

# Analysis of economies based on data into stage 1, 2 and 3



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### Analysis of economies based on data into Stage 1, Stage 2 and Stage 3

Based on World Economic Forum's Global Competitiveness Report

2014/2015[1]. And the data provided in the spread sheet, the countries can be divided into:

- Factor Driven Economies (Stage 1)[2]
- Efficiency Driven Economies (Stage 2)[3]
- Innovation Driven Economies (Stage 3)[4]

This distinction is primarily based upon GDP per Capita as well as share of exports of mineral goods in total exports.[5]

Stage 1 Factor Driven Economies:

- Vietnam
- Myanmar
- Nicaragua

Transition from Stage 1 to Stage 2

- Botswana

Stage 2 Efficiency Driven Economies

- Thailand
- Tunisia

Transition from Stage 2 to Stage 3

- Croatia
- Mauritius

## Stage 3 Innovation Driven Economies

- Greece

Hence Competitive index of a stage 1 economy can be calculated as follows:

$$= 0.6(\text{Factory Driven Economies}) + 0.35(\text{Efficiency Driven Economies}) + 0.05K$$

which is a constant for Innovation Driven Economies)

Hence Competitive index of a stage 2 economy can be calculated as follows:

$$= 0.5(\text{Factory Driven Economies}) + 0.45(\text{Efficiency Driven Economies}) + 0.05K$$

which is a constant for Innovation Driven Economies)

Hence Competitive index of a stage 3 economy can be calculated as follows:

$$= 0.2(\text{Factory Driven Economies}) + 0.5(\text{Efficiency Driven Economies}) + 0.3K$$

which is a constant for Innovation Driven Economies)

Here 1st Pillar: Institutions (25%)

Intellectual property protection

Burden of Government regulation

Here 2nd Pillar: Infrastructure (25%)

Quality of Overall Infrastructure

Here 3rd pillar: Macroeconomic environment (25%)

Gross National Savings as a % of GDP( Here since all the parameters are in range of 1-7 with 1 being worst and 7 being best, I have modified the data within excel to showcase this( please refer Appendix A)

Here 4th pillar: Health and primary education (25%)

Quality of primary education

Hence Factor Driven Economies = (Intellectual property protection+ Burden of Government regulation)/2(25%) + Quality of Overall Infrastructure (25%) + Gross National Savings as a % of GDP (25%) + Quality of primary education (25%)

Here 5th pillar: Higher education and training (17%)

Quality of maths and science education

Here 6th pillar: Goods Market efficiency (17%)

Trade Tariffs(Here since all the parameters are in range of 1-7 with 1 being worst and 7 being best, I have modified the data within excel to showcase this( please refer Appendix A)

Here 9th pillar: Technological Readiness (17%)

FDI and technology transfer (17%)

Here Efficiency Driven Economies = (Quality of maths and science education (17%) + Goods Market efficiency (17%) + Technological Readiness (17%))  
(Since information about other pillars are not present)

We will analyse the countries at each stage with regards to its short term growth (up to 10-15 years) and long term growth (15-20yrs +) on the basis of the competitive index at their respective stages and the competitive index of their next higher stage. If the competitive index of a country at its own stage is high it means that the country is away from its steady state and hence it will have short term growth prospects. Similarly if the competitive index of a country is higher at its next stage it means it is ready for the next level and hence it has long term growth prospects. This is off course subject to the condition that the current growth parameters at its current stage are at a satisfactory level.

**Analysis of Stage 1 economies**

Country	GDP per capita 2012-13[6]	GDP per capita 2011-12[7]	Growth rate	Investment rate	Factor driven economies	Efficiency Driven economies	Competitive index of Stage 1	Competitive index of Stage 2
Vietnam	1902	1528	24.47%	33.2%	3.05	1.3	2.3+0.05K	2.105K
Myanmar	869	835	4.1%	18.7%	2.15	1.01	1.64+0.05K	1.505K
Nicaragua	1840	1757	4.7%	17.1%	2.58	1.1	1.94 + 0.05K	1.705K

Since these are stage 1 economy the assumption here is more or less they have a similar production function though convergence law may not apply as these countries are having different economic, cultural, geographical, historical backgrounds. As Stage 1 economies, the growth rate is heavily dependent upon capital accumulation which in turn is dependent on high investment (savings rate). It will also depend upon primary education, quality of infrastructure, labour, and health and primary institutions more than secondary education or trade barriers or technological innovation. It will also depend if the country has reached its steady state at that production function level and at what level of capital accumulation. Only if it shows sustained growth i. e. it is far away from its steady state and its primary factors( competitive index at stage 1) is high, it can be evaluated to check if can increase its production function to the next higher level for which more importance will then be given onto secondary education, trade barriers and technological advances( Competitive index 2). Also GDP growth of previous years gives a trend.

Considering the above factors we can conclude that Vietnam will grow the fastest within the next 10-15 years (short term). As it shows favourable stats it can progress to the next higher stage in the next 20 years.

Myanmar on the other hand seems to have achieved steady state at a very less capital. Since the rate of investment is less and its primary factors such as education and infrastructure is less, its growth prospects are less. With a high trade barrier and less secondary education and lesser technological advances it cannot graduate itself to a stage 2 economy in the next 20 years.

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Nicaragua has similar statistics to that of Myanmar. However its primary education, quality of infrastructure is higher which suggests a higher growth prospect. Since its trade barriers are less and technological parameters are high, it has more chances of long term growth than Myanmar.

Overall, the ranking on the basis of long term growth is as follows:

- Vietnam
- Nicaragua
- Myanmar

**Analysis of Stage 2 economies**

Country	GDP per capita 2012-13[8]	GDP per capita 2011-12[9]	Growth rate	Investment rate	Factor driven economies	Efficiency Driven economies	Competitive index of Stage 2	Competitive index 3
Botswana	7136	9398	-ve growth in the short term	38.7%	3.51	1.26	2.33 + 0.05K	NA as transition from S to Stage only
Thailand	5674	5678	-ve to zero growth	28.5%	3.23	1.46	2.28 + 0.05K	1.7 +

rate

Tunisia	4345	4232	2.6%	14.9%	3.03	1.36	2.13 + 0.05K	1.59
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Since these are stage 2 economies, these will be more dependent on the next higher production function curve which is higher education, trade barriers, and technological advances. Off course investment in infrastructure, institutions, primary education and capital accumulation will still remain important though not as high as they were for stage 1 economies.

Botswana seems to be leading the pack but because it is highly dependent upon minerals mainly diamond mining which have finite years and are subject to market speculations[10], it will be ranked lower to that of Thailand due to the fact that it is lesser in secondary education and technology transfer. Thailand in fact can graduate to the next higher level in the next 20 years.

Tunisia on the other hand due to its high trade barrier will have consistent slow growth rate at its current productivity levels and will not progress to the next higher level.

Overall, the ranking on the basis of long term growth is as follows:

- Thailand
- Botswana
- Tunisia



**Analysis of Stage 3 economies**

Country	GDP per capita 2012-13[11]	GDP per capita 2011-12[12]	Year on Year Growth rate	Investment rate	Factor driven economies	Efficiency Driven economies	Competitive index of Stage 2	Competitive index of Stage 3
Mauritius	9160	8850	3.5%	14.1%	3.56	1.57	1.86 + .2K	1.5
Croatia	13562	12972	4.5%	19.5%	3.45	1.48	1.78 + .2k	1.43K
Greece	21857	22055	-ve	13.7%	3.14	1.4	1.64 + .2k	1.33k

Since these are already stage 3 economies, the determinant factor will be their distance from steady state. And this will be dependant on high total factor productivity factors such as technological innovation, efficiency, human capital, trade barriers more than capital accumulation or primary education or quality of infrastructure unless there is a big issue with those parameters. The competitive index of stage 3 sums up the critical factors and based on that we can say Mauritius is having this highest growth prospect followed by Croatia and Greece.

Greece is having a recession which can suggest in a way that it has reached its steady state. Since it's technological and efficiency factors are not very high, it will struggle to grow in both short as well as long term.

Overall, the ranking on the basis of long term growth is as follows:

- Mauritius
- Croatia
- Greece

Conclusion:

Based on the above analysis, we can conclude that Vietnam is the most growing country whereas Greece is the least.

The rankings are as follows:

- Vietnam
- Thailand
- Botswana
- Nicaragua
- Mauritius
- Tunisia
- Myanmar
- Croatia
- Greece

### Iron Law of convergence

Convergence can only happen when the countries are similar in terms of geography, culture, history and other related parameters.

Countries that can be clubbed together

- Vietnam, Thailand and Myanmar

- Croatia and Greece
- Mauritius and Botswana

In the case of Vietnam, Thailand and Myanmar, Vietnam can catch up with Thailand in the next 20-30 years.

Similarly, Croatia will catch up with Greece within the next 10 years.

And finally Botswana will catch up with Mauritius within next 10 years.

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[1][http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2014-15.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf)

[2][http://en.wikipedia.org/wiki/Global\\_Competitiveness\\_Report](http://en.wikipedia.org/wiki/Global_Competitiveness_Report)

[3][http://en.m.wikipedia.org/wiki/Global\\_Competitiveness\\_Report](http://en.m.wikipedia.org/wiki/Global_Competitiveness_Report)

[4]<http://www.scribd.com/doc/154276062/National-Competitiveness-Report>

[5][http://openaccesslibrary.org/images/ULV227\\_Mark\\_Loo.pdf](http://openaccesslibrary.org/images/ULV227_Mark_Loo.pdf)

[6][http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2014-15.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf)

[7][http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2013-14.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf)

[8][http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2014-15.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf)

[9][http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2013-14.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf)

[10][http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2014-15.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf)

[11][http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2014-15.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf)

[12][http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2013-14.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf)