Predictive Macro -Economic Growth and Development Model

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ABSTRACT
We understand the global meltdown is leaving its mark on different economies in a different way and the results are unexpected. In this scenario, some of the developing economies are emerging at higher pace than ever expected.
The paper attempts to inquire about the key determinants and their role in development. For the study purpose the researchers have taken two types of economic group viz; Developed economies and developing economies. The researchers are keen to know what factors have contributed to push effect of emerging economies and lead them ahead of some of the developed Economies.
We know the foremost economic activity is the production and it will be interesting to find out how some of the economies have positive production rate while other were simply lying below zero.
The paper finally makes an attempt to predict the economic emergence with path-breaking factors.

Objectives
a) To find out emerging key determinants (elements) in national policy formulation based on presently available database.
b) To find out the whether there is significant difference in growth rate of some of the leading economies of the world on the basis of the presently available data. (Data will be processed with the help of SPSS-17.0 software and ANOVA test was used to find out the mean difference in growth rate of economies)

Keywords----- Production rate, Macroeconomic policy, Global meltdown, Developed economies & Structural equation modeling

I. OVERVIEW
Dev(2004) and Ahluwalia (1991), observed economic development may cease due to low public expenditures such education and health. Macroeconomic policies of an economy not only deduce the micro economic policies of a country and lay down broader framework for it but also plays key role in determining its international repute. If a country is unable to respond to forthcoming challenges faced at micro level and does not fulfill the individual demand then finally it turns into deficient demand at national level. There was favorable impact on macroeconomic stabilization policies including the devaluation of rupees and other structural reforms (Liberalization, globalization and privatization policy-1990-91. We understand the global meltdown is leaving its mark on different economies in a different way and the results are unexpected. In this scenario, some of the developing economies are emerging at higher pace than ever expected.

Keynes theory of national output, employment and national income is predictive model and suggests the policy formulators to respond to local requirements and create employment opportunity in the coming time. Otherwise the gap may lead to reduced output or lesser employment with severe reduction in national income. The country in this case suffers from less industrial growth, less income and less consumption. Nowadays the economies are facing different problems i.e. increased unemployment, layoffs, salary cuts, closure of firms, devaluation of currency, rapid fluctuations in stock markets, less growth rate of gross domestic product. In summation we may say we are facing unexplained and unexpected situations at national and International level. The policy formulators are having too many challenges to face and fewer solutions to rely. Every country is having its own growth path and expectations on side and on the other hand the credit rating agency such as standard and poor is downgrading the ratings of the some of the developed and developing economies.

In this situation it shall be interesting to note which economy outbreaks the rule of development. Although as per literature review we have some determinants to frame a reasonable policy for the country.
The concept of inequality is distinct from that of poverty and fairness. **Income inequality metrics** or **income distribution metrics** are used by social scientists to measure the distribution of income, and economic inequality among the participants in a particular economy, such as that of a specific country or of the world in general. While different theories may try to explain how income inequality comes about, income inequality metrics simply provide a system of measurement used to determine the dispersion of incomes.

**Income distribution** has always been a central concern of economic theory and economic policy. Classical economists such as Adam Smith, Thomas Malthus and David Ricardo were mainly concerned with factor income distribution, that is, the distribution of income between the main factors of production, land, labour and capital. It is often related to wealth distribution although separate factors influence wealth inequality.

Modern economists have also addressed this issue, but have been more concerned with the distribution of income across individuals and households. Important theoretical and policy concerns include the relationship between income inequality and economic growth. The article Economic inequality discusses the social and policy aspects of income distribution questions.

**Gini- The Income Inequality Index**

The range of the Gini index is between 0 and 1 (0% and 100%), where 0 indicates perfect equality and 1 (100%) indicates maximum inequality.

The Gini index is the most frequently used inequality index. The reason for its popularity is that it is easy to understand how to compute the Gini index as a ratio of two areas in Lorenz curve diagrams. As a disadvantage, the Gini index only maps a number to the properties of a diagram, but the diagram itself is not based on any model of a distribution process. The "meaning" of the Gini index only can be understood empirically. Additionally the Gini does not capture where in the distribution the inequality occurs. As a result two very different distributions of income can have the same Gini index.

**II. LITERATURE REVIEW**

Mayekawa 1986 report identified six major areas for policy changes to reduce current account balances: expansion of domestic demand, including both consumption and infrastructure investment; transformation of the industrial structure, including promotion of foreign direct investment; promotion of manufactured imports and further improvements in market access; international financial liberalization and stabilization of international currency values; increased contribution to the global economy and international cooperation; and fiscal and monetary policy support. **Eichengreen (2009)** identifies four major implications of the global financial crisis for macroeconomic policy management in Asia:

a) Requirement for policy space to be kept in reserve for future shocks
b) Desirability of increased exchange rate flexibility, both to absorb external shocks and contribute to adjustment of imbalances
c) Need to incorporate financial stability concerns more explicitly into monetary policy frameworks
d) Desirability of having a regional pooling arrangement for foreign exchange reserves to reduce the need for individual countries to insure themselves against capital outflows by building up foreign exchange reserves.

Regarding fiscal policy, the prescription for deficit countries such as the US is straightforward—reducing fiscal deficits can contribute to reducing the current account deficit as well, although the scope for and will to accomplish such reductions will be limited as long as the economy is below full employment (Bosworth and Collins 2010).

**Prasad (2009)** advocates the following to promote economic rebalancing: increasing spending on the social safety net and other government insurance mechanisms to help reduce precautionary motives for saving; developing financial markets and increasing their efficiency to aid smoothing of consumption and investment by companies; promoting financial inclusion; and increasing exchange rate flexibility to promote consumption via terms-of-trade effects and creation of greater monetary policy space to promote macroeconomic stability.

**Asian Development Bank (2009)** argues that policies aiming to reduce the imbalance between savings and investment should focus on increasing consumption rather than promoting investment, since the evidence for under-investment in Asia is slight. It argues in addition that fiscal policy can make a substantial contribution toward making domestic demand more robust in both the short run and long run. Consumption can be promoted by both raising the share of household income in total income, and by reducing the incentive for precautionary saving. **ADB (2009)** advocates that governments in the region encourage increased dividend payments to stockholders, and implement income transfer schemes to support low-income groups. Latter, it also advocates increased spending on social protection and social safety nets, including greater state provision of health care, education, and pension benefits.

**Lee (2010)** argues that countries such as the People's Republic of China (hereafter PRC) should encourage firms to increase dividends to strengthen the link between corporate profits, household income and consumption. He also advocates increased government expenditure on health, social safety nets, education and housing to reduce households' precautionary motive for saving. He advocates measures to increase the investment climate in countries
where this is lagging. Export subsidies and other price distortions that favor exporters should also be eliminated. He also calls for further cooperation at the regional level, such as: strengthening the Chiang Mai Initiative Multilateral (CMIM) agreement, including the setting up of an Independent Surveillance Unit (now known as the ASEAN+3 Macroeconomic Research Office (AMRO)); establishing an Asian Financial Stability Dialogue to foster economic and financial coordination; and promoting measures to support increased regional infrastructure investment.

Bery (2010) highlights the need for expenditure switching in the case of India to encourage the supply of key non-tradable, including infrastructure provision in public and private sectors, as well as measures to enhance human capital, such as better public education and public health. Even though India does not need rebalancing at the macroeconomic level in terms of the current account balance, these measures can still help achieve higher and more sustainable economic growth.

In its review of the experience of countries that transitioned out of large current account surpluses, IMF (2010) finds that monetary and fiscal policy stimulus measures played an important role in offsetting the impacts of exchange rate appreciation. In fact, in a number of cases, policy stimulus overshot what was needed, as the deflationary effects of currency appreciation were overestimated, and stimulus had to be withdrawn due to the development of inflationary pressures and asset bubbles. On the plus side, the IMF study found that surplus countries typically had ample policy space at the beginning of such episodes that enabled them to implement stimulus measures. Regarding household savings, Jha, Prasad and Terada-Hagiwara (2009) conclude that the two main areas for policy to have an impact on reducing precautionary savings are: expanding the social safety net, especially health insurance coverage; and financial development in order to enable households to insure against idiosyncratic risks to household income and to smooth out lifetime consumption by increasing the capacity to purchase durable goods and housing.

Takagi (2009) argues against using fiscal policy permanently as a way to rebalance growth, from the standpoint of concerns about both debt sustainability and the tendency of higher fiscal spending to raise interest rates and thereby crowd out productive private investment. Of course, presumably the latter would be less of a concern if the economy was operating at less than full capacity, which would likely be the case if currency appreciation exerted a deflationary impact on the economy. Finally, measures to enhance macroeconomic and financial stability can also raise governments' tolerance for Macroeconomic stability is considered a prerequisite for the preservation of the environment.

Gandhi and McMorran 1996, UNFPA’s figures for urban growth make worrying reading. Over half the world’s people will live in cities within ten years (3.3 billion out of a total of 6.59 billion). Between 1970 and 2020, the urban population will have risen by more than two billion – and 93% of these will be in developing nations. These increases will add to the strain of an estimated 600 million people already living in urban areas of developing nations without the resources to meet their basic housing and health needs.

While this development has been similar in industrial countries, there exists a significant difference in the process of migration and urbanization between industrial and developing countries as in the latter urbanization is largely accelerated and influenced by global markets (Hamm and Neumann 1996). Both, urbanization as well as industrialization, are identified to put increasing pressure on the urban environment (Bartone and et al 1994). Interestingly, in most of the reviewed literature, sustained economic growth is regarded key for long-term environmental improvements or even reversing the trends in the cities of the developing world (Bartone and et al 1994, 8).

A) Macroeconomic policies addresses -
1. National output
2. Inflation or price stabilization
3. Interest rate policies of central bank
4. Employment
5. Monetary, fiscal, trade and exchange rate
6. Investment and saving
7. Eco-Politico decisions
8. Economic cycles
9. Poverty

B) International Pressure
1. Global meltdown & its impact
2. Increased unemployment
3. Investment patterns and lucrative destination
4. International hoardings
5. Scarcity of products
6. Layoffs, closures
7. EXIM policies and BOP patterns
8. Exchange rate flexibility.

C) Natural Calamities
1. Famine
2. Flood
3. Earthquake
4. Tsunami etc.

Empirical evidences:
1) It has been observed that an economy develops faster whose macroeconomic policies are proactive and adjustments are made on the basis of economic requirements and exigencies.
2) Ip (International pressure) like global meltdown, recession adversely affect developing countries and salary cut, increased unemployment, reduced output and the economic development hinders.
3) Pε= present economic conditions of a country also depicts the economic development, for e.g. If the investment
climatic conditions in existing or new towns and cities. The development of such economies depends on other factors such as infrastructure development, roadways, industrial units, and so on. Therefore, sound and good economic conditions lead faster development and poverty-stricken economies suffer from vicious cycles of reduced employment, reduced national income, and reduced output. In such countries, we observe less consumption and investments as profitability index and returns on investments are quite low.

4) Ge (Government entrepreneurship, stability and motives) play a vital role in the growth of its country/area. It is not uncommon in India like country, that the good and great leaders make a remarkable distinction in the areas/states/provinces. For e.g. Gujrat, Maharashtra, Kerala (tourism, literacy rate), Delhi and North capital region has shown and put exemplary cases for the rest of states and to some countries.

5) Population growth rate: Development to some extent depends on the population of a country and if the people are being converted into assets and seen as resources nothing better can be expected. Optimal size of population shall always be contributory to national growth (the ratio may be calculated on the basis of population of a country or region/natural factor endowment). If it proportionately very high then it needs a correction through strict population policies.

6) Technology Status: It has been observed that with the high or innovative technologies the developed economies are having edge over developing countries, hence for a progressive economy clear cut distinction may be obtained from cutting edge technology. Theoretically, Economic development is directly related to the technological advancements (Ceterus peribus)

7) Natural factor endowment- It is very common to observe, that generally those economies emerge faster whose natural factor endowment is high but it is not a rule, as economic development depends on other factors also.

8) Political pressure and polity of the country (Pl) - We may see that the government is instable or stable with the pressure of its alliances, New government election or new dynamics at national front.

9) Socio- Economic situation of the country(S) - Quite often we may feel social pressure of caste, creed, religion and reservation norms or economic conditions of the society. Here our first objective to find out emerging key determinants (elements) in national policy formulation based on presently available database. Henceforth from the literature review and other empirical evidences we have developed following economic development function. It not only supports the economic development function but also gives some empirical significance to the function. Economic development function may be comprehended as follows -

\[ E.D = f(M_p, I_p, P_e, G_e, P, T, N, P_l, S) \]

III. RESEARCH GAP

As per the previous section we are now able to find out the recent contributory factors which finally play role in macroeconomic policies still the researchers have foggy picture of these elements and their role in improving the economic condition. Moreover natural devastations lead to higher degree of losses but how the government intervention improves these conditions? Although different governments claim their key role in the development of their country/state but what had been the cost of development had a mysterious history or is it government or local pressure for the economic growth and its plan? On this basis the researchers are interested to find out exactly which element is decisive in improving the economic condition or worsening it? Here we have high degree of doubt about inert or symbolic leadership role in growth. No study could have been found out in this context hence we are interested to mitigate the gap with the help of our study and its findings.

IV. RESEARCH DESIGN

Descriptive Research Design: Our objective of the research was simply to find out whether there is any significant difference in the growth rate of countries? If so it happens what are the key elements that contribute to it. The study is macroeconomic in nature and we could have no other better way to describe the variables character. For this sake we used the descriptive design of research.

Data Collection Methodology: There is no questionnaire/schedule for data collection as the research is based on government data furnished by different statistical agencies of different countries. We have used secondary data for analysis. For this purpose, the data of 24 countries...
have been used from different websites (sources are mentioned at their appropriate places).

For the comparison of gross domestic product of selected countries we have taken the data of 10 year (2002-2012) and quarterly growth has been estimated on the basis of 2010-2012. The authenticity of the data is unquestionable as it is furnished by top institutions of respective country.

Paper attempts to inquire about the key determinants and their role in development. For the study purpose the researchers have taken two types of economic group viz; Developed economies and developing economies. The researchers are keen to know what factors have contributed to push effect of emerging economies and lead them ahead of some of the developed Economies.

We know the foremost economic activity is the production and it will be interesting to find out how some of the economies have positive production rate while other were simply lying below zero. Our second objective for the present work is -
To find out the whether there is significant difference in growth rate of some of the leading economies of the world on the basis of the presently available data. (Data has been processed with the help of SPSS-17.0 software and ANOVA test was used to find out the mean difference in growth rate of economies)

We have analyzed the present problem is the ANOVA test to find out whether the growth rate between the countries is significant and the following statistical approach has been used for analyzing data.

**Statistical approach** - Data used for the research purpose was factual and ordinal. Primarily the mean and standard deviation has been calculated and for the further details we have used one way ANOVA or F-Statics to find out whether the mean difference is significant at 95% level of confidence?

**Hypothesis** There is no difference in the average quarterly growth between the selected 24 countries

**Assumptions**
- a) Mean of growth rate per quarter is equal.
- b) Homogeneity of Variance of growth rate.
- c) Independent random samples are drawn from normal populations.

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<tr>
<td>N</td>
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<tr>
<td>2012</td>
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**ANOVA**

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<th>Year</th>
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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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<td>20</td>
<td>5.893</td>
<td>198.239</td>
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<td></td>
<td>Within Groups</td>
<td>.059</td>
<td>2</td>
<td>.030</td>
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<td></td>
<td>Total</td>
<td>117.913</td>
<td>22</td>
<td></td>
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<tr>
<td>2011 (Q4)</td>
<td>Between Groups</td>
<td>295.457</td>
<td>21</td>
<td>14.069</td>
<td>22.349</td>
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<td>Within Groups</td>
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<td>.630</td>
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<td></td>
<td>Total</td>
<td>296.716</td>
<td>23</td>
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<td>2011 (Q3)</td>
<td>Between Groups</td>
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<td>21</td>
<td>8.486</td>
<td>8.904</td>
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<tr>
<td></td>
<td>Within Groups</td>
<td>1.906</td>
<td>2</td>
<td>.953</td>
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<tr>
<td></td>
<td>Total</td>
<td>180.120</td>
<td>23</td>
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**V. FINDINGS**

1. Average quarterly growth rate of 2012, was found to be 2.4100 and the standard deviation 2.31509. Average quarterly growth rate for 2011 was found to be Q1 (2.5421), Q2 (3.5771), Q3 (3.3904) and Q4 (4.3208) and Standard deviation for Q1 (3.59175), Q2 (2.79845), Q3 (2.91682) and Q4 (4.39645).

2. Average quarterly growth rate for 2010 was found to be Q1 (4.7208), Q2 (4.9333), Q3 (5.8196) and Q4 (5.1304) and Standard deviation for Q1 (3.07684), Q2 (2.74205), Q3 (4.30075) and Q4 (4.39645).

3. Anova Statistics suggest that the calculated value (F) is more than tabular value (significance) in all quarters in 2010, 2011 & 2012.

4. Literature review and data analysis suggested us that the economic development growth is the function macroeconomic policies of the country and their dynamicity, International pressure of growth, present economic conditions, government entrepreneurial activities and willingness of develop, population growth rate, state of technology, distribution of income, natural resource endowment and their utilization, political pressure and socio economic pressure. It is also to be noted that new variables may be introduced and the existing components may be eliminated if become redundant. It is explained as per the economic development function as indicated in the given formulae.

\[ E.D = f(Mp, Ip, Pe, Ge, P, T, N, Pl, S) \]

**VI. CONCLUSIONS**

Above findings suggests us to conclude that there is significant difference in the growth rate of different economies and it may happen as a result of customized macroeconomic policy execution in specified country. Therefore we reject our null hypothesis of average quarterly growth between the selected 24 countries. Further economic development is the function of macroeconomic policies of the country and their dynamicity, International pressure of growth, present economic conditions, government entrepreneurial activities and willingness of develop, population growth rate, state of technology, distribution of income, natural resource endowment and their utilization, political pressure and socio economic pressure.

**VII. DISCUSSIONS**

The research work may give a direction towards the consideration of the significant components in the economic growth of the country but the economic...
development function is simply the enlisting of the components and their inclusion and exclusion as per economic conditions of the country.

The Economic function does not associate its variables on empirical approach whilst it may be seen as presumption and supposition of the researchers based on literature review and common observation. This economic function may be best developed by structural equation modeling but presently it is out of purview of the research definition.

REFERENCES


[6] Data show the ratio of the household income or consumption share of the richest group to that of the poorest. Household income or consumption by percentage share (%), The World Factbook, CIA, updated on January 24, 2008. Note: To calculate the value given in the table for this article, the highest 10% value was divided by the lowest 10% value.


[8] Global Peace Index calculation incorporates UN Gini scores where available, so countries with a UN Gini calculation are left blank in this column. At [1] click on each country to see its Gini coefficient. Year is not given. "There are, nevertheless, some problems with the Gini-coefficient; there is a considerable lag in the publication of statistics for many countries suffers, forcing the Economist Intelligence Unit to estimate the coefficient for a sizeable proportion of the 153 countries in the GPI. These problems of measurement look likely to persist for the foreseeable future, and the use of other measures of income inequality may be more effective."