Stock market development and economic growth: Evidence from India, Pakistan, China, Malaysia and Singapore

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Abstract: Stock market is the only source through which we can come to know about the volume of interest showed by investors by buying and selling the shares of listed companies. This paper is written to empirically show the GLS regression analysis based on panel data (1991-2011) that unto how significantly economic growth is influenced by stock markets. The econometric models are made by considering GDP per capita as dependent variable and stock markets' variables, FDI, Investments, EXP and GDS as explanatory variables. The models are made to study by taking stock market size and liquidity separately and then collectively. Results show that GDP per capita is significantly explained by independent variables.

Keywords: GDP Per Capita, FDI, Investments, EXP and GDS

1. Introduction

To study the relationship between stock market development and economic growth has become a very hot issue of research. A lot of time series, cross-sectional and panel studies have been made by many authors such as Muhammad Enamul Haque and Nahid Fatima (2011) worked to empirically explore the relationship between stock market development and long-run per capita growth rate of Bangladesh using the two dynamic panel models for the sample period of 1980-2007. Their results' reflect that the nothing of the dynamic models is effective one to identify the stock market linkage to per capita growth rate in Bangladesh. Aktham Maghayereh (2003) studied the long run relationship between the Jordanian stock prices and selected macroeconomic variables by using Johansen's methodology in co-integration analysis and monthly time series data over for the period from January 1987 to December 2000. This study finds that macroeconomic variables-that is, exports, foreign reserves, interest rates, inflation, and industrial production are reflected in stock prices in the Jordanian capital market. On the other hand many valuable work is availabe is also available such as

Ake Boubakari and Dehuan Jin (2010) explored causality relationship between stock market and economic growth based on the time series data compiled from 5 Euronext countries (Belgium, France, Portugal, Netherlands and United Kingdom) for the period 1995:Q1 to 2008.

In this paper we studied a panel regression test on five emerging economies of Asia includes: India, Pakistan, China, Malaysia and Singapore from 1991-2011. No work has been done on these countries. No doubt that time series studies may be available on individually and many authors have considered some of these countries in their cross sectional studies as well as panel studies.

In this paper we test three hypotheses one is to test significant influences of explanatory variables such as FDI (foreign direct investments), Investments (Gross capital formation), EXP (Expenditures made by the governments % to GDP), GDS (Gross domestic savings as % to GDP), MCR (Market capitalization ratio) and STR (stock traded ratios) on dependent variable GDP per capita. Secondly to test significant influences of explanatory variables such as FDI (foreign direct investments), Investments (Gross capital formation), EXP (Expenditures made by the governments % to GDP), GDS (Gross domestic savings as % to GDP) and taking MCR (Market capitalization ratio)

alone. Third is to significant influences of explanatory variables such as FDI (foreign direct investments), Investments (Gross capital formation), EXP (Expenditures made by the governments % to GDP), GDS (Gross domestic savings as % to GDP) and STR (stock traded ratios) on dependent variable GDP per capita.

Studies considereing the above three aspects have not been made, but last two tests were introduced and applied by Baboo M Nowbutsing (2009) but that was time series study based on the economy of Mauritius.

The results show that our alternate hypotheses are well supported by our panel regression tests. This paper proves a significant results of applied panel regression test by taking logarithm of all the variables because Baboo M Nowbutsing (2009) and Farzad Rahimzadeh (2012) also took natural logarithm of variables in their studies.

2. Relevant Scholarships

Farzad Rahimzadeh (2012) wrote that the growing importance of stock market around the world has reinforced the belief that finance is an important ingredient for growth. Their focus was mainly on stock market development and economic growth.

Ross Levine and Sara Zervos (1998) show that stock market liquidity and banking development both positively predict growth, capital accumulation, and productivity improvements when entered together in regressions, even after controlling for economic and political factors. Their results are consistent with the views that financial markets provide important services for growth.

Hamid Mohtadi and Sumit Agarwal examine the relationship between stock market development and economic growth for 21 emerging markets over 21 years, using a dynamic panel method. Results suggest a positive relationship between several indicators of the stock market performance and economic growth both directly, as well as indirectly by boosting private investment behavior.

Imran Ali, Kashif ur Rehman, Ayse Kucuk Yilmaz, Muhammad Aslam Khanand Hasan Afzal (2010) examined the causal relationship between macro-economic indicators and stock market prices in Pakistan. The data from June 1990 to December 2008 have been used to analyze the causal relationship between various macro-economic variables and stock exchange prices

Tarika Singh, Seema Mehta and M. S. Varsha (2011) attempted to examine for Taiwan the casual relationship between index returns and certain crucial macroeconomic variable namely employment rate, exchange rate, GDP, Inflation and money supply. Their analysis was based on stock portfolios rather than single stocks. In portfolio construction, four criteria are used: Market capitalization,

price/earnings ratio (P/Eratio), PBR and yield. The purpose was to make a finer point with respect to the relationship between economic growth and stock market especially in terms of stock prices. Empirical findings revealed that exchange rate and GDP seem to affect returns of all portfolios, while inflation rate, exchange rate, and money supply were having negative relationship with returns for portfolios of big and medium companies.

Hsin-Hong Kang and LIU, PING-CHIN(2008) Investigate the relationship between financial development indicators and economic growth for the case of India and Taiwan over the period 1997–2005.

Thorsten Beck, Ross Levine(2004) investigates the impact of stock markets and banks on economic growth using a panel data set for the period 1976–1998 and applied recent generalized-method-of moments techniques' developed for dynamic panels. They found that stock markets and banks positively influence economic growth.

Farzad Rahimzadeh (2012) Stock market and banking sector has a key role in economic development in each country. Therefore in their paper, using data related to the Middle East and North Africa in the period 1990-2011, the role and importance of stock market and the banking sector on improving production have been studied with panel data.

Aboudou Maman Tachiwou (2010) Stock market is an indicator of an economy financial health. That paper examines the impact of stock market development on growth in West African monetary union. A time series econometric investigation is conducted over the period 1995 - 2006.

Anson Wong (2011) argued that the empirical evidence suggests that the development of stock markets in China, USA, United Kingdom, Japan and Hong Kong have independently a strongly positive correlation with their economic growth.

Tichaona Zivengwa, Joseph Mashika, Fanwell K Bokosi and Tendai Makova (2011) explored the causal link between stock market development and economic growth in Zimbabwe using annual time series data for the period 1980 to 2008. The study evaluated the nature of the relationship between stock market development and economic growth in Zimbabwe. The stock market development was measured using two variables namely stock market size as measured by stock market capitalization as a ratio of GDP and stock market turnover as measured by the value of stocks traded as a ratio of stock market capitalisation.

3. Hypothesis Statement

Based on all above literatures and specially the study of Baboo M Nowbutsing (2009) we can state our hypothesis and models as follows:

Alternate Hypotheses	
1	H_A: The GDP per capita is significantly explained by FDI,GDS,EXP,INV,MCR&STR
2	H_A: The GDP per capita is significantly explained by FDI,GDS,EXP,INV & MCR
3	H_A: The GDP per capita is significantly explained by FDI,GDS,EXP,INV & STR

4. Methods

4.1. Models and Definitions of Variables

Model number		
1	Y_t =	$\beta_0+\beta_1 FDI_t+\beta_2 GDS_t+\beta_3 EXP_t+\beta_4 INV_t+\beta_5 MCR_t+\beta_6 STR_t+e_t$
2	Y_t =	$\beta_0+\beta_1 FDI_t+\beta_2 GDS_t+\beta_3 EXP_t+\beta_4 INV_t+\beta_5 MCR_t+e_t$
3	Y_t =	$\beta_0+\beta_1 FDI_t+\beta_2 GDS_t+\beta_3 EXP_t+\beta_4 INV_t+\beta_5 STR_t+e_t$

Where		[1] These definitions are taken from worldbank data bank
Y	Dependent variable	**GDP per capita (Gross domestic product per capita)**[1] GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars.
$\beta_{0\ \&}\ e$	Constant & unplanaid variance	
	Co-efficients	$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$
FDI		**Foreign direct investment**[1] Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors. Data are in current U.S. dollars
GDS		**Gross domestic savings**[1] Gross domestic savings are calculated as GDP less final consumption expenditure (total consumption). Data are in as a percentage of GDP.
EXP		**Gross national expenditure**[1] Gross national expenditure (formerly domestic absorption) is the sum of household final consumption expenditure (formerly private consumption), general government final consumption expenditure (formerly general government consumption), and gross capital formation (formerly gross domestic investment). Data are in as a percentage of GDP.
	Explanatory variables	**Gross capital formation**[1]
INV		Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements, plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." Data are in as a percentage of GDP
MCR		**Market capitalization**[1] Market capitalization (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies does not include investment companies, mutual funds, or other collective investment vehicles.
STR		**Stocks traded**[1] Stocks traded refers to the total value of shares traded during the period. This indicator complements the market capitalization ratio by showing whether market size is matched by trading.
		[1] *These definitions are taken from literatures* **GDP per capita** [1] Tichaona Zivengwa, Joseph Mashika, Fanwell K Bokosi and Tendai Makova (2011) took nominal GDP per capita as the measure of economic growth. Explanatory variables **Foreign Direct Investment (FDI)**[1] Baboo M Nowbutsing (2009), Adeniyi O. Adenuga (2010) and Hamid Mohtadi and Sumit Agarwal say that FDI is increasingly being recognized as a major source of economic development. **Gross Domestic Savings (GDS)**[1] Adeniyi O. Adenuga (2010) took this variable Gross Domestic Savings because according to him the larger the savings, the higher the availability of capital that could flow through the stock market. This ratio is calculated as gross domestic savings as a percentage of GDP **Gross national expenditure** [1] It includes government expenditures which eas taken by Ross Levine and Sara Zervos in their study. This variable is also taken as a percentage of GDP. **Gross Capital Formation** [1] Adeniyi O. Adenuga (2010) took Gross Fixed Capital Formation as an investment ratio but Farzad Rahimzadeh (2012) took this variable in study. This variable is also taken as a percentage of GDP. **Market Capitalization Ratio (MCR)**[1] Hamid Mohtadi and Sumit Agarwal and Adeniyi O. Adenuga (2010) said about Market Capitalization Ratio

Where		[1] *These definitions are taken from worldbank data bank*
		that This measure equals the value of listed shares divided by GDP. The assumption behind this measure is that overall market size ispositively correlated with the ability to mobilize capital and diversify risk on aneconomy-wide basis.
		Total Value of Shares Traded Ratio (STR) [1]
		Hamid Mohtadi and Sumit Agarwal and Adeniyi O. Adenuga (2010) also says that this measure equals total value of shares traded on the stock market exchange divided by GDP. The total value traded ratio measures the organized trading of firm equity as a share of national output and therefore should positively reflect liquidity on an economy-wide basis. The total value traded ratio complements the market capitalization ratio: although a market may be large, there may be little trading.

4.2. Econometric Model and Data Source

Model number		Where "ℓ" is for logarithm
1	ℓY_t =	$\beta_0 + \beta_1 \ell FDI_t + \beta_2 \ell GDS_t + \beta_3 \ell EXP_t + \beta_4 \ell INV_t + \beta_5 \ell MCR_t + \beta_6 \ell STR_t + e_t$
2	ℓY_t =	$\beta_0 + \beta_1 \ell FDI_t + \beta_2 \ell GDS_t + \beta_3 \ell EXP_t + \beta_4 \ell INV_t + \beta_5 \ell MCR_t + e_t$
3	ℓY_t =	$\beta_0 + \beta_1 \ell FDI_t + \beta_2 \ell GDS_t + \beta_3 \ell EXP_t + \beta_4 \ell INV_t + \beta_5 \ell STR_t + e_t$

Where		
Y	**Dependent variable**	**GDP per capita (Gross domestic product per capita)** World bank indicators
FDI		**Foreign direct investment** World bank indicators
GDS		**Gross domestic savings** World bank indicators.
EXP		**Gross national expenditure** World bank indicators
INV	**Explanatory variables**	**Gross capital formation** World bank indicators
MCR		**Market capitalization** World bank indicators
STR		**Stocks traded** World bank indicators

5. Conclusion

All results are based on panel Random-effects GLS regression shows significantly proving our hypotheses accept the P-value of STR in model three showing insignificance.

6. Results

Random-effects GLS regression   Number of obs   =   105
Group variable: company   Number of groups =   5

Model 1		P values
ℓ Y	Dependent variable	GDP per capita (Gross domestic product per capita)
ℓ FDI		0.000
ℓ GDS		0.000
ℓ EXP	Explanatory variables	0.000
ℓ INV		0.000
ℓMCR		0.000
ℓ STR		0.020
constant		0.000

Model 2		P values
ℓ Y	Dependent variable	GDP per capita (Gross domestic product per capita)
ℓ FDI		0.000
ℓ GDS		0.000
ℓ EXP	Explanatory variables	0.000
ℓ INV		0.000
ℓMCR		0.000

Constant			0.000

Model 3		P values	
ℓ Y	Dependent variable	GDP per capita (Gross domestic product per capita)	
ℓ FDI		0.017	
ℓ GDS		0.000	
ℓ EXP	Explanatory variables	0.000	
ℓ INV		0.000	
ℓ STR		0.080	
constant		0.000	

		Years	log GDP	log GDS	log EXP	log STR	log INVT	log FDI	log MCR
india	1	1991	2.491479032	1.352029252	1.066058209	0.9254486	1.352014925	7.866509679	1.239434736
	1	1992	2.511208178	1.371215497	1.05959124	0.84881891	1.384574836	8.441714673	1.346324683
	1	1993	2.489304137	1.328440002	1.063064889	0.88442345	1.328101372	8.740654773	1.537611617
	1	1994	2.550050777	1.359781712	1.040095764	0.91490691	1.365374436	8.988233992	1.584746873
	1	1995	2.583823036	1.396097364	1.044417946	0.77747985	1.415863368	9.331149443	1.540291656
	1	1996	2.613649841	1.320524811	1.035704542	1.38113429	1.343554237	9.384901004	1.486679635
	1	1997	2.63066804	1.367293437	1.064094357	1.57298011	1.38940115	9.55355901	1.482283163
	1	1998	2.628843725	1.340049514	1.097475658	1.53877008	1.371326314	9.420723203	1.389771151
	1	1999	2.658463153	1.396989674	1.107054329	1.77614313	1.428521587	9.336177662	1.59704923
	1	2000	2.660185571	1.365935507	1.098857129	2.02924764	1.382282707	9.554394333	1.492286605
	1	2001	2.668585475	1.392897802	1.092028758	1.70303259	1.407778537	9.738141895	1.349265318
	1	2002	2.687208209	1.380306734	1.075187719	1.57542057	1.397388706	9.750202778	1.398002266
	1	2003	2.752306245	1.40574869	1.058045476	1.66330358	1.417275208	9.635759886	1.654509772
	1	2004	2.812719984	1.487129169	1.038797094	1.72044851	1.511270101	9.761273436	1.730377232
	1	2005	2.869298772	1.498789295	1.036391575	1.71611174	1.535036194	9.861498998	1.821505246
	1	2006	2.919163489	1.514718314	1.013937669	1.82783039	1.554751807	10.30166185	1.935899912
	1	2007	3.02884708	1.531731525	1.012287975	1.95139719	1.580174122	10.40187836	2.166890511
	1	2008	3.017902186	1.483707219	1.038596945	1.93327001	1.550539026	10.63755254	1.722066103
	1	2009	3.059653783	1.490228953	1.07571005	1.90173235	1.559870296	10.5512227	1.93634926
	1	2010	3.151390374	1.507325515	1.058247122	1.79139363	1.562631007	10.43770119	1.975801238
	1	2011	3.187408971	1.477730337	1.056391522	1.59515553	1.56094141	10.56227686	1.732444096
pakistan	2	1991	2.599775599	1.242183639	1.155883723	0.13483906	1.279356679	8.412316857	1.207551339
	2	1992	2.617685121	1.232169505	1.110856912	0.30427499	1.306140552	8.526959071	1.217764469
	2	1993	2.63122648	1.166840514	1.117399676	0.55413626	1.31844452	8.542273756	1.352833332
	2	1994	2.62362943	1.224905921	1.083264286	0.78975467	1.291067305	8.624307512	1.374781314
	2	1995	2.679990172	1.199555229	1.069798444	0.72377397	1.268239093	8.858916925	1.185097622
	2	1996	2.687319192	1.160550582	1.101922275	0.98050034	1.278677189	8.964719702	1.225358736
	2	1997	2.669618267	1.121587316	1.075312252	1.26437397	1.253318533	8.85506653	1.244631669
	2	1998	2.656572318	1.221911027	1.051696714	1.16233812	1.248247979	8.704150517	0.940104786
	2	1999	2.651235516	1.144635792	1.015363943	1.52423106	1.192147519	8.725911632	1.043740552
	2	2000	2.711096564	1.203567869	0.93666481	1.64921569	1.236200336	8.488550717	0.949364181
	2	2001	2.692301902	1.2025946	0.89102452	1.23614136	1.230355818	8.583198774	0.834879033
	2	2002	2.683975788	1.217282967	0.940711705	1.5562939	1.219656859	8.915399835	1.149409837
	2	2003	2.737315237	1.239335966	0.944109996	1.90310465	1.224222669	8.727541257	1.299190995
	2	2004	2.800371852	1.24580083	0.91375229	1.87735179	1.219532436	9.048441804	1.47130311
	2	2005	2.84084395	1.182042294	0.894555558	2.10978366	1.280606943	9.342620043	1.622737902
	2	2006	2.930985161	1.0762105	1.018545488	1.96473808	1.286276772	9.630732893	1.520622893
	2	2007	2.968290249	1.087279687	0.994492899	1.81901273	1.273859038	9.747411808	1.663777669
	2	2008	3.007910175	0.923050422	0.988990894	1.50462251	1.283433419	9.735439203	1.140247654
	2	2009	2.995015048	1.011533949	1.021968769	1.14585986	1.244264264	9.368844507	1.295937791
	2	2010	3.010549641	0.998615308	1.013520874	0.86222456	1.198782354	9.304921162	1.332735682
	2	2011	3.08419414	0.959546908	0.988186858	0.67596633	1.149676464	9.116863331	1.185275873
china	3	1991	2.518183604	1.593059631	1.188419491	-0.6653621	1.557776567	9.640083731	-0.27167987
	3	1992	2.55967735	1.587096903	1.193448539	0.59711428	1.573600365	10.04750851	0.636459004
	3	1993	2.572639324	1.621242674	1.1912067	0.99349288	1.64819742	10.43956952	0.964579218
	3	1994	2.671370216	1.638677534	1.186086211	1.24153405	1.625346319	10.52874963	0.890902898

	Years	log GDP	log GDS	log EXP	log STR	log INVT	log FDI	log MCR
3	1995	2.78120089	1.638873654	1.139307698	0.83486687	1.622172074	10.55447947	0.761681963
3	1996	2.847029945	1.628303784	1.146079045	1.47573679	1.606827486	10.60400993	1.123453745
3	1997	2.889003008	1.627798695	1.152479383	1.58876666	1.579179124	10.64578567	1.335703547
3	1998	2.914270721	1.617012905	1.16562708	1.44612407	1.569388583	10.64098798	1.355847351
3	1999	2.936880684	1.595427209	1.184562237	1.54171537	1.565194118	10.58830533	1.484698803
3	2000	2.977347692	1.574353377	1.198255197	1.77963008	1.545537664	10.58432331	1.685540367
3	2001	3.017716692	1.584190565	1.202959296	1.53002451	1.559519922	10.64582493	1.59713851
3	2002	3.05516723	1.606780878	1.192846897	1.36041193	1.578247753	10.69291718	1.50314311
3	2003	3.105046943	1.637505894	1.168831982	1.46325046	1.614928449	10.69422643	1.618179326
3	2004	3.17329703	1.661003232	1.145178831	1.58813349	1.636118105	10.79314785	1.520093008
3	2005	3.238328487	1.677867906	1.154559511	1.41460768	1.624271875	11.017487	1.539006253
3	2006	3.315832615	1.704770596	1.14961856	1.78010786	1.633183067	11.09370891	1.951507189
3	2007	3.423452339	1.703615789	1.130527472	2.34830248	1.620528873	11.19381818	2.250900557
3	2008	3.533211187	1.714006978	1.12368585	2.08271537	1.643909147	11.23435186	1.79085221
3	2009	3.573946998	1.721424263	1.127192475	2.2539133	1.683438152	11.1174604	2.001423748
3	2010	3.646733118	1.715826618	1.123487125	2.13162042	1.683214707	11.38686165	1.904772229
3	2011	3.736184596	1.705427013	1.125450432	2.02024677	1.683633555	11.44727003	1.665458285
4	1991	3.41930788	1.533141186	1.136536341	1.33625418	1.577385553	9.601891509	2.076516818
4	1992	3.48855027	1.564888563	1.114280436	1.56509263	1.548540712	9.714611213	2.201160725
4	1993	3.530892766	1.591999572	1.101443769	2.36117357	1.593108091	9.699459852	2.517032594
4	1994	3.566554552	1.597680844	1.088662269	2.22989969	1.614919154	9.637669906	2.426806438
4	1995	3.632069285	1.598847621	1.092483524	1.93691395	1.639885722	9.620993313	2.399205106
4	1996	3.676122078	1.632097949	1.045534922	2.23578777	1.617830356	9.705728183	2.483709637
4	1997	3.662159953	1.64233459	1.032096607	2.18478682	1.633196515	9.710668525	1.970580292
4	1998	3.509014431	1.687261804	0.98984844	1.61712117	1.426102491	9.33513719	2.135297263
4	1999	3.53868029	1.676089988	1.040868205	1.78740971	1.349900345	9.590536803	2.26425772
4	2000	3.602553282	1.663514798	1.007118651	1.79499917	1.429228301	9.578367729	2.095789827
4	2001	3.58860743	1.621576798	1.080600791	1.34999982	1.387358143	8.743468504	2.111735218
4	2002	3.616021343	1.623577121	1.112531499	1.43760745	1.394054736	9.505614025	2.08931781
4	2003	3.64615462	1.627930362	1.11287329	1.65795148	1.357236845	9.393251844	2.184089827
4	2004	3.691803248	1.637708648	1.099677989	1.68122583	1.36266181	9.665037598	2.182738031
4	2005	3.744601464	1.646793013	1.059699946	1.54180768	1.350178561	9.593816052	2.101291573
4	2006	3.790964456	1.648332406	1.047963434	1.61408431	1.356090072	9.885967635	2.160357533
4	2007	3.858440791	1.636293056	1.063215782	1.88929845	1.369392787	9.957672873	2.225968968
4	2008	3.927388704	1.641368209	1.060879184	1.56692186	1.331598594	9.879239995	1.908405581
4	2009	3.861997894	1.581042461	1.11555991	1.55725322	1.251293452	8.059428734	2.102267112
4	2010	3.942218589	1.604942967	1.08728796	1.56156267	1.367287675	10.03685292	2.219715244
4	2011	4.002513489	1.598792195	1.114275049	1.64899392	1.366847702	10.17953373	2.135401172
5	1991	4.137885583	1.669093407	0.974519734	1.62291728	1.523613085	9.689050732	2.043469981
5	1992	4.181282782	1.670301056	0.950396848	1.45814659	1.539556632	9.343279019	1.99784039
5	1993	4.257748286	1.666294526	0.959584037	2.13377729	1.56193418	9.670831201	2.344973085
5	1994	4.306398892	1.686425089	0.914414717	2.06847645	1.509283161	9.931974507	2.288475948
5	1995	4.360254677	1.699232473	0.923852423	1.87412313	1.522028328	10.06202768	2.262921261
5	1996	4.411548557	1.706723705	0.967925625	1.65452691	1.534698338	9.985970952	2.200415854
5	1997	4.440046484	1.715374898	0.958279045	1.78649503	1.570441525	10.1383882	2.007230026
5	1998	4.387389516	1.713829439	0.995510863	1.72383513	1.477519618	9.864147059	1.993816783
5	1999	4.336761809	1.685762082	0.99728405	2.0568452	1.495057478	10.21953072	2.363242643
5	2000	4.3768425	1.663077178	1.036880473	1.97942871	1.520914988	10.21707465	2.202278055
5	2001	4.342958719	1.626755914	1.082580478	1.84223729	1.42765628	10.17859458	2.109689476
5	2002	4.336285338	1.615212791	1.088372185	1.79214148	1.376079937	9.806313908	2.051128356
5	2003	4.355825465	1.64342221	1.072971915	1.97363531	1.207283665	10.07705299	2.39028335
5	2004	4.418972871	1.675855243	1.035872145	1.87139957	1.337411946	10.32275738	2.403721632
5	2005	4.461690704	1.693523216	1.020876376	1.98684078	1.300483152	10.25744649	2.408899109
5	2006	4.499489183	1.705978749	1.013400949	2.12263319	1.323764312	10.5646679	2.298347004
5	2007	4.565449701	1.725890648	0.979168925	2.35745774	1.34706023	10.67184163	2.321245497
5	2008	4.567877479	1.707367924	1.026036698	2.18014657	1.467331717	10.08635978	2.002655333
5	2009	4.590203875	1.700380544	1.021533924	2.11376241	1.397217575	10.39688332	2.204337882
5	2010	4.631278568	1.70672942	1.018944382	2.11360788	1.330716635	10.72934928	2.231448386
5	2011	4.67456933	1.697297558	1.007554447	2.0152335	1.346157477	10.74758922	2.099792941

Malaysia (rows 4)
Singapore (rows 5)

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