The hypothesis that "openness" of the economy plays a positive role in economic growth has been largely analysed in the theoretical and empirical literature (e.g. Frankel and Romer, 1999; Bensidoun et al., 2009). Most empirical studies confirm the positive effects of "openness" on growth. The relationships between institutions, trade and growth are more complex and involve some econometric difficulties in estimating the relative long-term effects of the first two variables on growth: see Alcalà and Ciccone (2001), Dollar and Kraay (2003). More specific studies have focused on the growth effects of production specialisations[19], economies of scale (e.g. Valli and Saccone, 2009)

[14] However, this kind of reform started in 1976 with the "open general licensing", i.e. a list of products that could be imported without any license.

[15] Especially in the labour market, the bureaucratic system, the infrastructures, the top-heaviness of the public sector and of small-sized firms.

[16] It should also be recalled that India, unlike China, had a large private sector even before the beginning of transition, but market functioning was conditioned by rigid state controls.

[17] For trade performance in China and India, see Sudan (2009).

[18] Obviously, many other factors affect the net export dynamics; for example, in the Chinese case, the role played by the prevailing "fixed exchange rate regime" between renminbi and US dollar. Renewed attention has been recently paid to this "hot" issue (see, for example, Bineau, 2010). For a comparison between the Chinese and Indian case, see Patnaik and Shah (2009).

[19] Bensidoun et al. (2009) examine, in particular, the nature of Chinese and Indian growing trade integration with the rest of the world together with their changing specialization: while China has become a major hub of the

and comparative advantages, but also on the role of FDI in promoting technological and human capital improvements.

It should be noted that during the last three decades, the huge increase in exports has been matched by a remarkable growth in imports. In any case, the value of net exports – although unstable - has been frequently positive, especially for China. This performance also has obvious macroeconomic consequences, for example the international allocation/investment of a part of the high (excessive) domestic savings and of a part of "sovereign funds" (deriving from high accumulation of foreign exchange reserves originated by positive balance of payments with fixed exchange rate).[20] The recent global financial and economic crisis can be partly attributed to these macroeconomic imbalances at world level.

The recent economic situation – during and after the global crisis – is also a good example, on the one hand, of how the world economic cycle affects the economic performance of the two countries and, on the other, of the extent to which their growth can sustain global economic growth. As regards the first point, the IMF Report (2009) recognizes that the spillovers in Asia from the global crisis were unexpected in their size and speed of propagation, since the region had sound macroeconomic conditions. The reason lies precisely in Asia's exceptional integration in the global economy.[21] Moreover, because the 2009-10 world recovery was slight and uncertain, and the growth prospects for the immediate future are inadequate, both China and India need to rebalance growth from exports toward domestic demand[22]: China is already trying to sustain private consumption.[23] The global interdependences also run the other way, however. In fact, the continuous growth of China and India has helped to pull the world out of recession and limit the (size and duration of the) impact on international trade. Of course, for the world economy it is important to fight both exchange rate wars and the restoration of protectionist practices.[24] In fact, more or less explicit protectionist tendencies and pressures appeared after the onset of the crisis as "incremental build-ups" of restrictions, such as state aids, other subsidies and "buy/lend/invest/hire local" requirements.[25]

increasingly segmented global production process, India has become more specialized in certain niche service sectors, with a proportionately higher price-quality composition. They argue that major challenges remain for both countries: for India to broaden the industrial base of its economy, beyond its current services niche, and for China to improve its terms of trade.

[20] As is well known, this is the mirror image of another world imbalance: Chinese savings have so far allowed financial sustainability of the huge and persistent US "twin deficits". With reference to the balance of payment imbalances caused by exchange rate misalignments, Patnaik and Shah (2009) argue that considerable distortions have been created by the monetary interventions of authorities in China and India, which have *de facto* pegged the exchange rates of their currencies, and thereby led to the accumulation of large quantities of reserves, feeding into imbalances in the global economy.

[21] Remember that in 2009, for the first time in half a century, world trade decreased; the drop was substantial: -11% in real terms (IMF data, World Economic Outlook online database, October 2010).

[22] Many authors (e.g. Blanchard and Giavazzi, 2005; Yu, 2007) emphasized some time ago the need for a more balanced economic growth, especially for China.

[23] Recent increases in wages can help in this direction.

[24] Remember that protectionism was detrimental in protracting the Great Depression in the '30s.

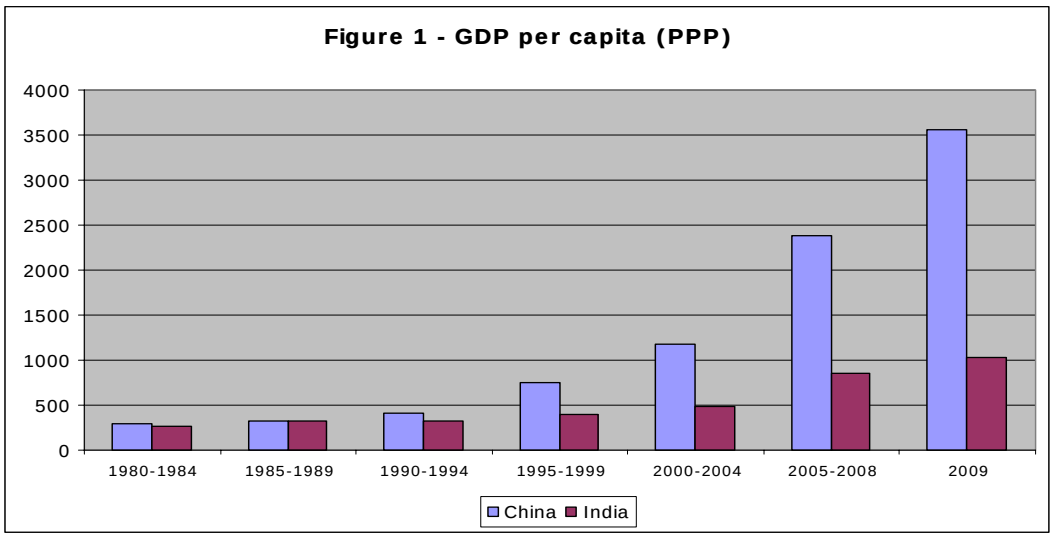
[25] This refers to both developed (US and EU offer several bad examples) and emerging countries. As regards China and India, the WTO (2009) recognizes further steps made in trade liberalizations also in 2008 (elimination/reduction of import or export duties on several products), but India is the first and China the third

3. An empirical assessment of opening up, trade specialisation and FDI in China and India

In this section we shall start by considering economic growth in the two countries since 1980, especially focusing on the relation between growth and openness, with reference to both international trade and FDI (3.1). We shall then analyse the trade specialisation of China and India, by computing some specialisation indices (such as the Balassa index) and considering also the extent of the intra-industry trade (3.2).

3.1 Economic growth and opening up of the economies

Figure 1 refers to the Gross Domestic Product per capita since 1980.[26] It is apparent that until the beginning of the '90s GDP per capita was similar in the two "developing" countries. Since the mid '90s, China's growth has been much faster, so in the final year (2009) per capita GDP in China was more than three times that of India.[27]



Source: processing of IMF statistics.

We now move to analysis of the opening up and integration of the two countries in the world economy. For this purpose, we compute an index of the "degree of openness" (O), by dividing the sum of exports (X) and imports (Q) by GDP: O = (X+Q)/Y. Trade data are derived from WTO statistics.[28]

country in the world as active actors in the initiation of anti-dumping investigations (China is also one of the main passive targets of such investigations).

[26] GDP based on purchasing-power-parity (PPP) per capita (current international dollar). Source: International Monetary Fund, World Economic Outlook online Database.

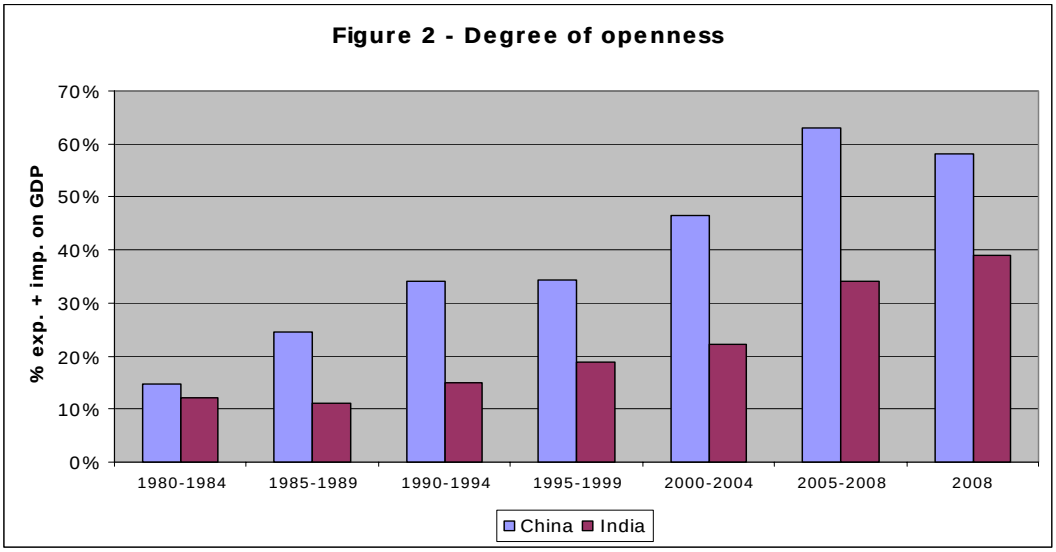
[27] Basu (2009) presents a partly different picture considering some indexes of human development.

[28] In particular, "total merchandise trade" expressed in millions of US dollars. The denominator of the ratio (Y) is the GDP at current prices (in US dollars) taken from IMF statistics.

Some interesting features emerge from Figure 2. In the first place, the opening up of the Chinese economy started in the '80s, with the beginning of the "open door policy", and boomed in the new century (particularly after 2001)[29]; however it has been more cyclical, with some cutbacks (e.g. in 1994-96 and in 2007-08). India opened up later than China (as we have seen, international trade in the '80s was not yet fully liberalised) and became apparent in the '90s: the progression has been less spectacular but smoother, with some acceleration in the new century too.

Overall, the degree of openness rose from 12-13% to almost 40% in India (in the final year) and – starting from the same level – to a much higher figure (about 60%, though decreasing in the most recent years) in China.

Figure 2 - Degree of openness



Source: processing of WTO and IMF statistics.

Finally, we considered another important variable capturing the integration of the two countries in the global economy: foreign direct investment (FDI). Note that trade and FDI are interrelated, since FDI is, especially in China, "export-oriented".

Figure 3 shows FDI flows into the two countries as a percentage of GDP. [30] A first impression is that FDI – although initially much lower compared to China[31] – increased progressively in India from the mid '90s, with an acceleration also in this case in the new century, whereas in China after the boom of the early '90s – probably

[29] China's share in world exports of merchandise rose from 1.2% in 1983, to 2.8% in 1994, to 8% in 2006; India's share is still around 1%. On the other hand, India is stronger in exports of services.

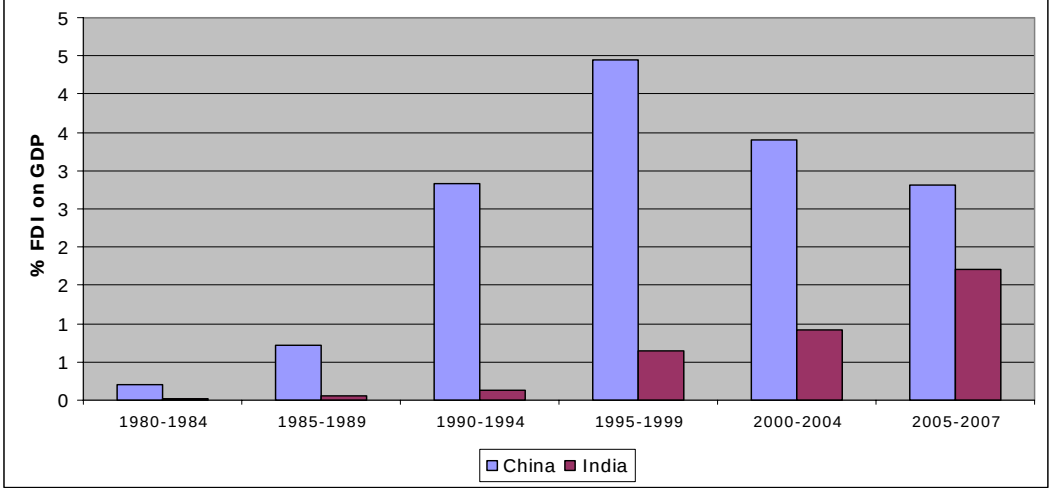
[30] Source: Unctad's Major FDI indicators (WIR on-line). The raw data are expressed in US dollars at current prices, but Unctad itself also reports some computed statistics, such as FDI (flows and stocks) as percentage of GDP.

[31] A possible explanation of the initial different incidence (and growth) of the FDI in the two countries is that China, a centralised communist country, provides a degree of security to the investor (that his contract will be honoured), whereas in the Indian federation the investor has to make sure that all the numerous authorities involved agree to support his project. As a consequence of these different institutional settings, the total quantity of investments and also their composition can be significantly affected (see Keren, 2009).

connected to the policies and incentives introduced in that period – the FDI/GDP declined continuously.[32] The evolution of FDI stocks on GDP is similar, but smoother.[33]

To highlight the role played by FDI in economic growth, we recall that fixed investment contributes to GDP growth as part of aggregate expenditure (demand side) and through the increase of fixed capital stock (supply side).[34] Fixed investment depends, in turn, on the internal saving rate and the external investment through FDI. Thus, the huge fixed investment rate in China (much higher than India) significantly depends on: (i) high private saving rate (ii) FDI flows[35] especially towards industrial sectors and (iii) public investment (e.g. infrastructures). Not only do foreign investors dominate exports, they are the most productive producers and the typical source of technology.

Figure 3 - FDI inward: flows on GDP



Source: processing of Unctad statistics.

[32] A possible explanation of this (unexpected) behaviour is that GDP growth in China was so high that it outstripped FDI growth. In fact, in value terms, FDI increased by more than 10 times from 1990 (3.5 billion dollars, corresponding to 1.6% of total world FDI inflows) to 1995 (37.5 billion, i.e. 11% of world flows), then it continued to increase until 2007 (83.5 billion, i.e. 4.6% of world flows). In comparison, India attracted 1.3% of world FDI flows in 2007.

[33] In India, we had a continuous growth and FDI stocks reached more than 7% of GDP in 2007, whereas in China, after reaching a peak in 1999 (17% of GDP), there was a decline until 2007 (10% of GDP).

[34] Cohen (2009) presents a decomposition of sources of economic growth highlighting a higher contribution to growth coming from capital rather than labour for China, and the contrary for India, with the contribution to growth of factor productivity slightly higher for China than India; however, total factor productivity has been accelerating in India and decelerating in China, reaching growth rates similar to the 1995-2003 period (Srinivasan 2006).

[35] These flows depend on the labour cost advantage, the large size of the domestic market, the rising level of human capital, the fiscal incentives introduced by the Government (see section 2) and also expectations of renminbi appreciation.

3.2 Trade specialisation and characteristics

Before analysing the trade specialisation of the two countries, let's briefly focus on the sectoral composition of output. During the last three decades the weight of the industrial sector on GDP has persistently been much higher in China than in India; in fact, India is more specialised in service activities (including, recently, advanced services) and agriculture continues to be more important[36] (Table 1). These differences in sectoral composition and reallocation can partly explain the gap in per capita GDP growth of the two economies in the period considered.

The sectoral reallocation of production factors[37], from low productivity sectors toward high productivity sectors, is one of the main explanations of per-capita GDP growth.[38] This reallocation together with institutional change, and the opening up of the two economies, has indeed spurred productivity growth.

Table 1 - Sectoral composition of GDP

		1980	1990	2000	2005-6*
Agriculture	China	30.1	27.0	14.8	12.5
	India	40	32	24	17
Industry	China	48.5	41.6	45.9	47.3
	India	24	27	27	28
Services	China	21.4	31.3	39.3	40.3
	India	37	44	49	55

*Sources: Chiarlone and Amighini, 2007 (Datastream) for China; Chiarlone, 2008 (CSO) for India. Note: * China 2005 and India 2006.*

In any case, structural change and production transformations – in particular the impressive industrialisation of the two countries[39] – has been strongly related to their trade specialisation. In the past, when discussing the trade integration of "Third World" countries, it was common to think of an asymmetric trade, whereby developing countries export mainly raw materials and agricultural products and import manufactured goods. This situation has now changed, at least in the last two or three

[36] The weight of agriculture in terms of employment is even higher: about half of total Indian employment is still in the agriculture sector (although it has decreased from 72% in 1970), thus testifying to the backwardness and low productivity of this sector.

[37] As for labour reallocation, this involves not only sectoral shifts, but also huge internal migrations (striking in China), especially from rural regions to the new industrialised urban areas.

[38] Valli and Saccone (2009) discuss, in a "Fordian perspective", the complexity of both Chinese and Indian economic transformations, by focusing on the increasing scale of production, the rising profits and investment, and finally various types of productivity-enhancing shifts.

[39] Some authors highlight that India cannot escape from the industrialisation phase (e.g. Alessandrini et al. 2007; Dasgupta and Singh, 2005). Bensidoun et al. (2009) provide a detailed comparative analysis of the different paths of specialisation of China and India.

decades. For example, the weight of manufactured goods on merchandise exports of Asian countries in 2007 was equal to 84%[40], even greater than the corresponding weight of European countries (80%) or North America (77%). For this reason, it is now more appropriate to talk about "newly industrialised countries" (such as the Asian Tigers since the '80s) or "emerging economies" (including China and India).

Furthermore, at the early stages of industrialisation, emerging economies normally export labour-intensive products, while old-industrialised countries are more specialised in capital (physical or human) intensive goods. These "inter-industry trade" relations have been – for many decades – typical of North-South trade links in the world. Following new trade theories (based on economies of scale, imperfect competition, product diversification, etc.)[41], it is believed that North-North trade patterns – i.e. between developed countries – adhere instead to an "intra-industry" trade pattern. Thus, it is interesting to assess whether China or India have already reached an advanced stage of development and trade patterns more similar to those of most developed countries.

Rodrik (2006) observes that China's (but also India's) export shares in sophisticated products goes far beyond what is justified by comparative advantage. According to him, this is the consequence of the government's approach ("*it is not how much you export, but what you export that matters*" for economic growth) and the consequent industrial policies. The instruments to support high value added productions have been "promotion and protection" (at least in a first stage), rather than complete liberalisations (similarly to the earlier "Asian Tigers" experience).

Let's look at some data we have collected and processed to test this hypothesis. Considering merchandise trade data[42], we can see that in China the share of agricultural and mining products (including fuel) in total exports declined from 52% in 1980 to less than 7% in 2007; a similar decline can be noted in India from 41% to 35% (just 19% excluding fuels).[43] On the other hand, exports of manufactured products increased from 48.1% to 93.1% in China and from 58.6% to 62.8% (after a maximum of 81.4% in 1999) in India.[44]

Concerning specific manufactured products, exports of textiles and clothing decreased from 23% (of total exports) in 1980 to 14% in 2007 in China (after a maximum of about 30% over the 1985-1994 period); an almost identical evolution can be detected in India: from 23% to 13% in the same period (but throughout the '90s the weight was above 27-28%). Thus, while the common wisdom is that the end of the Multifibre Arrangement in 2005 was particularly harmful for Europe[45] and the US, both

[40] 10% is the weight of fuels and mining products, 6% that of agriculture (WTO, International trade statistics).

[41] See Krugman and Obstfeld (2006).

[42] WTO, Merchandise trade by commodity.

[43] In the last decade, export of fuels from India increased from almost zero in 1999 to about 16% in 2007.

[44] As a comparison, exports of agricultural and mining products from the EU decreased from 24.5% in 1980 to 18% in 2007; exports of manufactured goods rose from 73% in 1980 to about 80% in 2007.

[45] In the EU, exports of textiles and clothing decreased from 6% in 1980 to 3.5% in 2007; exports of machinery and transport equipment increased from 32% to 40% in the same period (after topping a ceiling above 43% in 1998-2001). In 2007 exports of office and telecom equipment were 7.4% (about ¼ of China's weight), down from the

India and China had already gone beyond the initial industrialisation stage, reducing their specialisation in those traditional manufacturing sectors.

On the other hand, exports of machinery and transport equipment jumped in China from 4.7% to over 47% in the full period (the individual sub-sector of office and telecom equipment from about zero to 28%). The corresponding increase (for machinery and transport equipment) in India was just 7% in 1990 to 11% in 2007. Even if we take another innovative sector, such as integrated circuits and electronic components, the 2007 share in India was just 0.2% compared to about 3% in China. However, it is well-known that while China has become specialised in computers and hardware production, India has focused more on software production, and more generally on services.[46]

Another way to judge the trade specialisation is to compute an index of specialisation, e.g. the so-called "Balassa index":

$$B_{si} = (X_{si}/X_{sw}) / (X_i/X_w)$$

where X_{si} are exports of country *i* in sector *s*, X_{sw} the corresponding world exports, X_i total exports of country i and X_w total world exports. In other words, the Balassa index is the share of a sector in a country divided by the corresponding world share.

Table 2 presents the Balassa index computed from the WTO data. The period is 1980-2007 and for simplicity five year averages are presented, in addition to the final (2007) value.[47] The index is interesting because it allows comparisons both over time and between the two countries.

The first point worth noting is that specialisation in agricultural products fell both in China and in India, but while China is now de-specialised, India is still specialised (B>1) in this sector in the final year.[48] As regards manufactures, while India's specialisation has always been close to the world's structure (B≈1), China moved from de-specialisation to specialisation.

12% of 2000; exports of integrated circuits and electronic components were 1.2% (less than ½ of China's); on the other hand, in the EU, the automotive sector (12%) and chemicals (15% comprising 5% pharmaceuticals) are much more important than in China (automotive less than 2% and chemicals 5%), while India is in a better position (2.3% and 11% respectively).

[46] Export data (in particular WTO data on merchandise trade) cannot be useful for this analysis. Data from other sources show that export of services account for about 40% of total Indian exports.

[47] For some sectors and some years the WTO data are missing.

[48] In the case of fuels and mining products, India became specialised only recently (after 2004).

Table 2 – Balassa index

	China							India						
	1980-84	1985-89	1990- 94	1995- 99	2000- 03	2004- 07	2007	1980-84	1985-89	1990- 94	1995- 99	2000- 03	2004- 07	2007
1. Agricultural products	1.44	1.57	1.19	0.82	0.67	0.44	0.40	2.08	1.72	1.60	1.81	1.50	1.32	1.35
1.1 Food	0.58	1.52	1.25	0.86	0.71	0.47	0.42	2.39	2.04	1.82	2.08	1.73	1.40	1.38
2. Fuels and mining products	1.01	1.00	0.60	0.50	0.36	0.23	0.18	0.63	0.65	0.60	0.38	0.47	1.11	1.26
2.1 Fuels	–	–	0.60	0.43	0.29	0.16	0.11	–	–	0.28	0.13	0.26	0.89	1.13
3. Manufactures	0.84	0.81	1.10	1.18	1.23	1.33	1.37	0.98	0.99	1.06	1.04	1.03	0.98	0.93
3.1 Iron and steel	0.35	–	0.58	0.86	0.57	0.99	1.25	0.31	–	0.85	1.13	1.48	1.74	1.65
3.2 Chemicals	0.90	–	0.61	0.61	0.48	0.44	0.47	0.60	–	0.89	1.01	1.10	1.08	1.05
3.2.1 Pharmaceuticals	–	–	–	–	0.32	0.19	0.19	–	–	–	–	1.36	1.08	1.13
3.3 Machinery and transport equip.	0.18	–	0.48	0.64	0.95	1.27	1.34	0.00	–	0.20	0.20	0.21	0.29	0.32
3.3.1 Office and telecom equip.	0.06	0.30	0.66	0.99	1.63	2.46	2.63	0.05	0.12	0.09	0.10	0.09	0.08	0.08
3.3.2 Electronic data proc., off.equip.	–	–	–	–	2.02	3.29	3.53	–	–	–	–	0.12	0.10	0.08
3.3.3 Telecommunications equipment	–	–	–	–	2.17	2.84	3.00	–	–	–	–	0.07	0.08	0.10
3.3.4 Integr. circ., electronic comp.	–	–	–	–	0.54	0.87	0.97	–	–	–	–	0.06	0.07	0.07
3.3.5 Automotive products	0.05	–	0.04	0.05	0.08	0.17	0.22	0.00	–	0.17	0.18	0.16	0.28	0.28
3.4 Textiles	5.19	4.43	3.41	2.78	2.66	2.74	2.70	5.63	3.69	4.59	5.21	5.01	4.16	3.78
3.5 Clothing	4.50	4.94	5.52	5.15	4.25	3.77	3.83	3.93	4.13	4.37	4.23	3.87	3.03	2.66

Source: processing of WTO statistics.

Concerning specific manufacturing sectors, both countries reduced their huge specialisation in textiles and clothing, although their specialisation remains in such

products (particularly textiles in India and clothing in China).[49] The two countries showed a similar behaviour also in the iron and steel sector, moving from de-specialisation to a clear specialisation (China in the second half of the '90s and India more recently).

An opposite behaviour characterises chemicals: while China accentuated its de-specialisation, India became more specialised, including the pharmaceuticals sub-sector (it is known that India has become a major producer of generics). An asymmetry can be detected also for machinery and transport equipment, but in this case it is China that has become specialised, while India remains visibly de-specialised (this is true for all sub-sectors).

Considering some sub-sectors (available in the WTO classification), China is now particularly specialised in electronic data processing and office equipment, in telecommunications equipment, in office equipment; it is close to average for integrated circuits and electronic components; it is still de-specialised in automotive products. Note that according to Rodrik (2006) China's specialisation in higher-income products – particularly in consumer electronics (where the country is no longer a simple assembler of components but has exploited backward integrations)[50] – is due to strong government policies to develop domestic capabilities in these sectors.

Another index frequently used in applied analysis of international trade is the Grubel-Lloyd index, particularly useful for assessment of the extent of intra-industry trade. Since we could compute it for aggregate sectors only, we present our results in Appendix 1.

The analysis confirms the specialisation of the two countries in innovative and technologically advanced sectors, such as automotive products, machinery and transport equipment (including office and telecom equipment), and chemicals. Note that this specialisation is strictly related to FDI inflows which, consequently, can influence growth both directly and via trade links. The smaller FDI in India, with respect to China, may explain the lower specialisation in advanced industries, but exports of technological products, though less important, originate from domestic firms in India rather than multinational firms as in China. Moreover, we stress once again that trade in services is much more developed in India than in China.

4. Some econometric investigations into the effects of opening up on economic growth

In order to analyse more precisely the links between opening up of the economies and economic growth, it is useful to carry out some econometric investigations. Economic growth depends on a variety of factors: standard economic theories consider capital accumulation a key driver, while more recent growth models emphasize the role of human capital. It should be noted that capital stock formation depends on (private

[49] In 2004, China's exports of textiles and clothing accounted for 24% and 17.2% respectively of world trade; 2.9% and 4% are the corresponding figures for India (Srinivasan, 2006).

[50] Also according to Amighini (2005), China has upgraded from mere assembly of imported inputs to the manufacturing of high-tech intermediate goods and the country now ranks among the top three world exporters of ICT products.

and public) fixed investment, which can be supported by a high saving rate (this is the case of China) but partly derives also from foreign investment. So, FDI and fixed capital stock formation are two not entirely independent variables; in addition, trade and FDI are also interrelated, since FDIs are, especially in China, "export-oriented".[51]

The empirical works on the growth effects of trade have followed a variety of approaches. Despite the numerous measures and variables[52], it is important to bear in mind the distinction between *trade growth* (for whatever reason, including reduction in transport and communication costs) and *trade policy* (liberalizations, reduction of tariffs, etc.).[53] The most recent studies[54] followed either cross-section or panel approaches, usually with large samples of countries: see for example Edwards (1998), Frankel and Romer (1999), Makki and Somwaru (2004), Sarkar (2008). In some cases cross-sections are based on sub-national data, e.g. China's provinces: see Sun and Parikh (2001), Jin et al. (2008); or on many sectoral data: see Milner et al. (2007).

The time-series approach is fairly uncommon (see also Harrison, 1996, Xu and Wang 2007) use time-series, but estimate a system of four equations; Ramjerdi (2007) explains Chinese growth in terms of capital and technical progress (the effects of opening up are estimated indirectly by splitting the period into two sub-periods, i.e. before and after 1978, when the "open door" policy started). Many studies follow cointegration or VAR approaches: Liu et al. (2002), Sahoo and Mathiyazhagan (2008), Zhao and Du (2007); while Tsen (2006) focuses on Granger causality.

In our paper we focus on China and India and we collected data for these two countries only. We initially followed a time-series approach (for the period 1980-2007), but this is not completely satisfactory since it does not exploit all the available information (we shall show some results at the end of this section). Hence, we decided to assemble the data in a panel for the two countries[55], to be estimated with fixed effects or with an instrumental variable approach. Our sample consists of two countries (China and India) and 28 years (1980-2007). Variables and data sources are listed in Table A2 (Appendix 2).

The choice of the dependent variable was fairly easy. Following the main literature (e.g. Frankel and Rose, 2002), we chose the GDP per capita (expressed in growth rates). As regards the explanatory variables, we should include the two variables of interest – the degree of openness (in percentage of GDP) and FDI flows or stocks (over GDP) – and some control variables: in growth models (as we have seen above) capital

[51] For this reason the following econometric results should be interpreted with caution.

[52] Many works employ for trade the "openness" indices already specified (Section 3). However, in some studies (e.g. Edwards 1993, Milner et al. 2007), in order to assess the effects of liberalizations and institutional change, the authors compute more sophisticated indices of trade openness, based on tariffs, non tariff-barriers, degree of effective protection, etc.

[53] On this point, it is important to remember the sceptic's view of Rodrìguez and Rodrik (1999), since they found "little evidence that open trade policies – in the sense of lower tariff and non-tariff barriers to trade – are significantly associated with economic growth."; the reason is that "the nature of the relationship between trade policy and economic growth remains very much an open question".

[54] For previous works see the extensive review of Edwards (1993).

[55] It should be noted that the aim of the paper is not to explain the higher economic growth of China with respect to India.

accumulation[56] is a prominent candidate (it is included as gross capital formation as percentage of GDP).[57]

For our estimations we used a standard economic growth model:

$$Y_{it} = \alpha_0 + \alpha_1 Z_{it} + \alpha_2 GI_{it} + dx_i + e\tau_t + \varepsilon_{it}$$

Where Y refers to growth rate of output per capita; Z are the control variables that can impact the long-run output per capita in country i at time t (in our case we are using gross capital formation as a control variable); GI represents the measure of global integration at time t in country i; we have used various measures (openness, foreign direct investment flow and foreign direct investment stock) for analysing the role of global integration in economic growth. x_i provides for country fixed effects, τ_t represents the period fixed effects and ε_{it} represents an error term.

The results of the initial estimations are shown in Table 3. In *Model I* the Open index is the only explanatory variable of GDP (per capita) growth; in our estimation with fixed effects, it turns out to be positive and highly significant. If we add (*Model II*) a second variable, FDI stocks as a percentage of GDP, the latter too turns out significant, without altering the significance of the Open index. The consideration of flows of FDI (instead of stocks), as in *Model III*, does not change this conclusion.

Model IV is similar to *Model III*, but with a control variable: gross fixed capital formation. The coefficient of the latter variable is positive and significant; in addition, the coefficients of Open and FDI remain positive and significant. *Model V* replicates *Model IV*, but with the inclusion of a time trend that can be considered a proxy of technical progress: not only is it significant, but all the other coefficients remain significant (at 5 per cent significance level) with the expected sign.

[56] Note that the investment-GDP ratio reached in recent years the high level of 30% in India and the incredible level of 42% in China.

[57] Although explicit capital stock data for China and India were not available, thanks to an indirect method we computed the gross fixed capital formation as a ratio to GDP. In fact, Unctad provides FDI (flows and stocks) as a ratio on: (1) GDP and (2) gross fixed capital formation; by dividing ratio (2) by ratio (1), we obtained the gross fixed capital formation in percentage of GDP.

Table 3: The Impact of Global Integration on Economic Growth of China and India

	Model I	*Model II*	*Model III*	*Model IV*	*Model V*	*Model VI*
Variables	**Fixed Effects**	**Fixed Effects**	**Fixed Effects**	**Fixed Effects**	**Fixed Effects**	**Instrumental Variable Approach**
Dependent variable	**GDP per capita Growth**					
Open	5.959*** (0.332)	4.854*** (0.428)	5.179*** (0.408)	4.316*** (0.619)	2.805*** (0.749)	4.12.*** (0.963)
Foreign Direct Investment (Stock)		0.043*** (0.011)				
Foreign Direct Investment (Flow)			0.117*** (0.036)	0.108*** (0.039)	0.078*** (0.036)	0.098** (0.043)
Gross Capital Formation				0.031** (0.017)	0.027** (0.015)	
Time Trend					0.029*** (0.009)	
Intercept China	2.786*** (0.132)	2.783*** (0.123)	2.771*** (0.128)	1.545*** (0.527)	1.786*** (0.542)	- -
Intercept India	3.108*** (0.083)	3.210*** (0.081)	3.190*** (0.082)	2.437*** (0.543)	2.431*** (0.342)	- -
Hausman Test						
Hausman Test statistics	15.98	42.43	32.99	10.75	4.71	
Prob>chi2	0.00	0.00	0.00	0.01	0.07	
Wooldridge Test for autocorrelation in Panel Data						
P value	0.097	0.271	0.312	0.149	0.129	
Davidson Mackinnon Test of Exogeneity						
Test statistic						55.29
F(2,36)						0.00
First Stage R-Square						
Open						0.557
FDI						0.767
First Stage F -Test						
Open						13.46
FDI						34.56
Validity of Instruments						
Sargan statistic						4.98
chi2 p-value						0.11
Weak Identification Test						
Cragg Donald Wald F Statistic						11.88
Stock Yogo Critical value						7.56
N	56	54	54	50	50	50
R-Square	0.859	0.879	0.871	0.838	0.867	0.857

*Note: *** significant at 1 percent, ** significant at 5 percent. S.E. in parentheses.*

In instrument variable approach we have instrumented the Open and Foreign direct investment with lagged value of Gross domestic product per capita, Value added share of industry in GDP, Telephone main lines per 1000 person and Urbanization.

Our estimated models are able to detect the (common) positive and significant role of the "global integration" (openness, FDI flows and stocks) for the economic

growth of the two giants, also considering a time trend (as proxy of technical progress) and controlling for gross capital formation. In addition, as shown by the positive and significant values of the dummies for China and India, we also find - not surprisingly - that "country specific factors" are also important (especially in the case of India) in the explanation of per capita GDP growth.[58] Our results are consistent with the evidence of a higher per capita GDP growth in China relative to India, despite the coefficients of "global integration" are the same (by construction) in the two countries, if we consider the stronger dynamics of "global integration" in the former country (compared to the latter).

Note that in any time series regression analysis there is a danger of serial auto-correlation, which makes the significance tests less meaningful. To check the presence of potential serial autocorrelation, we applied the test for autocorrelation for panel data models (Wooldridge 2002); Drukker (2003) provides simulation results showing that the test has good size and power properties. Wooldridge's autocorrelation test for panel data p-value is presented in Table 3 which shows that we cannot reject the null. The auto-correlation issue therefore does not pose any serious problem for our empirical estimation.

One potential objection is that openness and foreign direct investment are not exogenous. Problems of reverse causation may bias the estimated impact on economic growth. To test for reverse causality, we re-estimated the fixed effects model by 2SLS. Openness and foreign direct investment were instrumented with lagged value of Gross domestic product per capita, Value added share of industry in GDP, Telephone main lines per 1000 person and Urbanization.[59] The coefficient estimates are reported in *Model VI* of Table 3, as well as the results of various specification tests.

To test the hypothesis that the specified endogenous regressors can actually be treated as exogenous, we ran the Davidson and MacKinnon (1993) test for a regression equation with fixed effects. The null hypothesis states that an ordinary least squares estimator of the same equation would yield consistent estimates: that is, any endogeneity among the regressors would not have deleterious effects on OLS estimates. Under the null the test statistic is distributed F(M,Nobs-K), where M is the number of regressors specified as endogenous in the original instrumental variables regression, Nobs is the total number of observations and K is the number of regressors. A rejection of null indicates that the instrumental variables fixed effects estimator should be employed.

Further specification tests include (i) First Stage R-Square, which reflects that instrument variables have enough explanatory power for endogenous variables; (ii) First Stage F-Test: as a rule of thumb, it should be more than 10 while applying the instrument variable approach; (iii) Sargan Test is a statistical test used to check for over-

[58] The higher size of the dummy's coefficients for India mean that "country specific factors" – in addition to "global integration" – played a more crucial role compared to China.

[59] In order to avoid the difficulties of statistically checking the significance and validity of the instruments when exactly identified models are adopted, we use more instrumental variables than the endogenous variables (over identified model).

identifying restrictions in a statistical model.[60] The tests confirm the validity and suitability of the instruments selected and of our estimation approach.

Most importantly, the coefficient of our variables of interest - Open and FDI – remains positive and statistically significant, which reconfirms our findings even if we treat these variables as endogenous variables.

In order to emphasize the peculiarities of each country, a possible strategy is to make *individual estimations* for the two countries, following a time-series approach, but the results[61] are not fully satisfactory because of the limited number of observations.

An alternative strategy would be to consider different time trends, i.e. rates of technical progress, for the two countries. At the same time, it would be interesting to assess whether the investments in capital stock are not immediately productive, but with a lag of one year. Hence, in the estimates of Tables 4 we have included the gross capital formation with a one-year lag, but its coefficient is no longer significant.

As regards the time trends, only the coefficient for India turns out to be significant. A possible justification is that in India – unlike China – technical progress has been mainly driven by domestic firms, especially in the service sector (rather than foreign firms): this may explain the positive coefficient of India's time trend and the reduced significance for overall FDI[62] (model III in Table 4).

Despite the mentioned differences between the two countries[63], it should be noted that - in all three models presented in Table 4 - Open and FDI maintain the expected signs and are on the whole statistically significant.

[60] The Sargan test is based on the observation that the residuals should be uncorrelated with the set of exogenous variables if the instruments are truly exogenous (this statistic will be asymptotically chi-squared with m−k degrees of freedom under the null that the error term is uncorrelated with the instruments).

[61] The results (Table A3 in Appendix 2) show that Open is positive and significant, while the coefficient of FDI is positive and significant only for China, where a proxy of the credit provided by the banking sector (financial depth as percentage of GDP) is positive and significant too.

[62] As well as the wrong sign of FDI for this country in Table A3 (in Appendix 2).

[63] If we consider the econometric results for India, the higher significance – relative to China – of the time trend (Table 4), the lower significance of FDI in individual time series (Table A3) and the greater size of the country dummy (as specified in footnote 57) jointly point to a stronger impact of "global integration" for China, while in India such an integration – although important – is in some way obscured by the prevalence of national factors (such as the development of services mentioned in the text).

Table 4: The Impact of Global Integration on Economic Growth of China and India: Sensitivity analysis

Variables	Model I **Fixed Effects**	Model II **Random Effects**	Model III **Fixed Effects**
Dependent variable	**GDP per capita growth**		
Open	4.99*** (0.533)	3.541*** (0.731)	3.39*** (1.036)
Foreign Direct Investment (Flow)	0.122*** (0.039)	0.093** (0.038)	0.088* (0.046)
Gross Capital Formation - lagged	-0.002 (0.017)	-0.006 (0.010)	-0.006 (0.0102)
Time Trend		0.027*** (0.008)	
Time Trend - China			0.031 (0.019)
Time Trend - India			0.028*** (0.009)
Constant	3.081*** (0.480)	3.21*** (0.254)	3.23*** (0.267)
Hausman Test			
Hausman Test statistics	13.86	0.57	0.72
Prob>chi2	0.00	0.96	0.98
N	52	50	50
R-Square	0.84	0.860	0.872

*Note: *** significant at 1 percent, ** significant at 5 percent. S.E. in parentheses.*

5. Conclusions

In this paper, we have reviewed the "recent miracle" of Chinese and Indian economic growth, focusing on the institutional reforms introduced in the last three decades leading to a growing "openness" of the two countries. In the empirical section, we have seen that the recent impressive economic growth has been accompanied in both countries by increasing trade and openness towards the rest of the world, involving both merchandise trade and FDI.

Concerning trade specialisation, not only China and India export mainly manufactured goods, but both countries – thanks to the adoption of well-designed industrial policies – have gone beyond the initial industrialisation stage, reducing their specialisation in traditional manufacturing such as textiles and clothing. China, in particular, is now specialised in innovative sectors like electronic data processing and office equipment, telecommunications equipment, and also (to a certain extent) integrated circuits and electronic components. India is less specialised in these sectors, but it has tended towards software production and (more generally) service activities.

In the econometric investigations (panel and time-series approaches) we obtained sufficiently robust results (despite the small number of observations) on the positive effect of openness and FDI on economic growth, by controlling for other key variables. We stress once more that our results refer to the impact of the "real" opening up of the two countries and their integration in the world economy, which has only partly been driven by the trade liberalization policies (in any case such policies were introduced only when the two countries were "ready" to compete in the world markets or to exploit the advantages of foreign capitals). The different results obtained for the two countries

show that while in China "global integration" (in terms of both trade and FDI) has been the driver of economic growth, in India the same variable, although important, is somehow – relative to China – disguised by the incidence of national factors (that for instance can be identified in the expansion of service activities and the development of "domestic" technical progress).

We can conclude by stressing the positive growth effects, for the two countries, of opening up and integrating in the world economy. Of course, in a short-run perspective the high degree of openness implies that both countries are hit by big economic shocks, like the one following the 2008-09 global crisis, although they only experienced a small deceleration in their growth paths. On the other hand, it is precisely the robust growth of these two "giants" that has contained the first global impact of the crisis and that is now sustaining the recovery of the entire world economy.

In terms of policy implications, it is now important for the leading world economic powers to reach a solution to the exchange-rate misalignments and to combat the rising protectionist tendencies that periodically appear in different world regions, as the recent G-20 summit in Seoul rightly emphasized. A decision to finally conclude the Doha Round negotiations would also be a clear signal of the will of WTO members to continue the liberalisation policies, but this conclusion will be possible only if the legitimate requests of emerging countries – including China and India – are adequately considered.[64] Free trade, accompanied by effective reforms of the international financial system (as suggested by the 2009-10 summits of G-20, among others), is the best way to return to satisfactory growth rates for the world economy and to uphold the catching-up process of emerging countries.

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[64] This applies also to their representation in other international institutions. The increasing role of the G-20 group, since the onset of the global crisis, and the recent changes in the governance of the International Monetary Fund go in the right direction.

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Appendix 1: GRUBEL-LLOYD INDEX

This index is defined, for each sector *s* of country *i*, as:

$$G_{si} = 1 - (\left| X_{si} - Q_{si} \right|) / (X_{si} + Q_{si})$$

The index ranges from 0 to 1. The closer G_{si} is to 0, the greater the extent of inter-industry trade (i.e. a country is completely specialised or de-specialised in the sector); the closer it is to 1, the heavier the weight of intra-industry trade (the value of exports and imports of a specific sector are more or less equivalent).

The index has been computed for China and India and is presented in Table A1. It should be interpreted with caution, since it would be more interesting with a detailed sectoral classification: an index close to 1 would really represent horizontal trade, variety of products, etc. In any case, some interesting insights can be derived.

Table A1 - Grubel-Lloyd index

	China							India						
	1980-84	1985-89	1990- 94	1995- 99	2000- 03	2004- 07	2007	1980-84	1985-89	1990- 94	1995- 99	2000- 03	2004- 07	2007
1. Agricultural products	0.83	0.88	0.81	0.97	0.90	0.76	0.75	0.78	0.85	0.63	0.74	0.85	0.81	0.75
1.1 Food	0.88	0.69	0.60	0.76	0.81	0.95	0.99	0.60	0.69	0.42	0.58	0.65	0.66	0.61
2. Fuels and mining products	0.37	0.59	0.79	0.77	0.55	0.40	0.33	0.36	0.39	0.31	0.19	0.24	0.51	0.58
2.1 Fuels	–	–	0.74	0.85	0.59	0.39	0.32	–	–	0.14	0.06	0.12	0.40	0.49
3. Manufactures	0.88	0.71	0.97	0.87	0.89	0.81	0.75	0.87	0.84	0.89	0.89	0.84	0.96	0.96
3.1 Iron and steel	0.26	–	0.46	0.71	0.46	0.76	0.64	0.21	–	0.69	0.87	0.75	0.89	0.99
3.2 Chemicals	0.57	–	0.64	0.66	0.57	0.65	0.72	0.00	–	0.64	0.74	0.97	0.92	0.88
3.2.1 Pharmaceuticals	–	–	–	–	0.74	0.76	0.79	–	–	–	–	0.49	0.52	0.54
3.3 Machinery and transport equip.	0.28	–	0.62	0.86	0.96	0.90	0.83	–	–	0.56	0.52	0.59	0.54	0.53
3.3.1 Office and telecom equip.	0.26	0.42	0.88	0.94	0.95	0.82	0.79	0.17	0.29	0.46	0.44	0.27	0.17	0.16
3.3.2 Electronic data proc., off.equip.	–	–	–	–	0.66	0.47	0.43	–	–	–	–	0.33	0.23	0.19
3.3.3 Telecommunications equipment	–	–	–	–	0.68	0.46	0.39	–	–	–	–	0.21	0.11	0.11
3.3.4 Integr. circ., electronic comp.	–	–	–	–	0.36	0.37	0.39	–	–	–	–	0.30	0.37	0.38
3.3.5 Automotive products	0.16	–	0.14	0.50	0.53	0.83	0.98	–	–	0.77	0.89	0.76	0.69	0.78
3.4 Textiles	0.57	0.74	0.90	0.93	0.80	0.53	0.46	0.13	0.20	0.14	0.15	0.24	0.36	0.37
3.5 Clothing	0.03	0.01	0.04	0.07	0.06	0.04	0.03	0.00	0.00	0.00	0.00	0.01	0.02	0.03

Source: processing of WTO statistics.

In discussion of the results, the clearest case is the clothing sector: such a low G means that both countries not only are specialised in this sector (as we have seen from Table 1), but this is a typical inter-sectoral specialisation, based on comparative advantages (especially low labour costs) rather than on product diversification. A similar situation refers to the textiles. A low G can also be found in those sectors where the two countries are de-specialised, e.g. in the case of India's many sub-sectors of machinery and transport equipment (with the exception of the automotive sector).

Intra-industry trade seems, on the contrary, more important in the following sectors (especially in China): food, automotive products, machinery and transport equipment (including office and telecom equipment), iron and steel, chemicals (for the latter two sectors also India).

Appendix 2

Table A2- Variables List and Data Source

Open	Open = (export+import)/GDP (exports and imports are "total merchandise trade" from WTO on-line statistics; GDP is from IMF on-line statistics)
Foreign Direct Investment (stock)	Major FDI indicators (Unctad, WIR on-line).
Foreign Direct Investment (flow)	Major FDI indicators (Unctad, WIR on-line).
Gross Capital Formation	Gross capital formation (% of GDP) (computed from Unctad FDI data: see section 3.3)
Time Trend	Simple time trend
Industry value added share in GDP	(World Development indicators CD-ROM)
Urbanization	% of total pop living in urban areas (World Development indicators CD-ROM)
Financial depth	Domestic credit provided by banking sector (% of GDP) (World Development indicators CD-ROM)
Telephone mainlines per 1000	(World Development indicators CD-ROM)

Table A3: Impact of Global Integration on China and India

	China	India
Variables	**GDP per capita growth**	**GDP per capita growth**
Open	2.55***	9.92***
	(0.776)	(1.93)
Foreign direct Investment Flow	0.122***	-0.236
	(0.032)	(0.256)
Financial depth	0.009***	0.004
	(0.003)	(0.010)
constant	2.72***	2.29***
	(0.170)	(0.559)
Joint significance of openness and Foreign Direct Investment		
F Statistic	16.79	34.01
P-value	0	0
N	25	25
R-Square	0.927	0.791

**** significant at 1 percent, ** significant at 5 percent*

S.E. in parentheses.