

## **Economic Impact of Regional Trade Agreements and Economic Co-operation: Econometric Evidence**

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### **Abstract**

The paper focuses on regional trade agreements and economic co-operation and develops a new appropriate approach to study their impact on growth and trade. The approach is based on an endogenous trade-growth theory and novelly specified in an economic integration (expenditure) framework which is the conceptual foundation of regional trade agreements. Importantly, it also appropriately takes into account major add- and sub-factors as recommended by Johansen, the computable general equilibrium pioneer, in practical economic planning and policy modelling. Applications of the approach to China, a key member of the Regional Comprehensive Economic Partnership agreement group, are also reported to provide useful insights for suitable evidence-based impact analysis. The analysis has relevance to such trading blocs as BRICS and the 21-member Indian Ocean Rim Association where Iran is a key member. Policy implications from the findings are then briefly discussed.

**Keywords:** Economic Integration, Regional Trade Agreements and Their Impact on Growth and Trade, Financial Crises and Policy Reform, Econometric Modeling and Forecasts, Economic and Trade Policy.

**JEL Classification:** F14, F17, F31

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## 1. Introduction

Regional trade agreements (RTA) have proliferated in recent years especially in the Asia Pacific (WTO, 2015). This is due in part to the slow progress of the World Trade Organization Doha Round negotiations and the strong economic growth due essentially to trade openness and subsequent national identity projection of developing and transition economies (the 'miracle or tiger economies') in the region (Tran and Harvie, 2006). During this period however, while national and regional policy reforms and RTA or free trade agreements (FTA) memberships have helped to spur growth and development, the 1997 Asian and 2008 global financial crises (AFC and GFC respectively) and, in addition, natural disasters have also been observed to dampen this growth and development (Tran, 2002c), and prompted policy rethink (Stiglitz, 2009). A study on the impact of RTA/FTA on growth and trade (in aggregate or sectoral and commodity form) that takes into account these diverse contributing factors is currently desirable but hardly existent.

The paper is first an exposition of a new econometric approach with improved structural and modelling features to study more appropriately the economic impact of RTA/FTA on growth and trade and with application, as a major case study, to a key member of the Regional Comprehensive Economic Partnership (RCEP) group, namely China. The approach also has wide relevance to other RTA/FTA studies for open countries such as the 21-member Indian Ocean Rim Association (IORA) trading bloc where Iran is a key member, and related RTA trading groups or co-operation being proposed or under negotiations. Another important consideration of why China is selected for

study is that, in addition to its global economic and geo-political prominence and being a member of the ASEAN RCEP, a rival to the 12-member Trans Pacific Partnership (TPP) where the US is a key member, it is also an important member of the BRICS economic co-operation group where India is a key member. The paper's second objective is to use the new approach to provide useful empirical insights for suitable RTA/FTA and growth-trade policy analysis and implementation for China in particular and also for other open economies with RTA/FTA and economic co-operation agenda in general.

The plan of the paper is as follows. Section 2 briefly reviews existing approaches to economic impact study and their major limitations that need major improvements. Section 3 describes the new approach and its features. Section 4 reports the empirical impact findings and their credibility with supporting data for the period 1984-2012 for China for potential policy analysis. Section 5 discusses major implications on the impact of RTA/FTA on growth and trade in China. Section 6 concludes.

## 2. Alternative Approaches to Economic and Trade Impact Study

Studies of trade and growth and the impact of RTA/FTA on these two economic indicators are of great importance to national and regional and global economic policy on improving living standards, reducing poverty and inequality, and promoting stability and mutual prosperity of all members or partners. Existing approaches for this kind of impact study on trade and growth are numerous in the current academic literature and also in practical national and international commissioned policy research analysis (WTO,

2015). They essentially can be divided into three streams: (a) descriptive association or qualitative analysis, (b) simulation or scenario study, and (c) quantitative analysis. The first stream includes outcomes from summit meetings and survey study, and the second involves chiefly computable or applied general equilibrium (CGE) and global trade analysis (GTAP) and their recent extensions such as dynamic stochastic general equilibrium (DSGE). Quantitative analysis takes many forms of empirical kind and includes growth regression (Levine and Renelt, 1992), short-term causality (Granger 1969) and long-term causality or co-integration analysis (Engle and Granger, 1987). Important in this stream for trade determination is the very popular gravity theory expounded by Frankel and Romer (1999). This theory is usually implemented empirically by panel regression (see a previous related study in Frankel et al., 1996).

While some of the findings from these approaches have provided useful inputs for academic discussion and policy analysis, they are often inappropriate or not credible (or realistic) for proper policy uses because of their structural and econometric or data-based limitations and subsequently outcomes with less confidence (see Hertel et al., 2007, Tovar, 2008). For example, association and qualitative study is based on simply correlation or association between the activities of interest and not on their deep causal behaviour as required in rigorous multi-sectoral economic study. Growth regression is econometrically fragile (Levine and Renelt, 1992) which can be attributed in part to a lack of the well-known circular causality (endogeneity or interdependence) in the sense of Marshall or Haavelmo among economic activities (e.g., trade, growth, monetary, fiscal

and industry policies) [see also Krueger (2007) for the need for this feature in developing economics analysis and modelling]. The CGE/GTAP is limited in the sense that it is essentially confirmatory or by simulation in nature with its *assumed* causal structural relationships and *assumed* elastic and impact parameters. The gravity theory (Frankel and Romer, 1999) lacks endogeneity or circular causality between trade and growth and is, in terms of modelling specification, beset with serious cross-country heterogeneity bias when fixed-effect panel regression (the most successful method in the literature so far, see Eichengreen et al., 2007) is used for all diverse countries with different institutions, histories, cultures, economic structures and even languages.

Importantly for policy credibility in empirical study, the specification of a conventional linear or log-linear function for trade-growth studies has been increasingly regarded as unsuitable (Minier, 2007) and a suitable more complex behavioural form to represent realities is more desirable. In terms of policy outcomes realism, previous impact studies have also demonstrated their poor modelling performance when this performance is assessed by the Friedman 'fruitfulness' (1953) or Kydland data-model consistency (2006) criteria or simply a lack of 'empirical fit' as notably described by Tovar (2008) in current policy modelling studies.

Improvements on these limitations and appropriately and formally in an RTA or economic integration perspective for useful and credible impact analysis are desirable. These improvements are briefly described in the sections below. Essentially and structurally, this perspective has the characteristics of the SNA93/08 expenditure

account and is an alternative to the conventional SNA93/08 production or income perspectives that have almost invariably been adopted in growth analysis (see a survey and comments in Levine and Renelt, 1992). Studies of growth from the economic integration perspective, while appropriate for RTA/FTA impact analysis, have not been formally undertaken in the contemporary literature (see however Tran 2004, 2005, 2008a, Tran and Limskul, 2013).

### 3. A New Approach to Explore the Impact of RTA/FTA on Trade and Growth

#### 3.1. New Advances in Economic Policy Modelling

In a number of recent papers, Tran (e.g., 2002a, 2004, 2005, 2008a) uses a simple, new and general modelling approach, namely the endogenous gravity theory, to empirically study trade and its testable causal link to growth in major developing countries in Asia. A new model of so-called endogenous growth and trade is structurally based on the theory of economic integration and international trade (ETG for short) to study the impact of RTA/FTA on growth and trade for an open economy (say China). It has significant improved features on existing approaches, and is described below for the present paper.

The major and novel structural and modelling features of an ETG over existing approaches can be briefly described as follows.

First and most importantly, it recognizes and incorporates explicitly the interdependence (endogeneity) between trade, growth and major macroeconomic conditions or activities in the trading economies (Krueger 2007).

Second, unlike growth and panel regression, it recognizes country-specific or heterogeneity characteristics and impacts on trade and growth in each economy.

Third, unlike other WTO-oriented trade-in-goods production-based studies and more appropriately for RTA/FTA expenditure scope studies, it covers comprehensive trade in goods and other factors of production (i.e., FDI and services).

Fourth, it incorporates reform, crises and non-economic events (Johansen 1982, Tran 2004, Edwards 2007, Stiglitz 2009) that have affected trade and growth globally or in the region in recent years.

Fifth, unlike other modeling studies in this genre (e.g., CGE/GTAP and growth or panel regression), it assumes no *a priori* (e.g., linear or log-linear) functional form (Tran, 1992). Other existing modeling approaches for this kind of trade-growth impact study lack some or most of these features.

#### 3.2. The Model

In this new approach and for illustration, the fundamental relationship between the key macro activities of the economy in an economic integration framework (where trade, FDI and services, but not specifically capital and labour, are assumed to be key growth drivers) can be written, as in the traditional CGE/GTAP approach (Johansen 1960), as an implicit functional system  

$$(GDP, T, FDI, S, SH, YT, TT, XR) = 0$$

where GDP=gross domestic product, per capita income, living standard index, inequality index, regional growth, etc, T=merchandise trade, FDI=foreign direct investment, S=commercial services, SH=RTA/FTA event, policy reform or crisis,

YT=RTA/FTA partner GDP, TT=terms of trade, and XR=real exchange rates.

To explore the impact of RTA/FTA on growth and trade of an open economy, say China and its major trading partner say the European Union, two normalised implicit functions for GDP and T in an economic integration framework for example can be written as

$$GDP=GDP(T, FDI, S, SH) \quad (1)$$

$$T=T(GDP, YT, TT, XR, SH) \quad (2)$$

where GDP(.) and T(.) denote implicit functions with assumed key variables.

Conceptually, the model is built on previous work in gravity theory (Frankel and Romer, 1999), and endogenous growth and trade (Tran, 2004), and institutions theories (see Kong 2007 for a description) in an RTA/FTA scope (see also related extended models in Tran and Limskul, 2013). The model can be regarded as an integrated model of aggregate growth (GDP) and derived commodity demand (T) with conventional prices (TT and XR), income and with the influence of advanced or new 'conditionality' contributing factors (SH). The model's testable growth and trade determinants include FDI, services (S), trade partners GDP (YT), TT, XR, and structural change variable SH reflecting RTA/FTA events, policy reform, and crises.

As they stand, the equations (1)-(2) may represent unknown complex functional forms and are not statistically estimable. However, using Taylor's series expansions for the implicit functions and invariant transformations, and neglecting second and higher-order differentials (see Tran, 1992, 2004. See also Baier and Berstrand, 2008, for a recent use of this approach to deal with possible nonlinearity), the 2-equation model

for GDP and T above can be written equivalently for empirical implementation as

$$Y\% = b_1 + b_2T\% + b_3FDI\% + b_4SV\% + b_5CR + u_2 \quad (3)$$

$$T\% = a_1 + a_2Y\% + a_3YT\% + a_4TT\% + a_5XR\% + a_6CR + u_1 \quad (4)$$

where % denotes the rate of change of the associated variables and the u's represent error terms or, importantly, omitted determinants (Frankel and Romer 1999). The relative importance of these determinants can be assessed by means of the modelling performance criteria and diagnostic tests (see below).

The model's economic-theoretic rationale which is based on the current literature's postulates (Frankel and Romer 1999, and Kong 2007) and recent extensions (Tran 2008a, 2008b) can be briefly described as follows.

In Eq. (3), China's growth is assumed to be endogenous and affected prominently by the country's RTA/FTA key economic integration drivers (T, FDI, S) and externally determined or exogenous activities (SH). Growth determined in this RTA/FTA scope specification has not been formally attempted in the literature (see however Tran 2004, and Tran and Limskul 2013). In (4), trade is on the other hand also endogenous and determined by conventional microeconomic theory and includes such factors as the country's growth (the crowding out effect), externally determined demand and supply prices (TT and XR) – see De Grauwe, 1987, Coe and Helpman, 1993 - and structural change (SH) – see Johansen, 1982, Tran 2002a, Edwards, 2007, Cerra and Saxena (2008) - in China and also in its trading partners.

Assume for convenience and for lack of sufficient sampling sizes for the necessary



data, that the GDP of China's major trade partners (e.g., the European Union) is a proxy for all variables reflecting their own relevant economic and non-economic activities. Then Equation (4) for T, in its structural form of our illustrative two-simultaneous equation model, is a derived utility-based demand equation and simply assumes that China's trade to the EU say is affected by endogenous domestic demand, and the exogenous factors such as the EU's GDP (named YT) that embodies possibly the combined effect in the EU of fiscal policy, monetary policy, inflation pressure – see Romer (1993). Other relevant trade determinants include XR – see Dell'Ariccia (1999), industry policy – see Otto et al. (2002), population (POP) – a gravity proxy in time series, see Frankel and Romer (1999), and SH – see Johansen (1982) and Tran (2004).

The statistical tests for significant impact of RTA/FTA events and policy reforms on China's trade to the EU and also their impact (via in addition trade, FDI and services) on China's growth in the ETG economic integration framework are then based on the testing of the structural equations (3)-(4) above by appropriate statistical system estimation and testing procedures. These include the two-stage least-squares (2SLS), the three-stage least-squares (3SLS), and the generalized method of moments (GMM) with the selection of economically relevant and statistically exogenous instrumental or 'economic conditionality' variables to produce consistent outcomes. The credibility of the outcomes for policy analysis with confidence will, as mentioned earlier, also depend crucially on the modelling performance of the

model as evaluated by the Friedman (1953)-Kydland (2006) 'fruitfulness' and 'data-consistent' criteria or by the Tovar (2008) empirical fit criterion.

Finally in a dynamic time-series sense, as the economic variables in the ETG model (being planar approximations to any functional form) are expressed as their rates of change (or equivalently log differences when appropriate), the model's findings can be regarded as long-run outcomes in the sense of Engle and Granger causality or co-integration if these variables are integrated of degree one I(1) or as short-term Granger causality if they are I(0). These two interpretations play a crucial role in contemporary time-series causality analysis.

### 3.3. The Data

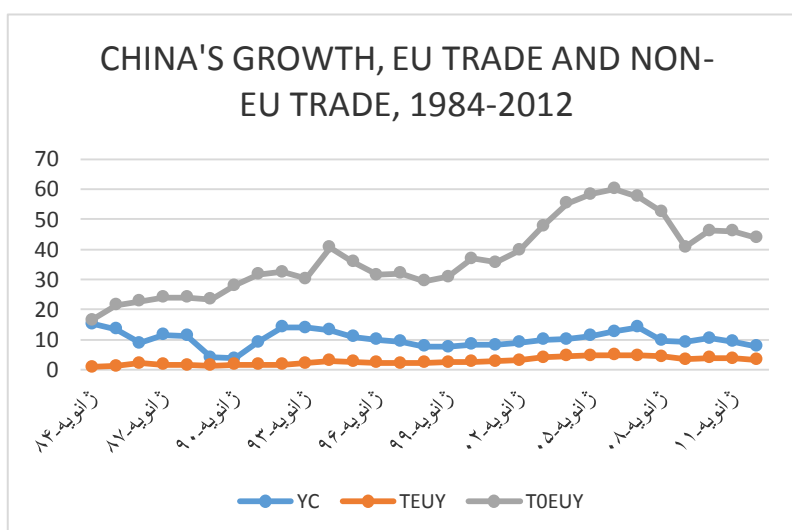
Time-series data for China and the EU for the model's estimation were obtained from the online macroeconomic and international trade databases of the Asian Development Bank and the US-Department of Agriculture Economic Research Service. All economic data are in real value. In our study, all original data are obtained as annual and then transformed to their ratios (when appropriate). The ratio variables include merchandise trade (T), FDI, commercial services (S), all divided by China's GDP. Other non-ratio variables include population (a gravity factor proxy, see Frankel and Romer 1999), terms of trade (TT), real exchange rates (XR), and binary qualitative variables representing, as proxies, the occurrence of the economic, financial and other major crises, policy shifts or reforms in China over the period 1984 to 2012. All non-binary variables are then converted to their

percentage rates of change. The use of this percentage measurement is a main feature of our ETG approach, and it avoids the problem of *a priori* known functional forms (see above) and also of logarithmic transformations for negative data [such as budget (fiscal) or current account deficits]. In this paper, we focus on a unidirectional direction of trade and growth, that is, the determination of China's trade and growth and the impact of RTA/FTA and their important drivers and within the prevailing international economic and trade environment. This conditional causality transmission mechanism is the fundamental foundation of our testing hypothesis.

As a summary of statistics, the plots of data for China's growth (YC), China-EU trade/GDP (TEUY) and China's non-EU trade/GDP (T0EUY) are given in Chart 1, and for China's FDI/GDP (FDIY), services/GDP (SY), real exchange rates (RXR) and terms of trade (TT) in Chart 2. In Chart 1, we note a high growth with a mean of 10.17 per cent over the whole period and its continuous decline since its peak (14.2 per cent) in 1992 during the country's early-1990s reforms. China's EU trade shows a fairly stable movement with a low mean of 2.83 per cent after reaching its peak of 3.91 per cent in 2006, a year after the country's exchange rate float. China's other trade shows a high and rising trend with a peak also in 2006 at 59.98

per cent and with a mean of 37.07 per cent. The effect of the AFC on this trade is mild from 31.94 per cent in 1997 to 29.40 per cent in 1998 but the impact of the GFC is severe falling from 57.51 per cent in 2007 to 40.75 per cent in 2009.

In Chart 2, we note the fairly stable path of the terms of trade with the peak of 1.36 in 1997 and a mean of 1.05. Services are more volatile and mainly in deficit during the period with the peak of -2.45 in 1995 and a mean of -0.65 per cent. FDI shows large fluctuations especially since 1992 with the peak of 5.86 per cent in 1994 (and a continuous decline since) and with a mean of 2.63 per cent. The lingering impact of the GFC on FDI can be seen by its fall from 57.51 per cent in 2007 to 40.75 per cent in 2009. Real exchange rate also show large fluctuations peaking at 9.80 per cent in 1994 and has since shown a long-term decline. Their mean is 7.24 per cent. Interestingly, China's exchange rate float of 2005 does not seem to indicate any great impact on these exchange rates falling from 8.19 per cent in 2005 to 8.12 per cent in 2006. The interaction of these key activities and the influence of the country's conditionality and how they have embedded in a model in an economic integration or RTA/FTA framework as described above to affect China's growth and EU trade are given in Section 4 below.



**Chart 1: China's Growth, EU trade and non-EU Trade, 1984-2012**

*Source:* Authors



**Chart 2: China's FDI, Services, Real Exchange Rates, Terms of Trade, 1984-2012**

*Source:* Authors

**Note:** Data for Charts 1-2 are from ADB (2015) and USDA-ERS (2015).

#### 4. Econometrics-Based Findings and Their Realism Properties

The empirical findings for the structural ETG equations (3) and (4) in the two-simultaneous equation model of China's endogenous growth and EU trade and the impact of RTA/FTA events and their key drivers are given in Table

1 below. Conceptually interpreted, Equations (3) and (4) can be implicitly regarded as a trade and growth regression respectively when they are estimated by the OLS or maximum-likelihood method that will produce, as is well-known, biased impact or elasticity parameters. Or they can be properly regarded



as structural equations in a system model with circular causality or endogeneity incorporated where system estimation is more appropriate.

As mentioned above, the instrumental variables in this case are all the exogenous or non-endogenous variables explicitly incorporated or assumed for the model (see the list in Table 1). The validity of these instrumental variables is confirmed by the Hansen-test p-value of 0.937 (see Table 1) and the validity of Equations (3) and (4) is satisfied by the Hausman test statistics of 2.174 with 4 and 12 degrees of freedom for (3) and 1.811 with 2 and 15 degrees of freedom for (4). The instrumental variables reflect the micro and macroeconomic conditioning environment of China and its major trading economies (when data are available) and indirectly and simultaneously influence their trade, economic, RTA/FTA and external relations. The trade-growth causality issues are similar when directionally reversed and viewed from the perspective of the world (or the EU in this paper) as trading partners.

Judged from the table and standard statistical diagnostic tests, the performance of the estimated ETG model for China's EU trade and its link to growth above are acceptable in terms of the conventional  $R^2$  and DW values. The performance of the model can also be

better evaluated by the Friedman (1953)-Kydland (2006) data-model realism or consistency criterion where the trend gap (or discrepancy) between historical data and model predictions have to be tight and small. The criterion was advocated earlier by Milton Friedman (1953) in the sense of model (theory) and reality consistency, but it seems to have been overlooked by econometric modelers and policy-makers alike in recent years [see also Tovar (2008) who points out the lack of 'empirical fit' or confidence in recent models used for impact study].

This performance is given in Charts 1 and 2 for China's observed and predicted growth and trade to the EU. A visual indicates that the model emulates well the troughs, peaks and turning points of China's trade and growth even during the highly volatile and complex transformative period of mid-1980s to 2012 covering from China's 1985 and 1992 policy reforms, domestic turmoil (1989), the 1997/98 AFC, the terrorist attacks and China's WTO membership in 2001, China's 2005 exchange rate float, the GFC, to the EU sovereign debt crisis of 2010/11. *Ex ante* simulation or extrapolation of the estimated model for predictive policy analysis and their implementation credibility are based on these findings.

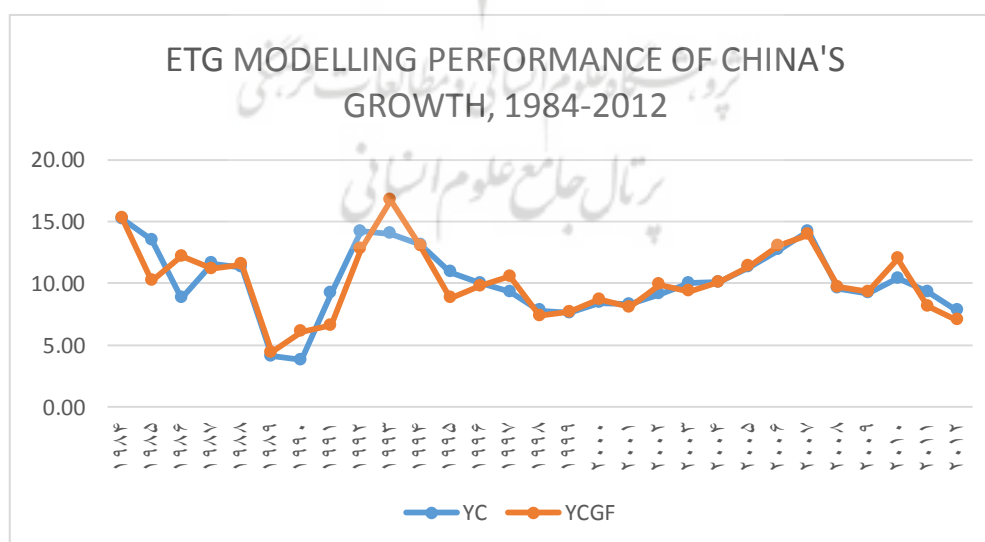
**Table 1: Impact of RTA/FTA on China's Growth and EU-Trade****ETG Econometric Modelling in Flexible Structural Form: GMM Estimates, 1984-2012**

	<b>Growth</b>	<b>EU-Trade/GDP</b>
Const	8.150**	-42.456**
China's EU-Trade/GDP	-0.005	
China's Non-EU Trade/GDP	0.027	
FDI/GDP	0.049**	0.253**
Services/GDP	0.0001	
China's Growth	0.297	-1.349**
EU's Growth		1.059
Terms of Trade		0.053
Real Exchange Rates		0.649**
Trend	0.301	1.698**
Policy Reforms 1985		88.349**
Black Stock Market Crash 1987		-64.080**
1989 Domestic Turmoil	-6.696**	
China's Reforms 1992	3.702**	
Asian Financial Crisis 1997/98	-2.847**	
China's WTO Membership/Terrorist Attacks 2001	-0.278	-0.600
Iraq War 2003		14.803**
China's XR Float 2005		-21.036**
China's XR Float post-2005	3.189**	1.724**
Global Financial Crisis 2008/09	-2.874**	-16.016**
EU Sovereign Debt Crisis 2010	-3.870**	
R-squared	0.757	0.927
DW	2.709	2.576

*Source:* Authors

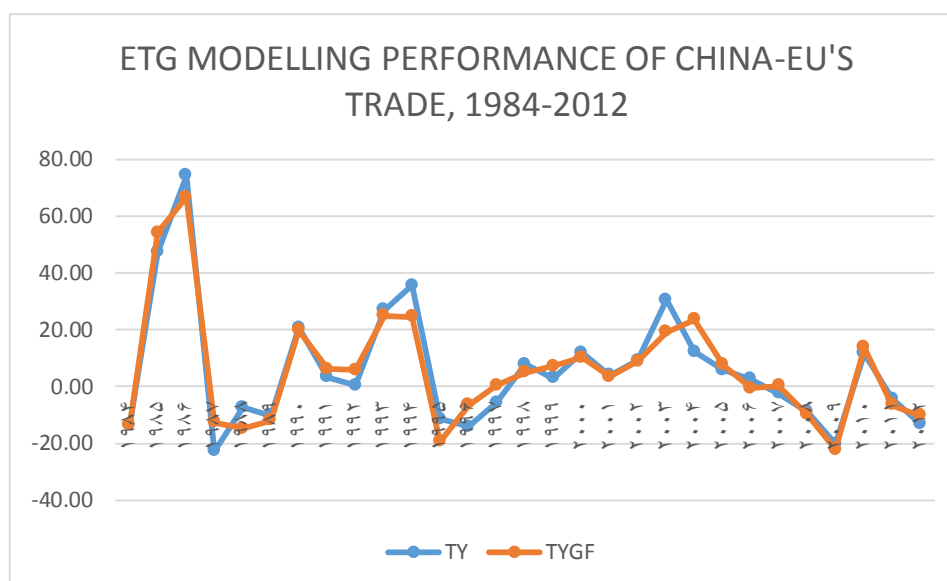
Note: \*\*=Significant at 5%, p-value for the overidentifying restriction test= 0.937.

China's predicted growth and EU-trade based on the estimated ETG model and their actual values over the period 1984-2012 are given for comparison in Charts 3-4 below.



**Chart 3: ETG Impact Reliability of China's Growth – Friedman-Kydlund Criterion, 1984-2012**

*Source:* Authors



**Chart 4: ETG Impact Reliability of China's EU Trade – Friedman-Kydland Criterion, 1984-2012**

*Source:* Authors

Note to Charts 3-4: YC, YCGF, TY, TYGF denote respectively China's actual growth, ETG predicted growth, actual EU-trade/GDP, and ETG predicted EU-trade/GDP

The statistical characteristics of the model's growth and China-EU trade predictions relative to their actual data in terms of Theil-MSE decomposition criterion (bias, variance and covariance) are given in Table 2. The estimated model appears performing well in terms of its statistical characteristics, the Friedman-Kydland-Tovar 'empirical fit' criterion, and the Theil-MSE decomposition evaluation. The residuals of the growth and EU-trade equations are also found to be

stationary with Dickey-Fuller test p-values of 0.100 and 0.152 respectively. This confirms the reliability of the model's findings and impact analysis. Deterministic or stochastic *ex ante* simulation or extrapolation into the future of the estimated model for different scenarios of growth and China-EU trade analysis, domestic policy reforms, national, regional and global crises, and their claimed reliability may be based on these substantive findings.

**Table 2: Reliability of Impact of RTA/PTA/FTA on China's growth and EU-Trade**

	Growth		Trade	
	Actual	Predicted	Actual	Predicted
Mean	10.166	10.160	5.955	5.977
Standard deviation	2.754	2.763	21.194	20.108
Correlation Coefficient	0.870		0.963	
RMSE	1.390		5.630	
Mean Error	0.006		-0.021	
Um	0.000		0.000	
Us	0.001		0.036	
Uc	0.999		0.964	
Residual p-value	0.100		0.152	

*Source:* Authors

Notes.  $U_m + U_s + U_c = 1$  (Pindyck and Rubinfeld 1998), Residual p-value = Dickey-Fuller test p-value for the residual stationarity.

## **5. Economic Impact of RTA/FTA on China's Growth and EU-Trade**

While growth and trade determination plays a crucial role in the economic literature and policy analysis, its theory can be complex especially in developing economies (Kong, 2007, Krueger, 2007) and its empirical studies have been enormous with essentially no uniform and applicable findings (Levine and Renelt 1992). The paper describes a new econometric approach that we claim to have substantial improvements and more credible outcomes upon conventional approaches and provides, as useful illustration, empirical findings or econometric evidence to assess the impact of RTA/FTA on an important case-study country, namely China. As the approach is generic, it has wide applicability on similar subject-matters. What are then the main findings from the proposed model on this impact to inform debate, discussion and possible policy analysis?

### **5.1. Impact of RTA/FTA on China's Growth**

The purpose of RTA/FTA is to formally liberalise merchandise trade, FDI flows, and commercial services by negotiations for perceived mutual economic and potentially political and co-operation benefits. It is based therefore on the principle of a free or competitive market with unrestricted flows of goods, capital, labour, and services. In this context, it is wider than the objective of the WTO membership that has a focus on merchandise trade liberalisation or trade openness. The model we propose incorporates not only the key components of RTA/FTA but also the potential impact of their formal implementation (an event), and in empirical study, the possible influence of policy

'conditionality' and its interdependent-activity transmission mechanism.

The findings in Table 1 indicate that, during the period 1984-2012, the most significant impact on China's growth is its FDI, contributing about 5 per cent per year to growth. These firmly support the policy of the Chinese government in FDI-led development and growth. Also, due perhaps to its minor role in China's total trade and continuously declining growth in the past two decades (exactly from the peak in 1993), EU-China and non-EU-China trade as well as services have negligible impact. The impact of China's WTO membership in 2001 is also negligible due probably to its early days after the country's ascension. Importantly, as foreshadowed earlier from observations of actual data (Charts 1 and 2) and the crisis literature however, domestic turmoil, regional and global crises, and national policy reforms all have important impact on China's growth. Some of these impacts are substantial and dominate the RTA/FTA impact [the concerns were raised also by Stiglitz (2009) regarding crisis impact]. The call for proper national reforms and especially crisis mitigation and management to promote and maintain growth is a national priority.

### **5.2. Impact of RTA/FTA on China's EU Trade**

The findings in Table 1 indicates that the most significant positive impacts on China-EU trade are from FDI flows and especially real exchange rates, and a general long-term autonomous rising trend attributable to the country's increasingly competitive advantages. They also indicate that a crowding-out effect of higher domestic demand on reducing EU-trade significantly exists in China and this

might assist in solving the imbalances problem for China's key trading partners. As expected, higher growth in the trading partner, namely the EU in this study, generates higher demand for trade from China, but the impact is statistically weak. Again, the other significant impacts on China-EU trade are found to be positive from the policy reforms of 1985 and 2003 (which also coincides with the Iraq War), but reduced by the stock market crash of 1987, the terrorist attacks of 2001 and the lingering effect of the GFC. Due to its geo-political characteristics and international trade structure, China-EU trade was not affected by the AFC of 1997/98.

## 6. Conclusion

The findings as obtained above (Table 1) reveal conceptually and, importantly, empirically the impact of RTA/FTA on trade performance and economic successes and slowdowns in one important regional economy in the Asia Pacific with rising global economic and geo-political influence, namely China in its trading with its major trading partner, the European Union. What is innovative and significant in this study is that the approach departs novelly from the conventional production framework and is based appropriately instead on the RTA/FTA economic integration or SNA expenditure structure with endogenous growth and trade and Johansen factors. The findings show that FDI and reforms (including trade policy) greatly affect China's growth, and that real exchange rate, FDI and reforms greatly impact China's EU trade. National, regional and global crises also affect negatively China's growth and trade. The econometric evidence is economic-theoretically acceptable and statistically robust and credible as evaluated

by its 'empirical fit' and statistical consistency, two important features lacking in many contemporary studies of the similar kind.

## References

- ADB (2015), <http://adb.org>
- Baier, S. L and J.H. Bergstrand (2008), "Bonus Vetus OLS: A Simple Method for Approximating International Trade-Cost Effects Using the Gravity Equation," *Journal of International Economics*, 77(1), 77-85.
- Cerra, V. and S.C. Saxena (2008), "Growth Dynamics: The Myth of Economic Recovery," *American Economic Review*, 98(1), 439-57.
- Coe, D. and E. Helpman (1993), International R&D Spillovers, National Bureau of Economic Research Working paper, Cambridge, MA, No. 4444, August 1993.
- De Grauwe, P. (1987), Exchange Rate Variability and the Slowdown in Growth of International Trade, International Monetary Fund, Research Department, No. 87/38, May 22, 1987.
- Dell' Ariccia, G. (1999), "Exchange Rate Fluctuations and Trade Flows: Evidence from the European Union," *IMF Staff Papers*, 46(3), 315-334.
- Edwards, S. (2007), Globalization, Crises and Growth, Max Corden Lecture, 11 October 2007, University of Melbourne, Australia.
- Eichengreen, B., Y. Rhee, and T. Hui (2007), "China and the Exports of Other Asian Countries," *Review of World Economics*, 143, 201-226.
- Engle, R.F. and C.W.J. Granger (1987). "Cointegration and Error Correction: Representation, Estimation and Testing," *Econometrica*, 55: 251-276.



- Frankel, J.A., D. Romer, and T. Cyrus (1996), Trade and Growth in East Asian Countries: Cause and Effect ?, NBER Working Paper No. 5732, Cambridge, Mass, August.
- Frankel, J.A. and D. Romer (1999), "Does Trade Cause Growth? ," *American Economic Review*, 89, 379-99.
- Friedman, M. (1953), *Essays in Positive Economics*, Chicago: Chicago University Press.
- Granger, C.W.J. (1969), "Investigating Causal Relations by Econometric Models and Cross-Spectral Methods," *Econometrica*, 37, 424-438.
- Hertel, T., D. Hummels, M. Ivanic and R. Keeney (2007), "How Confident Can We Be of CGE-based Assessments of Free Trade Agreements?," *Economic Modelling*, 24, 611-635.
- Johansen, L. (1960), *A Multi-Sectoral Study of Economic Growth*, Amsterdam: North - Holland.
- Johansen, L. (1982), *Econometric Models and Economic Planning and Policy: Some Trends and Problems*, in M. Hazewinkle and A. H. G. Rinnooy Kan (eds.), *Current Developments in the Interface: Economics, Econometrics, Mathematics*, Boston: Reidel, 91-122.
- Kong, T. (2007), "A Selective Review of Recent Developments in Economic Growth Literature," *Asian-Pacific Econ. Lit.*, 21(1), 1-33.
- Krueger, A. O. (2007), *Understanding Context and Interlinkages in Development Policy: Policy Formulation and Implementation*, American Economic Association Meeting, 5-7 January 2007, Chicago.
- Kydland, F. E. (2006), "Quantitative Aggregate Economics," *American Economic Review*, 96(5), 1373-1383.
- Levine, R. and D. Renelt (1992), "A Sensitivity Analysis of Cross-Country Growth Regressions," *American Economic Review*, 82(4), 942-63.
- Minier, J. (2007), *Nonlinearities and Robustness in Growth Regressions*, American Economic Association Meeting, 5-7 January 2007, Chicago.
- Otto, G., G. Voss and L. Willard (2002), *Understanding OECD Output Correlation*, Seminar paper, Department of Economics, University of Wollongong, Australia. May 2002.
- Pindyck, R. S. and D. L. Rubinfeld (1998), *Econometric Models and Economic Forecasts*. Sydney, McGraw-Hill.
- Romer, D. (1993), "Openness and Inflation: Theory and Evidence", *Quarterly Journal of Economics*, Vol. 108, 869-903.
- Rose, A.K. (2000), "One Money, One Market: The Effects of Common Currencies on Trade," *Economic Policy*, 30, 9-30.
- Stiglitz, J. (2009), *Marketeers Lose their Religion*, *The Age*, 6 February, p. 8. Online access: <http://www.theage.com.au/businessday>.
- Tovar, C E. (2008). *DSGE Models and Central Banks*, Bank for International Settlements Working Paper No. 258.
- Tran, V. H. (1992), "Modelling Output Growth: A New Approach," *Economics Letters*, 38, 279-284.
- Tran, V. H. (2002a), *New Asian Regionalism: Evidence on ASEAN+3 Free Trade Agreement from Extended Gravity Theory and New Modelling Approach*, Department of Economics, University of Wollongong, Australia, mimeo.
- Tran, V. H. (2002b), "New Asian Regionalism and ASEAN+3 Free Trade Agreement: Theoretical and Empirical Foundation,

- Policy Challenges and Growth Prospects,” *Chulalongkorn Journal of Economics (Thailand)*, 14(3), 366-384.
- Tran, V. H. (2002c) (ed.) *Economic Crisis Management*, Mass: Edward Elgar.
- Tran, V. H. (2004), “Korea’s Trade, Growth of Trade and the World Economy in Post-crisis ASEAN+3 Free Trade Agreement: An Econometric and Policy Analysis,” *Journal of the Korean Economy*, 5(2), 73-108.
- Tran, V. H. (2005), “New Asian Regionalism: Evidence on the Impact of ASEAN+3 Free Trade Agreement on Its Member Countries,” *Journal of Quantitative Economics*, 3(2), 98-109.
- Tran, V. H. (2007a), “Causal Empirics and Political Economy of Official Development Assistance and Development in Asia: The Case of Vietnam,” *Journal of the Korean Economy*, 8, 91-119.
- Tran, V. H. (2007b), “Foreign Aid and Development in Thailand: Causality and Political Economy,” *Thammasat Economic Journal (Thailand)*, 25(4), 127-54.
- Tran, V. H. (2008a), “Australia-China Free Trade Agreement: Causal Empirics and Political Economy,” *Australian Economic Papers*, 27(1), 19-29.
- Tran, V. H. (2008b), “Education and Economic Development in East Asia Summit Economies: A Study in China-India Public Service Efficiency and Competitiveness”, *AFBE Journal*, online access: <http://www.afbe.biz.com/>.
- Tran, V. H. and Harvie, C (2006), *Regional Trade Agreements*, London: Edward Elgar.
- Tran, V. H. and Limskul, K. (2013), “Economic Impact of CO2 Emissions on Thailand’s Growth and Climate Change Mitigation Policy: A Modelling Analysis,” *Economic Modelling* 33, 651-658.
- USDA-ERS (2015), <http://usda.ers.gov>
- WTO (2015), [https://www.wto.org/english/tratop\\_e/region\\_e/rta\\_pta\\_e.htm](https://www.wto.org/english/tratop_e/region_e/rta_pta_e.htm)



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