Does free trade result in higher GDP per capita? An international perspective

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Abstract

The theory of comparative advantage suggests that free trade increases overall world production of goods and services and it is a positive sum game in which all participating countries realise economic gains. The evaluation of data from a number of countries in this study demonstrates a strong correlation between a country's level of trade freedom (according to its Trade Freedom Index) and its GDP per capita. There are exceptions to this trend in countries that have experienced social or political unrest. This is consistent with research into the relationship between economic freedom and GDP growth which suggest that levels of economic freedom (of which trade freedom is a component) in a country impact upon growth subject to social, economic or political climate in these countries.

1. Introduction

International trade is important as it contributes toward the economic growth of a nation (Nordstrom, Ben-David & Winters, 1999, p.1). International trade has experienced changing patterns particularly since World War II and subsequently global trade has expanded faster than global Gross Domestic Product (GDP) (McDonald, Robinson and Thierfelder, 2008). In addition since the 1990s the number of bilateral free trade agreements has risen (Hur and Park, 2012, p. 1283).

The question, does free trade result in higher GDP per capita, will be answered by identifying any correlation between free trade and GDP growth per capita utilising measures of free trade and GDP per capita over time by country.

2. Literature Review

There is a lack of research on mutual effects of free trade between countries, because research on economic freedom is at an early stage (Mahmood et al, 2010, p. 13) and openness is difficult to define (Hur & Park, 2012, p. 1283). Existing studies primarily evaluate the correlation between a country's growth and its degree of openness (Hur & Park, 2012, p. 1283). Mahmood et al (2010) selected members of South Asian Association for Regional Cooperation (SAARC) and evaluated their economic freedom index (EFI) from 2008 (The Heritage Foundation) and financials from 2007 (according to the International Monetary Fund). Exports, imports, foreign direct investment and GDP were evaluated with results indicating that freedom to private sectors (including trade freedom) leads to economic prosperity. Other factors such as property rights, business freedom and freedom from corruption also contributed to economic prosperity.

Cebula & Elkstrom (2009) evaluated countries in the Organisation for Economic Co-Operation and Development (OECD) between 2004 and 2007 (p. 2). Results indicated that economic growth was greater in countries with higher levels of trade and business freedom,

monetary freedom and secure systems of property rights protection (Cebula & Elkstrom, 2009, p. 7).

Wu (2011) examined the link between economic freedom and economic growth in China by using the EFI. Results indicated that China was ranked 7th in the world in terms of real GDP growth and had an EFI of 52 in 1995. By 2008 this had dropped to 15 in terms of real GDP growth and a stable EFI of 53.1. Wu (2011, p. 105) explained, China had experienced increasing growth which was accompanied by an undeveloped legal and financial system, lack of economic freedom and high levels of corruption. Through this review, China contrasts the results of other cross-country data which demonstrates that improvements in economic freedom are associated positively with real GDP (Wu 2011, p. 104).

The literature indicates that trade freedom is associated with GDP and increases in freedom result in corresponding increases in GDP per capita, with the exception of China due to political and financial system limitations.

3. Theory

International trade is the exchange of goods and services across international borders.

Comparative advantage theory concludes that countries engaging in trade should specialise in the production and export of those goods produced with the lower opportunity cost, and purchase goods produced with the higher opportunity cost even if it means buying goods which could be produced efficiently themselves (Dowling et al, 2009). Comparative advantage is assumed to be derived from technological differences (the Ricardian model) or factor endowments (the Heckscher-Ohlin model) (Dowling et al, 2009). Comparative advantage provides strong rationale for free trade as it suggests world production is greater with unrestricted free trade than with restricted trade. Hence trade is a positive sum game where all participating countries realise economic gains.

In contrast, Mercantilism makes a case for government involvement in promoting exports and limiting imports and suggests it's in a county's best interest to maintain a trade surplus (Dowling et al. 2009). As a result Mercantilism is viewed trade as a zero sum game, where one countries gain is another's loss.

Comparative advantage theory predicts a positive GDP result for all participants engaged in trade as efficiencies are derived from technological or factor endowments on a global scale. Mercantilism, on the other hand is a zero sum game, where the GDP benefit is only applicable to the exporting country with an equivalent loss for the other participant(s).

4. Methodology

Nineteen countries were graphed from the regions Asia, Europe, Middle East and Northern Africa, Sub Saharan Africa, North America and South America to identify the correlation and trends between free trade and GDP growth per capita using measures of free trade and GDP per capita against time.

4.1. Measures of Trade Freedom

Three measures of trade freedom were used. Firstly, the **Trade Freedom Index** (TFI) published by the Heritage Foundation (The Heritage Foundation, 2011) as a component of EFI which considers direct trade barriers such as trade tariffs and non-tariff barriers. Secondly **Trade as a Percentage of GDP** which provides a measure of trade freedom through the sum of exports and imports of goods and services measured as a share of gross domestic product. Thirdly the **Weighted Average Tariff Rate across all Products** which indicates of the level of government hindrance to free trade (the higher the tariff, the lower the trade freedom). (The Heritage Foundation and the World Bank, 2012).

4.2. Measures of GDP per Capita

GDP per capita data was available in several units namely: current US$, constant 2000 US$, constant 2005 International $ (adjusted for PPP), current International $ (adjusted for PPP) and constant local currency unit.

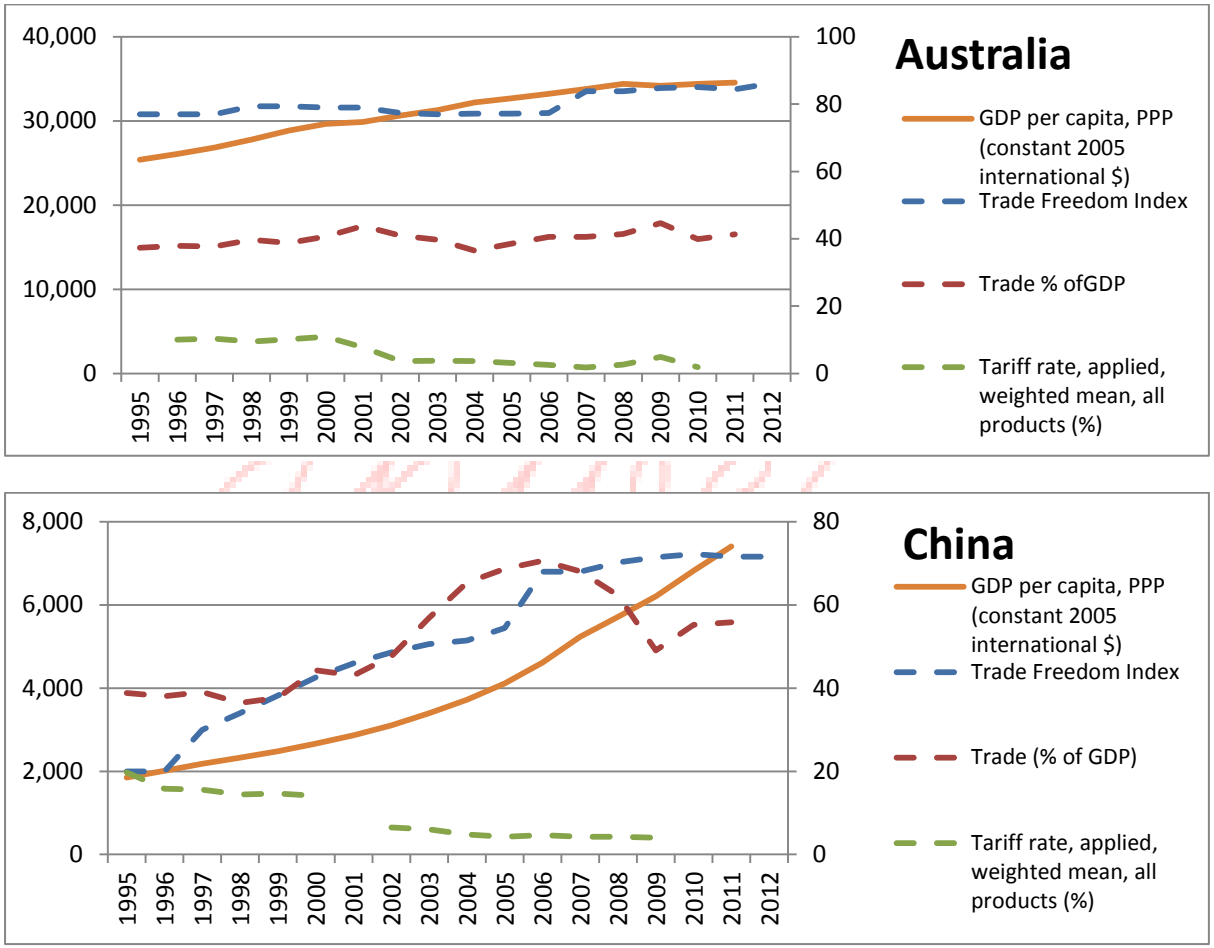
Consideration was given to units of measure which showed real growth free from the effects of exchange rate fluctuations and inflation. Purchasing Power Parity (PPP) is the strongest measure to provide a reflection of GDP in terms of purchasing power free from exchange rate effects (World Bank, 2012). Current pricing reflects the value of a currency in the year being reported whereas constant pricing shows the applicable value for a particular base year. Constant pricing therefore eliminates the effect of inflation and shows true growth over time. Given these observations, "Constant 2005 International $" was chosen to measure GDP per Capita for this investigation.

4.3. Observations and Analysis

Trade freedom graphs are included in Appendix I, GDP per capita is represented on the left axis and corresponds to solid lines along the curves, while the right axis represents measures of trade freedom (per cent) and corresponds to the dashed lines. Most country's indicators of increasing trade freedom (i.e. tariff rates down, TFI and Trade % of GDP increase) are largely correlated with increasing GDP. Australia and China are shown below.

There is an increasing trend in GDP per capita over the last 16 years with China showing the most growth through a 3.5 increase in GDP per capita.

***Figure 1**: Trade freedom vs. GDP per Capita for Australia and China*



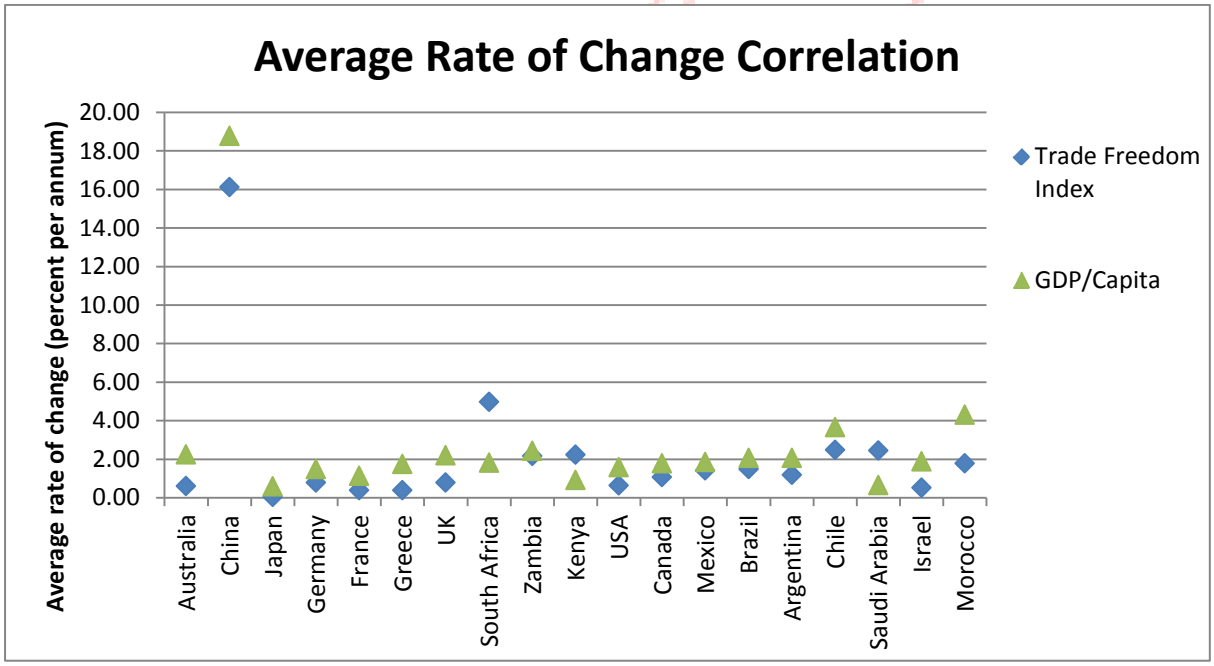
For most countries, the Global Financial Crisis (GFC) resulted in a temporary reduction in GDP per capita in 2008 and 2009. Post GFC, most countries recovered or currently trending

back to pre GFC values, with the notable exception of Greece, a reflection of the current debt crisis.

A stronger relationship between free trade and GDP per capita emerges when comparing the average rate of change in TFI with the rate of change in GDP per capita over the study period. This correlation is demonstrated in the graph below. The average rate of change for the two indicators expressed as per cent change per annum was calculated using the formula:

$$\frac{(Indicator\ in\ 2011 - Indicator\ in\ 1995)}{Indicator\ in\ 1995 * 16\ Years} * 100\%$$

Figure 2: *Average rates of change of Trade Freedom Index and GDP per Capita over 16 years*



4.4. Exceptions

China

China has a very large change in trade freedom that corresponds to a large change in GDP/capita, whilst the literature review depicted the opposite effect. This is due to factors such as the inclusion of political freedom, the undeveloped legal and financial system being included Wu's analysis in the preceding literature review, which contrasts the TFI statistics that do not consider these influences.

Africa

South African data includes 1995 which was the year after the historic elections that ended apartheid in that country. TFI was still relatively low presumably as a result of policies to counteract international sanctions during the apartheid era. Hence, the index is considered to have come off an artificially low base resulting in a skewed result.

The other two African countries show a high level of political instability and accompanying economic distress in comparison to all other countries considered (Economist Intelligence Unit, 2012) and is most likely the underlying reason for anomalies in these countries.

Saudi Arabia

Saudi Arabia's TFI increased by 2.46% per annum over the period whereas GDP per capita increased by only 0.65% per annum compared with most other countries where the increase in GDP per capita increased at a higher rate than TFI. The reasons for this are unclear and would require further analysis beyond the scope of this study.

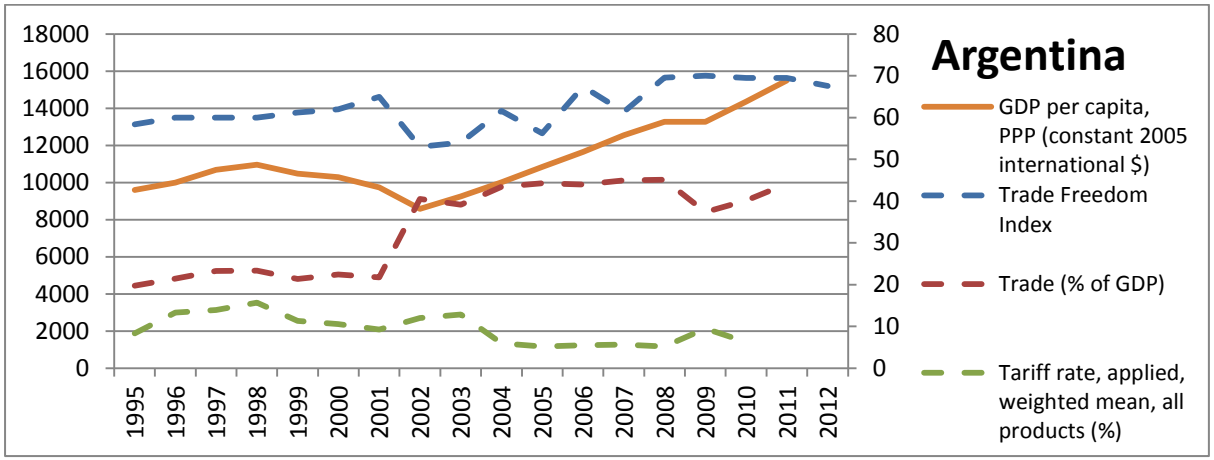
Others

Argentina between 1995 and 2000 had rising TFI and somewhat increasing GDP however there was a significant trough in both measures between 2001 and 2002. In the years that followed Argentina's TFI had multiple peaks and troughs however GDP continued to

increase steadily demonstrating there is no clear correlation between TFI and GDP in Argentina.

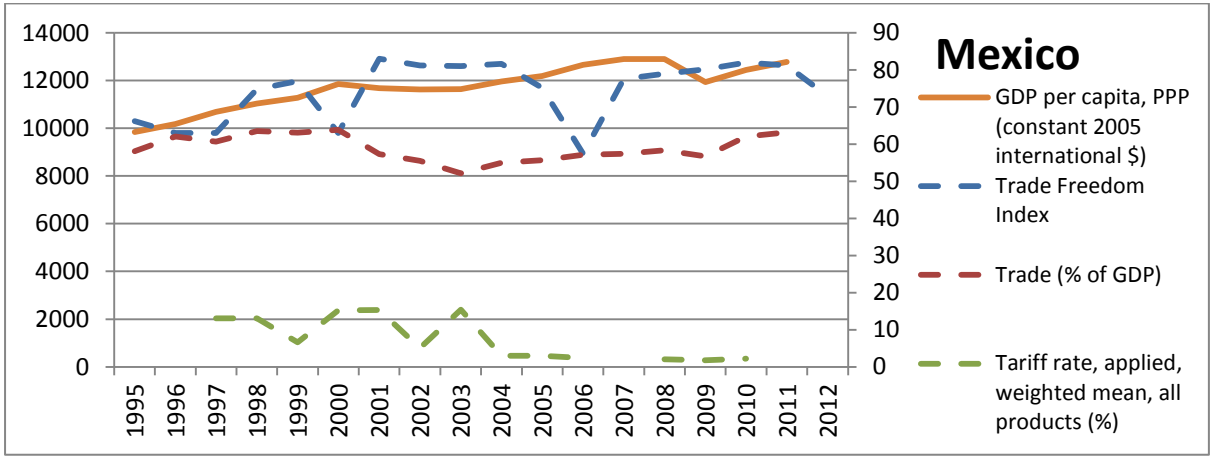
From 2001 to 2011 Argentina experienced a number of political, social and economic changes and unrest that may have contributed to changes in GDP and TFI (DFAT, 2012). In addition the period 2001 to 2012 Argentina defaulted on its IMF loan, had high levels of unemployment and increased inflation (Political Risk Year Book 2011, p. 16).

Figure 2: *Trade freedom vs. GDP per capita for Argentina*



Another example of lack of correlation between GDP and TFI is Mexico. Although there was a slight increase in TFI between 1995 and 2012 this was accompanied by a number of peaks and troughs. In contrast GDP had steadily increased. Mexico has increased trade liberalisation however in the past decade there has been significant change in Mexico's political climate along with widespread violence due to organised crime (DFAT, 2012).

Figure 3: *Trade freedom vs. GDP per Capita for Mexico*



5. Conclusions

A strong link exists between free trade and GDP per capita as demonstrated by the rate of change comparison between the Trade Freedom Index and GDP per capita in the majority of countries evaluated. While trade freedom is a necessary condition for increasing GDP per capita it is not a sufficient condition and other factors such as political stability and resource endowments also contribute.

Economic growth and free trade cannot be measured in isolation to prove that free trade encourages growth. The issue is complex and requires an analysis of factors of economic freedom encompassing business freedom, monetary freedom and property rights. Countries such as Argentina and Mexico demonstrate that other factors may also play a role in GDP growth and where social unrest is evident, the levels of trade freedom may not move in alignment with GDP growth.

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<http://ehis.ebscohost.com.ezproxy-m.deakin.edu.au/ehost/pdfviewer/pdfviewer?sid=039fe552-7a32-4553-b435-4c7b2dd04122%40sessionmgr110&vid=5&hid=5>

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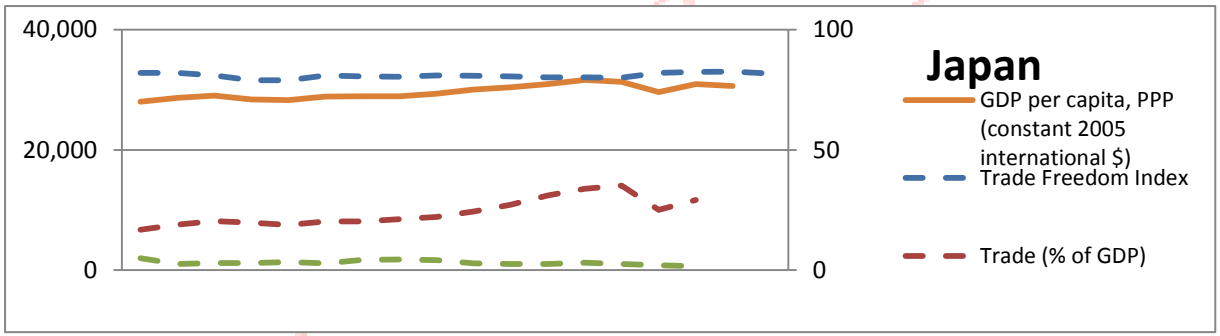
Appendix: Graphical Results

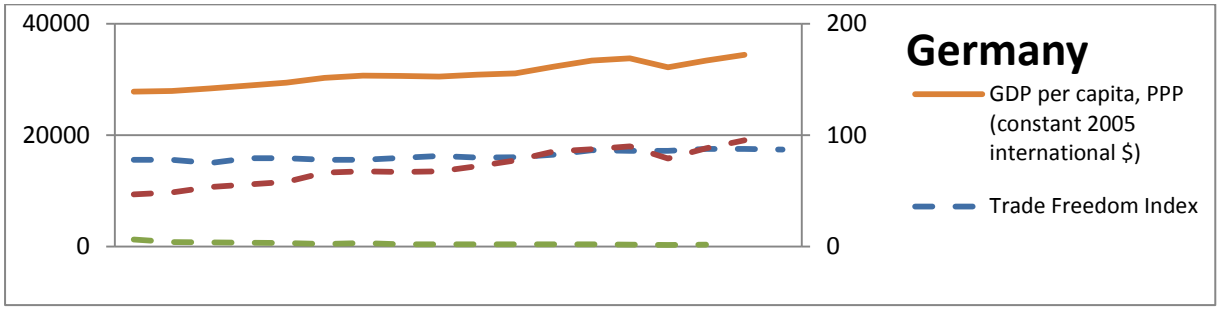
Explanation of Graphs

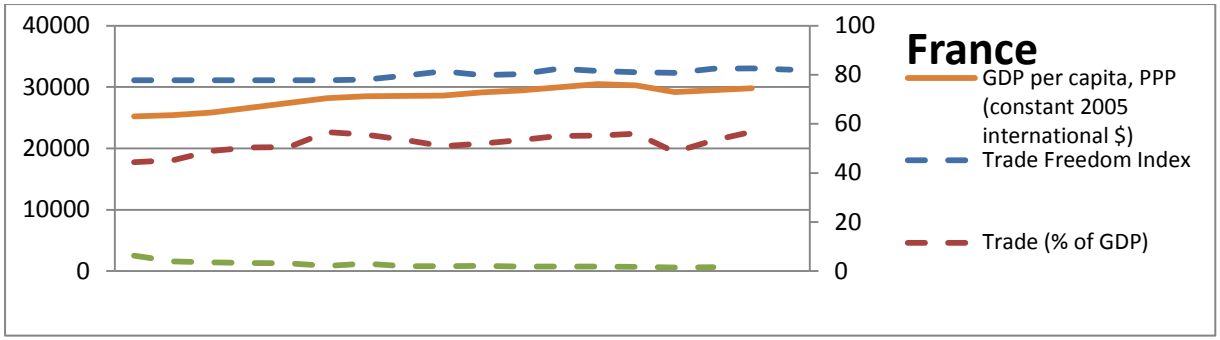
The following graphs show measures of trade freedom and GDP per capita in a time series from 1995 to 2012 for several countries. Countries are grouped by region. The left axis of each graph displays GDP per capita expressed as constant 2005 international dollars and corresponds with the solid line on the graph. The right axis shows measures of trade freedom expressed as per cent and correspond with the dashed lines on the graph.

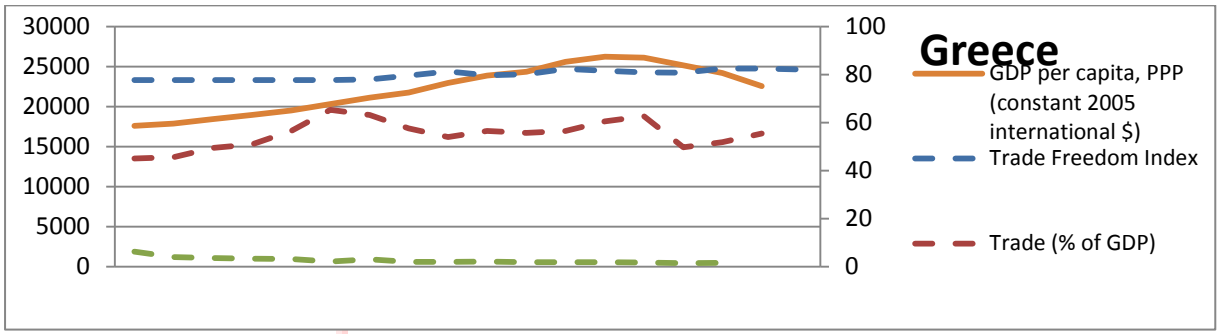
Asia



Europe




France
40000
30000
20000
10000
0
100
80
60
40
20
0
GDP per capita, PPP (constant 2005 international $)
Trade Freedom Index
Trade (% of GDP)


Greece
30000
25000
20000
15000
10000
5000
0
100
80
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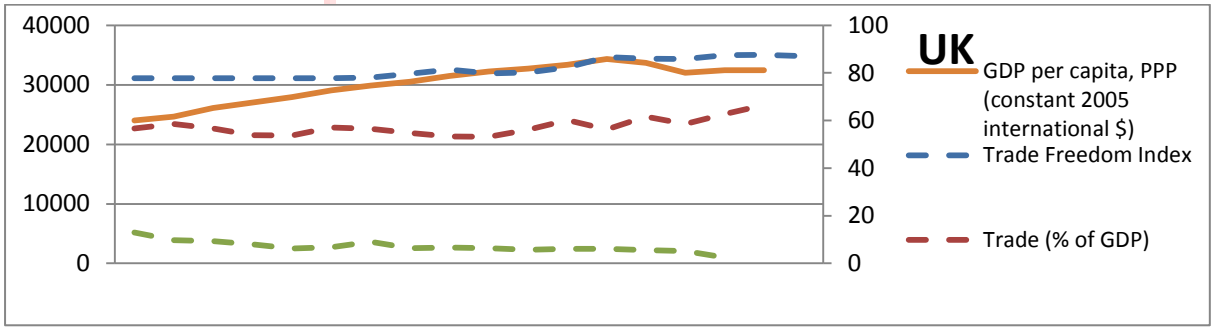
0
GDP per capita, PPP (constant 2005 international $)
Trade Freedom Index
Trade (% of GDP)


UK
40000
30000
20000
10000
0
100
80
60
40
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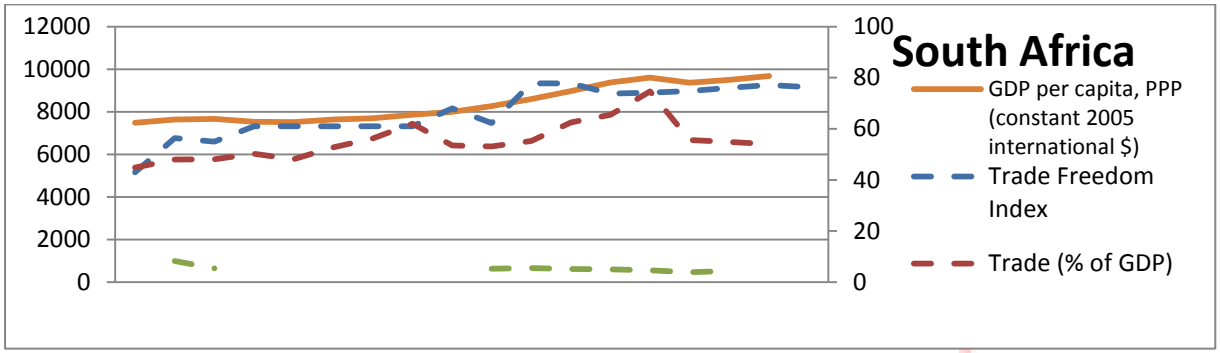
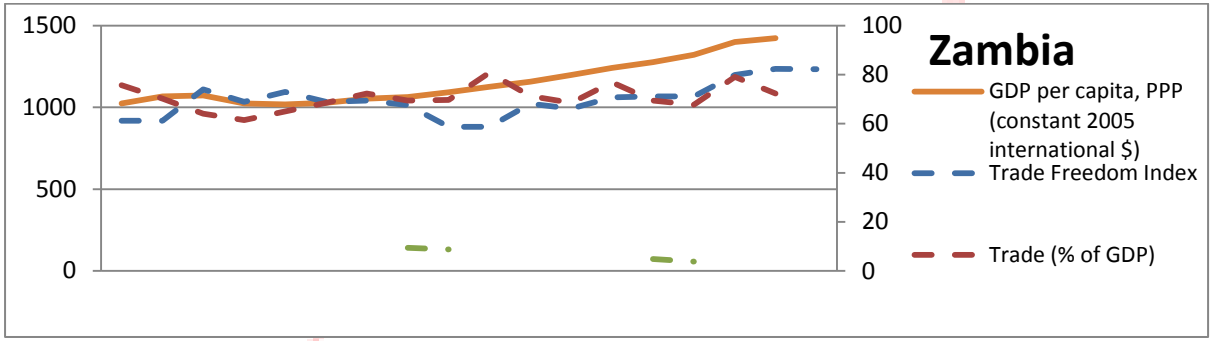
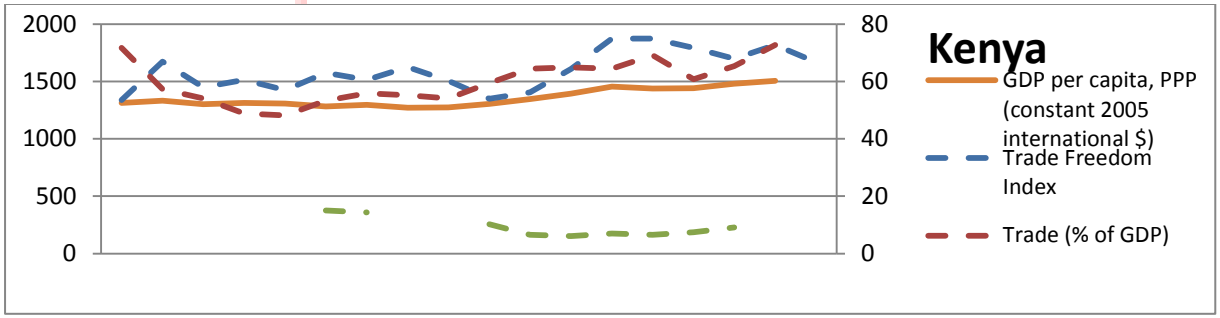
0
GDP per capita, PPP (constant 2005 international $)
Trade Freedom Index
Trade (% of GDP)

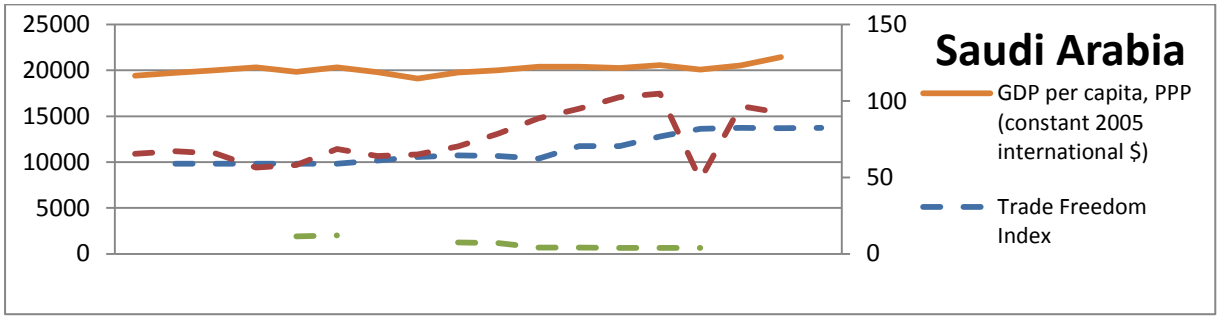
Sub Saharan Africa

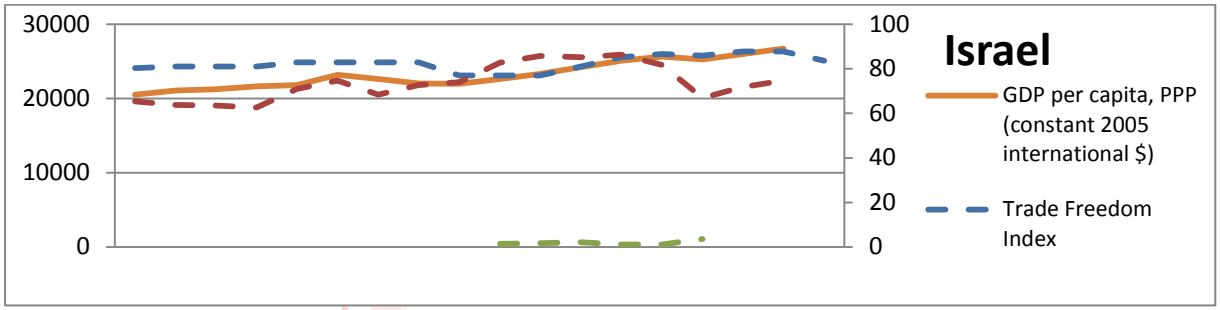


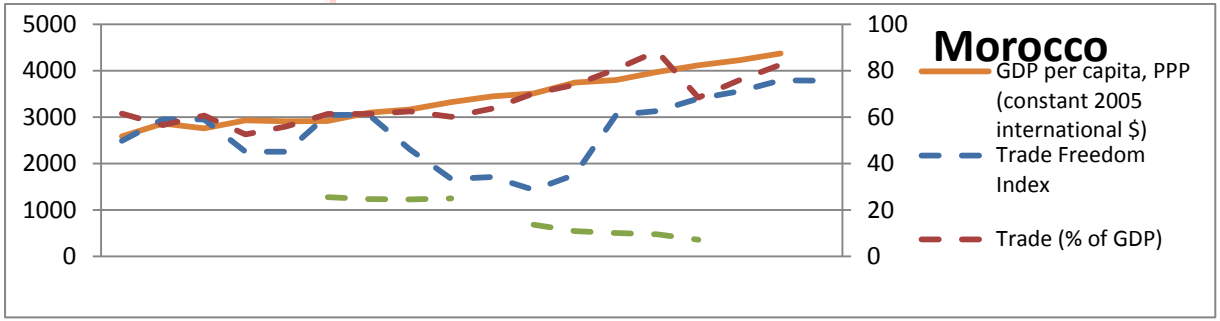




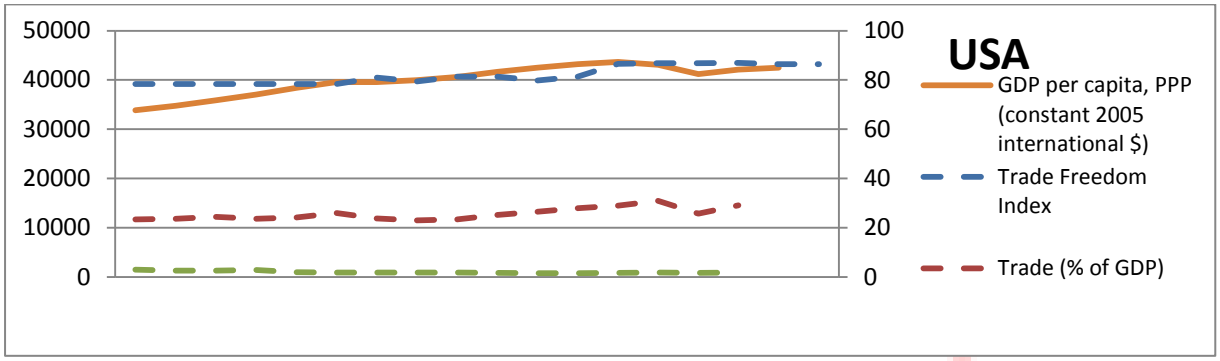
Middle East and North Africa

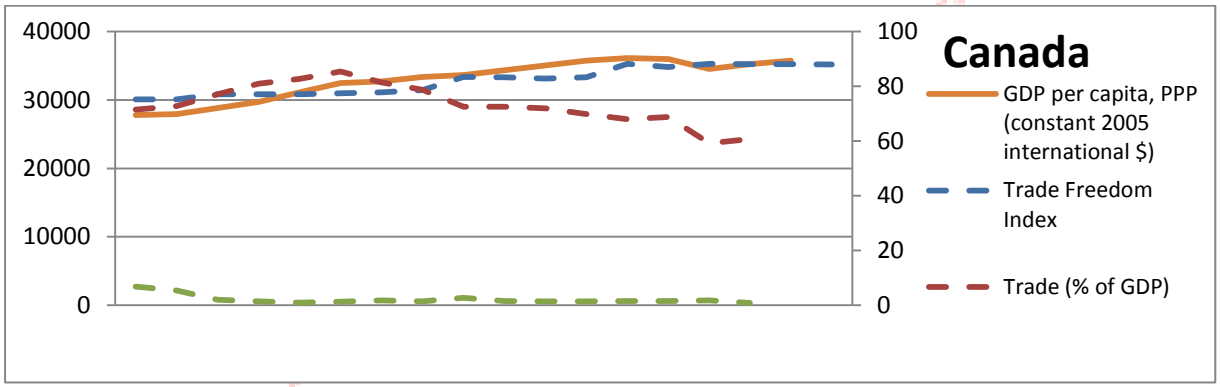


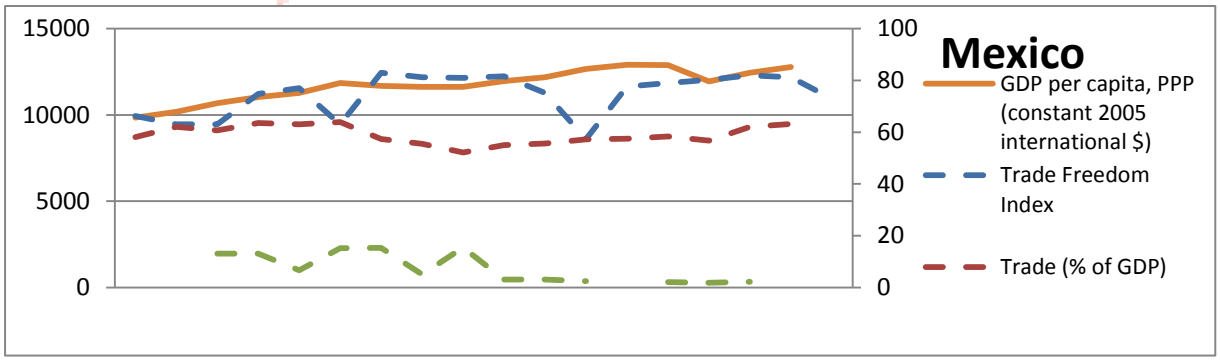




North America







South America