Global Journal of Management, Social Sciences and Humanities 476
Vol 4 (3) July-Sept,2018 PP.476-502
ISSN 2520-7113 (Print), ISSN 2520-7121 (Online)
www.gjmsweb.com.editor@gjmsweb.com
Impact Factor value = 4.739 (SJIF).

IS COMPARATIVE ADVANTAGE SUSTAINABLE IN INTERNATIONAL TRADE?

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ABSTRACT-The aim of this study is to examine whether comparative advantage is sustainable in international trade which is most important theory factor in the growth of the any economy. Our study conducted to find out the sustainability and also examine the principles of the comparative advantage in international trade by using a sample of four countries (Germany, China, Brazil, Japan) and variables such as ratio of real GDP, exchange rate, balance of payment and the unemployment rate in the context of famous trade theory "Heckscher-Ohlin (H-O) trade model" to determine the principles of the comparative advantage in international trade. We have adopted secondary data that has been collected from IMF, World Bank and Asian Development Bank,etc. In order to calculate results we used SPSS software. Our results show that sustainability in international trade is very difficult in the long run and it depends upon continuous innovation and policy continuation. In the short run, obtaining comparative advantage is possible but in the long run it appears impossible because every country is striving to catch up with its rival country.

Keywords: International trade, comparative advantage, sustainable development.

Type of study: **Original research paper.**
Paper received: 10.03.2018
Paper accepted 12.05.2018
Online published: 01.07.2018

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1.INTRODUCTION

The resources, the climatic conditions, the skill and the efficiency of factors of production in different countries are not alike. As a result of such differences some countries are in position to produce certain goods at reduced prices, while some other countries are capable enough to produce certain other goods at reduced price. As Japanese are in a position to produce the automobiles at a lower price while we the Pakistanis can produce the textiles at lower prices. Accordingly, we get automobiles from Japan and Japan gets textile from Pakistan. So, when a country buys some goods from other countries, it is called international trade. There is considerable amount of sustainability about the link between international trade and sustainability. My purpose is to evaluate whether comparative advantage sustainable in international trade business. I will consider both negative and positive aspects according to the trade issues. International trade by policy confirms the pattern about both comparative advantage and competitive advantage. With the passage of time many economists asked different ruled questions that own trade among countries. The basic questions regarding trade such as “why should we trade?”, “what should we trade?” and “To whom we should trade?” but the major question is that “Why trade exit?” and these questions arise different aspects, which factors are like supposed to determine for the international trade and factors determine the specialization.

David Ricardo (1817) describes the static resource of comparative advantage with resources allocations which defines absolute labor values of productivity and the ratio of labor productivity. He had also determined two countries’ production and their resources allocation. Rationality of labor theory also comes from Ricardo’s theory of labor. Ricardo’s theory about comparative advantage generates idea and concept for less technologically backward countries and less developed

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countries through they can meet the level with technologically established countries and well-developed countries. Ricardo's theory determines that trade among countries win-win situation in which all the labor power of the both countries are able to consume their available resources and goods.

1.1.Main Research Question:

The main purpose of this study is to evaluate the comparative advantage and analyze the sustainability in international trade. This research work tries to answer the following question: Is comparative advantage sustainable in international trade?

1.2 Objectives of the Study:

Our objectives of study are as following:

i.To know about how countries attain comparative advantage in international trade.

ii.To study whichcountries have comparative advantages.

iii.To investigate whether it is possible for any country to sustain its comparative advantage.

iv.To probe the causes why countries losses comparative advantage?

1.3 Scope of the study:

The scope of this study is wide in existing international business scenario in which trade war is going on between the United States and China and between European Union and the United States.

2. LITERATURE REVIEW

In the early nineteenth century, comparative advantage has been the bedrock on which all the subsequent development in the theory of international trade has tested. Ricardo's memorable example of cloth and wine being traded between England and Portugal, Economist, the general public and even most politicians have come to script that every nation has a comparative advantage in certain type of goods and services, though it may lack an absolute advantage in them.

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Solow, (1984) explained by Meadows report and emerged his debated analysis of modern definition of sustainability between the members of the neoclassical school of Cambridge. They conclude that sustainability can be maintained in the economy if consumption is non-declining over time. It shows that a large economy can produce less than in autarchy. Comparing the models, the fact that draws attention the most is the fact that the exchange is no longer a save income source. Unlike the model of the relative advantage, when the gains were on both sides, now there is the possibility of suffering some loses or registering some less measurable gains. It refers to the role of monopolistic competition in generating international trade flows, proves that the positive effect of trade are not necessarily seen at the level of macroeconomic indicators, but they can be found in a larger variety in individual consumption. Practically the imperfect competition leaves room for a positive or a negative result from trade without guarantying gains.

Asheim, (2001) examined the concepts of comprehensive wealth and comprehensive investment make ANS the \real" savings of an economy, once taken into account contributions by factors of production neglected before. Successive amendments include population growth, health, renewable and non-renewable exhaustible resources and stress the links between the productive base and agents' preferences. From a theoretical point of view, ANS are not related to GDP anymore. ANS are an indicator of the monetary equivalent of the resources put aside at one period to sustain the wealth of the economy and a level of income and consumption for infinity of future periods.

Porter, (2003) examined that comparative advantage theory, emphasizing the relative differences in productivity between countries as the reason for international trade and hence for gain from trade. The larger the differences in underlying

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sources of comparative advantage across countries, the larger the gains from trade. Comparing jointly across the OECD and SEM groupings we find that cross-country differences, and thus the potential for gains from comparative advantage-driven trade, decreased for such sources of comparative advantage as: physical capital, average years of schooling, tertiary education, primary energy supply, availability of credit; while they increased for secondary education and regulatory quality. The OECD grouping considered alone has become more homogenous as far as many comparative advantage sources are concerned, implying that the potential for comparative advantage-driven North-North trade may have diminished. The non-OECD grouping, in addition to being generally more heterogeneo;2us, displayed no clear tendency for cross country differences to diminish over time, indicating a persistently high potential for comparative advantage-driven South-South trade. The widening differences between OECD and non-OECD for physical capital, availability of credit or regulatory quality suggest an increasing potential for comparative advantage trade in North-South trade. However, differences between OECD and non-OECD have narrowed for human capital indicators. Overall these results suggest that comparative advantage has been and is likely to be in the future — relatively more important for North-South and South-South trade than for North-North trade.

Samuelson, (2006) said that the drama of global economics is a race between the law of diminishing returns and the ingenuity and innovation of new scientists. The burst of U.S. innovation lowered the real English standard of living. That has not been the case with regard to the explosion of development in Japan and the Pacific Basin which has not lowered the American standard of living. By his measure, the larger fraction of the benefit to the world of innovation and

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geographical specialization did not go to the most advanced country but went to the catch-up people.

Kim et al., (2007) emphasized the firm's process of gaining new knowledge from the external market with respect ot learning effects theory. The explanation is that the relation with the certain feed-back from the consumer to the production process and the product design. Simultaneously, the producer can reach scale economies because he sells his product on a larger market to gain profit from it.

Bloch & Tang, (2009) analyzed the difficulties met by the firms when they want to sell their product in the international markets. These difficulties consist mainly of the sunk costs, which must be supported by the producers and in the cutthroat international competition compared to the local one. Only the economic entities which can face these challenges are capable to resist on the international markets and to gain profits from it. This approach is called like the self-select theory.

Cepeda, (2011) builds hid paper on recent generalizations of theory and empirics of comparative advantage as well as on numerous insights from the literature on various sources of comparative advantage and attempts to quantitatively assess their relative importance for bilateral trade flows at the industry level, with particular focus on policy and institutional factors. In this respect, the study offers the most extensive coverage of geographical, policy and institutional sources of comparative advantage in the existing literature. The theory of comparative advantage indicates that specialization according to comparative advantage is a precondition for reaping gains from trade. Any substantive interference with this process, even if it entails government support to sectors in which a country may have natural comparative advantage, can reduce these gains or even render them negative. To reflect this, the empirical work

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presented in this paper tries to get as close as it is possible to capturing the ―natural‖ comparative advantage. That is, we account for policies that do not target any particular sectors but rather reflect broad public choices or seek to enhance general resource endowments, even though they may indirectly favor some of the sectors. These broad policies are a potential source of comparative advantage and thus of welfare gains from trade. Given the lack of conclusive evidence on viability of targeted industrial policies in sustainably influencing comparative advantage we exclude these policies as ones potentially hindering or reducing the gains from trade.

3.CONCEPTUAL FRAMEWORK

All these considerations yielding comparative advantage to the nation may be seen as a framework of a number of forces that can be portrayed in the form of a diamond shown in Figure 3.1. Obviously, the firms specializing within the industries that have comparative advantage in producing standardized or differentiated products within that industry. In this framework, technology, resources, demand and the trade-enhancing policies are depicted as four forces influencing the comparative advantage of a nation in a commodity/service vis-à-vis other countries. Dynamic elements influencing comparative advantage are also included in these forces.

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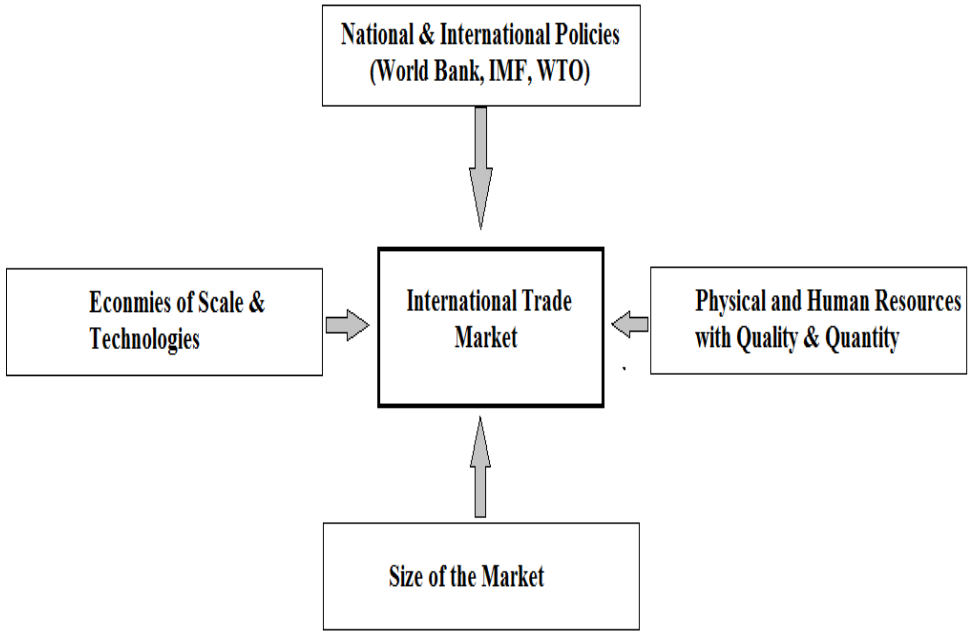
Figure 1: Conceptual model of international trade



Source: World Economic Forum. Competitiveness Report, 2010

3.1 Hypothesis development

Hypothesis is essentially a particular declaration which is formulated for estimation and testing. The general theory described overhead is the base to create the hypothesis. Most of the researcher noted that there is a positive relationship between appraisal performance and employee's performance.

From the above theory following hypothesis is developed:

H0: There is no positive significant sustainable relationship between comparative advantage and international trade.

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H1: There is a positive significant sustainable relationship between comparative advantage and international trade.

4. RESEARCH METHODOLOGY

This section deals with research methodology used in the present study. Since this is secondary data based study research, data used in this study was collected from authenticated sources such as from books, journals, IMF, ADB, OECD, World Bank and other research reports to ensure high-quality results while minimizing the chance of bias. At earlier stage exploratory research approach is used. At later stages descriptive research design is used. In our research we will examine the sustainability in the international trade.

4.1 Nature of study

Literature review has helped to identify the variables and modify them to the sustainability of comparative advantage in international trade. Many researchers have done the testing estimation to measure the impact of comparative advantage in international trade. For this research study we have selected model theory of comparative advantage for international trade services. our purpose is to examining the sustainability of comparative advantage in international trade even in goods and services. It would explain how comparative advantage establishes sustainability for the international trade and is it descriptively fulfills all of the possible structure of competitive market.

4.2 Types of data

In this study we will use secondary data which will be collected from relevant books, journals, IMF (International Monetary Fund), OECD (Organization for Economies Co-operation and Development), ADB (Asian Development Bank), World Bank and other research reports to ensure high-quality results while minimizing the chance of bias.

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4.3 Sample of study

Our sample is four countries which have comparative advantage in international trade. Such four countries are: Germany, China, Brazil and Japan.

4.5 Selected variables

Our variables are as under:

4.5.1 Independent variables

The independent variables are: balance of payment, un-employment rate and exchange rate.

4.5.2 Dependent variables

The dependent variable is: Real GDP growth rate of Germany, China, Brazil and Japan.

4.6 Econometric model

This research study relates a descriptive in nature because descriptive research design is used to describe the certain issues about the important variables. It is vital and accurate to use when collection information of the data based on the country's GDP growth rate, balance of payment, exchange rate and unemployment rate. For this purpose, an initial model was developed to measure the strength of the relationship between dependent and independent variables. The model is given in the following regression equation:-

$$\mathbf{Y} = \boldsymbol{\beta 0} + \boldsymbol{\beta 1 X 1} + \boldsymbol{\beta 2 X 2} + \boldsymbol{\beta 3 X 3} + \boldsymbol{\mu}$$

Where Y is the dependent variable represent the real GDP growth rate of four countries (Germany, China, Brazil, and Japan). $\boldsymbol{\beta 0}$ is the regression coefficient or constant or Y-intercept $\boldsymbol{\beta 1}$--$\boldsymbol{\beta 2}$ are the slopes of the regression equation, $\boldsymbol{X1}$ is the balance of payment of four countries as independent variable, $\boldsymbol{X2}$ is the exchange rate of four countries as independent variable $\boldsymbol{X3}$ is the unemployment rate of four

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countries as independent variable and μ is an error term normally distributed about a mean of 0 and for purpose of computation.

5.DATA ANALYSIS

5.1 Description of demographic variables

we have arranged a model that define the determinants of comparative advantage. We have built a model that illustrates these determinants and explain its sustainability in international trade. There will be four countries (Germany, China, Brazil, and Japan), each will describe the empirical explanations and correlation among the countries.In initial section, we will describe the approach through theoretical analysis among three determinants of international trade. For the first part of the analysis, descriptive statistics have been used with percentages to analyze the response category. The latter part of the analysis involves hypotheses testing. The other appropriate statistical tests were applied to test the hypotheses for significance results.

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5.2 Frequencies statistics

Table: 1 Frequencies Statistics

	Real GDP Growth of Germany	Real GDP Growth of China	Real GDP Growth of Brazil	Real GDP Growth Japan	Balance of payment of Germany	Balance of payment of China	Balance of payment of Brazil	Balance of payment of Japan	Exchange Rate of German y	Exchange Rate of China	Exchange Rate of Brazil	Exchange Rate of Japan	Unemployment Rate of Germany	Unemployment Rate of China	Unemployment Rate of Brazil	Unemployment Rate of Japan
	Valid	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	Missing	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
		1.6800	7.8500	1.1750	.5875	6.8875	2.6375	-2.8125	2.1875	.7850	6.4475	2.3388	96.7900	5.6000	4.0962	5.7875	4.1625
		.56370	.32404	1.34613	.97127	.38240	.41142	.33987	.41509	.02605	.09539	.24597	5.15009	.42720	.03789	.40946	.26922

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	1.6500	7.8500	1.2000	1.1000	6.8500	2.4000	-3.0000	2.4500	.7550	6.3850	2.0800	95.5850	5.3000	4.0750	5.4500	4.2000
	.50	6.70[a]	-3.80[a]	-5.40[a]	5.60[a]	1.50[a]	-3.00	.80[a]	.72[a]	6.14[a]	1.67[a]	79.79[a]	4.10[a]	4.10	4.80	5.10
	1.59438	.91652	3.80742	2.74717	1.08158	1.16366	.96130	1.17405	.07368	.26980	.69571	14.56664	1.20830	.10716	1.15812	.76146
	2.542	.840	14.496	7.547	1.170	1.354	.924	1.378	.005	.073	.484	212.187	1.460	.011	1.341	.580
	13.44	62.80	9.40	4.70	55.10	21.10	-22.50	17.50	6.28	51.58	18.71	774.32	44.80	32.77	46.30	33.30

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Table 1 shows the frequencies statistics with mean, standard deviation, median and mode of the dependent variable (Real GDP of Germany, China, Brazil, Japan) with respect to independent variables BOP, exchange rate and unemployment rate of Germany, China, Brazil and Japan. In the above table the highest sum of the real GDP rate of China is 62.80 and lowest real GDP rate of Japan is 9.40 where Brazil has negative ratio of balance of payment with -22.50.

5.3 Descriptive statistics

Descriptive statistics results show the numerical values mean, std. deviation and variance of both independent and dependent variable in table 2.

Table: .2 Descriptive Statistics

	N	Mean	Std. Deviation	Variance
Real GDP Growth of Germany	8	1.6800	1.59438	2.542
Real GDP Growth of China	8	7.8500	.91652	.840
Real GDP Growth of Brazil	8	1.1750	3.80742	14.496
Real GDP Growth Japan	8	.5875	2.74717	7.547
Balance of payment of Germany	8	6.8875	1.08158	1.170
Balance of payment of China	8	2.6375	1.16366	1.354
Balance of payment of Brazil	8	-2.8125	.96130	.924

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Balance of payment of Japan	8	2.1875	1.17405	1.378
Exchange Rate of Germany	8	.7850	.07368	.005
Exchange Rate of China	8	6.4475	.26980	.073
Exchange Rate of Brazil	8	2.3388	.69571	.484
Exchange Rate of Japan	8	96.7900	14.56664	212.187
Unemployment Rate of Germany	8	5.6000	1.20830	1.460
Rate Unemployment of China	8	4.0962	.10716	.011
Unemployment Rate of Brazil	8	5.7875	1.15812	1.341
Unemployment Rate of Japan	8	4.1625	.76146	.580
Valid N (list-wise)	8			

Descriptive statistics shows the statistics calculations of the mean, variance and the standard deviation of the statistics coefficient i.e., real GDP rate, BOP rate, exchange rate and unemployment rate of the four given countries for analyses the trade value in international trade. In table 5.2 the values of these coefficients are represented respectively. For example, Sample size N = 8 and their GDP mean statistics 1.6800, 7.8500, 1.750 and 0.5875 respectively as shown in above table and vice versa.

Correlations

		Real GDP Growth of Germany	Real GDP Growth of China	Real GDP Growth of Brazil	Real GDP Growth Japan	Balance of payment of Germany	Balance of payment of China	Balance of payment of Brazil	Balance of payment of Japan	Exchange Rate of Germany	Exchange Rate of China	Exchange Rate of Brazil	Exchange Rate of Japan	Unemployment Rate of Germany	Unemployment Rate of China	Unemployment Rate of Brazil	Unemployment Rate of Japan
Real GDP Growth of Germany	Pearson Correlation	1	.426	.465	.592	-.135	-.195	-.360	.443	.038	.155	-.135	-.169	-.038	.033	-.129	.089
	Sig. (2-tailed)		.292	.246	.122	.750	.643	.381	.272	.928	.715	.749	.690	.930	.938	.760	.833
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Real GDP Growth of China	Pearson Correlation	.426	1	.803*	-.048	-.844**	.123	-.182	.050	-.768*	.299	-.875**	-.838**	.635	.350	.573	.805*
	Sig. (2-tailed)	.292		.016	.910	.008	.772	.665	.907	.026	.471	.004	.009	.091	.396	.138	.016
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Real GDP Growth of Brazil	Pearson Correlation	.465	.803*	1	.368	-.820*	.130	-.439	-.013	-.725*	.196	-.872**	-.762*	.572	.225	.433	.744*
	Sig. (2-tailed)	.246	.016		.370	.013	.759	.276	.975	.042	.642	.005	.028	.139	.592	.284	.034
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Real GDP Growth Japan	Pearson Correlation	.592	-.048	.368	1	.202	-.430	-.511	.041	.295	-.303	.065	.004	-.407	-.554	-.534	-.224
	Sig. (2-tailed)	.122	.910	.370		.631	.288	.196	.923	.479	.465	.879	.992	.317	.154	.172	.593
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Balance of payment of Germany	Pearson Correlation	-.135	-.844**	-.820*	.202	1	-.510	.092	-.108	.876**	-.485	.913**	.752*	-.911**	-.644	-.848**	-.958**
	Sig. (2-tailed)	.750	.008	.013	.631		.196	.829	.799	.004	.223	.002	.031	.002	.085	.008	.000
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Balance of payment of China	Pearson Correlation	-.195	.123	.130	-.430	-.510	1	.219	.537	-.236	.660	-.250	-.092	.811*	.843**	.806*	.635
	Sig. (2-tailed)	.643	.772	.759	.288	.196		.603	.170	.574	.075	.550	.828	.015	.009	.016	.090
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Balance of payment of Brazil	Pearson Correlation	-.360	-.182	-.439	-.511	.092	.219	1	.382	.279	.640	.335	.059	.106	.234	.327	-.005
	Sig. (2-tailed)	.381	.665	.276	.196	.829	.603		.350	.503	.087	.417	.890	.803	.577	.429	.991
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Balance of payment of Japan	Pearson Correlation	.443	.050	-.013	.041	-.108	.537	.382	1	.346	.736*	.221	.177	.329	.541	.378	.223
	Sig. (2-tailed)	.272	.907	.975	.923	.799	.170	.350		.401	.037	.600	.675	.426	.166	.356	.595
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Exchange Rate of Germany	Pearson Correlation	.038	-.768*	-.725*	.295	.876**	-.236	.279	.346	1	-.119	.931**	.725*	-.700	-.435	-.620	-.760*
	Sig. (2-tailed)	.928	.026	.042	.479	.004	.574	.503	.401		.780	.001	.042	.053	.281	.101	.029
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Exchange Rate of China	Pearson Correlation	.155	.299	.196	-.303	-.485	.660	.640	.736*	-.119	1	-.171	-.290	.656	.738*	.753*	.562
	Sig. (2-tailed)	.715	.471	.642	.465	.223	.075	.087	.037	.780		.686	.485	.077	.037	.031	.147
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Exchange Rate of Brazil	Pearson Correlation	-.135	-.875**	-.872**	.065	.913**	-.250	.335	.221	.931**	-.171	1	.875**	-.719*	-.344	-.613	-.863**
	Sig. (2-tailed)	.749	.004	.005	.879	.002	.550	.417	.600	.001	.686		.004	.044	.403	.106	.006
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Exchange Rate of Japan	Pearson Correlation	-.169	-.838**	-.762*	.004	.752*	-.092	.059	.177	.725*	-.290	.875**	1	-.547	-.139	-.504	-.766*
	Sig. (2-tailed)	.690	.009	.028	.992	.031	.828	.890	.675	.042	.485	.004		.160	.743	.203	.027
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Unemployment Rate of Germany	Pearson Correlation	-.038	.635	.572	-.407	-.911**	.811*	.106	.329	-.700	.656	-.719*	-.547	1	.843**	.973**	.944**
	Sig. (2-tailed)	.930	.091	.139	.317	.002	.015	.803	.426	.053	.077	.044	.160		.009	.000	.000
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Unemployment Rate of China	Pearson Correlation	.033	.350	.225	-.554	-.644	.843**	.234	.541	-.435	.738*	-.344	-.139	.843**	1	.858**	.649
	Sig. (2-tailed)	.938	.396	.592	.154	.085	.009	.577	.166	.281	.037	.403	.743	.009		.006	.081
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Unemployment Rate of Brazil	Pearson Correlation	-.129	.573	.433	-.534	-.848**	.806*	.327	.378	-.620	.753*	-.613	-.504	.973**	.858**	1	.892**
	Sig. (2-tailed)	.760	.138	.284	.172	.008	.016	.429	.356	.101	.031	.106	.203	.000	.006		.003
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Unemployment Rate of Japan	Pearson Correlation	.089	.805*	.744*	-.224	-.958**	.635	-.005	.223	-.760*	.562	-.863**	-.766*	.944**	.649	.892**	1
	Sig. (2-tailed)	.833	.016	.034	.593	.000	.090	.991	.595	.029	.147	.006	.027	.000	.081	.003	
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Real GDP Growth of Germany	Real GDP Growth of China	Real GDP Growth of Brazil	Real GDP Growth Japan	Balance of payment of Germany	Balance of payment of China	Balance of payment of Brazil	Balance of payment of Japan	Exchange Rate of Germany	Exchange Rate of China	Exchange Rate of Brazil	Exchange Rate of Japan	Unemployment Rate of Germany	Unemployment Rate of China	Unemployment Rate of Brazil	Unemployment Rate of Japan
Real GDP Growth of Germany	Pearson Correlation	1	.426	.465	.592	-.135	-.195	-.360	.443	.038	.155	-.135	-.169	-.038	.033	-.129	.089
	Sig. (2-tailed)		.292	.246	.122	.750	.643	.381	.272	.928	.715	.749	.690	.930	.938	.760	.833
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Real GDP Growth of China	Pearson Correlation	.426	1	.803*	-.048	-.844**	.123	-.182	.050	-.768*	.299	-.873**	-.838**	.635	.350	.573	.805**
	Sig. (2-tailed)	.292		.016	.910	.008	.772	.665	.907	.026	.471	.004	.009	.091	.396	.138	.016
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Real GDP Growth of Brazil	Pearson Correlation	.465	.803*	1	.388	-.820*	.130	-.439	-.013	-.725*	.196	-.872**	-.762*	.572	.225	.433	.744*
	Sig. (2-tailed)	.246	.016		.370	.013	.759	.276	.975	.042	.642	.005	.028	.139	.592	.284	.034
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Real GDP Growth Japan	Pearson Correlation	.592	-.048	.388	1	.202	-.430	-.511	.841	.295	-.303	.065	.004	-.407	-.554	-.534	-.224
	Sig. (2-tailed)	.122	.910	.370		.631	.288	.196	.923	.479	.465	.879	.992	.317	.154	.172	.593
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Balance of payment of Germany	Pearson Correlation	-.135	-.844**	-.820*	.202	1	-.510	.092	-.108	.876**	-.485	.913**	.762*	-.911**	-.644	-.848**	-.958**
	Sig. (2-tailed)	.750	.008	.013	.631		.196	.829	.799	.004	.223	.002	.031	.002	.085	.008	.000
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Balance of payment of China	Pearson Correlation	-.195	.123	.130	-.430	-.510	1	.219	.537	-.236	.660	-.250	-.092	.811*	.843**	.806*	.635
	Sig. (2-tailed)	.643	.772	.759	.288	.196		.603	.170	.574	.075	.550	.828	.015	.009	.016	.090
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Balance of payment of Brazil	Pearson Correlation	-.360	-.182	-.439	-.511	.092	.219	1	.382	.279	.640	.335	.059	.106	.234	.327	-.005
	Sig. (2-tailed)	.381	.665	.276	.196	.829	.603		.350	.503	.087	.417	.890	.803	.577	.429	.991
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Balance of payment of Japan	Pearson Correlation	.443	.050	-.013	.041	-.108	.537	.382	1	.346	.736*	.221	.177	.329	.541	.378	.223
	Sig. (2-tailed)	.272	.907	.975	.923	.799	.170	.350		.401	.037	.600	.675	.426	.166	.356	.595
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Exchange Rate of Germany	Pearson Correlation	.038	-.768*	-.725*	.295	.876**	-.236	.279	.346	1	-.119	.931**	.725*	-.700	-.435	-.620	-.760*
	Sig. (2-tailed)	.928	.026	.042	.479	.004	.574	.503	.401		.780	.001	.042	.053	.281	.101	.029
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Exchange Rate of China	Pearson Correlation	.155	.299	.196	-.303	-.485	.660	.640	.736*	-.119	1	-.171	-.290	.656	.738*	.753*	.562
	Sig. (2-tailed)	.715	.471	.642	.465	.223	.075	.087	.037	.780		.686	.485	.077	.037	.031	.147
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Exchange Rate of Brazil	Pearson Correlation	-.135	-.873**	-.872**	.065	.913**	-.250	.335	.221	.931**	-.171	1	.875**	-.719*	-.344	-.613	-.863**
	Sig. (2-tailed)	.749	.004	.005	.879	.002	.550	.417	.600	.001	.686		.004	.044	.403	.106	.006
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Exchange Rate of Japan	Pearson Correlation	-.169	-.838**	-.762*	.004	.752*	-.092	.059	.177	.725*	-.290	.875**	1	-.547	-.139	-.504	-.766*
	Sig. (2-tailed)	.690	.009	.028	.992	.031	.828	.890	.675	.042	.485	.004		.160	.743	.203	.027
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Unemployment Rate of Germany	Pearson Correlation	-.038	.635	.572	-.407	-.911**	.811*	.106	.329	-.700	.656	-.719*	-.547	1	.843**	.973**	.944**
	Sig. (2-tailed)	.930	.091	.139	.317	.002	.015	.803	.426	.053	.077	.044	.160		.009	.000	.000
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Unemployment Rate of China	Pearson Correlation	.033	.350	.225	-.554	.644	.843**	.234	.541	-.435	.738*	-.344	-.139	.843**	1	.858**	.649
	Sig. (2-tailed)	.938	.396	.592	.154	.085	.009	.577	.166	.281	.037	.403	.743	.009		.006	.081
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Unemployment Rate of Brazil	Pearson Correlation	-.129	-.573	.433	-.534	-.848**	.806*	.327	.378	-.620	.763*	-.613	-.504	.973**	.868**	1	.892**
	Sig. (2-tailed)	.760	.138	.284	.172	.008	.016	.429	.356	.101	.031	.106	.203	.000	.006		.003
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Unemployment Rate of Japan	Pearson Correlation	.089	.805*	.744*	-.224	-.958**	.635	-.005	.223	-.760*	.562	-.863**	-.766*	.944**	.649	.892**	1
	Sig. (2-tailed)	.833	.016	.034	.593	.000	.090	.991	.595	.029	.147	.006	.027	.000	.081	.003	
	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis in above Table 3 and 4 illustrates the coefficient variable (independent variables) from which dependent variable influenced. In the

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ISSN 2520-7113 (Print), ISSN 2520-7121 (Online)
www.gjmsweb.com.editor@gjmsweb.com
Impact Factor value = 4.739 (SJIF).

correlation analysis, Pearson technique was used to explain the relationship between independent and dependent variables. Person's Correlation was performed to identify the directions of dependent variable with the independent variable. It signifies the relationship between independent and dependent variable by representing the correlation matrix between real GDP rate and BOP, exchange rate and unemployment rate (independent variables). All independent variable have positive significant relationship with dependent variable. Suppose the most significantly correlated relationship of Germany's real GDP with China $r=0.426$, $p<0.01$ and with Brazil with $r=0.465$, $p<0.01$ which shows the positive significant sustainable trade relation among the countries.

6. Findings and Results

From the estimation of the regression model we find that one unit change in independent variables (balance of payment, exchange rate and unemployment rate) of four countries Germany, China, Brazil, Japan will change 1 unit in dependent variable GDP growth rate of the four countries. From our estimated data we find that according to the balance of payment, exchange rate and unemployment rate one country can ready their good and service for the trade with other country. For example, one country produces more goods and services in which they have specialization to produce specific goods and trade them to keep maintain their balance of payment. If any country has balance of payment in deficit, then it increases its production level under comparative advantage mechanism and produce goods and services to keep balance of payment surplus in international market. In the same way exchange rate of the country decide what to import/export? And in which ratio/quantity they have to import/export? with efficient and skilled labour power of the country.

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Four countries, Germany, China, Brazil and Japan have different level of balance of payment during the period- 2009 - 2016. For example, Germany has surplus balance of payment in 2016 with 8.4 ratio and lowest ratio 5.7 in 2009, China has highest balance of payment 4.8 ratio in 2009 and in 2016 its 1.8, Japan has 2.8 ratio of 2009 and in 2016 balance of payment ratio is 2.9. In this case China and Japan can trade by the rule of comparative advantage to surplus their balance of payment and trade those good and services which produced with comparative advantage. Unemployment rate of the four countries estimated which emphasis the production power of any country. If the labour power or the men power of any country raise their production lelvel then it will boost GDP growth rate and develop the economy.

In the above we have explained two model: trade sustainable determine model and Heckscher-ohlin trade model both show the 2 × 2 × 2 model in which one of the sector is identified of producing goods and services which also specify:

- countries
- goods
- factors of production

It turns out that comparative advantage continues to explain such kind of trade. The labour power of the country can produce only for domestic demand and the second input can be requiring from sustainability for trade. If we think the ownership of the firm as abiding with management then it is natural to think of the firm as exporting country domestic labor power. For the explanation of the model suppose two factors of production are production management and they are consumed in services production and the assumption of the model are exactly those of the H-O model. Therefore, two countries can trade in international market and

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increase their growth rate of the economy by exchanging their goods and services with the law of comparative advantage with a small ratio change in variables.

7.Conclusion and Recommendation

7.1 Conclusion

We mainly focus on the review of the literature because it was based on definition, arguments and theoretical reflection and critical analysis of the research study, conceptual framework which elaborates the research model and hypothesis relative to the research study, it furthers conclude from the methodology in which we examine our data through sample size, sample selection, selecting variables and their measure instrument, data collection procedure, quantitative as well as qualitative analysis and the estimation technique demonstrate the collective summary of the study.In this research paper we examine different determinants and different characteristics of the comparative advantage in international trade and to see their validity for sustainable growth in international trade. These determinants further explained that international trade is often demanded by goods and services and secondly it moves hand to hand internationally. We argued in our research work that does not in any way undermine the comparative advantage usefulness to explain the free trade. The principal of comparative advantage is fundamental and economically explain about free trade everywhere anywhere internationally. The argument is a relevance of the theoretical model and demonstrate trade freely with one another until all gain from trade exhausted for all the countries.

The results describe the growth and development and accurate sustainability for the countries to put more impact of comparative advantage in international trade benefits across the countries. Finding of our study emphasized that balance of payment ratio of the countries and the exchange rate directly impact the country's economy in the world market as well as their unemployment ratio further describe

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the labor power of the country. All these factors directly connected with the comparative advantage of one country with another because it effectively creates a competence level with the multi-national brand in the market. We must to know through our findings that human resources management practices are significantly contribute in the development of the countries.

The principal of comparative advantage further explains economies of scale for the sustainable growth among the countries which depends on political feasibility and policies of specialization. The Heckscher-Ohlin trade model opens the way that trade effect scale and the productivity management of the country as well as the composition of the country. By using these determinants a structural framework constructed in this research work to modifies the capital accumulation which is the core need of sustainable growth and development of any country.

Today's world is globalized in each and every second technological advancement are taking place. In the order to train their employees as per technological requirements firms may consider as a very useful treasure of human capital and their potential worth increase the incentives of any country. Labour power determines the trade efficiency and defiance as well. During first quarter of 2014, trade base of the countries rose by 3.5% (Rs 422 billion) to reach Rs.12.5 trillion. This growth came on account of an increase in BOP' efficient labour force and investment in government securities, while advances observed net retirements primarily due to seasonal adjustments and drop in commodity prices. *(Published in the Express Tribune, June 17th, 2015)*

7.2 Policy Recommendation

We would like to make the following recommendations: -

● The finding of this study describes that due to the correlation of the both dependent and independent variables; countries gradually concern about the

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ISSN 2520-7113 (Print), ISSN 2520-7121 (Online)
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comparative advantage to improve and increase the sustainability in international market. This kind of development can illustrate the trained and effective human capital increase the performance level of the labour. It would also raise the research and development opportunities for the countries to raise the real GDP ratio annually.

- Somehow it also critically analysis by most of the researchers that instead too much spent on the trade and funds, make their factor of production efficient through appraising them and encourage them according to their work capacity. It is very essential to provide possible responsibilities to the human capital to maximize the productivity ratio or output level.
- Free trade policy should be integrated between domestic trade and trade policy in order to achieve the sustainable development in a country.
- The principals of comparative advantage in economies of the scales better understand the role of international trade and hopefully design high sustainability growth and development strategy in any country.

The above recommendations are based upon the findings and analysis from the empirical analysis of the results by the selected variables (independent & dependent) which are most important as the factor of production for any country during trade with another country. These suggestions may have critical importance towards the nations and its progress and may also help to improve the trade policies across the countries.

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Authors' contribution/Conflict of interest

This research work was carried out in collaboration between two authors. Author AGA designed the study, performed the statistical analysis, wrote the protocol and edited final draft of the manuscript. Author SZ collected data, analyses of the study, conducted literature review, and prepared first draft. Both authors read and approved the final manuscript. They stated no conflict of interest with any institution and person.