The boom of the BRIC: Blessing or curse for the advanced countries?

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November 4, 2011

Abstract

The rise of emerging countries in general and of the BRIC (Brazil, Russia, India and China) in particular is undoubtedly one of the most significant economic events of the past decade. The theoretical literature on North-South trade is overall inconclusive on whether a rise in (trade with) the South is beneficial or detrimental to economic growth in the North. This paper is the first to document the effect of the rise of the BRIC on growth in advanced countries. A panel estimation for 23 advanced countries reveals that the rise of the BRIC has had, on the whole, no significant impact on per capita income growth. We also find that countries which are more concentrated in manufacturing have lost growth during the BRIC decade, while the opposite holds for countries which are more focused on services. However, specialisation in finance has not been helpful.

Keywords: Globalisation, BRIC, economic growth, trade, comparative advantage, offshoring.
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1   Introduction

Large emerging countries have become a powerhouse of the world economy in the last decade. The BRIC (Brazil, Russia, India and China) now account for about 25% of the world economy, a quarter of world's land and more than 40% of the world's population. As evident from *Figure 1*, the last decade has seen a real boom in the economic weight of large emerging countries such as the BRIC, starting in particular from the late 1990s, in the aftermath of the Asian crisis. The rise of the South and the boom in North-South trade has also been stronger than the rise in North-North trade, as evident from *Figure 2*. In 2010, North-South trade was as larger than North-North trade, for the first time since trade data are recorded. Therefore, the marked acceleration of globalisation in the 2000s was tilted towards the emerging countries in general and the BRIC in particular, since the BRIC have a dominant weight in the group of emerging countries. The turn of the 2000s also marks the historic event of China joining the World Trade Organisation (in 2001) a few years after Brazil and India (in 1995), while Russia is still to join the Organisation. Given the importance of China within the BRIC group, there is reason to believe that 2000 marked a real change in the world economic order and in international trade.[1]

The consequences of this *qualitative* revolution in world trade (and more generally in the balance of world economic power) are an important subject of public debate in the advanced countries. In particular, concerns about the consequences of the rise of the BRIC for growth, jobs and welfare in advanced countries, not least the US, have been voiced. Despite the great interest and media attention, few studies have addressed this question in a systematic manner, and (to the author's knowledge) none of them provided direct empirical evidence on it. Note that this question is related to, but distinct from, the effects of globalisation more generally on economic growth; the focus here is on the effect of the boom in emerging countries on advanced countries' economies. Hence, a main objective of this paper is to provide an answer to the question of whether the rise of the BRIC (and of emerging countries more generally) has boosted or depressed economic welfare - here proxied by per capita growth - in advanced countries. In short, is the rise of the BRIC more a blessing or a curse for rich countries?[2]

The empirical analysis is based on a panel of advanced countries, which I often refer to, for convenience of exposition, as the "North". In a first stage of the analysis, I try to explain growth in the North based on determinants that are overwhelmingly originated in the North itself, based on the growth regressions literature (see, e.g., Fernandez et al. 2001) but also keeping in mind that our focus is on advanced countries only, for which the sources of growth may be different from those that matter for developing countries. For example, a key determinant of per capita growth is the

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[1]In 2010, China accounted for about 62% of total BRIC exports and 55% of BRIC GDP.

[2]Note that in this paper I do not address the question of the transmission of shocks from BRIC to advanced countries (or vice versa) at a business cycle frequency; for China, see e.g. Dreger (2011).

per capita income level in each advanced country; the 2007-09 global financial crisis is also interpreted as a phenomenon originating mainly in the North.[3] After controlling appropriately for these North-specific variables, I then evaluate whether the period from 2000 to 2011 - which is assumed to mark the rise of the BRIC - is special in any respect for the growth performance in advanced countries. In particular, was growth above or below the level which could have been expected based on the North fundamentals alone?

The summary evidence, reported in *Table 1*, is rather inconclusive in this respect. Per capita GDP growth was on average 1.7% over the whole period 1980-2011 (annual data from 23 advanced countries). In the 1980-98 period, growth was 2.0%, while it fell to 1.4% in the 1999-2011 period. At face value, therefore, the data seem to corroborate the view that the rise of the BRIC was detrimental to growth in advanced countries, but this conclusion is heavily influenced by the 2008-09 global financial crisis. Once the years 2008-2011 are taken out, the growth performance in the post-1999 period was actually slightly *better* than in the 1980-98 period. Results for the United States in particular are similar to the whole group of advanced countries, save for the fact that even in the 1999-2007 per capita growth was slightly lower than in the 1980-98 period. Overall, the 2000s have not been favourable for growth in the US, but have not been particularly bad for advanced countries more generally.

A second contribution of the paper is to shed some light on the *channels* through which the rise of the South contributes to the growth performance in the North. In fact, the rise of the South (specifically the BRIC) in the last decade is nothing less than a very large "natural experiment" which should give the profession some useful information about international interdependency and their modelling. In the standard theory of international trade (Grossman and Helpman 1991), more trade - including North-South trade - is always beneficial for all participants. The rise of the South and the larger possibility for the North to trade with the South pushes the global economy to a more efficient frontier where both North and South can leverage their comparative advantage. On the supply side, Northern firms are better able to off-shore production where it is most convenient and intensify intra-industry trade. However, it is also possible to build models where trade with the South is not necessarily and always beneficial to the North. Krugman and Venables (1995) show that a single factor, the decline in transportation costs, can first create an advantage for manufacturing in the North (due to larger agglomeration effects and increasing returns to scale), creating an industrialised core and a de-industrialised periphery, but then take away this advantage if manufacturing in the South becomes more profitable due to lower labour costs. Therefore, the fall in transportation costs first produces a division into a rich North and a poor South, but later a convergence which can be detrimental to the North.

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[3]We abstract therefore from the possibility that the buildup of the imbalances which led to the global financial crisis may ultimately have been facilitated by uneven financial development between the North and the South and the flow of cheap capital flowing from the South to the North.

Furthermore, within the North competitive pressure from the South as well as greater market opportunities abroad may spur the sectoral reallocation of production. In Dinopoulos and Segerstrom (2007), with trade globalisation Northern firms devote more resources to Research and Development (R&D), while Southern countries like China take care of the production side. Moreover, profits by Northern quality leaders rise when these firms are able to sell to a large South market of consumers. In the long run, such reallocation is optimal and leads to higher growth and welfare, but in the short to medium term it may hindered by adjustment costs. As noted by Arnold (2002), labour market institutions play a crucial role in making this adjustment process smoother: Northern workers who lose their job due to imitation from South have to be able to quickly find a new job in one of the sectors where the North maintains a comparative advantage. Without enough labour market flexibility, the gains from trade may be dissipated. Product market flexibility should play a similar role.[4]

A main finding of the paper is that, once predominantly North-based sources of growth are adequately controlled for, there is no evidence that the boom of the BRIC in the 2000-2011 period had any material effect on per capita GDP growth in advanced countries. Moreover, contrary to an optimistic view of international trade where the North specialises in high tech productions and the South in low tech manufacturing and both gain by leveraging their comparative advantages, I find that advanced countries' focus on manufacturing contributed negatively to their growth performance in the years in which the BRIC experienced a boom. Moreover, I find that larger imports from the BRIC and larger trade openness have not been beneficial to advanced countries' growth performance either. On the positive side, a stronger focus on services (and agriculture) added growth to advanced countries during the BRIC decade, but not specifically in financial services. Measures of innovation such as the number of patents and R&D expenditure do not predict how developed countries deal with the rise of the South, and nor do measures of market flexibility (however subject to important data limitations).

The paper is organised as follows. Section 2 describes the empirical model, Section 3 the database. Results are presented in Section 4. Section 5 contains conclusions and policy implications.

2   Empirical model

In this paper we focus on the growth of real GDP per capita, henceforth Δy_{it}, as the main measure of economic success. Although per capita income is certainly not the only conceivable measure of economic performance, it is hard to imagine one which

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[4]Note that in this paper we don't look at the effect of the rise of the BRIC on growth *volatility*. It has been known at least since Newberry and Stiglitz (1984) that trade integration may facilitate the spillover of shocks across borders and increase volatility. See also Stiglitz (2010).

is unambiguously better as a first approach to the problem, and one which is more relevant for the public debate on the matter.[5] The empirical model is specified in three separate steps. In the first step, I estimate

$$\Delta y_{it} = \alpha_i + \beta_t + \rho \Delta y_{i,t-1} + \gamma x_{it}^{North} + \varepsilon_{it} \tag{1}$$

where i is the country, t is time, y is the log of real GDP per capita, x^{North} is a vector of variables (often dated $t-1$ to avoid simultaneity problems). The vector x^{North} contains variables which may explain per capita growth in advanced countries and which are *predominantly originated* in the advanced countries themselves; as mentioned, the term "North" is a shortcut for advanced countries taken as a group. This first step is important since we want to control for all determinants of growth which have influenced outcomes in the post-1999 period and which are mostly unrelated to the rise of the emerging countries as such. The model also include country fixed effects and, in one variant, also year dummies.

There is a large literature on the long run determinants of economic growth and its results are far from conclusive (Levine and Renelt 1992; Petrakos et al. 2007). In this paper I try to capture a number of variables that may be particularly relevant for advanced countries, such as those associated with the "knowledge economy".[6] I also control for indicator of economic stability, institutional quality, the investment share of GDP (Levine and Renelt 1992) trade openness (including towards the North only), and demographics.

In a second step, I add to the specification (1) a dummy taking value 1 from 2000 and 0 otherwise capturing the boom of the BRIC (or of the emerging countries more generally), $BRIC_t$:

$$\Delta y_{it} = \alpha_i + \beta_t + \rho \Delta y_{i,t-1} + \gamma x_{it}^{North} + \delta BRIC_t + \varepsilon_{it} \tag{2}$$

If δ is significant, this should indicate that the rise of the BRIC has, in itself, an influence on the growth performance of advanced countries after controlling for all the relevant North-based determinants. Clearly, this conclusion is meaningful only if (i) the vector x adequately captures other determinants of growth that are reasonably orthogonal to the rise of the emerging countries and if, crucially (ii) the period since 2000 marks a qualitative change in international trade and in the role played in it by emerging countries. Provided that these two conditions are satisfied, a reliable estimate of the δ parameter is a key objective of this paper, aimed at establishing whether the rise of the BRIC has been, on balance, more a blessing or a curse on average for advanced countries.

Finally, we want to shed some light on the *channels* through which the rise of the BRIC affects growth in the advanced countries, and we therefore estimate, in a third

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[5] An important caveat, however, is that trade models often postulate an effect on welfare which may not be visible in measured output; see e.g. Bajona et al (2011).

[6] Note, however, that due to data limitations I do not include any indicator on schooling or education, for which long series of annual data are not available.

step,

$$\Delta y_{it} = \alpha_i + \beta_t + \rho \Delta y_{i,t-1} + \gamma x_{it}^{North} + \delta BRIC_t + \zeta_1 z_{i,t-1}^{North} * BRIC_t + \zeta_2 z_{i,t-1}^{North-BRIC} * BRIC_t + \varepsilon_{it} \tag{3}$$

where z^{North} and $z^{North-BRIC}$ are vectors of variables. The vector z^{North} includes the variables that are specific to advanced countries and which may help explain how countries have coped with the new environment of the rise of the emerging countries. For example, have more open countries coped better or worse? The $z^{North-BRIC}$ vector contains variables capturing some measure of relationship (e.g., trade) between the advanced country in question and the BRIC, taken as an homogeneous group. Is it the case, for instance, that countries which import more from the BRIC experience higher (or lower) per capita economic growth?

One caveat which should be mentioned at this stage is that one is to be careful in giving a causal interpretation to the parameters ζ_1 and ζ_2, in terms of a certain variable in the z vectors *causing* a different elasticity of per capita income growth to the rise of the BRIC. To a large extent, a causal interpretation is justified since a significant part of the variables contained in the z^{North} and $z^{North-BRIC}$ is exogenous to the rise of the BRIC. In fact, many of these variables are slow-moving (e.g., countries' economic structure) or affected by factors that cannot be modified (e.g., geography). Nevertheless, it is conceivable that some of these variables have also been affected by the globalisation spurt in the 2000s and it is therefore more prudent to interpret results in terms of correlations and associations than causality proper.

The variables in the z^{North} and $z^{North-BRIC}$ vectors try to capture *six* different channels in which the rise of the BRIC can affect growth in advanced countries, namely (i) intra-industry trade and offshoring, (ii) sectoral specialisation in advanced countries, in total production and in external trade, (iii) competition from the BRIC in advanced countries' home market, (iv) market flexibility, (v) access to the BRIC markets, (vi) energy dependence, financial development and trade and financial openness of advanced countries. Again, to avoid simultaneity problems the variables in the z vectors are typically dated $t-1$.

3 Data

In this study I use data for 23 advanced countries (see country list in *Table 2*). Data are annual and refer to the period from 1980 to 2010 (or longest available sample). *Table 3* contains a description of the sources of the data.

(Insert Tables 2-3 here)

Advanced countries variables. The key endogenous variable for advanced countries is the growth of real GDP per capita. Among the North-related explanatory variables, we include variables such as GDP deflator inflation, country size, trade and

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financial openness, variables capturing the role of the State in the economy (taxes over GDP, the government share of income and public debt to GDP), a set of political and institutional variables drawn from the Database of Political Institutions (DPI), a banking crisis dummy by Laeven and Valencia (2008), two variables of financial development (the ratio between private credit and GDP and between stock market capitalisation and GDP), the share of the active population and of the labour force over total population, the labour share of income, the World Bank Rule of Law indicator (an overall index of quality of governance and institutions); two regulatory measures from the OECD (Employment Protection Legislation and Product Market Regulation); and, finally, the R&D share of income and the number of patents relative to total population, proxies for innovation.

Intra-industry trade and offshoring. Here we want to measure whether a country is benefiting from the supply side from the global reallocation of production following the rise of emerging countries in international trade, in particular of intermediate goods. We proxy this channel by the share of intermediate trade over total international trade in selected goods and sectors and by the FDI flows and FDI position vis-a-vis the BRIC, for which however fewer data are available.

Sectoral specialisation in advanced countries. With this set of variables we want to measure the degree to which advanced countries feel the competition from the BRIC (increasingly specialised in manufacturing, especially of low and medium-low quality) in global markets. We therefore look at value added, employment, exports and the trade balance split by sector (agriculture, manufacturing and services, the latter also including financial services) and technological content (high and medium-high vs. low and medium-low). Moreover, I check whether countries' investment in innovation, as measured by the share of R&D to income and the number of patents is a key determinant of how countries have coped with the rise of the BRIC.[7]

Competition from the BRIC in the home market. For this category, we include imports from the BRIC as a share of the recipient country's GDP (in dollars). Higher imports from the BRIC should mean more competition from domestic producers in the home market. We also divide import categories by type (high and medium-high tech vs low and medium-low tech) and compute a measure of overlap with the country's specialisation in international trade:

$$Overlap_{jt} = IMP_{jit}^{BRIC} * EXP_{jit} \tag{4}$$

where j is either high / medium-high tech or low / medium-low tech, i is the recipient country, IMP_{jit}^{BRIC} is the imports from the BRIC, and EXP_{jit} are exports (both as a share of the GDP of country i). For example, a country mainly exporting low tech manufactures (say, Italy) has a lot of competition from the BRIC in the home market if it also imports a lot of low tech manufacturing goods from the BRIC.

Market flexibility. As noted in the Introduction, one important element contributing to advanced countries' strategy to cope with the emergence of the BRIC

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[7]See Mondal (2009).

should be to move economic activity towards higher value added productions. In this respect, product and labour market flexibility should be of paramount importance to minimise the short term adjustment costs arising from this unavoidable process. As noted, to measure market flexibility we use the OECD Product Market Regulation and Employment Protection Legislation, despite the data limitations that they present.

Access to the BRIC markets. We try to identify this channel by looking at the exports to the BRIC (as a share of the GDP of the originating country), also divided by main sector and technological content.

Oil, financial development and trade and financial openness. We also look at oil dependence (oil trade balance as a share of GDP), in order to test the idea that advanced countries that are particularly dependent on oil imports may have suffered from the alleged upward pressure put on oil (and other commodities) prices by the rise of the BRIC. We also look at the role played by financial development, measured by the private credit to GDP ratio and the stock market capitalisation to GDP ratio. One possible interpretation of the consequences of the rise of the BRIC is that it "forced" advanced countries to specialise in services, in particular finance, with a lower growth potential or with a high potential for creating systemic risk. Finally, we want to establish whether the rise of the BRIC has been particular beneficial or unhelpful for countries that are more open (both generally and vs. the rest of the North) for example on account of their size or their geographical position.

4 Results

4.1 North-originated sources of growth

We start by estimating equations (1)-(2) and results are reported in *Table 4*. One key result emerging (as in previous literature; see Beck and Levine 2004) is that per capita income growth displays a significant error correction behaviour, with richer countries growing at a slower pace on average (see second row of Table 4). Also as in Beck and Levine (2004), inflation has a negative impact on per capita growth, which is robust and generally significant; note that inflation is measured by the rate of growth in the GDP deflator, which should be less affected than the CPI by lower import prices stemming from globalisation and hence more truly North-originated. As in Levine and Renelt (1992), the investment share of income is strongly significant, while trade openness (total and within the North) as well as financial openness are insignificant.[8] Innovation, as measured by the number of patents per capita, is also positively correlated with per capita growth.

(Table 4 here)

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[8]Rodrik et al. (2004) report that openness may not contribute to growth directly but rather by its being a proxy for institutional quality.

Turning to financial variables, a banking crisis dummy defined as in Laeven and Valencia (2008) is negative and significant. Not surprisingly, a dummy variable identifying the 2007-09 global financial crisis is also negative and highly significant. Private credit to GDP has a positive sign, suggesting that financial development is good for growth, and the same is true for the ratio of stock capitalisation to GDP but with a non-linear influence. The latter result suggests that there can be "too much finance" as also recently suggested by Arcand et al. (2001). Fiscal variables (public debt to GDP, government share of income, and taxes to GDP) are insignificant. I also add a bunch of political and institutional variables (see Section 3 for details), but most of them are not significant, with the exception of a dummy variable for presidential and legislative elections; the fact that few institutional variables are significant is indeed hardly surprising for advanced countries, which already have well developed institutions. Next, I consider whether demographic variables can also drive per capita growth. In particular, it could be surmised that countries with a higher share of active population and a larger labour force in relation to the total population may experience stronger economic growth[9], but this is not supported by the results, as these variables are not significant. Finally, a variable which appears to be consistently significant to explain the growth performance is the labour share of income. A higher (lower) labour share of income leads to lower (higher) per capita growth, suggesting that income distribution between capital and labour matters for growth. We also include indicators of market flexibility, for which fewer observations are available; we find that both the Employment Protection Legislation and Product Market Regulation (not reported for brevity) are insignificant. In column (11) of the table I include year dummies to evaluate to what extent the results are driven by common shocks rather than by factors that are time and country-specific[10]; I find that results are similar but a couple of variables are now insignificant (notably inflation and the labour share of income).

Overall, our benchmark model of per capita growth in the North includes (i) lagged per capita income and the investment share of income with a negative sign, (ii) inflation, with a negative sign, (iii) patents to total population, with a positive sign, (iv) a banking crisis dummy and a global financial crisis dummy, with a negative sign, (v) a dummy identifying presidential and legislative elections being held with a positive sign, and (vi) the labour share of income, with a negative sign. The indicators of financial development (private credit to GDP and stock market capitalisation to GDP) are significant, but I exclude them from subsequent analysis (apart from a later specification) because they would lead to a too large loss of data.

As a next step in the analysis, in column (10) of Table 4 I include the BRIC dummy in the model and find the coefficient δ to be positive but insignificant. Hence, we reach a first conclusion in this paper, namely that the decade of the rise of the BRIC was not

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[9]See e.g. Bloom et al (2001).

[10]This might include any alleged impact of globalisation and the rise of emerging countries on inflation in advanced countries.

special in terms of advanced countries' per capita growth performance, controlling for determinants of growth that are mainly borne in the North itself. This also confirms the outcome of the descriptive analysis (Table 1), which suggests that the last decade was not a special one for advanced countries, especially when controlling for the 2007-09 global financial crisis.

4.2 Intermediate trade and offshoring

We now turn to analyse the channels by which the boom of the BRIC since 2000 may have affected per capita growth in advanced countries. In *Table 5*, we take a look at variables capturing intra-industry trade and offshoring. In particular, we look at the share of intermediate trade in selected industries FDI position and flows. These variables are found to be all insignificant, which could partly depend on the limited availability of the data, in particular for the FDI. Note, however, that the amount of FDI flows to the BRIC is strongly and statistically significantly correlated with growth in the originating country, for the whole sample period.

(Insert Table 5 here)

4.3 Specialisation in advanced countries

As noted, the composition of production in advanced countries may affect the way they cope with a shock which increases trade with the South. Building on this idea, in *Table 6a* I look at the sectoral composition of value added, in *Table 6b* of employment and in *Table 6c* of external trade (exports and the trade balance). For both the decomposition of value added and employment I find that countries which are more concentrated on manufacturing have a lower growth performance during the BRIC decade. Contrary to the idea that advanced countries focusing on innovative productions benefits more from trade with the South, we find the interaction terms for patents and R&D expenditure to be insignificant or event negatively signed in the former case. For the employment composition (Table 6b), we again find that concentration on manufacturing contributes negatively to advanced countries' growth elasticity to the BRIC boom, while a focus on agriculture and services helps (but not on financial services, which is even detrimental to growth over the whole sample). Results for categories of manufacturing (high and medium high tech vs. low and medium-low tech) are not significant, probably due to the very few observations available. Table 6c confirms that concentration in high and medium-high tech productions in international trade has not helped growth in the decade of the BRIC boom, looking at both the share of exports and the trade balance. Also this evidence (based on a larger sample due to larger data availability) is inconsistent with the idea that advanced countries gain from moving to a higher value added production when faced with the "shock" of the rise of the South in international trade.

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(Insert Tables 6a-6c here)

4.4   BRIC competition in the home market

Table 7 includes measures of direct competition from BRIC countries in advanced countries' home markets. In particular, we look at imports from the BRIC as a share of the recipient country's GDP, also decomposed by technological content. I also add the measure of overlap with the BRIC in international trade described in Section 3. We find that imports from the BRIC and the overlap measure are generally significant and positive over the whole sample, but are actually *negative* when interacted with the BRIC dummy, indicating that higher imports from the BRIC has worsened economic growth in advanced countries in the period after 2000 specifically.

(Insert Table 7 here)

4.5   Market flexibility

Among others, Arnold (2002) has pointed out that (product and labour) market flexibility is an important feature allowing the reallocation of production that the rise of emerging countries makes necessary for advanced countries. Countries with rigid labour and product markets will have considerable difficulty in adjusting to the new environment and this will negatively affect growth. *Table 8* reports on the role of measures of market flexibility (the OECD Employment Protection Legislation indicator and Product Market Regulation) in influencing countries' adaptation to the rise of the BRIC in the post-2000 period. Although results may not be fully reliable due to limited data availability (especially for the Product Market Regulation indicator), we find no effects of these indicators of market flexibility neither on average or in the post-2000 period in particular.

(Insert Table 8 here)

4.6   Access to the BRIC markets

How much do advanced countries gain in having access to the large BRIC markets in terms of economic growth? Not much, according to the results presented in *Table 9*: exports to the BRIC (as a share of the originating country's GDP) are positive and significant for per capita growth, but again not particularly so in the post-2000 period coinciding with the rise of emerging countries.

(Insert Table 9 here)

4.7 Financial development, oil dependence and trade and financial openness

Finally, in *Table 10* I investigate the role of miscellaneous variables, namely (i) financial development and openness, (ii) the oil dependence and (iii) trade openness (in general and vs. the rest of the North). Financial development may be an important dimension to the extent that advanced countries can better leverage their relative strength in the financial sector and even receive "cheap" funds from the South.[11] Results in Table 10 suggest that financial development was a statistically significant negative contributor to how countries coped with the global financial crisis, but not with the rise of the BRIC as the coefficient for the interaction term is insignificant. Therefore, and in line with the results obtained for the employment and value added shares of financial services, a focus on finance does not help (but does not harm either) in how countries deal with the new environment created by the boom of the BRIC. I also find financial openness to be insignificant.

Turning to oil dependence, the rise of emerging countries (and of China in particular) is often mentioned as a key determinant of the rise in energy prices since the early 2000s. If emerging countries put pressure on energy prices, so the story goes, their rise will dent growth in those advanced countries that are particularly dependent on imported oil. I find, however, that a measure of oil dependence is insignificant as an explanatory factor of how advanced countries have coped with the rise of the BRIC.

Finally, I test whether trade openness - in general and vs. the rest of the North to control for possible reverse causality - influences how growth in advanced countries depends on the boom of the BRIC. In this case I find a statistically significant *negative* coefficient, suggesting that competition from the BRIC in the export market more than compensated for the positive impact through cheaper imports and the possibilities offered for offshoring. Over the whole sample, however, both measures of trade openness are now found to have a positive impact on real GDP growth per capita.

(Insert Table 10 here)

5 Conclusions

The objective of this paper is to establish whether the per capita growth performance in advanced countries (the North), after controlling for (mainly) North-originated sources of growth, has been systematically affected by the rise of the South and of North–South trade, which we identify as the 2000-2011 period. We have also tried to evaluate whether there is any evidence that any of the channels of transmission that

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[11]There is indeed a (pre-crisis) literature on uneven financial globalisation where capital flows from emerging to advanced countries due to better financial institutions (e.g., Mendoza, Quadrini and Rios-Rull 2009).

have been identified in the literature was actually determinant for actual outcomes. We consider per capita growth since this is a rather undisputed measure of country's economic success, though it is of course by no means the only one. It is also important to emphasise the crucial caveat that we are looking at measured output and not at any measure of economic welfare, which might be the most relevant variable (but which is subject to bigger measurement problems).

Overall, I find that the rise of the BRIC has not materially affected growth in the advanced countries on average as the coefficient associated to the BRIC period is almost always statistically insignificant. One main conclusion of the paper, therefore, is that the importance of the rise of the BRIC (and of emerging countries more generally) for growth in advanced countries should not be exaggerated, as it instead often is in the public debate. In any event, I find no evidence that the rise of the BRIC has *subtracted* growth from advanced countries.

The analysis of the channels of transmission reveals some interesting results. I find that advanced countries' specialisation on manufacturing is generally negative for their growth elasticity to the rise of the BRIC, in some specifications especially (and quite surprisingly) in high and medium-high tech productions. A focus on innovation (as measured by the number of patents and the R&D expenditure) is also found not to help, while a concentration on the services sector has a positive influence, at least when measured in terms of employment shares. On balance, our results tend to lend more support to the view of Krugman and Venables's (1995) that the rise of the South may take away some manufacturing activity from the North and that, as a consequence, manufacturing in the North may lose productivity (growth) due to the smaller scale. Hence, this paper finds that there is no much evidence for a "Panglossian" view of international trade where the North specialises in high tech production, the South in low tech manufacturing and everybody is better off. This view is also confirmed by the fact that larger imports from the BRIC and a larger trade openness are also found to be negative contributors to growth for advanced countries in the 2000-2011 period. Moreover, whilst a concentration on services appears to make a positive contribution, I find this not to be case in particular for financial services. Finally, some of the channels identified in the theoretical literature and in the public debate, such as intermediate trade and offshoring, competition in the home market, access to new BRIC markets for exporters, and oil dependence, appear to matter little quantitatively.

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TABLE 1. Growth in real GDP per capita in OECD countries

	All countries (*)		United States	
	Mean	*Standard deviation*	*Mean*	*Standard deviation*
1980-2011	1.7	2.5	1.7	1.9
1980-1998	2.0	2.4	2.0	2.0
1999-2011	1.4	2.6	1.1	1.8
1999-2007	2.2	2.3	1.8	1.1

Source: IMF (see also Table 3).
(*) Based on a sample of 23 OECD countries (see Table 2).

TABLE 2. List of countries

United States	Switzerland
United Kingdom	Canada
Austria	Japan
Belgium	Finland
Denmark	Greece
France	Iceland
Germany	Ireland
Italy	Portugal
Luxembourg	Spain
Netherlands	Australia
Norway	New Zealand
Sweden	

TABLE 3. Sources of the data

Variable	Source	Notes
Real GDP per capita (in USD), investment share of income, GDP deflator, trade openness (sum of imports and exports over GDP), financial openness (sum of external assets and liabilities over GDP), size (real GDP share of world economy at PPP), oil trade balance over GDP, total population	IMF (WEO and IFS)	
Taxes to GDP, public debt to GDP, government share of income; labour force; active population; R&D expenditure	AMECO (European Commission)	
Imports from and exports to BRIC, divided into total-manufacturing, high tech, medium-high tech, medium-low tech, low tech, as a share of GDP	OECD International Trade by Commodity Statistics (ITCS) database	
FDI flow to and position with BRIC, share of the advanced country's GDP	OECD International direct investment database	Data have frequent gaps
Share of intra-industry trade: total manufacturing, high tech, medium-high tech, medium-low tech, low tech; shares of value added, employment, imports and exports for agriculture, manufacturing (divided into high tech, medium-high tech, medium-low tech, low tech), services (including financial services)	OECD STAN database	Data have frequent gaps
Banking crisis dummy	From Laeven and Valencia (2008)	
Trade openness vs the OECD	OECD International Trade by Commodity Statistics (ITCS) database	
Financial development indicators (credit to GDP ratio, stock market capitalisation to GDP ratio)	World Bank Database on Financial Development and Structure	
Number of patents; Employment Protection Legislation; Product Market Regulation	OECD	Data for Product Market Regulation are interpolated to an annual frequency
Legislative elections, executive elections and other political and institutional variables	Database of Political Institutions	
Rule of Law	World Bank Worldwide Governance Indicators	

Note: The sample period is 1980 to 2011, annual data.

TABLE 4. Baseline results: sources of growth in advanced countries

Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Per capita income growth, t-1	0.30***	0.33***	0.35**	0.47***	0.48***	0.44***	0.41***	0.42***	0.50***	0.38***	0.43***
	(0.08)	(0.10)	(0.13)	(0.07)	(0.07)	(0.06)	(0.07)	(0.06)	(0.08)	(0.07)	(0.07)
Per capita income level, t-1	-0.01	-0.03***	-0.02	-0.03***	-0.04***	-0.03***	-0.05***	-0.04***	-0.04***	-0.08***	-0.09***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Investment share of income, t-1	-0.20***	-0.16***	-0.14***	-0.13**	-0.22***	-0.12**	-0.16***	-0.11**	-0.15***	-0.19***	-0.15***
	(0.04)	(0.04)	(0.04)	(0.06)	(0.06)	(0.04)	(0.06)	(0.04)	(0.04)	(0.05)	(0.03)
Banking crisis dummy	-0.01	-0.01	-0.01	-0.01**	-0.01*	-0.01**	-0.01*	-0.01**	-0.01*	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
GDP deflator inflation, t-1		-0.07**	-0.20***	-0.06	-0.11*	-0.08*	-0.11**	-0.09**	-0.07	-0.12**	-0.07
		(0.03)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.06)	(0.05)	(0.04)
Patents per 1,000,000 inhabitants, t-1				0.00**	0.00***	0.00***	0.00***	0.00***	0.00	0.00***	0.00**
				(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Presidential Election Held						0.01**	0.01**	0.01**	0.01*	0.00	0.00
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Legislative Election Held						0.00**	0.00	0.00**	0.00	0.00**	0.00**
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Labour share of income, t-1								-0.00**	-0.00**	-0.00***	-0.00
								(0.00)	(0.00)	(0.00)	(0.00)
Credit to GDP, t-1										0.01*	0.00
										(0.00)	(0.00)
Stock market capitalisation to GDP, t-1										0.03**	0.03***
										(0.01)	(0.01)
Stock market capitalisation to GDP squared, t-1										-0.01***	-0.01**
										(0.00)	(0.00)
2007-09 global financial crisis dummy	-0.02**	-0.02**	-0.02**	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	
Chief Executive Party Orientation						0.00					

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
					(0.00)						
Vote Share of Government Parties					0.00						
					(0.00)						
Stability					-0.00						
					(0.00)						
Proportional Representation					0.01						
					(0.00)						
Plurality					-0.01						
					(0.01)						
Shortest Tenure of a Veto Player					-0.00						
					(0.01)						
Trade openness, t-1	0.00										
	(0.00)										
Trade openness vs. OECD countries, t-1		0.00									
		(0.00)									
R&D expenditure to GDP, t-1			0.00								
			(0.00)								
Public debt to GDP, t-1				-0.00							
				(0.00)							
Government share of income, t-1				-0.00							
				(0.00)							
Taxes to GDP, t-1				-0.00							
				(0.00)							
Active population to total population						0.00					
						(0.00)					
Labour force to total population						0.00					
						(0.00)					
Employment Protection Legislation								0.00			
								(0.00)			
BRIC dummy									-0.00		
									(0.00)		
Observations	685	616	470	394	427	554	477	565	466	405	405
Number of groups	24	23	23	19	21	22	22	23	22	23	23
R2 Within	0.289	0.376	0.422	0.380	0.440	0.374	0.391	0.398	0.480	0.506	0.678

Note: Sample period 1980 to 2010 (or shorter depending on data availability), pool of up to 24 advanced countries. Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

TABLE 5. Intra-industry trade and offshoring

Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)	(3)	(4)	(5)
Per capita income growth, t-1	0.444***	0.441***	0.444***	0.403***	0.381***
	(0.076)	(0.077)	(0.075)	(0.082)	(0.101)
Per capita income level, t-1	-0.055***	-0.055***	-0.056***	-0.035	-0.049**
	(0.011)	(0.011)	(0.012)	(0.023)	(0.023)
Investment share of income, t-1	-0.111**	-0.107**	-0.115***	-0.082	-0.113***
	(0.040)	(0.041)	(0.041)	(0.052)	(0.032)
Banking crisis dummy	-0.009**	-0.010**	-0.009**	-0.002	-0.005
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
2007-09 global financial crisis dummy	-0.019***	-0.019***	-0.019***	-0.018***	-0.017**
	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)
GDP deflator inflation, t-1	-0.090**	-0.089**	-0.087**	-0.197**	-0.263***
	(0.038)	(0.037)	(0.038)	(0.082)	(0.079)
Patents per 1,000,000 inhabitants, t-1	0.000	0.000*	0.000	0.000**	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Presidential Election Held	0.009**	0.009**	0.009**	0.005	0.005**
	(0.004)	(0.004)	(0.004)	(0.003)	(0.002)
Legislative Election Held	0.002**	0.002*	0.002**	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Labour share of income, t-1	-0.001***	-0.001***	-0.001***	-0.001	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
BRIC dummy	0.007	0.007	0.008	-0.003	-0.001
	(0.006)	(0.006)	(0.007)	(0.006)	(0.005)
Share of intra-industry trade, manufacturing, t-1	0.000				
	(0.000)				
Share of intra-industry trade, manufacturing, t-1*BRIC Dummy	-0.000				
	(0.000)				
Share of intra-industry trade, high and medium tech, t-1		0.000*			
		(0.000)			
Share of intra-industry trade, high and medium tech, t-1*BRIC Dummy		-0.000			
		(0.000)			
Share of intra-industry trade, low and medium-low tech, t-1			0.000*		

	(1)	(2)	(3)	(4)	(5)
			(0.000)		
Share of intra-industry trade, low and medium-low tech, t-1*BRIC Dummy			-0.000		
			(0.000)		
FDI position vs. BRIC to GDP, t-1				0.002	
				(0.001)	
FDI position vs. BRIC to GDP, t-1*BRIC Dummy				-0.001	
				(0.001)	
FDI flows vs. BRIC to GDP, t-1					0.005***
					(0.002)
FDI flows vs. BRIC to GDP, t-1*BRIC Dummy					-0.002
					(0.002)
Observations	519	519	519	212	253
Number of groups	22	22	22	17	21
R2 Within	0.420	0.422	0.422	0.456	0.485

Note: Sample period 1980 to 2010 (or shorter depending on data availability). Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

TABLE 6a. Value added composition and the effect of the Rise of the BRIC

Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Per capita income growth, t-1	0.456***	0.410***	0.407***	0.429***	0.407***	0.109	0.445***	0.422***	0.445***
	(0.078)	(0.064)	(0.064)	(0.067)	(0.070)	(0.145)	(0.114)	(0.065)	(0.075)
Per capita income level, t-1	-0.052***	-0.052***	-0.061***	-0.058***	-0.058***	-0.161**	-0.112*	-0.052***	-0.047***
	(0.011)	(0.012)	(0.014)	(0.013)	(0.014)	(0.050)	(0.046)	(0.010)	(0.012)
Investment share of income, t-1	-0.119***	-0.130**	-0.112**	-0.104**	-0.109**	-0.479**	-0.299**	-0.114**	-0.105*
	(0.042)	(0.050)	(0.047)	(0.047)	(0.047)	(0.117)	(0.088)	(0.041)	(0.052)
Banking crisis dummy	-0.008*	-0.008	-0.008	-0.009	-0.006	0.005	-0.018*	-0.009*	-0.011**
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.008)	(0.004)	(0.004)
2007-09 global financial crisis dummy	-0.018***	-0.016***	-0.016***	-0.016***	-0.017***	-0.008	-0.005	-0.019***	-0.032***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.008)	(0.004)	(0.006)
GDP deflator inflation, t-1	-0.104**	-0.086**	-0.113***	-0.086**	-0.110***	-0.226	-0.138*	-0.087**	-0.062
	(0.038)	(0.041)	(0.036)	(0.037)	(0.038)	(0.101)	(0.067)	(0.039)	(0.049)
Patents per 1,000,000 inhabitants, t-1	0.000**	0.000**	0.000***	0.000**	0.000	0.000*	-0.000	0.000***	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Presidential Election Held	0.009**	0.009**	0.009**	0.009**	0.009**	0.001	0.008*	0.009**	0.010**
	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
Legislative Election Held	0.001	0.001	0.001	0.001	0.001	0.004	0.001	0.002*	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Labour share of income, t-1	-0.001**	-0.001***	-0.001***	-0.001***	-0.001**	-0.005*	-0.001	-0.001**	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)	(0.000)
BRIC dummy	0.003	-0.000	0.018*	0.007	0.003	0.087	-0.002	0.005	0.002
	(0.004)	(0.005)	(0.010)	(0.010)	(0.004)	(0.044)	(0.010)	(0.005)	(0.007)
Change in the terms of trade, t-1	0.016								
	(0.025)								
Change in the terms of trade, t-1*BRIC Dummy	0.033								
	(0.041)								
Share of value added, agriculture, t-1		-0.001							
		(0.001)							
Share of value added, agriculture, t-1*BRIC Dummy		0.001**							
		(0.001)							
Share of value added, manufacturing, t-1			0.000						
			(0.001)						
Share of value added, manufacturing, t-1*BRIC Dummy			-0.001**						
			(0.000)						
Share of value added, services, t-1				0.001**					

			(0.000)						
Share of value added, services, t-1*BRIC Dummy			-0.000						
			(0.000)						
Share of value added, financial services, t-1				0.000					
				(0.001)					
Share of value added, financial services, t-1*BRIC Dummy				0.000					
				(0.000)					
Share of value added in high and medium-high tech, t-1					0.002				
					(0.003)				
Share of value added in high and medium-high tech, t-1*BRIC Dummy					-0.006				
					(0.004)				
Share of value added in low and medium-low tech, t-1						-0.005			
						(0.003)			
Share of value added in low and medium-low tech, t-1*BRIC Dummy						0.002			
						(0.002)			
Patents per 1,000,000 inhabitants, t-1*BRIC Dummy							-0.000*		
							(0.000)		
R&D expenditure to GDP, t-1								0.003	
								(0.004)	
R&D expenditure to GDP, t-1*BRIC Dummy								-0.001	
								(0.002)	
Observations	538	534	534	534	511	86	145	565	394
Number of groups	22	22	22	22	22	4	7	23	19
R2 Within	0.423	0.389	0.392	0.390	0.377	0.493	0.506	0.402	0.399

Note: Sample period 1980 to 2010 (or shorter depending on data availability). Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE 6b. Employment composition and the effect of the Rise of the BRIC
Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)	(3)	(4)	(5)	(6)
Per capita income growth, t-1	0.414***	0.430***	0.429***	0.463***	0.372**	0.421**
	(0.077)	(0.074)	(0.070)	(0.077)	(0.111)	(0.113)
Per capita income level, t-1	-0.039**	-0.086***	-0.077***	-0.050***	-0.152**	-0.067
	(0.015)	(0.019)	(0.017)	(0.014)	(0.038)	(0.037)
Investment share of income, t-1	-0.152***	-0.111**	-0.086*	-0.131***	-0.354**	-0.372***
	(0.050)	(0.045)	(0.050)	(0.042)	(0.062)	(0.079)
Banking crisis dummy	-0.008*	-0.011**	-0.011**	-0.007	0.006	-0.019
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.010)
2007-09 global financial crisis dummy	-0.019***	-0.020***	-0.019***	-0.020***	-0.025***	-0.010
	(0.005)	(0.004)	(0.005)	(0.005)	(0.002)	(0.008)
GDP deflator inflation, t-1	-0.130**	-0.137**	-0.110*	-0.122**	-0.295*	-0.172*
	(0.047)	(0.053)	(0.055)	(0.054)	(0.102)	(0.077)
Patents per 1,000,000 inhabitants, t-1	0.000*	0.000***	0.000***	0.000**	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Presidential Election Held	0.009**	0.009**	0.009**	0.010**	0.008*	0.012**
	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
Legislative Election Held	0.002	0.002	0.001	0.001	-0.002	-0.004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)
Labour share of income, t-1	-0.000	-0.000	-0.000	0.000	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)
BRIC dummy	-0.001	0.029**	-0.053**	-0.001	0.068	0.055
	(0.005)	(0.013)	(0.021)	(0.004)	(0.034)	(0.030)
Share of employment, agriculture, t-1	0.005***					
	(0.001)					
Share of employment, agriculture, t-1*BRIC Dummy	0.003*					
	(0.001)					
Share of employment, manufacturing, t-1		-0.001**				
		(0.001)				
Share of employment, manufacturing, t-1*BRIC Dummy		-0.001**				
		(0.001)				
Share of employment, services, t-1			0.001**			
			(0.001)			
Share of employment, services, t-1*BRIC Dummy			0.001**			

				(0.000)		
Share of employment, financial services, t-1					-0.009**	
					(0.003)	
Share of employment, financial services, t-1*BRIC Dummy					0.001	
					(0.001)	
Share of employment in high and medium-high tech, t-1						-0.002
						(0.002)
Share of employment in high and medium-high tech, t-1*BRIC Dummy						-0.006
						(0.003)
Share of employment in low and medium-low tech, t-1						0.001
						(0.002)
Share of employment in low and medium-low tech, t-1*BRIC Dummy						-0.005
						(0.002)
Observations	454	454	453	422	101	124
Number of groups	21	21	21	21	4	5
R2 Within	0.403	0.417	0.417	0.443	0.487	0.574

Note: Sample period 1980 to 2010 (or shorter depending on data availability). Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE 6c. International trade composition and the effect of the Rise of the BRIC
Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)	(3)	(4)
Per capita income growth, t-1	0.444***	0.445***	0.446***	0.447***
	(0.072)	(0.073)	(0.073)	(0.074)
Per capita income level, t-1	-0.061***	-0.060***	-0.055***	-0.055***
	(0.015)	(0.016)	(0.012)	(0.012)
Investment share of income, t-1	-0.136***	-0.131***	-0.136***	-0.135***
	(0.044)	(0.043)	(0.042)	(0.042)
Banking crisis dummy	-0.008*	-0.008*	-0.007*	-0.007*
	(0.004)	(0.004)	(0.004)	(0.004)
2007-09 global financial crisis dummy	-0.018***	-0.018***	-0.020***	-0.020***
	(0.005)	(0.005)	(0.004)	(0.004)
GDP deflator inflation, t-1	-0.074*	-0.077*	-0.082**	-0.083**
	(0.038)	(0.038)	(0.039)	(0.039)
Patents per 1,000,000 inhabitants, t-1	0.000	0.000	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Presidential Election Held	0.009**	0.009**	0.009**	0.009**
	(0.003)	(0.003)	(0.004)	(0.004)
Legislative Election Held	0.002*	0.002*	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Labour share of income, t-1	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
BRIC dummy	0.013**	-0.004	0.002	0.002
	(0.006)	(0.005)	(0.005)	(0.005)
Share of exports in high and medium-high tech, t-1	0.000			
	(0.000)			
Share of exports in high and medium-high tech, t-1*BRIC Dummy	-0.000***			
	(0.000)			
Share of exports in low and medium-low tech, t-1		-0.000		
		(0.000)		
Share of exports in low and medium-low tech, t-1*BRIC Dummy		0.000***		
		(0.000)		
Trade balance in high and medium-high tech, t-1			0.000	
			(0.000)	
Trade balance in high and medium-high tech, t-1*BRIC Dummy			-0.000**	

				(0.000)
Trade balance in low and medium-low tech, t-1				-0.000
				(0.000)
Trade balance in low and medium-low tech, t-1*BRIC Dummy				0.000**
				(0.000)
Observations	545	545	545	545
Number of groups	23	23	23	23
R2 Within	0.425	0.423	0.425	0.424

Note: Sample period 1980 to 2010 (or shorter depending on data availability). Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

TABLE 7. Competition from the BRIC in the home market

Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)	(3)	(4)	(5)	(6)
Per capita income growth, t-1	0.366***	0.389***	0.361***	0.397***	0.369***	0.391***
	(0.076)	(0.075)	(0.075)	(0.074)	(0.074)	(0.068)
Per capita income level, t-1	-0.067***	-0.057***	-0.070***	-0.047**	-0.063***	-0.050**
	(0.017)	(0.018)	(0.022)	(0.019)	(0.020)	(0.021)
Investment share of income, t-1	-0.033	-0.054	-0.032	-0.069	-0.049	-0.074
	(0.051)	(0.049)	(0.055)	(0.047)	(0.053)	(0.050)
Banking crisis dummy	-0.007*	-0.007*	-0.006	-0.006*	-0.006	-0.004
	(0.004)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
2007-09 global financial crisis dummy	-0.024***	-0.024***	-0.023***	-0.025***	-0.023***	-0.028***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
GDP deflator inflation, t-1	-0.141**	-0.134**	-0.135**	-0.154***	-0.139**	-0.188***
	(0.058)	(0.056)	(0.063)	(0.052)	(0.066)	(0.050)
Patents per 1,000,000 inhabitants, t-1	0.000***	0.000***	0.000**	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Presidential Election Held	0.004	0.004	0.004*	0.004	0.004	0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Legislative Election Held	0.002*	0.002**	0.002**	0.003**	0.003**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Labour share of income, t-1	-0.001	-0.000	-0.001	-0.001	-0.001	-0.001*
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)
BRIC dummy	0.011**	0.009	0.012*	-0.000	0.008	-0.004
	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)	(0.004)
Imports from BRIC to GDP, t-1	0.018***					
	(0.005)					
Imports from BRIC to GDP, t-1*BRIC Dummy	-0.013**					
	(0.005)					
Imports from BRIC to GDP, manufacturing, t-1		0.019***				
		(0.006)				
Imports from BRIC to GDP, manufacturing, t-1*BRIC Dummy		-0.014**				
		(0.007)				
Imports from BRIC to GDP, manufacturing high and medium-high			0.066***			

tech, t-1						
	(0.015)					
Imports from BRIC to GDP, manufacturing high and medium-high tech, t-1*BRIC Dumm	-0.057***					
	(0.016)					
Imports from BRIC to GDP, manufacturing low and medium-low tech, t-1		0.015				
		(0.009)				
Imports from BRIC to GDP, manufacturing low and medium-low tech, t-1*BRIC Dummy		-0.006				
		(0.009)				
Overlap with BRIC, high and medium-high tech, t-1				0.000***		
				(0.000)		
Overlap with BRIC, high and medium-high tech, t-1*BRIC Dummy				-0.000***		
				(0.000)		
Overlap with BRIC, low and medium-low tech, t-1						0.000**
						(0.000)
Overlap with BRIC, low and medium-low tech, t-1*BRIC Dummy						0.000
						(0.000)
Observations	338	338	337	338	335	336
Number of groups	22	22	22	22	22	22
R2 Within	0.487	0.478	0.482	0.470	0.470	0.475

Note: Sample period 1980 to 2010 (or shorter depending on data availability). Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE 8. Market flexibility

Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)
Per capita income growth, t-1	0.498***	0.364***
	(0.075)	(0.069)
Per capita income level, t-1	-0.040***	-0.052**
	(0.010)	(0.025)
Investment share of income, t-1	-0.151***	-0.170***
	(0.039)	(0.039)
Banking crisis dummy	-0.007*	-0.003
	(0.004)	(0.002)
2007-09 global financial crisis dummy	-0.019***	-0.023***
	(0.004)	(0.004)
GDP deflator inflation, t-1	-0.081	-0.111
	(0.057)	(0.073)
Patents per 1,000,000 inhabitants, t-1	0.000	0.000*
	(0.000)	(0.000)
Presidential Election Held	0.008*	0.003
	(0.004)	(0.003)
Legislative Election Held	0.002	0.001
	(0.001)	(0.001)
Labour share of income, t-1	-0.001**	-0.001**
	(0.000)	(0.000)
BRIC dummy	0.004	-0.010
	(0.005)	(0.008)
Employment Protection Legislation	0.000	
	(0.002)	
Employment Protection Legislation*BRIC Dummy	-0.001	
	(0.002)	
Product Market Regulation		-0.009
		(0.006)
Product Market Regulation*BRIC Dummy		0.003
		(0.005)

Observations	466	246
Number of groups	22	23
R2 Within	0.481	0.502

Note: Sample period 1980 to 2010 (or shorter depending on data availability). Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE 9. Access to the BRIC markets
Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)	(3)
Per capita income growth, t-1	0.359***	0.369***	0.358***
	(0.089)	(0.085)	(0.083)
Per capita income level, t-1	-0.059***	-0.058***	-0.054**
	(0.016)	(0.016)	(0.020)
Investment share of income, t-1	-0.032	-0.044	-0.052
	(0.048)	(0.047)	(0.054)
Banking crisis dummy	-0.002	-0.003	-0.001
	(0.002)	(0.003)	(0.003)
2007-09 global financial crisis dummy	-0.026***	-0.025***	-0.028***
	(0.003)	(0.003)	(0.003)
GDP deflator inflation, t-1	-0.136*	-0.126	-0.146**
	(0.069)	(0.078)	(0.062)
Patents per 1,000,000 inhabitants, t-1	0.000*	0.000**	0.000*
	(0.000)	(0.000)	(0.000)
Presidential Election Held	0.004	0.004	0.004
	(0.003)	(0.003)	(0.003)
Legislative Election Held	0.003**	0.003**	0.003*
	(0.001)	(0.001)	(0.002)
Labour share of income, t-1	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.000)
BRIC dummy	0.004	0.003	-0.000
	(0.004)	(0.004)	(0.004)
Exports to BRIC to GDP, total manufacturing, t-1	0.015*		
	(0.008)		
Exports to BRIC to GDP, total manufacturing, t-1*BRIC Dummy	-0.007		
	(0.005)		
Exports to BRIC to GDP, high and medium-high tech, t-1		0.020	
		(0.011)	

Exports to BRIC to GDP, high and medium-high tech, t-1*BRIC Dummy		-0.011	
		(0.008)	
Exports to BRIC to GDP, low and medium-low tech, t-1			0.031**
			(0.012)
Exports to BRIC to GDP, low and medium-low tech, t-1*BRIC Dummy			-0.001
			(0.007)
Observations	324	322	323
Number of groups	21	21	21
R2 Within	0.497	0.483	0.494

Note: Sample period 1980 to 2010 (or shorter depending on data availability). Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE 10. Oil, finance and openness

Dependent variable: Growth of real GDP per capita in advanced countries

	(1)	(2)	(3)	(4)	(5)
Per capita income growth, t-1	0.381***	0.440***	0.423***	0.407***	0.450***
	(0.075)	(0.089)	(0.068)	(0.068)	(0.089)
Per capita income level, t-1	-0.079***	-0.043***	-0.046***	-0.051***	-0.018
	(0.017)	(0.013)	(0.011)	(0.011)	(0.014)
Investment share of income, t-1	-0.202***	-0.126*	-0.122**	-0.118***	-0.132***
	(0.050)	(0.062)	(0.046)	(0.038)	(0.036)
Banking crisis dummy	-0.005*	-0.009*	-0.010**	-0.009**	-0.006**
	(0.003)	(0.005)	(0.004)	(0.004)	(0.003)
2007-09 global financial crisis dummy	-0.015**	-0.019***	-0.021***	-0.021***	-0.023***
	(0.006)	(0.004)	(0.004)	(0.004)	(0.003)
GDP deflator inflation, t-1	-0.135***	-0.117***	-0.101**	-0.102**	-0.141***
	(0.043)	(0.041)	(0.043)	(0.036)	(0.044)
Patents per 1,000,000 inhabitants, t-1	0.000**	0.000	0.000***	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Presidential Election Held	0.004	0.010**	0.011**	0.009**	0.005
	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)
Legislative Election Held	0.003**	0.001	0.003**	0.002*	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Labour share of income, t-1	-0.002***	-0.000	-0.001***	-0.001**	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BRIC dummy	-0.003	0.006	0.001	0.007*	0.001
	(0.005)	(0.006)	(0.004)	(0.004)	(0.003)
Credit to GDP, t-1	0.010**				
	(0.004)				
Stock market capitalisation to GDP, t-1	0.032**				
	(0.014)				
Stock market capitalisation to GDP squared, t-1	-0.011***				
	(0.004)				
Credit to GDP, t-1*2007-09 Crisis dummy	-0.013***				
	(0.002)				
Stock market capitalisation to GDP, t-1*2007-09 crisis dummy	0.010***				

	(1)	(2)	(3)	(4)	(5)
	(0.002)				
Credit to GDP, t-1*BRIC Dummy	-0.002				
	(0.003)				
Stock market capitalisation to GDP, t-1*BRIC Dummy	0.003				
	(0.003)				
Financial openness, t-1		0.000			
		(0.000)			
Financial openness, t-1*BRIC Dummy		-0.000			
		(0.000)			
Oil balance to GDP, t-1			-0.001		
			(0.001)		
Oil balance to GDP, t-1*BRIC Dummy			-0.000		
			(0.000)		
Trade openness, t-1				0.000**	
				(0.000)	
Trade openness, t-1*BRIC Dummy				-0.000**	
				(0.000)	
Trade openness vs. OECD countries, t-1					0.000**
					(0.000)
Trade openenss vs OECD countries, t-1*BRIC Dummy					-0.000**
					(0.000)
Observations	405	482	521	551	419
Number of groups	23	23	21	23	23
R2 Within	0.514	0.400	0.406	0.435	0.485

Note: Sample period 1980 to 2010 (or shorter depending on data availability). Pooled OLS, country fixed effects always included. Robust (Driscoll-Kraay) standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

FIGURE 1. The boom in the GDP weight of BRIC countries
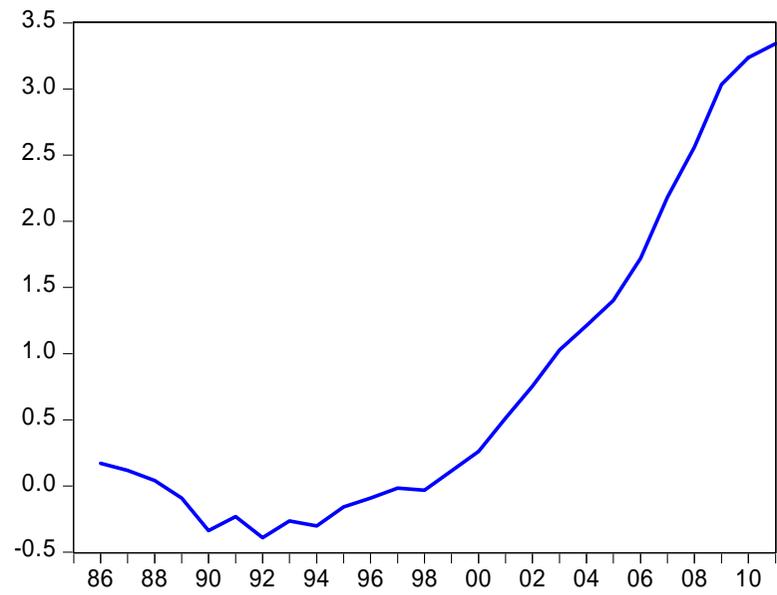
Note: Based on the world GDP share of the BRIC and computed as a deviation from a recursively calculated linear trend.

FIGURE 2. The boom in North-South trade
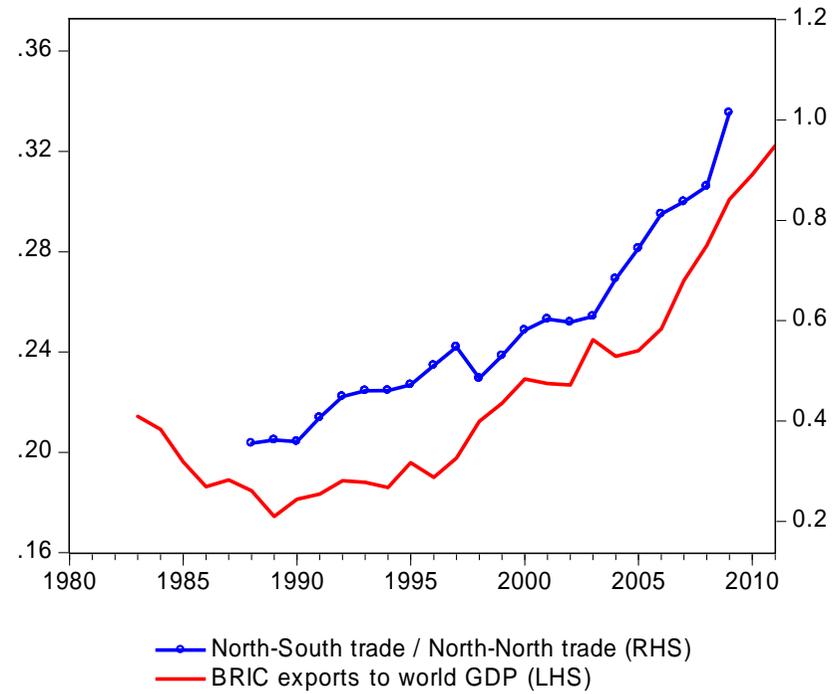
Note: North-South trade and North-North trade are proxied respectively by trade between OECD and non-OECD countries and betweeen OECD countries.
Sources: IMF and OECD.