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Trade Competitiveness Determinants in Emerging Markets and Developed Countries

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Abstract: Trade flow is an essential stimulus to facilitate the economic development of emerging markets. Some of the major challenges for many countries around the globe include promotion of international trade and competitiveness, as well as optimisation of economic policies to increase trade flows. The aim of this study was to investigate the effects of macroeconomic and country-specific indicators on trade flows in the fast emerging markets of Brazil, Russia, India, China and South Africa (BRICS), developing Asian countries, and developed countries. This study employed cross-sectional fixed effect panel data analysis for the period between 1981 and 2010 to reveal significant empirical evidence. Findings confirmed that trade flows in BRICS can be modeled as a function of exchange rate, economic growth, unemployment rate and government budget balance. The important drivers of trade flows in the developing Asian countries were economic growth, interest rate and government budget balance. The trade flows in developed countries were determined by economic growth, inflation rate, interest rate, government budget balance, wage rate and stock market performance. Comprehensive results from this study provide evidence that macroeconomic variables and country-specific indicators are significant determinants of trade flows.

Key words: BRICS, developed countries, macroeconomic fundamentals, trade flows
JEL classification: F14, F41, F43

1. Introduction

Gradual integration of world economies through globalisation and liberalisation has resulted in a tremendous increase of trade flows in the last few decades. Statistics have shown that trade flows have increased over time, making it a vital element for achieving higher levels of economic growth, especially for less developed countries. Generally, there are two types of trade: regular and processing trade. Regular trade is the exchange of finished goods and services across countries. Processing trade involves the import and export of components and raw materials to produce finished goods. Regular trade makes up the bulk of international trade. In the past few decades however, the volume of processing trade has been trending positively (IMF 2010). This is due to technological developments that make it possible to break the chain of production into smaller jobs to be performed by independent units, either domestically or aboard. In addition, multinational corporations realised that processing trade can reduce their production costs in addition to improving product quality.

World trade flows have increased seven fold between 1980 and 2012 as shown in Figure 1. Nevertheless, there was a sharp fall in 2009 due to the global financial crisis (GFC). World economic output fell by 0.8 per cent in 2009 and the national income of developed countries dropped by 3.2 per cent in the same year (IMF 2010). The catastrophic conse-

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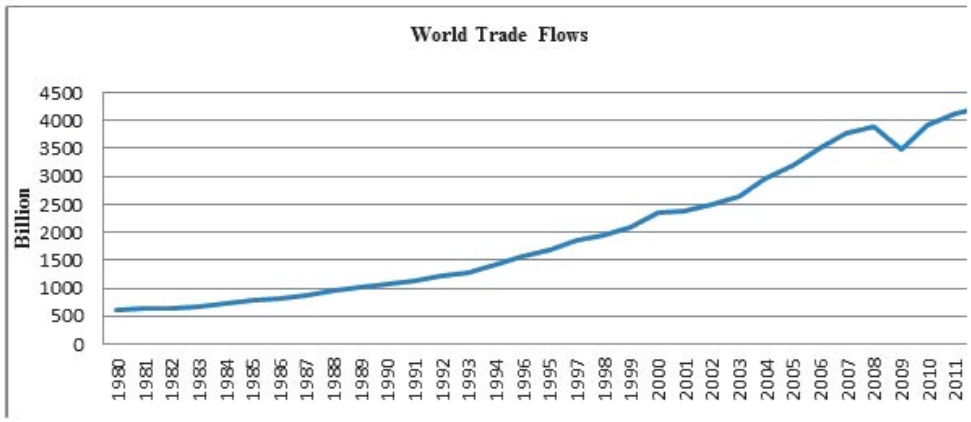

Figure 1. Trend of world trade flows
Source: Thomson Reuters (2013)

quences of the economic downturn were worse in emerging markets than in developed countries. This confirms that developing countries are not only vulnerable to economic crisis resulting from reduced global demand and production, but are also heavily dependent on exports to and imports from developed countries to support their balance of trade payments (Frenkel and Rapetti 2009).

Trade flow contributes to economic development of developing countries via efficient resource allocation, technology transfer and productivity. The challenge for developing countries is to identify effective determinants and implement appropriate policies to strengthen these flows. Past empirical studies have found several factors to be key determinants of trade flows, but scholars are yet to reach a consensus. Much of the past empirical studies investigated trade flows with macroeconomic factors or country specific indicators. However, there is a lack of empirical evidence for both in a comprehensive study.

This study therefore aimed to identify determinants of trade flows by focusing on the roles of both macroeconomic and country specific factors, in three groups of countries: the BRICS countries of Brazil, Russia, India, China and South Africa, developing Asian countries, and developed countries. Developing countries studied included Malaysia, Indonesia, and Thailand. Developed countries studied included the United States of America, Germany, Japan, Taiwan, Korea, Singapore and Hong Kong. BRICS were chosen because they represent a group of major exporting countries contributing extensively to world trade, and may include one of the top five largest nations in the next decade. Since this study was conducted in Asia, a group of developing Asian countries was also included. Finally, the group of developed nations were included for relative comparison.

The set of macroeconomic factors investigated included exchange rate, economic growth, inflation rate, unemployment rate, interest rate, foreign direct investment (FDI) inflow, and government budget balance. The country specific indicators consisted of: human capital, infrastructure, population, wage rate, stock market performance, and government

financial debt. The interactions between trade flows, macroeconomic and country specific indicators were determined by applying the fixed effect panel data analyses.

The rest of this paper is organised into four sections. A brief overview of the theories and existing literature is presented in Section 2. The research methodology used is presented in Section 3. An analysis of the findings is shown in Section 4 while Section 5 presents the summary and conclusion.

2. Literature Review

2.1 Theories of Trade Flows

Theories that commonly explain trade flows include absolute advantage theory, comparative advantage theory, factor production theory, and product life cycle theory. Smith (1776) developed the theory of absolute advantage, which suggests that a country should export goods and services which it can produce more efficiently relative to other countries, and import those goods and services which other countries can produce more efficiently. A country possesses an absolute advantage over its trading partners when it can produce more of an output with the same amount of input. Ricardo (1817) showed that there is a way for beneficial trade whether or not countries have an absolute advantage. He developed the theory of comparative advantage, which states that a country should export those goods and services, which it can produce at a lower opportunity cost and import those goods and services that it can produce at a higher opportunity cost.[1]

Hecksher and Ohlin (1933) developed the factor production theory which states that a country should export products that intensively use its relatively abundant factors of production and import those products that intensively use its scarce resources. Product life cycle theory, on the other hand, is a firm based theory of international trade developed by Vernon (1966). The theory explains how a product begins as the country's export and works through the life cycle until eventually, it becomes an import. Vernon (1966) argues that there are three stages to the product life cycle theory: newly developed product, maturing product, and standardised product. In the new product stage, a firm develops and introduces a new product. In the second stage, demand for the product expands as consumers become aware of its value. The firm then builds new plants to increase production and satisfy domestic and foreign demands for the product. In the standardised product stage, the market for the product stabilises and the product becomes more of a homogenous commodity. Firms have to lower their production costs in order to remain competitive by shifting production facilities to lower cost countries. The competitive product is then exported worldwide and may even be imported into the country where it was originally developed.

2.2 Determinants of Trade Flows

Studies have investigated the empirical validity of international trade theories which take into consideration various macroeconomic and other factors. The factors investigated in this study are explained in detail below.

[1] The opportunity cost of goods is the amount of production of the other product that is given up to obtain the goods.

2.2.1 Exchange rate

Changes in exchange rate affect trade flows through changes in foreign prices of goods and services. Appreciation of a country's currency value increases the price denominated in foreign currency thus reducing the competitiveness of that country's goods in international markets, resulting in a reduction of that country's exports. On the other hand, appreciation of currency value makes imported goods relatively affordable and can stimulate domestic demand for imports. Generally, depreciation of a country's currency value would expand exports of that country as the price of its goods becomes cheaper internationally. Xu (2008) and Thorbecke (2011) analysed the effects of an appreciation of the Taiwanese dollar and the Renminbi on those countries' exports. Their findings found that appreciation of these two countries' currencies resulted in a reduction of exports. In contrast, empirical studies in the past found that exports increased when currency appreciated (Abeysinghe and Yeok 1998; Kandil 2004). In addition, some studies also found no significant impact of exchange rates on trade flows (McKenzie 1999; Tenreyro 2007). Since there was no conclusive evidence on the effect of exchange rates on trade flows, this study aimed to investigate the effects of exchange rates on trade flows for the three groups of countries mentioned earlier.

2.2.2 Economic growth

Economic growth is the increase in the productive capacity of a country relative to the previous period. Safdari *et al.* (2011) and Lancaster (1980) found evidence to support the relationship between economic growth and trade. Economic growth corresponds to the enhancement of skills and productivity, as well as technology. This improvement in efficiency creates a comparative advantage for the country to increase international trade. Cetintas and Barisik (2009) investigated the relationship between export, import and economic growth for thirteen transitional economies and concluded that higher economic growth increases trade flows. They hypothesised that economic growth affects a country's export through improvements in productivity that results in a rise in product competitiveness. Higher economic growth also corresponds to higher income of a country, which in turn results in increased trade.

2.2.3 Inflation rate

Inflation is the rise in the price of goods and services over a period of time. Increases in price of domestic goods and services directly affect production costs and cause a fall in competitiveness of a country's products. Ho and Karim (2012a) found that inflation in Singapore, the Philippines and India had a significant negative impact on their exports. They argued that inflation affects the pattern of trade flows, as an increase in price level increases the price of exported goods, making them less competitive. Similarly, Kandil (2004) explained that a high inflation rate dampens export as it reduces a country's products' competitiveness in international markets.

2.2.4 Unemployment rate

The unemployment rate represents the percentage of total workforce that is both unemployed and actively looking for work. The unemployment rate is said to have an indirect effect on trade flow through its influence on income and aggregated demand for consumption of goods and services in a country. According to Meidani and Zabihi (2011), a higher

unemployment rate reduces people's income and causes them to cut back on spending, thus resulting in a fall in aggregated demand for consumption of goods and services. Bahmani (2011) also found that a higher unemployment rate in Russia hurt both Russia's gross domestic product (GDP) growth and production level, triggering a decline in its international trade.

2.2.5 Interest rate

The interest rate is the rate that is charged on the use of assets or borrowed funds. An increase in interest rate would increase the cost of borrowing to finance business operations. This would eventually increase overall production costs, making products more expensive and less competitive in international markets (Hnatkovska *et al.* 2008). The increase in borrowing costs also leads to less private investment and lower economic growth, eventually resulting in reduced trade flows.

2.2.6 Foreign direct investment

Foreign direct investment (FDI) refers to investments that a country receives from foreign investors. FDI is the main source of capital inflow for developing countries and which helps to raise the level of economic activity. Theoretically, FDI inflow should increase the trade flows of a country. Yousuf *et al.* (2008) as well as Anwar and Nguyen (2011) confirmed that FDI inflow is positively related to trade flows through increasing productivity, efficiency of resource allocation, improvement in technology, and better managerial skills.

2.2.7 Government budget balance

Government budget balance refers to the difference between a government's revenue and expenditure. Budgets go into surplus whenever government revenues are more than expenses and vice versa. Improvement in the budget balance is generally linked to a reduction in interest rates and stimulation of domestic investment. This results in higher production and consumption, leading to higher trade flows. Conversely, larger budget deficits reduce output and trade flows through 'crowding out' effects. 'Crowding out' occurs when governments increase domestic borrowings due to budget deficits leaving businesses with less access to money for investment (Agnello *et al.* 2012). The 'crowding out' effect would also lead to higher interest rates due to greater demand for money. The private sector which is more sensitive to interest rate hikes would reduce investment and consumption due to the high cost of borrowing and the lower rate of return (Cogan *et al.*2010). A fall in investment by the private sector would reduce manufactured outputs and economic growth, ultimately lowering trade flows.

2.2.8 Human capital

Human capital is defined as the knowledge, competencies and skills of people. The quality of human capital affects the pattern of comparative advantages as well as the structure of specialisation and trade of countries (Andersson and Johansson 2010). The Hecksher and Ohlin (1933) factor proportion theory recognises human capital as the primary source of comparative advantage in a country. Wagner (2001), Gourlay *et al.* (2005), and Roper *et al.*(2006) have all found that human capital is found to be positively related to trade performance in the manufacturing and services sectors. Improvement in human capital has a

positive effect on export and trade, as an educated labour force is able to produce innovative and competitive products which improve the country's comparative advantages (Lave and Mansury 2007).

2.2.9 Infrastructure

Improvement in infrastructure quality decreases business costs in terms of expediting transportation and lowering delivery times. In addition, better quality infrastructure is also likely to decrease the probability of product damage thereby lowering the cost of insurance in general. Infrastructure factors including roads, air transport, port efficiency, and telecommunications are major contributors to cost in international trade. Nechi (2011) found that infrastructure quality had a positive significant effect on trade flows amongst Gulf Cooperation Council (GCC) countries. A recent study by Behar and Venables (2010) also found a positive significant effect of infrastructure on trade flow, confirming the effects of infrastructure quality on transportation costs and international trade.

2.2.10 Market size

According to the 'home market' effects theory developed by Krugman (1980), the size of the domestic market has a positive relationship with production returns to scale. Countries that have relatively larger domestic markets tend to have higher production level which in turn allows them to achieve economies of scale. When the size of a market grows, the demand for goods and services also increases and part of this increased demand is satisfied by increased domestic production as well as increased import of foreign products, thus increasing trade flows.

2.2.11 Wage rate

Wage rate is the compensation paid to the labour force for performing productive activities. The wage cost is an essential component of the total business production costs that influences products' prices and competitiveness. Bhattarai and Mallick (2013) found that higher wage rates in China correspond to higher product prices, which gradually erodes product competitiveness and dampens exports. As the majority of developing countries produce and export labour-intensive products, higher wage rates deteriorate product competitiveness and diminish trade flows.

2.2.12 Stock market performance

Good stock market performance reflects a superior economic condition and productive potential of a country. Kletzer and Bardhan (1987) added a financial aspect to the Hecksher-Ohlin trade model and concluded that financial development provides comparative advantage to industries that depend on funding from the equity markets. Ho and Karim (2012b) also found a positive significant relationship between stock market performance and exports in Malaysia, Indonesia, Singapore, the Philippines, Thailand and Japan. They argued that stable financial performance provides confidence in the market and in turn drives expansion in international trade. Beck (2003) found that financial development in a country is positively related to export of industries that utilise external finance, leading to higher product competitiveness and trade flows.

3. Data And Methodology

The economic data for all countries in this study were extracted from various sources including the World Bank database, International Financial Statistics (IFS) of the International Monetary Fund (IMF), International Labor Organization (ILO), Bureau of Labor Statistics (BLS), Euromonitor portal and Economic Intelligence Unit (EIU). Annual time series from 1980 to 2010 were collected and all estimated results were derived using Eviews® 7.0 software.

Applying a fixed effects panel data framework, this study examined the determinants of trade flows by focusing on the roles of macroeconomic and country specific factors for BRICS, developing Asian countries, and developed countries. The fixed effects panel model is applied by taking into account each individual country's effect across a cross-section of countries. Since this study only investigated the factors pertaining to each of the country included in the sample, the fixed effects panel estimation was most appropriate. This determination was based on the individual effects assumption using the ordinary least square (OLS) estimation. By assuming individual effects in the model, this study assumed that each country's characteristics vary from one another but stayed constant over the time periods considered.

The panel data fixed effects model in this study is described below:

$$TR_{jt} = \beta_{0j} + \beta_{1j}ER_{jt} + \beta_{2j}ECONG_{jt} + \beta_{3j}INF_{jt} + \beta_{4j}UN_{jt} + \beta_{5j}IR_{jt} + \beta_{6j}FDI_{jt} + \beta_{7j}GB_{jt} + \beta_{8j}HCAP_{jt} + \beta_{9j}IFST_{jt} + \beta_{10j}MS_{jt} + \beta_{11j}WR_{jt} + \beta_{12j}STCK_{jt} + \beta_{13j}FD_{jt} + \varepsilon_{jt} \quad (1)$$

where *TR* is trade flows that is measured as the sum of total export and import in a country; *ER* is the yearly average value of each country's currency in terms of one unit of U.S. dollar; *ECONG* is the economic growth as measured by the change in the gross domestic product; *INF* is inflation rate which is proxied by changes in the consumer price index; *UN* is unemployment rates taken from the ILO's database; *IR* is interest rate; *FDI* refers to the net inflow of capital from foreign investors; *GB* is the government budget balance which is the difference between government revenue and expense; *HCAP* is human capital measured by the population of secondary school students; *IFST* is infrastructure quality measured by the cargo container volume transported; *MS* is market size which is proxied by the population size; *WR* is wage rate measured by hourly wage paid to manufacturing workers; *STCK* is stock market performance which is measured by changes in the stock market index; *FD* is foreign debt and is defined as the amount of money that a government owes other countries; and ε_{jt} is the error term and represents the effects of the omitted variables. It is assumed that ε_{jt} can be characterised by an independently, identically distributed, random variable with a zero mean and constant variance. The subscript *j* represents individual country and subscript *t* indicates time in years.

All time series data were first tested for stationarity by applying the panel unit root tests prior to estimation of the panel data fixed effects model. These included the Levin, Lin and Chu (LLC) test, Im, Pesaran and Shin (IPS) test, Fisher-ADF test, and Fisher-PP test. The results provided evidence for the stationarity of the time series as shown in Tables 1 to 3. The data series were also corrected for multicollinearity, autocorrelation or heteroskedasticity problems with variance inflation factors (VIF), White tests and Newey-West corrections.

Table 1. Panel unit root test results for BRICS

Variables	L.L.C	I.P.S	ADF- Fisher	PP- Fisher
FDI	-6.56903***	-5.91184***	53.3726***	65.3065***
TR	-3.85299***	-5.44238***	48.4395***	74.2585***
ER	-4.17179***	-4.17043***	36.8938***	58.5632***
GDP	-5.48516***	-4.39152***	39.6840***	46.8185***
INF	-4.60951***	-3.08291***	27.2445***	20.5108**
UN	-4.22535***	-4.76343***	42.8032***	52.6954***
IR	-25.8994***	-17.6690***	81.1860***	367.382***
TO	-6.65349***	-6.82458***	61.0383***	86.0385***
GB	-7.90275***	-7.76828***	72.6914***	89.0949***
HCAP	-2.21804**	-5.26817***	45.5886***	33.6709***
IFST	-5.93225***	-6.29500***	56.2909***	88.6127***
MS	-3.68166***	-1.97833***	19.2671***	83.4500***
WR	-4.55913***	-3.93830***	34.7619***	56.4075***
STCK	-4.71906***	-7.15404***	65.8725***	109.489***
FD	-3.83230***	-3.51125***	29.8962***	44.9671***

Note: ***and ** denote statistical significance at 1, and 5%.

Table 2. Panel unit root test results for developing Asian countries

Variables	L.L.C	I.P.S	ADF- Fisher	PP- Fisher
FDI	-4.78170***	-7.31669***	67.1029***	117.864***
TR	-4.81690***	-5.07171***	44.1707***	66.6962***
ER	-3.01224***	-5.05074***	44.7624***	73.5292***
GDP	-3.89525***	-4.54294***	40.1846***	64.5925***
INF	-9.37287***	-10.7996***	103.460***	136.310***
UN	-6.30068***	-5.62006***	51.5313***	87.8195***
IR	-9.28914***	-8.45718***	79.5725***	126.640***
TO	-3.57006***	-5.37620***	48.1685***	84.1277***
GB	-5.28944***	-6.83019***	62.2647***	98.2010***
HCAP	-2.40935***	-1.40995*	20.6661**	20.3578**
IFST	-5.71882***	-5.95945***	54.0431***	94.3119***
MS	-4.82871***	-1.67224**	24.3969***	84.9775***
WR	-4.44735***	-3.43174***	29.9623***	57.1500***
STCK	-3.00325***	-6.05925***	55.4585***	100.872***
FD	-3.09715***	-3.50933***	30.8105***	59.4866***

Note: ***, ** and * denote statistical significance at 1, 5 and 10 %.

Table 3. Panel unit root test results for developed countries

Variables	L.L.C	I.P.S	ADF- Fisher	PP- Fisher
FDI	-7.05568***	-6.44977***	62.5528***	120.534***
TR	-8.21825***	-8.76885***	89.8650***	129.581***
ER	-39.4783***	-20.2257***	70.4088***	84.2622***
GDP	-2.41846***	-1.77307**	21.2316**	38.8128***
INF	-3.36472***	-2.40181***	23.8134***	41.1646***
UN	-1.65220**	-1.69015**	21.1177**	11.9552
IR	-2.09190**	-2.50608***	25.3957**	36.7296***
TO	-8.28758***	-7.54509***	75.0578***	129.008***
GB	-6.71505***	-9.42973***	95.6228***	150.673***
HCAP	-4.58696***	-4.77949***	46.3712***	31.7151***
IFST	-3.71331***	-3.97043***	38.6339***	61.0541***
MS	-1.95681**	-1.09069	31.2509***	99.9069***
WR	-7.84886***	-6.77992***	66.4524***	80.2123***
STCK	-6.17345***	-6.61204***	64.6668***	116.227***
FD	-5.58333***	-4.98803***	51.6786***	64.6341***

Note: ***and ** denote statistical significance at 1 and5 %.

4. Findings

4.1 BRICS

Findings for BRICS countries shown in Table 4 denote that exchange rate had a significant negative relation with trade flows. This negative relation implied that an increase in the value of home currency relative to foreign currency would result in an increase in trade flow. The finding was similar to that of Abeysinghe and Yeok (1998) where an appreciation of local currency made imports relatively cheaper, leading to an increase in imports, especially the import of processing trade to produce finished products. When input cost was reduced, exporters could sell their products at a competitive price and this would further lead to an increase in trade flows. This study also found that economic growth had a positive significant effect on trade flows. With increasing growth rate, a country's total output is increased and this in turn boosts income levels resulting in increased trade flows.

Other macroeconomic variables shown in Table 4, including interest rate, FDI inflow, as well as the country specific indicators, were found not to have any significant effect on trade flows for this group of countries with fast emerging markets. The significant *F*-statistic indicates that the model is significant in explaining trade flows. Additionally, the adjusted R-squared of 0.6829 denotes that more than 68 per cent of trade flows were explained by both macroeconomic and country specific factors. Based on the findings, it can be concluded that exchange rate, economic growth, inflation rate, unemployment rate and government budget balance were significant determinants of trade flows for BRICS.

4.2 Developing Asian Countries

For developing Asian countries, economic growth was also found to have a significant positive effect on trade flows. It was the most important factor in driving trade of these

Table 4. Fixed effect panel model for trade flows

This table presents the panel data fixed effects model as shown in equation (1):

$$TR_{jt} = \beta_{0j} + \beta_{1j}ER_{jt} + \beta_{2j}ECONG_{jt} + \beta_{3j}INF_{jt} + \beta_{4j}UN_{jt} + \beta_{5j}IR_{jt} + \beta_{6j}FDI_{jt} + \beta_{7j}GB_{jt} + \beta_{8j}HCAP_{jt} + \beta_{9j}IFST_{jt} + \beta_{10j}MS_{jt} + \beta_{11j}WR_{jt} + \beta_{12j}STCK_{jt} + \beta_{13j}FD_{jt} + \varepsilon_{jt}$$

where subscript *j* represents individual country; subscript *t* indicates years; *TR* is trade flows; *ER* is the yearly average value of each country's currency in terms of one unit of USD; *ECONG* is the economic growth as measured by the change in the GDP; *INF* is inflation rate; *UN* is unemployment rates; *IR* is interest rate; *FDI* refers to the net inflow of capital from foreign investors; *GB* is the government budget balance; *HCAP* is human capital; *IFST* is infrastructure quality; *MS* is market size; *WR* is wage rate; *STCK* is stock market performance and *FD* is foreign debt.

	BRICS	Developing Asian	Developed
ER	- 0.2418***	- 0.0001	- 0.1578*
	(0.0009)	(0.1882)	(0.0517)
GDP	0.0211***	1.2984***	0.0159***
	(0.0001)	(0.0001)	(0.0001)
INF	- 0.0001	- 0.0016	0.0068
	(0.0600)*	(0.5024)	(0.0047)***
UN	- 0.0157**	- 0.0004	- 0.0103
	(0.0327)	(0.9796)	(0.2682)
IR	- 0.0003	- 0.0129***	- 0.0079**
	(0.9109)	(0.0001)	(0.0219)
FDI	0.0010	- 0.0008	0.0054*
	(0.6196)	(0.9077)	(0.0945)
GB	0.0001***	0.0001***	0.0001***
	(0.0040)	(0.0093)	(0.0005)
HCAP	0.0642	1.6506	0.2034
	(0.6117)	(0.3014)	(0.4986)
IFST	0.0863	0.0697	- 0.0073
	(0.1798)	(0.1238)	(0.8451)
MS	1.7654	3.2148	0.1350
	(0.7707)	(0.2957)	(0.1676)
WR	0.0346	0.0856	0.2439***
	(0.4936)	(0.2098)	(0.0090)
STCK	- 0.0131	0.0001	0.0683***
	(0.4513)	(0.1898)	(0.0036)
FD	0.0501	0.0539	0.0328
	(0.5544)	(0.3086)	(0.3243)
Constant	- 1.0537	0.0005	- 0.8837
	(0.6327)	(0.9921)	(0.1973)
Adjusted R squared	0.6829	0.7433	0.6066
F-statistic	0.0001	0.0001	0.0001

Note: *** significant at 1%, ** significant at 5%, and * significant at 10 %

developing countries. Through higher economic growth, there would be higher productivity and income which lead to higher consumption and trade. Interest rate was also found to have significant relation with trade flows for these countries and the relationship was negative. In agreement with Hnatkovska *et al.* (2008), this study also found that when interest rates increase, the cost of running business tends to follow, making products more expensive and less competitive. As a result, trade flows are negatively affected.

As with BRICS, government budget balance also had a positive significant effect on trade for developing Asian countries. When governments' budget balances improved, interest rates in the country would decrease, stimulating investments by firms leading to higher production and consumption, and ultimately higher trade flows.

The other macroeconomic indicators such as exchange rate, inflation and unemployment rate as well as FDI flows were not significant in determining trade flows in these countries. As with BRICS, the country specific indicators had no significant effects on trade flows. This may be due to the developing nature of the economy of these countries during the time period studied meaning that macroeconomic fundamentals were more significant than country specific indicators in affecting total trade. This model however explained more than 74 per cent of trade flows according to the adjusted R-squared. The significant *F*-statistic also indicated that the estimation model was significant. In summary, it can be concluded that economic growth, interest rate and government budget balance were drivers of trade flows in developing Asian countries.

4.3 Developed Countries

Findings for the group of developed nations also confirmed that economic growth was very significant in determining trade flows. Developed countries are renowned for higher productivity and income with huge amount of trade with the rest of the world. As with developing countries, an increase in the value of domestic currency would make international trade more attractive. It is interesting to note that inflation rate is found to be positively significant in affecting trade flows of developed countries in contrast to that for developing countries. Generally, higher domestic inflation rates means local products are more expensive and as a result people would seek substitute products which may be imported. In addition, for this group of developed countries, higher prices could also mean better quality products through research and development which is in high demand globally thereby raising trade flows.

As with developing Asian countries, interest rate was negatively significant in affecting trade flows. Additionally, government budget balance also significantly affected trade flows of developed countries in the same manner as the other countries. One interesting result for this group of developed countries was that FDI flow was only marginally significant in affecting trade flows. As more foreign investments poured into the country, business confidence improved, production increased, and economies of scale improved resulting in due course, increased international trade.

Another set of appealing findings for this group of countries was the significant country specific indicators relationship with trade flows, namely wage rate and stock market performance. Wage rate increases indicate a booming economy with higher income which stimulates international trade between countries with higher imports and exports. Furthermore, stock market performance was also found to be positively significant in driving trade

flows of developed nations. When the stock market is performing well, this reflects business confidence and strong economic sentiments which lead to higher income, production and trade flows. The significant *F*-statistic indicates that the combined model of macroeconomic factors and country specific indicators is significant in affecting trade flows in developed countries. The adjusted R-squared of 0.6066 indicates that about 61 per cent of trade flows in developed countries can be explained by this comprehensive model on trade.

5. Summary and Conclusion

The last few decades have seen more liberalisation and borderless movement of not only goods and services but also factors of production. There is no isolated country in the universe and governments around the globe have been building good relations amongst neighbouring countries and those across regions. One of the key challenges of developing and developed countries worldwide is to optimise their economic policies in order to strengthen inter-country relations and motivate international trade and investments. As a result of this, identification of trade determinants has become a vital issue for authorities. This study applied the fixed effect panel data estimation method to control for unobserved individual country effects and provides empirical evidence on the relationship between trade flows and significant determinants in three groups of countries: BRICS, developing Asian countries, and developed countries.

The findings confirmed that there were significant relationships between economic growth, government budget balance and trade flows in all groups of countries studied. The positive relationship between economic growth and trade flows established that higher economic growth increased aggregated demand and production resulting in higher trade flows. As for the direct relationship between government budget balance and trade, authorities should introduce policy measures to prevent deterioration in the budget balance to avoid dampening international trade. Policy measures should also aim to reduce crowding out effects to allow businesses to bloom together with international trade. In addition, for the two groups of developing countries, country specific indicators have not provided significant relation due to different stages of their development. It is fascinating to note that wage rates and stock market performance directly affect trade in developed nations.

In conclusion, the findings in this study contribute to existing literature on the significant relation between macroeconomic fundamentals, country specific factors and trade flows for developing and developed countries. The findings would assist policy makers in formulating policies and making effective decisions to improve trade flows and reap the benefits of international trade and investments.

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