Article

Emerging Markets Redefined: Comprehensive Measurement and Future Prospects

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Abstract

The twenty-first century saw the emerging market countries rise as a cluster, becoming a major force driving the global economic growth and playing an increasingly important role in global governance. The existing definition of emerging market countries is vague and quite one-sided, far from capturing the reality. Based on historical experiences and actual circumstances of developing countries and the basic theories of development economics, this article builds a comprehensive index system comprising the five dimensions of nation-state size, institutional environment, economic growth, socio-economic structure, and development impetus to study 30 countries selected from among the 183 countries (regions) around the world. This provides a new analysis framework and theoretical support for in-depth study of the emerging markets.

Keywords

Emerging market countries, comprehensive measurement index system, developing countries, development economics

Introduction

The concept of emerging markets and the rapid development of emerging market countries are not entirely new topics, but the rise of a group of emerging market countries after the 2008 global financial crisis has indeed aroused widespread interest in the world. As COVID-19 is raging around the world, having dealt a heavy blow to emerging market countries, what future lies ahead for these countries has drawn global attention. This article gives a new definition of emerging markets from a developmental perspective rather than just an investment one. Following the basic logic of development economics, we

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have selected 30 emerging market countries from among the 183 countries of the world with the relevant available data. The article presents the major characteristics of these countries' economic development based on systematic data and foresees the prospects for the economic development of these emerging market countries.

The Existing Definitions and Classification of Emerging Markets

While working with the International Finance Corporation (IFC), Anoine Van Agtmael was the first to come up with the concept of "emerging markets" in 1981, which refers to the words such as progress, development, and vitality to encapsulate the defining characteristics of the relatively competitive developing countries, with a view to guide the international capital market to invest in promising developing countries. These countries enjoy rapid economic growth and have great long-term development potential, with the markets being outward-looking, as are the stock markets (Fang, 2012). Subsequently, many economists defined the basic characteristics of emerging market countries from different angles. For example, Vladimir Kvint defines the emerging market country as the economy in transition from being government-dominated to being market-oriented (Kvint, 2009). The *Global Financial Stability Report* of the International Monetary Fund (IMF), from the perspective of financial market development and openness, defines emerging market countries as developing countries that have less developed financial markets than developed countries but are open to foreign investment (IMF, 2004). Zhang Yuyan and Tian Feng put forward the "E11 Emerging Economies" concept at the 2010 Boao Forum for Asia. They selected 11 countries[1] from among the G20 to illustrate the emerging markets' impact upon the world economic landscape from the dimensions of economic size, international trade, international capital flow, and key production outputs (Zhang & Tian, 2010). However, these studies have various issues that need to be resolved.

First, there was a lack of comprehensive measurement in using some indicators in the description of the defining characteristics of the emerging market countries (economies). For example, the IMF's report on *World Economic Outlook* takes emerging market countries and other developing countries as a whole to be compared with the developed countries.

Second, they generally tend to define emerging markets with a view of guiding investment. The typical examples are the MSCI, S&P Dow Jones Indices, and Russell Indices.[2] Such indices focus on short-term investment return but make light of identifying the long-term stable development characteristics of emerging market countries.

Third, they simply adopt the economic growth expectation index, showing inadequate attention to the economic structural changes in the process of economic transformation. Such problems were observed in the practice of Goldman Sachs in defining BRICS (Brazil, Russia, India, China, and South Africa) and the Next-11 (N-11), of Banco Bilbao Vizcaya Argentaria (BBVA) in defining emerging economies, and of Citigroup in classifying emerging market countries according to the "Global Growth Generators."

Table 1 makes a comparison of the existing classifications of the emerging markets from the investment perspective and the economic growth perspective. The results show that 16 countries, including Brazil, Chile, China, Colombia, Egypt, India, Indonesia, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, South Africa, Thailand, and Turkey, are regarded by more than 70% of the research institutions as typical emerging market countries,[3] but vast differences exist in the identification of other countries' status.

Table 1. Classification of the Existing Emerging Market Countries.

	Investment Perspective				Economic Growth Perspective		
	S&P	Russell	Morgan Stanley	FTSE Group	Goldman Sachs	BBVA	Citigroup
Argentina	Δ	Δ				√	
Bangladesh	Δ	Δ		Δ	√	√	√
Brazil	√	√	√	√	√	√	
Bulgaria	Δ	Δ		Δ		Δ	
Chile	√	√	√	√		√	
China	√	√	√	√	√	√	√
Colombia	√	√	√	√		√	
Czech	√	√	√	√		Δ	
Egypt	√	Δ	√	√	√	√	√
Greece	√	√	√				
Hungary	√	√	√	√		Δ	
India	√	√	√	√	√	√	√
Indonesia	√	√	√	√	√	√	√
Iran					√	√	
Iraq						√	√
Kazakhstan						√	
Lithuania	Δ	Δ		Δ		Δ	
Malaysia	√	√	√	√		√	
Mauritius	Δ	Δ		Δ		Δ	
Mexico	√	√	√	√	√	√	
Mongolia							√
Morocco	√	Δ		Δ		Δ	
Nigeria	Δ	Δ		Δ	√	√	√
Pakistan	Δ	Δ		√	√	√	
Peru	√	√	√	√		√	
Philippines	√	√	√	√	√	√	√
Poland	√	√	√	√		√	
Qatar	√	Δ		Δ		√	
Romania	Δ	Δ		Δ		Δ	
Russia	√	√	√	√	√	√	

(Table 1 continued)

(Table 1 continued)

	Investment Perspective				Economic Growth Perspective		
	S&P	Russell	Morgan Stanley	FTSE Group	Goldman Sachs	BBVA	Citigroup
South Africa	√	√	√	√	√	√	
South Korea		√	√		√		
Sri Lanka						Δ	√
Thailand	√	√	√	√		√	
Tunisia	Δ	Δ		Δ		Δ	
Turkey	√	√	√	√	√	√	
UAE	√	√		√		Δ	
Vietnam	Δ	Δ		Δ	√	√	√
Total	22	20	20	20	16	25	11

Source: Authors tabulation based on the official websites of the financial institutions.

Note: The table only contains those classified as emerging market countries by the financial institutions and the countries regarded as frontier markets by at least four institutions. All the information comes from the websites of various institutions. The "√" indicates emerging market countries, and the Eagle Countries and the Observer Countries identified by BBVA (Banco Bilbao Vizcaya Argentaria) are all included in the emerging market countries group. The "Δ" indicates frontier countries or other emerging market countries. At the bottom of the table is the total number of emerging market countries calculated in different categories, but frontier countries are not included in emerging market countries in the total.

With such classifications, the *Financial Times* pessimistically noted that the definition of emerging markets varies among research institutions and the differences among the selected countries are gradually expanding, with their differences far outweighing their commonalities, and it questioned whether it is justifiable to continue to use the existing concept of emerging markets (*Financial Times*, 2015). In short, the existing definitions of the emerging markets mostly pay attention to a single factor (variable) or few factors (variables), while ignoring that the system encompasses multiple factors and has long-term impact. This article tries to build up a comprehensive index that consists of multiple factors to measure emerging markets systematically, and then identify and select emerging market countries from a new perspective.

Emerging Markets Redefined and the 30 Emerging Countries Concept Proposed

This article attempts to put forward a new concept on emerging markets from a novel perspective based on development theories and multiple factor analysis. In light of this new definition, a list of emerging market countries has been drawn up, with a view to facilitate a series of more in-depth theoretical and empirical studies on emerging markets.

Development Economics Underpinning the Redefinition of Emerging Markets

Regarding the emergence and rise of emerging markets, historians, sociologists, political scientists, and demographers have attained fruitful results in their respective research fields, of which the core and

defining characteristic of emerging markets is economic development. It reflects the process a country goes through in continuously enhancing its economic strength, and improving people's livelihood, infrastructure, institutional environment, trade composition, and industrial structure. In this special phase, a country progresses to transform from a developing country into a developed country. From the perspective of development economics, as leaders of developing countries in economic development and new engines driving global economic growth, emerging market countries should have the following basic characteristics.

Bigger Size of Economy

The mainstream view of development economics holds that the size of an economy and its population constitute the fundamental conditions for its economic development. This fundamentally affects the country's economic development and international influence.

First, a large economy has the advantage of pursuing development at a certain scale with a specialized division of labor. The Nobel Prize Winner in Economics S. Kuznets holds that big economies enjoy more advantages for specialization, since a large domestic market allows for the development of a specialized economy (Kuznets, 1965). Agglomeration of elements on a scale and growth in market demand result in refined division of labor, increased productivity, lowered production cost, and gradual division of industrial labor by specialty. The relatively developed division of labor in the region and in the country enables development on a large scale and labor division unique to the large economy.

Second, a large economy is conducive to promoting economic growth. A big population determines that the country in question has a large market capacity and a high demand. A high demand of the domestic market is not only a driving force for economic development at the country scale but also provides a direct thrust for the country's rapid economic growth. Paul Rosenstein-Rodan (1943), a pioneer of development economics, explicitly pointed out that a big market demand is crucial for the less developed countries to jump out of the "Poverty trap." Romer (1986), one of the founders of the new growth theory, and Grossman and Helpman (1994), important economists on the new trade theory and the new growth theory, analyzed the economic growth benefits brought by the economy of scale from such perspectives as positive externalities in accumulation of human capital and knowledge, as well as the incremental returns in the process of technological innovation.

Third, a large economy is conducive to the economic stability of a country. Large economies are often accompanied by domestic market demand of a certain scale, which gives intrinsic stability to the national economy. During the 2008 international financial crisis, many small and medium economies suffered heavily, while the Chinese economy, which had a huge domestic market, remained relatively stable. A large economy has a considerable output of commodities and a high demand for capital, without undue reliance on foreign trade to overcome issues related to product sale and capital accumulation. Both Kuznets (1941) and Chenery et al. (1986) have verified the inverse relationship between the size of an economy and its dependence upon foreign trade. With the development and reinforcement of economic independence, the big economy can establish an internal cycle capable of self-regulation, thus ensuring the stability of the economic system.

Better Institutional Environment

As revealed by the economic development of many countries, institution is an important intangible economic endowment. The adjustment and changes of the institutions determine the long-term trend of

economic structure and economic development (Lin, 2011). Pei-Kang Chang, one of the important contributors to development economics at an earlier age, believes that a country's industrialization depends on various institutional factors that either directly or indirectly affect economic development. In a certain institutional environment, the formation of the entrepreneurial class is conducive to further promoting institutional innovation. The practices followed by developing countries in postwar rebuilding further indicate that institutional changes and institutional innovation advance industrialization under certain conditions (Chang, 1949). Over recent years, contemporary development economists, such as Daron Acemoglu, have confirmed the hypothesis that "Institutions Matter" based on extensive research on the development experiences of different countries (Acemoglu et al., 2001; Easterly & Levine, 2003; Fabro & Aixala, 2009; Fielding & Torres, 2008; Knack & Keefer, 1995; Rigobon & Roderik, 2004; Stroup, 2007). In other words, the countries with better institutions, better property rights protection, fewer policy distortions, and more outward-looking trade regimes are more affluent than other countries.

Higher Economic Growth

Economic growth usually refers to the increase in material products and services produced in a country. It means wealth growth is usually measured by Gross Domestic Product (GDP) or Gross National Product (GNP). Economic growth is the most direct manifestation of a country's overall economic development level. To grow into an emerging market country, a developing country must maintain an economic growth rate higher than that of most of the developed countries over a sustained period of time, demonstrating a catch-up effect.

Fast Economic Structural Change

Economic structural change normally refers to the changes of industrial structure, rural–urban structure, and income distribution structure. The evolution of industrial structure as a result of industrialization is the core of economic development and an important step for developing countries to shake off poverty and underdevelopment. Chenery et al. (1986) believes that the degree of industrialization can be measured by the increase in the share of manufacturing in the GDP. Industrialization not only addresses unemployment and underemployment in developing countries but also represents an effective way to improve the trade conditions of developing countries. The industrialization of developing countries is a process in which the rural surplus labor keeps moving into cities. Therefore, urbanization is also an important indicator for economic structural change, linking with industrialization. The development economist Myrdal put forward the theory of circular cumulative causation. This theory regards the growth of industries as a process related to the expansion of cities and holds that urbanization and industrialization promote each other. Since high salaries and jobs offered in cities promote the expansion of cities and increase in urban population, industrialization directly promotes urbanization (Myrdal, 1957). Another important structure, the relatively fair income distribution structure, is also very important. It is the cornerstone of social stability and an essential condition for the stable development of a country; therefore, it should also be included in the economic structure of emerging market countries.

Sufficient Impetus for Development

A comprehensive comparison reveals that the economic development process of any country relates to at least three important elements: initial conditions, impetus, and results. Among the basic characteristics

mentioned above, a large economy and a sound institutional environment are the initial conditions for development; rapid economic growth is the result of development, and the ever-improving social and economic structure encompasses both the process and the result of development. Human capital provides sufficient impetus for a country's economic growth and rapid development; it is the sum of such factors as the knowledge, skills, and physical strength (health) possessed by the producer. In order to improve human capital, it is important to provide good education and training, good healthcare, and opportunities for free migration. Education is imperative in this process. For the vast number of developing countries, increasing the accumulation of human capital and improving the quality of human resources are important preconditions for promoting fast economic and social development and rapidly catching up with developed countries. The three Nobel Prize winners in economics Theodore Schultz (1971), Robert Lucas (1988), and Paul Romer (1986), through their research, all agree on the essential point that human capital plays a decisive role in economic growth, holding that physical capital is just the initial condition for development and human capital actually is the core element and engine that drives economic growth. They also proved that education is an important driving force for cultivating human capital to promote output growth. Furthermore, Philip Aghion and Peter Huwitt (1998) find that human capital accumulation and stock both affect the speed of economic growth.

Basic Requirements to Redefining Emerging Markets

Based on the above theoretical foundations, some basic requirements need to be clarified prior to measuring and redefining emerging markets.

Representative and Progressive

First of all, the emerging market countries measured and selected should be appropriately representative. This means that these countries represent the vast number of developing countries that are widely distributed geographically across all continents of the world. They include different types of developing countries, such as typical market economies, transitional economies, and so on. Those regarded as emerging market countries should be comparatively advanced and comparatively developed; they must be leaders of developing countries which enjoy relatively rapid economic development, improved structures, and well-developed laws and regulations, so that they can be showcased to other developing countries.

Feasible and Comparable

Emerging market countries are moving from underdevelopment to a state of being developed. It is inadvisable to apply the standards for developed countries to these countries. We should choose some appropriate variables and practical method while taking into full account the comparability between relevant factors. The variables adopted should be combined with the corresponding available data. The standard for measuring development indicators of the emerging market countries should not be too high but meet the actual reality of developing countries, so as to avoid aiming for too ambitious standards that might drop some widely recognized developing countries with promising development potentials.

Comprehensive and Quantitative

The existing definitions of emerging market countries tend to overemphasize the single factor of investment return. Some scholars adopting different criteria of definition may tilt towards qualitative discretion. This article tries to adopt a multi-factor analysis method to quantitatively calculate and evaluate all the countries (regions) of the world in terms of nation-state size, growth rate, institutional environment, and economic structural changes to identify the emerging market countries.

Dynamic and Continuous

Emerging markets are in dynamic and continuous development, though a single economy shows change or uncertainty in going up or down in the medium and long term. This study's selection of emerging market countries by the timeline follows the dynamic principle and takes the average of the data for a duration of 3–10 years, so that they show relatively good stability, without major changes in the short term.

Selecting Appropriate Variables to Redefine Emerging Market Countries

For each of the five determined dimensions, representative variables should be set. All countries worldwide have been considered. First, relevant variables were all selected in each dimension. The preliminary result involved 50-plus variables, which were cut down to 16 after repeated comparison and consultation with relevant experts. Considering the availability of data relating to these variables and the correlation of the variables, we finally decided to go for the further selection of emerging market countries using the 10 variables indicated in Table 2.

Table 2. Variables Selected for Redefining Emerging Market Countries.

Five Dimensions	Ten Variables	Explanation and Data Source of Variables
Economic size of the country	Gross domestic product (GDP), US dollars at current price	GDP refers to the market value of all final products (including goods and services) produced by a country through using production factors over a certain period of time. The calculation does not deduct asset depreciation or natural resource depletion. The data are in the current price of US dollars. The GDP in USD is figured out on the basis of the official exchange rate of the year. Source: The World Bank database: data.worldbank.org.cn/indicator/NY.GDP.MKTP.CD

(Table 2 continued)

(Table 2 continued)

Five Dimensions	Ten Variables	Explanation and Data Source of Variables
	Total import and export of goods and services, referred to as "Total trade" in US dollars at current price	Import and export of goods and services are the trade between one country and the rest of the world, covering the ownership change of general goods from non-residents to residents, or vice versa, processed or repaired goods, non-monetary gold, and services. The data are in US dollars at current price. The sum is the total of imports and exports. Source: The World Bank Database data.worldbank.org.cn/indicator/BM.GSR.GNFS.CD
	Total population	Total population is the number of all residents, regardless of whether they have legal status of citizenship or not, excluding the non-permanent refugees in the country of asylum. The number is estimated mid-year. Source: The World Bank Database data.worldbank.org.cn/indicator/SP.POP.TOTL
Institutional environment	Ease of doing business index, referred to as "Business environment"	The ease of doing business index ranks 189 countries or economies in a descending order. The top economy enjoys the best business environment. The index ranks the countries involved in the World Bank business environment program's 10 items by the simple average percentage. Source: The World Bank Database data.worldbank.org.cn/indicator/IC.BUS.EASE.XQ
Economic growth	GDP growth rate, referred to as "economic growth" (year-on-year growth; %)	The annual growth rate of the market price GDP is calculated based on the constant price of the country's currency. Source: The World Bank Database data.worldbank.org.cn/indicator/NY.GDP.MKTP.KD.ZG
Socioeconomic structure	Share of agriculture (in terms of value added) in a country's GDP, referred to as "Agricultural added value percentage" (%)	According to the first five items of the *International Standard Industrial Classification of All Economic Activities*, agriculture includes crop cultivation, livestock production, forestry, hunting, and fishing. The agricultural added value refers to the net output resulting from all output of the agricultural sector minus intermediate input, with no deduction or depreciation of prefabricated assets or depletion of natural resources. Source: The World Bank Database data.worldbank.org.cn/indicator/NV.AGR.TOTL.ZS

(Table 2 continued)

(Table 2 continued)

Five Dimensions	Ten Variables	Explanation and Data Source of Variables
	Share of urban population to the total population of a country, referred to as "Urban population percentage" (%)	Urban population refers to the population living in urban areas defined by the national statistical agency according to relevant data of the World Bank population forecast and the United Nations' World Urbanization Prospects. Source: The World Bank Database data.worldbank.org.cn/indicator/SP.URB.TOTL.IN.ZS
	Inequality-adjusted income index, referred to as "Adjusted income index"	Considering such factors as uneven distribution of population, an income index that reflects fairness and equality is calculated on the basis of per capita household disposable income or consumption. The higher the index, the better is the economic development; the fairer the income distribution, the more equitable is the society. Source: United Nations Development Program hdr.undp.org/en/content/inequality-adjusted-income-index
Development impetus	The percentage of the population between 15 and 64 years of age in the total population, referred to as "proportion of labor force"	Source: The World Bank Database data.worldbank.org.cn/indicator/SP.POP.1564.TO.ZS
	Average years of education, referred to as "years of education"	Average years of education refers to the average number of years of formal education received by a certain population group in a certain area during a certain period of time. Source: United Nations Development Program: hdr.undp.org/en/data

Source: The variables in Table 2 are set out of the following considerations.

From the nation-state-size dimension's point of view, GDP and total trade are the two most common variables to measure the size of an economy and trade with various countries. The total population is another direct indicator of the size of a country, not only affecting the first two scale variables but also reflecting a country's market demand and market capacity. This indicates the country's market potential and directly determines the size of the labor force, which is the most essential factor of production. The combination of these three variables then measures well the aggregate strength of a country in terms of economic size, which is helpful to make judgments on the national strength and future development trends of the country.

For the institutional-environment dimension, the World Bank's ease of doing business index is taken as a representative indicator for the institutional environment. This index has been used by many countries and international organizations to measure the pros and cons of the institutional environment.

From the perspective of economic growth, we make a point of choosing an indicator to reflect the overall economic development and comprehensive influence of a country rather than the per capita living standard, taking into account the data availability as well. Therefore, the GDP annual growth rate in the constant price of USD in 2010 has been taken to represent the economic growth indicator.

For the dimension of socioeconomic structure change, the two indicators of "agricultural added value's share in GDP" and "the urban population's proportion to the total population" are first selected to examine the industrial structure and rural–urban structure of various countries to measure a country's level of industrialization and urbanization. In order to comprehensively examine the fairness of the income distribution structure, a relatively new indicator (inequality-adjusted income index) is incorporated. This index has evolved from the income indicator of the Human Development Index (HDI) (Appendix 1).

Drawing on British economist Anthony Barnes Atkinson's methods of measuring inequality (Appendix 2) (Atkinson, 2015), this article subtracts the coefficient of income inequality from 1 and multiplies the result and the original income index to get the adjusted income index (Appendix 3). A high adjusted income index not only shows that the country's per capita national income level is high but also indicates that the income distribution structure is equitable.

From the perspective of development impetus, the human capital status of various countries is the focus of this dimension, mainly seen from the two aspects of quantity and quality. The percentage of the population aged between 15 and 64 years in the total population is set as the variable of quantity, while the "average years of education" of the United Nations Development Programme is the variable of quality.

In order to verify the justifiability of the above variables, Table 3 reveals the correlation coefficients between the variables.

Table 3. Correlation Coefficients Between Various Variables.

N = 183	Total GDP	Total Trade	Total Population	Business Environment	Economic Growth	Agriculture's Share in GDP	Urban Population in Total Population	Adjusted Income Index	Labor Force in Total Population	Years of Education
Total GDP	1.0000									
Total trade	0.8912	1.0000								
Total population	0.3223	0.3433	1.0000							
Business environment	−0.2477	−0.3562	0.0319	1.0000						
Economic growth	−0.0437	−0.0440	0.1092	0.0555	1.0000					
Agriculture's share in GDP	−0.2077	−0.2943	0.0026	0.6095	0.0311	1.0000				

(Table 3 continued)

(Table 3 continued)

N = 183	Total GDP	Total Trade	Total Population	Business Environment	Economic Growth	Agriculture's Share in GDP	Urban Population in Total Population	Adjusted Income Index	Labor Force in Total Population	Years of Education
Urban population in total population	0.2178	0.3093	−0.0751	−0.5759	−0.0768	−0.7081	1.0000			
Adjusted income index	0.2008	0.3280	0.0023	−0.7550	−0.0422	−0.7006	0.7197	1.0000		
Labor forcen in total population	0.1993	0.3053	0.1045	−0.7315	−0.0122	−0.7032	0.6333	0.7883	1.0000	
Years of education	0.2459	0.3394	−0.0583	−0.7429	−0.1046	−0.6673	0.6148	0.7424	0.7777	1.0000

Source: The authors.

Note: Except for the adjusted income index (data available only for 2013), other data samples include all the data on the 183 countries/regions between 1980 and 2014. Data on business environment are based on the ranking; the higher the number in ranking, the worse is the business environment.

Table 3 shows that the mean value of the correlation coefficient between all variables is 0.3572. The correlation coefficients among the variables in different dimensions stay at a low level, mostly below 0.6. This means that the independent-variable selection is conducted for each dimension, with no repeated calculation. The correlation coefficients between variables within certain dimensions are relatively high, which is normal since the variables of different fields in the same dimension are involved in the screening. The screening criteria differ from variable to variable, and no dimension sees repetition of any variable function. It needs to be made clear that the main purpose of this variable at the current stage is to select the countries with right qualifications rather than compound all variables into one index. Individual high correlation coefficients between variables have little influence upon the effectiveness of selection of the countries as the emerging market countries based on these variables.

The Method and Process of Redefining and Measuring Emerging Market Countries

First of all, in the process of collecting all countries' data, including the 10 variables of the five dimensions since 1980, we found that a small number of countries or economies lacking data for related variables were mostly microstates, island countries, and countries/regions that had drifted away from the global economic system, suffered long-term conflict/war, and were extremely closed economies. Therefore, these 34 countries and regions[4] were excluded from the research. The 183 countries or regions with complete data in the World Bank database were included. The year 2014 was the most recent year when the accessible data were relatively complete when we launched the research, and so the variables involved were updated to 2014 (the "Adjusted income level" uses the data for 2013[5] only).

Second, the missing data on the 183 countries/regions were replaced with the data of the adjacent years. If data about the preceding and succeeding years were available, then the average value was taken. The missing long-term data were complemented with the appropriately adjusted data on the closely related aspects of the year. If the data on trade were missing, relevant data obtained through a statistical caliber other than the balance of payments (BOP) were used.[6]

The specific calculation has two steps. The first step is to use a five-level classification or comparative analysis and scientific induction to determine those up to the standard by individual variables (noninferior set). The 183 countries (regions) are ranked by a certain variable into five levels—high, relatively high, normal, relatively low, and low—with each level comprising 20% of the countries (regions) under study. According to the actual situations, the countries (regions) ranked high or low are excluded, and the rest all meet the conditions of the variables, and the latter are the noninferior set for the said variable. This method is adopted for the measurement of six following variables: the total GDP, total trade, business environment,[7] adjusted income index, labor force proportion, and years of education. Comparative analysis and scientific induction are used to analyze the data characteristics of different types of countries, draw on relevant economic and sociological theories to work out the threshold for each variable, and compare the values of all the countries (regions). Those failing to reach the threshold are excluded. This method is adopted for the measurement of four following variables: the total population,[8] GDP growth,[9] agriculture's share in total GDP,[10] and the share of the urban population in the total population.[11]

In the second step, the noninferior set intersection method is used to take the intersection of the countries meeting the criteria (for the noninferior set) in each variable to get the final list of emerging market countries that must meet all criteria in the 10 variables. See Table 4 for the year of the data and the calculation method used for each variable.

The calculations for the above variables result in 10 noninferior sets. By taking the intersection of all noninferior sets, we get the result shown in Table 5. The first line in Table 5 meets all the criteria of the 10 variables and is exactly what we need.

Table 4. The Years of Data Used and the Methods of Calculation for Each Variable.

Variables	Years of the Data	Calculation Methods	Excluded Items	The Number of Countries/Regions Meeting the Criteria
Total GDP	2012, 2013, 2014	Five-level classification	The last level, "low"	145
Trade total	2012, 2013, 2014	Five-level classification	The last level, "low"	142
Total population	2012, 2013, 2014	Scientific induction, comparative analysis	Below 10 million	83
Business environment	2013, 2014	Five-level classification	The last level, "low"	140
Economic growth	2005-2014	Scientific induction, comparative analysis	Less than 2.4%	128
Agriculture's share in total GDP	2012, 2013, 2014	Scientific induction, comparative analysis	Above 30%	155

(Table 4 continued)

(Table 4 continued)

Variables	Years of the Data	Calculation Methods	Excluded Items	The Number of Countries/Regions Meeting the Criteria
Urban population to total population	2012, 2013, 2014	Scientific induction, comparative analysis	Below 30%	155
Adjusted income index	2013	Five-level classification	The first level, "high" The last level, "low"	107
Proportion of labor force	2012, 2013, 2014	Five-level classification	The last level, "low"	138
Average years of education	2012, 2013, 2014	Five-level classification	The last level, "low"	146

Source: Authors design for the research.

Table 5. The Selecting Result of the Countries Meeting the Criteria.

Number of Criteria	Representative Countries/Regions	Number of Countries
10	China, Russia, India, Brazil, South Africa, etc.	30
9	Bangladesh, Bulgaria, Costa Rica, Kyrgyzstan, Sri Lanka, etc.	32
8	United Arab Emirates, Cameroon, Czech, Maldives, Qatar, El Salvador, etc.	37
7	Brunei, Côte d'Ivoire, Senegal, Slovenia, etc.	28
6	Angola, Ethiopia, Suriname, Swaziland, Tajikistan, etc.	22
5	Tonga, Yemen, etc.	13
4	Burkina Faso, Djibouti, etc.	8
3	Niger, Sierra Leone, etc.	6
2	Malawi, Togo, etc.	5
1	Central Africa, Comoros	2

Source: Based on the authors research.

The 30 Emerging Market Countries

Through the above-discussed selection process, we get 30 countries out of the 183 countries which meet all the 10 criteria, now redefined as the 30 emerging market countries; hereafter "E30" will be used to refer to the 30 emerging market countries or emerging countries, or emerging economies. See Table 6 for the list of the countries and regional distribution in the world.

Table 6 shows that regarding E30, Asia (including Turkey) has the highest number of members (13) among all the continents, followed by Latin America with nine, Africa with five, and Europe (excluding Turkey) with three.

Table 6. The Newly Redefined Emerging Market Countries and Their Regional Distribution.

Asia	Africa	Latin America	Europe
China	Egypt	Argentina	Poland
India	Ghana	Brazil	Romania
Indonesia	Morocco	Chile	Russia
Iran	South Africa	Colombia	
Kazakhstan	Tunisia	Dominican Republic	
Malaysia		Ecuador	
Pakistan		Guatemala	
Philippines		Mexico	
Saudi Arabia		Peru	
Thailand			
Turkey			
Uzbekistan			
Vietnam			

Source: The authors.

Note: The countries in the table are listed alphabetically by their names.

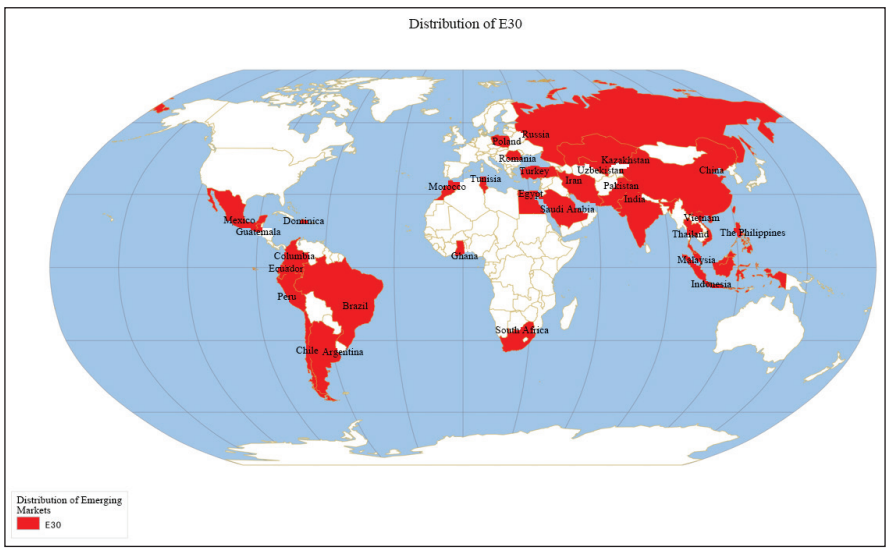

Figure 1. The E30 in the World.

Source: The authors.

Figure 1 and Table 7 reveal that E30 have a wide geographical distribution, scattered across the world except Oceania and North America. Their total land area accounts for 46.5% of the world's total; in 2014, their population was 62.7% of the world's population, and their GDP accounted for 33.2% of the world's total. E30's wealth is small in scale, as compared to their population and land. On the one hand, it reflects that the economic development level of emerging market countries is not as high as that of the developed countries, while on the other hand, it indicates that these countries have huge economic development potential.

Table 7. General Information on E30.

Country	Land Area (10,000 sq. km)	Total Population (in 2014, in 10 millions)	GDP (In 2014, in billions of US dollars)
China	963.4	136.4	10351.1
Vietnam	33.1	9.1	186.2
Thailand	51.3	6.8	404.3
Philippines	30.0	9.9	284.8
Indonesia	191.1	25.4	890.5
Malaysia	33.1	3.0	338.1
India	328.7	129.5	2042.4
Pakistan	79.6	18.5	243.4
Kazakhstan	272.5	1.7	227.4
Uzbekistan	44.7	3.1	63.1
Iran	174.5	7.8	425.3
Saudi Arabia	215.0	3.1	753.8
Turkey	78.4	7.8	798.8
Morocco	44.7	3.4	110.0
Tunisia	16.4	1.1	47.6
Egypt	100.1	9.0	301.5
Romania	23.8	2.0	199.3
Poland	31.3	3.8	545.0
Russia	1709.8	14.4	2031.0
Ghana	23.9	2.7	38.6
South Africa	121.9	5.4	349.9
Brazil	851.6	20.6	2417.0
Argentina	278.0	4.3	548.1
Chile	75.6	1.8	258.7
Colombia	114.2	4.8	378.4
Ecuador	25.6	1.6	100.9
Guatemala	10.9	1.6	58.7
Dominican Republic	4.9	1.0	64.0
Peru	128.5	3.1	202.9
Mexico	196.4	12.5	1297.8

Source: The World Bank database (2014): http://data.worldbank.org.cn/. The database of the National Bureau of Statistics of China (2014): https://data.stats.gov.cn/

The Economic Development of 30 Emerging Countries in the Global Economy

Comparative studies show that economic development underpins the rise of E30.

The ever-growing economic strength of E30 has become the main driving force for the global economy

E30 play an increasingly important role in international politics, economy, finance, and other fields. The important reason is that they boast considerable economic strength and influence, and their GDP is the most direct manifestation of this trend. Table 8 makes a horizontal comparison among the developed countries,[12] E30, and other developing countries in terms of their share in the global economy as calculated by GDP (based on Purchasing Power Parity [PPP]), and divides E30 by regional distribution. On the timeline, the 2008 financial crisis that marked the start of the decline of Western powers is taken as an important dividing line. The average levels in the 10 years before and in the 5 years after the crisis are presented to show the change in the global GDP share of the countries at different development levels at various periods of time.

Table 8 shows that the GDP of E30 and the developed countries combined makes up about 90% of the world's total GDP. The GDP share of the developed countries around the year 2000 was over 50%, but later it showed an obvious downward trend, and such a trend is especially noticeable after the international financial crisis. However, E30 show the opposite trend. Prior to the crisis, their GDP accounted for less than 40% of the global total, but during the global financial crisis and economic recovery, their share quickly went up. In 2013, 2014, and 2015, the GDP share of E30 on the whole surpassed that of developed countries, reaching nearly 50%, about 6 percentage points higher than the level of developed countries. Among E30, China registered the highest share, contributing 13.25% in 2014.

Table 8. Shares of Global GDP among Different Types of Countries Calculated Based on PPP.

	1998–2002	2003–2007	2008–2012	2013	2014	2015
Developed countries (34)	**55.37**	**51.23**	**45.02**	**42.10**	**41.48**	**41.06**
Emerging market countries (E30)	**35.34**	**38.96**	**44.60**	**47.39**	**48.03**	**47.31**
Asia (13)	20.96	24.53	30.02	33.02	33.95	33.69
Africa (5)	1.91	1.92	2.00	1.98	1.95	1.95
Latin America (9)	7.96	7.55	7.58	7.57	7.40	7.17
Europe (3)	4.51	4.96	5.00	4.82	4.73	4.50
Other developing countries (119)	**7.60**	**8.11**	**8.58**	**8.60**	**8.44**	**7.86**

Source: The World Bank database (1998–2015): http://data.worldbank.org.cn/

Note: The numbers of different types of countries are shown in brackets. The samples in the table are obtained according to the annual GDP data calculated based on the PPP (purchasing power parity) of the 183 countries and of the world from 1998 to 2015.

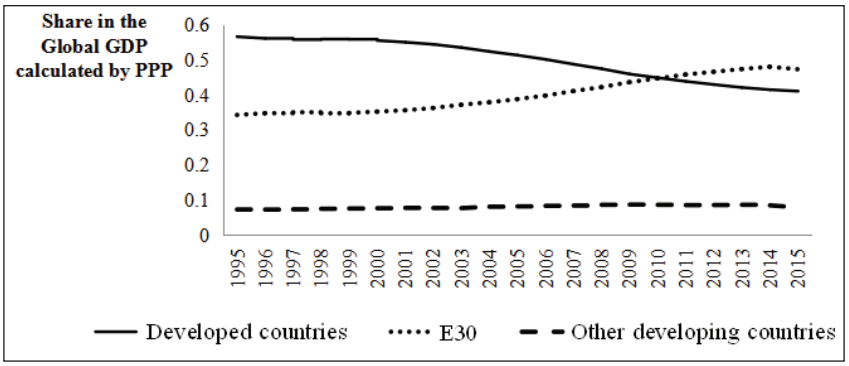

Figure 2. The E30's Share in the Global GDP based on the Purchasing Power Parity Method.

Source: The World Bank database (1995–2015): http://data.worldbank.org.cn/.

Note: The samples in the figure are obtained according to the annual GDP calculated based on the PPP of the 183 countries and of the world from 1995 to 2015.

Table 9. Contribution of Different Types of Countries' GDP Increments to Global GDP Increment (%) (based on PPP).

	1998–2002	2003–2007	2008–2012	2013	2014	2015
Developed countries (34)	**51.72**	**35.92**	**0.78**	**32.78**	**27.29**	**31.33**
Emerging market countries (E30)	**38.14**	**52.16**	**87.52**	**55.60**	**62.67**	**58.93**
Asia (13)	27.42	36.76	74.05	49.29	51.79	57.14
Africa (5)	2.10	1.96	2.73	1.70	1.53	1.93
Latin America (9)	5.16	7.36	6.14	6.69	4.74	0.28
Europe (3)	3.46	6.08	4.60	-2.08	4.61	-0.42
Other developing countries (119)	**7.95**	**9.79**	**9.59**	**9.65**	**7.70**	**6.74**

Source: The World Bank Database (1998–2015): http://data.worldbank.org.cn/

Note: The numbers of different types of countries are shown in brackets. The samples in the table are obtained according to the annual GDP calculated by the PPP of the 183 countries from 1998 to 2015.

Figure 2 graphically shows the change in the GDP share of the three types of countries in the global total over the past 20 years, as calculated based on the PPP method. E30 have gradually become the driving force of the global economy. The annual GDP increment and the shares of various countries' economic increments in the global economic increment clearly reveal the contribution rate of different countries to the world economic growth (Table 9).

Table 9 clearly shows that big changes happened following the international financial crisis in 2008; before the crisis, the 34 developed countries recorded quite high contribution rates to the world economy, but after the crisis, the contribution dropped sharply. For three consecutive years from 2013 to 2015, the contribution of developed countries dropped to the level of less than one-third of the global

total. However, E30 showed the opposite trend, making ever-growing contributions to the global economy and reaching as high as 87.52% in terms of the contribution rate to the world economic growth during the five years from 2008 to 2012. In particular, the 13 Asian emerging countries gradually evolved into major driving forces of global economic growth, recording an average contribution rate as high as 74% in those 5 years. It evidently shows that E30, especially the 13 Asian emerging countries, have become major drivers of global economic growth.

Maintaining High Economic Growth Rates

Table 10 shows that, on the one hand, even before the international financial crisis, the economic growth rates of E30 were notably higher than those of the developed countries; on the other hand, during and after the international financial crisis, E30's economic growth slowed down but at a rate far lower than that of the developed countries. Therefore, a relatively high and steady economic growth rate can be regarded as another important economic characteristic of E30. Among E30, the rapid economic growth of the emerging market countries in Asia has driven up the overall growth rate, while the emerging countries in Africa, Latin America, and Europe, among other regions, were heavily affected by the crisis, as reflected in their lowered growth rates and even negative growth for some of the countries.

Figure 3 shows the economic growth trends of different countries, which better illustrates this point. Since the beginning of the twenty-first century, the average GDP growth rates of E30 and other developing countries have gradually exceeded the average level of developed countries and the world aggregate, reaching the peak prior to the international financial crisis. Under the impact of the international financial crisis, E30 underwent two significant dips in terms of their growth rates, but the dips were markedly smaller than the average drops of developed countries and the world aggregate. During economic recovery, E30 registered slower economic growth as compared to before the crisis, but the growth steadily increased by more than 1 percentage point higher than the world average and 2–3 percentage points higher than that of the developed countries.

Table 10. Comparison of GDP Growth Rates between Different Types of Countries (%).

	1998–2002	2003–2007	2008–2012	2013	2014	2015
Developed countries (34)	**2.53**	**2.52**	**0.36**	**1.24**	**1.79**	**2.10**
Emerging countries (E30)	**3.56**	**6.88**	**5.17**	**4.67**	**4.27**	**3.69**
Asia (13)	4.77	8.41	6.75	5.98	5.95	5.90
Africa (5)	3.29	4.70	3.12	2.74	2.06	2.56
Latin America (9)	1.55	4.29	3.09	2.81	0.99	-0.48
Europe (3)	3.55	6.46	1.93	1.45	1.43	-1.47
Other developing countries (119)	**2.76**	**6.31**	**3.09**	**3.64**	**2.49**	**2.58**
World average	**2.85**	**3.97**	**2.02**	**2.40**	**2.63**	**2.63**

Source: The World Bank database (1998–2015): http://data.worldbank.org.cn/

Note: The numbers of different types of countries are shown in brackets. The samples in the table are obtained according to the real GDP growth rates of the 183 countries from 1998 to 2015, calculated based on the constant US dollar price in 2010.

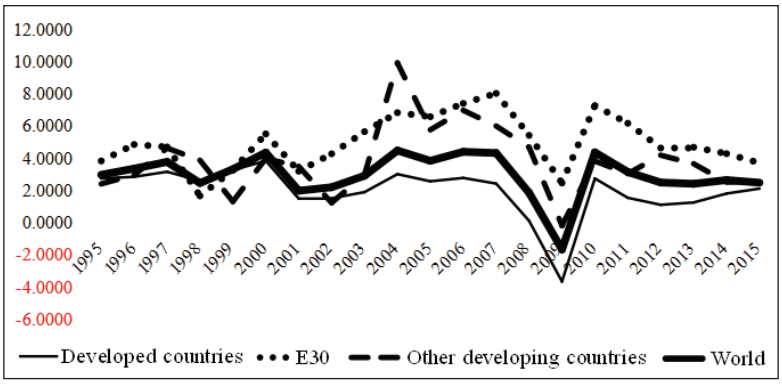

Figure 3. Changes in the Annual GDP Growth Rates of Different Types of Countries.

Source: The World Bank database (1995–2015): http://data.worldbank.org.cn/.

Note: The samples in the figure are obtained according to the real GDP growth rates of the 183 countries from 1995 to 2015, calculated based on the constant US dollar price in 2010.

Industrialization reaches a reasonably high level and the economic structure is improved

For economic development, economic growth is important, of course; however, the improvement of economic structure is even more meaningful, particularly for developing countries. Table 11 shows E30's economic structures and the changes during different periods of time.

Table 11 shows that among E30, the share of value added from the primary industry to the countries' total GDP as average keeps going down, falling below 10%, while the share of the secondary industry exceeds 30% as the average of E30, and the share of the tertiary industry steadily goes up, reaching close to 60%.

Good macroeconomic performance improves economic development

With the acceleration of their economic growth and the improvement of their economic structure, the economic strength of E30 improved steadily. Table 12 shows the changes in these countries in relation to GDP per capita, employment, inflation, and so on.

Table 11. Industrial Structural Changes in E30 and Their Comparison with Other Types of Countries.

	Share of Primary Industry to Total GDP (%)	Share of Secondary Industry to Total GDP (%)	Share of Tertiary Industry to Total GDP (%)
1991–2000	15.38	34.01	50.61
2001–2010	11.29	34.49	54.22
2011	10.25	35.30	54.45
2012	9.69	34.73	55.58
2013	9.71	33.96	56.33
2014	9.57	33.49	56.94
Other developing countries (2014)	16.56	26.31	57.13
Developed countries (2014)	1.62	24.63	73.75

Source: The World Bank database (1991–2014): http://data.worldbank.org.cn/

Note: Shares of three different industries to the total GDP mean the shares of value added from three different industries to the respective aggregate GDPs.

Table 12. Macroeconomic Performance of E30 and Their Comparison with Other Types of Countries.

	GDP per Capita (current price USD)	Unemployment Rate (%)	Inflation Rate (%)
1991–2000	4,310.734	8.65	9.31
2001–2010	5,519.50	8.52	7.35
2011	6,661.31	7.79	6.85
2012	6,813.34	7.44	5.84
2013	6,964.64	7.39	6.30
2014	7,092.77	7.43	5.28
Other developing countries (2014)	5,939.65	9.18	4.61
Developed countries (2014)	42304.2	8.40	0.80

Source: The World Bank database (1991–2014): http://data.worldbank.org.cn/.

Normally, GDP per capita is the most important indicator to measure a country's economic development. Between 1990 and 2014, the per capita GDPs of E30 were far below those of the developed countries, but E30 realized a total growth of 75.63%, with an annual average growth of 3.15%, which was far higher than that of the developed countries (respectively, 36.41% and 1.52%) and other developing countries (41.56% and 1.73%, respectively). Table 12 shows that E30 maintained sound economic growth over the past 20 years or more, with the overall unemployment rate and inflation rate held in quite a stable state.

Innovation for development needs to be further improved

It can be seen from the above data that although E30 have maintained rapid economic growth, there is still a big gap between E30 and the developed countries in terms of overall economic development, which is mainly attributable to the inadequate new impetus for development in these countries. One of the important reasons is that the average number of years of education of the E30 is much less than that of the developed countries. The number of years of education reflects a country's transition from pure labor input to human capital input, representing one of the important driving forces of national innovation and development.

From the perspective of capital investment, financial development level and the degree of market maturity are very important to a country's economic development as well. In this regard too, huge gaps exist between E30 and the developed countries. Table 13 shows the average years of education, bank credit's share in the GDP, and total stock transactions' share in GDP during different periods of time, with the latter two indicators reflecting to some extent the capital market development of E30. Regarding the years of education and the degree of financial market maturity, though E30 fall far behind the developed countries, they are notably better than other developing countries. In most of the E30 countries, there are issues of financial repression, with the domestic credit and stock market far outperformed by those of developed countries.

Table 13. Human Capital and Financial Market Development in Different Types of Countries.

	1998–2002	2003–2007	2008–2012	2013	2014
Number of years of education					
Developed countries (34)	10.37	11.05	11.54	11.89	11.99
Emerging market countries (E30)	6.89	7.45	8.08	8.45	8.57
Other developing countries (115)	5.98	6.40	6.83	7.12	7.19
Bank credit's share in GDP (%)					
Developed countries (34)	105.75	134.56	163.31	159.81	160.85
Emerging market countries (E30 minus 1)	57.16	59.29	67.16	73.48	76.37
Other developing countries (112)	37.37	36.63	40.66	42.46	44.25
Stock trading volume's share in GDP (%)					
Developed countries (34)	57.33	69.49	76.16	65.51	89.84
Emerging market countries (E30 minus 3)	12.99	32.69	24.71	20.63	23.66
Other developing countries (50)	1.66	7.33	4.35	3.65	5.86

Source: The World Bank database (1998–2014): http://data.worldbank.org.cn/; United Nations Development Programme (1998–2014): http://hdr.undp.org/en/data

Note: The samples in the table are obtained according to the years of education, bank credit's share in GDP, and stock trading volume's share in GDP of the 183 countries from 1998 to 2014. In the E30 group, Uzbekistan lacks bank credit data, and the Dominican Republic, Ecuador, and Guatemala lack data on total stock trading volume. Among other developing countries, four countries lack data on the years of education, nine lack bank credit data, and only 50 countries have data about the stock trading volume.

The Prospects of 30 Emerging Countries

As discussed earlier, some of the factors that directly support the sound economic development of E30 are a reasonably large scale, stable economic growth, continuous improvements in economic structure, and favorable macroeconomic fundamentals. Here we use a fixed effects regression model to see whether these economic indicators exert a notable impact and foresee the prospects of E30. In the regression model, economic development level is taken as the explained variable, and the basic economic variables and other control variables are taken as the explanatory variables. In the equation

$$\text{Economic development}_{it} = \text{fundamental}'_{it-1}\beta + \text{contorl}'_{it-1}\gamma + \mu_i + \varepsilon_{it} \quad \ldots(1),$$

$\text{economic development}_{it}$ refers to the economic development level of the country i during period t. With GDP per capita (in 2010 constant USD price) as a proxy variable, the natural logarithm is used in the regression. $\text{fundamental}'_{it-1}$ is the basic economic variable of the lag, mainly including the economic scale (total GDP), economic growth rate, and structural change indicators (share of agricultural value added in total GDP, share of urban population in total population). $\text{contorl}'_{it-1}$ refers to control variables, namely, other related macroeconomic variables in the lag, including macroeconomic indicators (unemployment rate, inflation rate), and development impetus variables (years of education, bank credit, and stock trading volume). μ_i is the individual effect of the country, reflecting a series of differences in the institutional environment, income level, culture, politics, et cetera, and ε_{it} refers to the random error of the regression equation.

In order to avoid the endogenous problem between economic variables, the lag of the explanatory variable is used for regression. Given the data availability, the regression uses the data from 1980 to 2014—altogether 1,505 samples from 101 countries.[13] Table14 lists the test results of the fixed effects regression equation. Columns I and II show the regression of all the country samples, the regression of columns III and IV excludes the samples from developed countries, and columns V and VI include the regression sample of E30 only. In the test, the regression of the explanatory variables that just include basic economic variables is first performed, and then control variables are added to get more verifiable results.

The following conclusions can be drawn from Table 14.

First, the impact of basic economic variables on economic development meets our expectation for the redefined emerging markets and the depiction of the emerging markets' characteristics. Specifically, large economies with a rapid economic growth and sound structural improvements enjoy good economic development. However, in the regression analysis of E30, the economic growth rate no longer shows a significant positive impact, which is attributable to the fact that the economic growth rate of these countries is at a relatively high level, and the impact of growth rate on economic development has a certain threshold effect.[14] Therefore, E30 need to improve other economic indicators to further promote economic development.

Second, as the level of economic development significantly goes up with the decline in the unemployment rate, it shows no significant impact upon the regression coefficient of inflation. The regression results hold that the inflation will not cause a substantial negative impact on E30's economic development.[15]

Finally, the improvement of impetus factors can further promote economic development. In particular, the variable of the years of education is significantly positive in the E30 sample regression results, with the coefficient greater than the overall regression coefficient of the samples. However, the financial variables, probably due to missing relevant data, go against the expectation and fail to show significantly positive correlation in all cases.

Table 14. The Regression Results.

	All Countries		All Developing Countries (including E30)		E30	
	(I)	(II)	(III)	(IV)	(V)	(VI)
Basic economic variables						
GDP (total)	0.246***	0.166***	0.228***	0.167***	0.249***	0.224***
	(37.665)	(17.082)	(27.741)	(13.720)	(25.535)	(14.997)
Economic growth	0. 367***	0. 355***	0. 289***	0.354***	0.034	0. 112
	(5.689)	(5.637)	(3.769)	(4.612)	(0.333)	(1.111)
Share of agricultural added value to GDP	−0.949***	−0.955***	−1.001***	−0. 953***	−0.398**	−0.515***
	(−9.073)	(−9.282)	(−8.994)	(−8.517)	(−2.388)	(−3.045)
Share of urban population to total population	0.379***	0.114	0.522***	0.319**	0.760***	0.422***
	(3.882)	(1.168)	(4.371)	(2.478)	(5.703)	(2.758)

(Table 14 continued)

(Table 14 continued)

	All Countries		All Developing Countries (including E30)		E30	
	(I)	(II)	(III)	(IV)	(V)	(VI)
Macroeconomic indicators						
Unemployment rate		−0.760*** (−8.161)		−0.669*** (−5.029)		−0.563*** (−2.743)
Inflation rate		0.093*** (4.425)		0.071*** (2.850)		−0.062* (−1.963)
Development impetus variables						
Years of education		0.032*** (7.922)		0.023*** (3.397)		0.045*** (5.377)
Bank credit		0.012 (1.375)		0.075*** (4.001)		0.080*** (3.620)
Stock trade volume		0.033*** (5.815)		0.026* (1.922)		0.007 (0.552)
Number of samples	1,505	1,505	938	938	424	424
Number of countries	101	101	68	68	26	26
Adjusted goodness of fit	0.757	0.789	0.789	0.803	0.857	0.872
Individual effect variance estimation	1.042	1.050	0.825	0.826	0.642	0.630
Random interference variance estimation	0.0769	0.0717	0.0776	0.0749	0.0647	0.0611
The country's fixed effect	Exist	Exist	Exist	Exist	Exist	Exist

Source: The authors.

Note: Each column adopts the fixed effect regression, with the constant coefficient omitted from the result. In the brackets below the regression coefficient is the *t* value, with ***, **, and * representing the 1%, 5%, and 10% significance levels, respectively. The countries' fixed effects are significant (with the *F* value checked and approved), which verifies the justifiability of the fixed effects regression model.

In short, all samples and E30 regression test results are basically in line with the expectations, and E30's meeting the requirements of all the variables in itself represents certain economic development potential.

Conclusions

In accordance with the basic theories and methods of development economics, this article constructs a comprehensive measurement system from five dimensions—size of nation-state, institutional environment, economic growth, socio-economic structural changes, and development impetus—to study emerging market countries. Based on this measurement system, 30 emerging market countries are selected which have a population accounting for two-thirds of the world's total, a land area of nearly one-half of

the world's total, and the GDP aggregate, one-third of the world's total. Exerting an increasingly important impact on globalization, they constitute the most competitive group of countries that are highly significant for global economic growth. These countries will continue to provide the impetus for rapid economic development and exert a growing influence upon the economic and social development of their respective regions.

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Appendix 1

In the formula

Income Index $= \left[ln\left(\text{GNI}pc\right) - ln\left(\text{GNI}pc_{\min}\right)\right] / \left[ln\left(\text{GNI}pc_{\max}\right) - ln\left(\text{GNI}pc_{\min}\right)\right]$, $\text{GNI}pc$ is the per capita national income of the countries in terms of purchasing power parity, $\text{GNI}pc_{max}$ is the highest per capita national income in the world of that year, and $\text{GNI}pc_{min}$ is the minimum value. The final result is between 0 and 1. The closer it is to 1, the higher is the per capita income of the country.

Appendix 2

Atkinson (2015) roughly calculates the inequality coefficient U through the formula $U = 1 - \left(g / \mu\right)$, where g is the geometric mean of the sample data in different intervals and $\propto$ is the arithmetic mean of all the sample data. See Atkinson (2015).

Appendix 3

In association with Atkinson's idea of inequality measurement, in the equation income inequality coefficient $= 1 - \sqrt[n]{x_{\text{income }1} \cdots\cdots x_{\text{income }n}} / \bar{X}_{\text{income}}$, $\bar{X}_{\text{income}}$ represents the mean value of per capita national income of the sampled countries, and $\sqrt[n]{x_{\text{income }1} \cdots\cdots x_{\text{income }n}}$ indicates the geometric mean of the adjusted per capita national income of the people grouped by age range, based on the data from the Luxembourg Income Study, EU-Statistics on Income and Living Conditions, and the World Bank's income distribution database. Hence, the adjusted income index = (1 — income inequality coefficient) × income index.

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Notes

1. The 11 countries include Argentina, Brazil, China, India, Indonesia, South Korea, Mexico, Russia, Saudi Arabia, South Africa, and Turkey.
2. See the official websites of the indices, including: MSCI indices, www.msci.com/indexes; S&P Dow Jones Indices, www.spindices.com; and Russell Global Index www.ftserussell.com. These indices have also selected frontier countries, namely, the countries deemed by research institutions to have the potential to become emerging market countries in the future.

3. Among the 16 recognized emerging market countries, except for China, which is regarded as a "non-market economy" by the United States and the European Union in accordance with their laws, the rest are regarded as "market economies" by the European Union and the United States.
4. These 34 countries (areas) include Aruba, Andorra, American Samoa, Bermuda, Channel Islands, Cuba, Curaçao, Cayman Islands, Faroe Islands, Gibraltar, Equatorial Guinea, Greenland, Guam, Isle of Man, Liechtenstein, Macao Special Administrative Region, French Saint Martin, Monaco, Myanmar, Northern Mariana Islands, New Caledonia, Nauru, North Korea, French Polynesia, San Marino, Somalia, Netherlands Saint Martin, Syria, Turks and Caicos Islands, Turkmenistan, Tuvalu, British Virgin Islands, US Virgin Islands, and Samoa.
5. Because this variable is relatively new, the United Nations Development Programme (UNDP) database only has the data for the year 2013 when we conducted this research.
6. The two statistical calibers are slightly different in the way of presenting statistics on the total import and export of trade in services, with little difference in result.
7. As the variable has adopted new measurement standards since 2013, we only use the 2013 and 2014 data.
8. The missing data are complemented by the data of adjacent years. When setting the threshold, we have taken into account the viewpoints of the aforementioned Chang (1949) and conducted a comparative analysis on the current status and trends of population development in various countries of the world. Finally, we set the threshold at a population of 10 million. In other words, for each of the 3 years, the countries and regions each with a total population of more than 10 million are regarded as qualified.
9. To minimize the influence of accidental factors and avoid big fluctuations, we chose the average growth rate of 10 years from 2005 to 2014 and set the threshold at 2.4% based on the global GDP's average growth rate during the 10-year period. In isolated special conditions, the selecting result is slightly adjusted according to experts' opinions. If any data are missing, the growth rate of adjacent years is used to extrapolate the supplement.
10. From the perspective of global development experience, the countries where the agricultural added value share in GDP exceeds 30% are still at a very primary stage of economic development. They are not advanced, so the threshold of the agricultural added value variable is set at 30%. The missing data of this variable are supplemented with the result calculated by the proportion of the country's population engaged in agriculture.
11. The "S" curve of urbanization shows that when the urban population accounts for more than 30% of the total population, the urbanization is speeding up and the country enters into the new development stage of industrialization. Therefore, we set the threshold at 30% for the proportion of urban population in the total population. The missing data here are complemented by relevant data from adjacent years.
12. The IMF's (International Monetary Fund) *World Economic Outlook* for 2014 mentions 35 developed countries, including San Marino, a sovereign state within Italy. San Marino is excluded from our analysis, and only the data on the other 34 countries are included.
13. The World Bank Database, http://data.worldbank.org.cn/. Relevant data about the developing countries except emerging markets countries are missing.
14. When performing group regression on the samples registering an economic growth rate of over 2.4% (the world average) and other samples, it has been found that the regression coefficient of the high-growth group is not significant, while for the low-growth group the significance is positive when the regression coefficient is 95%. The regression coefficients of other variables are significantly different between the two groups.
15. This conclusion is based on the sample regression results, with the extreme value of the inflation rate removed.

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