



GLOBAL BUSINESS SERVICES AN INNOVATION, GROWTH AND BUSINESS INTEGRATION IN EMERGING MARKETS

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Abstract

Purpose – *The purpose of this paper is to explore the contribution of Global Business Services (GBS) for increasing the efficiency, cost reduction and economic growth of global economies that are overlooked in service research. Service providers can be either internal or external and managed by GBS organizations centrally that offers end-to end efficient standardized processes across the globe.*

Design/methodology/approach – *Industry reports and macroeconomic data from World Bank (1970 to 2020) has been used of emerging market BRICS countries (Brazil, Russia, India, China and South Africa), these markets account 39 percent in the global economy in terms of gross domestic product and one fourth in the total value of stock markets. Data of GBS is not available therefore, services value added as percent in Gross Domestic Products (GDP) has been taken as a proxy variable in place of GBS.*

Findings – *There is a long run association between Chemical (CHEM), Textile (TEX) and GBS in Pakistan. In BRICS economies, long run coefficients are negative*



and significant which shows there is a long run relationship among Exchange Rate (ER), Research and Development (R&D) to GBS. Thus, Business services can be extended in these areas for the long-term growth for service economy in emerging markets.

Research limitations/implications – *The study will find new ways in Global Business Services (GBS) research and the specific research methodology can lead to various techniques and opportunities for defining, processing and making an advance analysis of GBS data globally. This work is limited to BRICs emerging market including Pakistan.*

Originality/value – *This is the first quantitative research study of GBS that has been conducted. It will help to build strategies and methods in driving business performance in the global business environment and the international transformation of service economies.*

Keywords: *Global business services, Innovation, Business Integrations.*

I. Introduction

Global business service organization manages and controls firm's general and administrative functions. These firms are separate legal entities and their objective is doing more with less, refining business controls, increase growth and gaining improved visions. GBS shows progress in managing different processes, business services model with firms enabling functions, such as human resources, finance and information technology etc. These firms have standard processes and 80/15/5 rule, in fact this rule is a derivation of the Pareto Principle which follow the rule of thumb: standardized 80 percent process globally, 15 percent to be standardized on regional basis and 5 percent in the country or local level around the globe. One organization world-wide ownership of the process globally, one application across the organization, integrated or expert virtual centers to distribute and advance toolsets and subject-matter expertise, policies and practices makes these firms to run like a separate business, ability of moving work from one location to another location for the business continuity or to simply and take the competitive advantage, objectives of these organizations are capability-centric and not the product and customer focused.

Global business service's integrated and shared services model provides services not only in transactional functions but the has expertise to gain high value for the firms, such as consulting and business analytics. As firm organizes tools and advanced technology for bringing scalability to the organizations. The annual contract value (ACV) globally of business services in the first quarter of 2021 reached at USD 17.1 billion is increased by 11% compared to 2020 in the corresponding period and improved by 4% from the last quarter of 2020. These



business service providers focus on the requirements of companies by managing cost reduction and helping customers to create resilient and agile operations. Business service and professional firms are confronted with many challenges stem from work location arrangements, new legislation, labor issues or marketplace circumstances, companies are aligning themselves to gain long-term by responding and embracing innovation, employee preferences and implementing advance technologies.

GBS combines and controls many business functions like a service delivery to all global operations by thinking and acting globally. As a business, these firms run activities which are in the reporting lines and fully in control of the budget. It's truly global and an advanced version of more integrated shared services model that is evolved from new global demand of services which can be regional, country based or in a single multi-national firm. Global business service has the capability to deliver and incorporate many specialized roles into the process that fulfils beyond basic transactional roles such as data analytics and consulting. These firms combine new tools and technologies for delivering the higher value propositions offered by the model with greater efficiency. GBS firm also serve as a business partner to the organization it serves. It runs like a business and has the power and control on its process.

A global professional services firm Generating Global Impact (GENPACT) is changing the business outcomes, trades and helping the organizations in redefining the future of globally by re-imagining the processes in place. It has 500 Fortune clients using processes around the globe that are digital enabled and re-inventing the operations with the purpose of getting data insight. During COVID-19, it has defined the next level GBS and is forcing the corporations to enhance the business continuity plan (BCP) by pushing the boundaries by virtual working and innovation. GBS will bring teamwork, remote working, other ways of doing work with digitally enabled platforms. Digital enabled technologies like artificial intelligence (AI) and machine learning (ML) can bring more skills for users and investor (including suppliers, organization management employees, internal and external customers) and lead to learning opportunities and continuous improvement globally. Workforces are increasing their skills in other areas, such as financial planning, analysis and modelling thus developing and attracting the high-calibre talent globally. GBS role and importance in the organizations has been increased although corporations have many goals but their focus is on driving the scale through mergers and acquisitions, new business models implementation, cost structures refining, virtual work and enhancing capabilities of workforce.

II. Literature Review

Those economies which are in the middle of developing and developed markets with rapid growth and high volatility are considered as emerging markets. In 2021, markets like Mexico, Russia, South Africa, India and Pakistan are considered as emerging markets. There are many emerging markets around the world, but the major ones are called BRICs (Brazil,



Russia, India, China and South Africa). In terms of gross domestic product these markets contribute around 39 percent in the global economy and one fourth of the stock markets. The research shows that top 18 emerging countries are now considered as global growth engine. Most economists believe that emerging markets are relatively stable from the other economies and will replace United Kingdom, Italy, Germany, Japan, Canada, France and United States (G7) countries and will be the world's next superpowers.

Implementation of Global business services (GBS) is a challenging task deriving many benefits leading to improvements and cost savings in service industry and above all what shared service are delivering across the globe. Implementation of Global Business Service model require technology research, preparation, experts, processes, markets demands and targeted locations. Global business involves transactions to be created and executed across national borders for fulfilling goals of individuals and corporations (Czinkota et al. 2004). In twenty first century Multinational Firms will advance into a globally integrated enterprises with headquarters-based controlled processes that will comprise of knowledge-based operations spread over to other locations of the world with capabilities of information and communication technologies to deliver products and services to both global and local markets. Thus, generating new career routes within the organization and globally that will be purely international.

There are many business and career opportunities as the digital transformation is mainly associated with the use of digital technology in different functions of business. Research in digital business depicts that increase in digital businesses is following the digital technologies, such as mobile and cloud, social media, big data, analytics in the service sector and how it is impacting the service industry. Ajmair (2014) attempted in finding the relationship among different manufacturing sectors of economy and economic growth of country with the data for sixty-one years from 1950 to 2010. All different manufacturing sector showed a positive relationship with GDP except mining and quarrying which have negative relationship with insignificant results. Service sector in Pakistan is evolving as a main driver of economic growth and its share in GDP has been increased to 61.4 percent during 2019-2020. Sub-sectors of service sector are communications technology, information and (ICT), finance and insurance, telecommunication, storage and transport, retail and wholesale, public administration and trade. (Xizhong. C 2020). (Hussain, Rehman and Hyder, 2018) used different macroeconomic variables for forecasting the largescale manufacturing. Most recent relevant study was done by Hussain and Ajmair (2017), they attempted to elaborate industrial production based on GDP growth rate, inflation, Foreign Direct Investment FDI, Export, and personal remittances.

The study showed that only personal remittance has significantly impacted the Industrial Production. ICT services are associated with repositioning of shared services centres created by FDI in six new member states (Zoltan.G, 2014). Although the number of global business service centres are continuously increasing but the list of global business service



locations is very short. Some countries like India, China, United States, Poland, Ireland, Romania, Hungary and Costa Rica have captured the business service market and have got the good positions and status of matured global service market and are popular for their services among multinational organizations. These business service providers are also planning to invest in the foreign markets. The last decade witnessed that most of the FDI was made in business service industry that mainly targeted developed countries but now their focus has been shifted to semi-developed and developing countries like in Asia Pacific region. Global ranking shows that India, China and Malaysia are on the top three positions. Central and Eastern Europe are third most considerable locations for investment (Lhermitte et al., 2010).

Previous research in the related literature shows that FDI have significant impact on the economy as well as on different sectors particularly service sector. (Yilmaz and Can, 2016), (Guris et al., 2015), (Gungor et al., 2014), (Taspinar, 2014) (Kurtovic et al., 2014) (Guris, 2012) (Kalim et al., 2012), (Katircioglu, 2011), (Gungor and Katircioglu, 2010), (Nazlioglu et al., 2009), (Katircioglu, 2009), (Katircioglu and Naraliyeva, 2006). Similarly, (Nawaz and Gilani and Nazir, 2010) proved a significant and positive relationship between economic growth and external investment. Recent improvement in communication and information technology (including Internet) have reduced the direct interaction in many services (Jensen, 2009). Service sector plays an important role in globalization of world economic growth and development of many economies.

Increase in service globalization is leading to increase in supply of goods in the last decade (Mann, 2005), while business services outsourcing has been increased leading to jump in the international service trade (OECD, 2007). (Eichengreen and Gupta, 2012) recognized a new trend of GBS which further encouraged the service trade. Global business service providers are using advanced information and communication technologies in areas like legal, computer, technical, financial, communication, advertising and business in providing services in these areas. Thus, increasing in demand of services makes these services tradable across the globe (Eichengreen and Gupta, 2012). In the last decade, importance of business service sector and globalization are more export oriented in the way of doing business and has gain the momentum. Example, in the United States only, export service-related jobs was increased from 19% to 24.5 % in the year 2010. Jobs were declined from 41.4 percent in 1993 to 32.4 percent in 2010 compared with share of export from manufacturing sector, (Rasmussen and Johnson, 2012). In United States, 78% of jobs are occupied by service sector and Asia is succeeding United States in the service-oriented economy. Asian countries are now reaching on the stage that will lead the world economy run by services. (Adam, 2013), service sector has crossed 50% of GDP for the first time in the history. Consumers are not given these services directly but these services are provided to other firms also. There is a little motivation for process improvement to conduct research and development for its own as the manufacturer has the operations mainly because of canteen operation has low criticality in overall business. Therefore, this canteen operation



would neither justify for more investments in the process improvements or any sort of research and development or management attention. (Wirtz, 2000, Wirtz and Ehret, 2009, 2013). GBS covers multi-functions such as finance, human resources (HR), information technology (IT), operations and customer service. GBS model allows organizational access to capabilities and expertise on a global level. Evolution and dimensions and of global business services highlighted by (Deloitte, 2013).

1. Objectives of GBS are efficiencies, cost savings, focused service, compliance, scalability, agility and innovation.
2. Scope covers many service providers, many processes, combination of outsourcing and shared services, not only transactional activities but also includes critical business processes.
3. There is a high agility because of centrally coordination.
4. Governance is centrally and coordinated.
5. Transformational change culture, purely service-focused culture is important, a single team regardless of outsourcing or shared services.

III. Data and Methodology.

Yearly data (1970 to 2020) from the World Bank has been used. Variables are quantitative in nature. Large Scale Manufacturing (LSM) has been taken as a dependent variable since this a second main contributor in the economy and data for this variable has been taken as value added percent in GDP. Pakistan's service sector is emerging as a main driver economic growth having its share in GDP increased to 61.4 percent during 2019-2020. Sub-sectors of service sector are information and communications technology (ICT), insurance and finance, storage and transport, telecommunication, public administration, retail and wholesale and trade. (Xizhong. C 2020). Since the data of Global business services is not available therefore, services value percent in GDP has been taken as a proxy variable in place of Global Business Services.

Hypothesis of the research have been developed for predicting the results of the study. Based on the research questions like how to estimate the relationship between large scale manufacturing (LSM) Foreign Direct Investment (FDI), Inward remittances (IR), Export (EXP), Exchange rate (ER), global business services (GBS) and research and development (R&D), whether short or long run relationship exists among large scale manufacturing (LSM), Foreign Direct Investment (FDI), Inward remittances (IR), Export (EXP), Exchange rate (ER), global business services (GBS) and research and development (R&D), how to explore the contribution of Global Business Services (GBS) in large scale manufacturing (LSM) and how to determine the impact of global business service organizations in emerging market economies.

Global business services data is also not available from any source therefore, services value percent in GDP has been taken as a proxy variable in place of Global Business Services



and hypothesis has been formed by taking Services, value added as dependent variable and chemicals, food beverages and tobacco, machinery and transport equipment, textile and clothing and other manufacturing as a percent of value added in manufacturing. Some data of these variables large scale manufacturing (LSM) Foreign Direct Investment (FDI), Inward remittances (IR), Export (EXP), Exchange rate (ER), global business services GBS and research and development (R&D) of emerging markets (BRICS countries Brazil, Russia, India, China and South Africa) is also missing that may impact the interpretation of the results.

To find out the relationship between the dependent and independent variables in the research following hypotheses have been developed. Based on research questions, two hypotheses have been developed for Pakistan. In the first hypothesis, manufacturing value added as a percent of GDP has been taken as dependent variable and Foreign Direct Investment (FDI), Inward remittances (IR), Export (EXP), Exchange rate (ER), global business services (GBS) and research and development (R&D) as a percent of GDP has been taken as independent variables as shown in hypothesis 1 (1.1 and 1.2). In the second hypothesis services value added has been taken as dependent variable and chemicals, food beverages and tobacco, machinery and transport equipment, textile and clothing and other manufacturing as a percent of value added in manufacturing are independent variables since these independent variables are highest contributor in GDP (1.3 and 1.4).

To determine the effect of global business service firms in the emerging BRICS (Brazil, Russia, India, China and South Africa) nine areas have been formed for Infrastructure development, financial services, green economy and energy, deregulation, manufacturing sector, development of skills, digital economy, regional aviation and agribusiness have been formed and for these economies. The objectives of these economies are to simplify the collaboration in businesses, understanding the market and capture opportunities to increase the cooperation based on feasible strengths and promote job creation and industrial development among countries. For Pakistan GBS (proxy variable of GBS) has been taken as dependent variable and independent variables are chemicals (CHEM), Food Beverages and Tobacco (FBT), Machinery and Transport equipment (MT), Textile and Clothing (TEX), Other Manufacturing (OMF) Pakistan hypothesis-1 (1 and 1.1), a null-hypotheses have been developed against the alternative. Similarly, for each emerging economy, null hypotheses have been developed against the alternative and services value added (as a proxy variable of GBS) has been taken as dependent variable and Foreign Direct Investment (FDI), Inward remittances (IR), Export (EXP), Exchange rate (ER) and research and development (R&D) as a percent of GDP have been taken as independent variables. Country wise hypothesis have been developed, Brazil hypothesis-2 (2 and 2.1), Russia hypothesis-3 (3 and 3.1) India hypothesis-4 (4 and 4.1), China hypothesis-5 (5 and 5.1) and South Africa hypothesis-6 (6 and 6.1) respectively. These hypotheses helped us to draw the inference of research questions and the research variables involved. Furthermore, it helped us to make precise predictions based on prior research. Hence



these hypotheses would bring greater value for the research in question. Thus, hypothesis essentially describes what it claims to explain.

IV. Empirical findings

For stationarity of the data Augmented Dickey-Fuller Test has been used to check whether variables are non-stationary and possesses a unit root. Null Hypotheses H_0 : presence of unit root and Alternate Hypotheses H_1 : no unit root has been developed. The P value is < 0.05 level of significance at first level therefore we accept H_1 that the data is stationary. Johansen Cointegration Test of Cointegration has been used to check if variables are cointegrated or have long a term association-ship. Hypotheses have been developed for data sets of Brazil, Russia, India, China, South Africa and Pakistan to find out P value. In model 1, $P < 0.05$ we reject the null hypothesis and can say that there is cointegration or long run association ship among variables, FDI, IR, EXP, ER GBS and R&D showing that these variables can run together in the long run, similarly in model 1.1, $P < 0.05$ and variables Chemicals (CHEM) Food Beverages and Tobacco (FBT), Machinery and Transport equipment (MT), Textile and Clothing (TEX) , Other Manufacturing (OMF) run together in the long run. In models 3,4,5 and 6, $P < 0.05$ and there is cointegration among the variable.

VAR model is used to predict relationship that affect each-other therefore, for long run relationship Granger Causality Test is followed for the cointegration between the variables. Variables were non-stationary at levels but when converted all variables into first difference they became stationary and integrated in same order. According to statistics all variables are co-integrated, so VECM has been used. Vector Error Correction coefficient gives the speed of adjustments with in which the models will restore its equilibrium following any disturbances.

Hypothesis-1 Pakistan

$$GBS_0 = \beta_0 + \beta_1chem + \beta_2fbt + \beta_3mt + \beta_4tex + \beta_5omf + \mu_t \dots \dots \dots 1.$$
$$GBS_1 \neq \beta_0 + \beta_1chem + \beta_2fbt + \beta_3mt + \beta_4tex + \beta_5omf + \mu_t \dots \dots \dots 1.1$$

Error correction coefficients (Table 1 Pakistan) shows speed of adjustment towards equilibrium in which model will restore its equilibrium following any disturbances. The coefficients of ECT with GBS, FBT and OMFG are negative and significant indicating that there is a convergence from short dynamics towards long run equilibrium. The adjustment coefficients are (0.02, 0.051 and 0.023) percent respectively towards long run equilibrium. In case of CHEM, MT and TEX, the adjustment coefficients are positive but not significant indicating lack of adjustment towards long run equilibrium in any disequilibrium situation. The long run coefficient is negative and significant which shows long run causality between CHEM and TEX to OMFG. The coefficient is negative which has the ability to bounce back to equilibrium. Short run coefficient C(2), a percentage increase in DMFG will lead to decline in



DMFG by 0.03 percent. Similarly, C(3) CHEM, C(4) MFG, C(5) MT, C(6) OMFG, C(7) TEX will lead to decrease 0.85, 0.82, 0.76, 0.88 and 0.79 respectively.

TABLE- 1 Vector Error Correction Estimates-Pakistan

Error Correction:	D(GBS)	D(CHEM)	D(FBT)	D(MT)	D(OMFG)	D(TEX)
CointEq1	-0.028506	0.030251	-0.051907	0.004100	-0.023196	-0.024629
	(0.01158)	(0.00977)	(0.01649)	(0.00930)	(0.01813)	(0.01931)
	[-2.46165]	[1.09509]	[-3.14703]	[0.44086]	[-2.27959]	[1.27533]

Least Squares (Gauss-Newton / Marquardt steps)

	<u>C(1)</u>	<u>C(2)DFMG</u>	<u>C(3)CHEM</u>	<u>C(4)FBT</u>	<u>C(5)MT</u>	<u>C(6)OMFG</u>	<u>C(7)TEX</u>	<u>C(8)</u>
Coefficient	-0.01296	-0.034366	-0.856262	-0.82535	-0.76423	-0.885101	-0.79724	-0.06398
Std. Error	0.006449	0.170229	0.324805	0.308379	0.344007	0.310278	0.309255	0.146768
t-Statistic	-2.01005	-0.201882	-2.636234	-2.67642	-2.22155	-2.852606	-2.57793	-0.43594

Author Source

Hypothesis-2 Brazil

$$GBS_t = \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 2$$

$$GBS_{1t} = \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 2.1$$

Error correction coefficients (Table 2 Brazil) shows speed of adjustment towards equilibrium, shows coefficients of GBS, ECT with EXPORT and FDI are negative and significant thus indicating that there is a convergence from short dynamics to long run equilibrium. The adjustment coefficients are (0.27, 0.39 and 0.038) percent respectively towards long run equilibrium. In case of ER, IR and R_D, the adjustment coefficients are positive but not significant indicating lack of adjustment towards long run equilibrium in any disequilibrium situation. The long run coefficient is negative and significant which shows long run causality between ER and R_D to GBS. The coefficient is also negative which has the ability to bounce back to equilibrium. Short run coefficient C(2), an increase in GBS, C(6) IR and C(7) R_D will lead to decline in GBS by 0.34, 0.90 and 1.6 percent respectively. Similarly, C(3) ER, C(4) EXPORT and C(5) FDI will lead to increase 1.36, 0.22 and 0.08 respectively.



TABLE- 2 Vector Error Correction Estimates-Brazil

Error Correction:	D(GBS)	D(ER)	D(EXPORT)	D(FDI)	D(IR)	D(R_D)
CointEq1	-0.276854	0.026135	-0.392477	-0.038905	0.019955	0.015559
	(0.10308)	(0.05647)	(0.12934)	(0.00183)	(0.00577)	(0.00923)
	[-2.68593]	[0.46282]	[-3.03453]	[-2.12595]	[3.45840]	[1.68573]

Least Squares (Gauss-Newton / Marquardt steps)

	C(1)	C(2)GBS	C(3)ER	C(4)EXP	C(5)FDI	C(6)IR	C(7)R&D	C(8)
Coefficient	-0.27685	-0.34642	1.36504	0.2279	0.08355	-9.03381	-1.6776	0.13723
Std. Error	0.103076	0.266421	0.70578	0.2926	0.25895	6.551953	3.83481	0.2015
t-Statistic	2.685929	-1.30026	1.93409	0.77889	0.32266	-1.3788	-0.43747	0.68107

Author Source

Hypothesis-3 Russia

$$GBS_o = \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 3$$

$$GBS_1 \neq \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 3.1$$

Error correction coefficients (Table 3 Russia) shows speed of adjustment towards equilibrium and shows the coefficients of GBS, ECT with EXPORT and FDI are negative and significant indicating that there is a convergence from short dynamics towards long run equilibrium. The adjustment coefficients are (0.06, 0.53 and 0.42) percent respectively towards long run equilibrium. In case of ER, IR and R_D, the adjustment coefficients are positive but not significant indicating lack of adjustment towards long run equilibrium in any disequilibrium situation. The long run coefficient is also negative and significant which shows long run causality between ER and R_D to GBS. The coefficient is negative which has the ability to bounce back to equilibrium. For Short run coefficient C(3) ER, C(4) EXPORT and C(5) FDI, an increase in GBS will lead to decline by 0.55, 0.62 and 6.73 percent respectively. Similarly, C(2) ER, C(6) IR and C(7) R_D will lead to increase 0.07, 3.11 and 71.85 respectively.

TABLE 3 Vector Error Correction Estimates- Russia

Error Correction:	D(GBS)	D(ER)	D(EXPORT)	D(FDI)	D(IR)	D(R_D)
CointEq1	-0.068809	0.212053	-0.539583	-0.42822	0.005664	0.020250
	(0.032547)	(1.93602)	(0.24474)	(0.21259)	(0.01942)	(0.05661)
	[-2.11414]	[0.10953]	[-2.20471]	[-2.01429]	[0.29169]	[0.35773]

Least Squares (Gauss-Newton / Marquardt steps)

	C(1)	C(2)GBS	C(3)ER	C(4)EXP	C(5)FDI	C(6)IR	C(7)R&D	C(8)
Coefficient	-0.06881	0.07494	-0.55677	-0.62425	-6.73026	3.11302	71.851	0.12327
Std. Error	0.032547	0.10175	0.268841	0.531201	11.54205	2.11419	35.76	0.21951
t-Statistic	-2.11414	0.73649	-2.071	-1.17518	-0.58311	1.47244	2.00926	0.62681

Author Source



Hypothesis-4 India

$$GBS_o = \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 4$$

$$GBS_1 \neq \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 4.1$$

Error correction coefficients (Table 4 India) shows speed of adjustment towards equilibrium showing coefficients of GBS, EXPORT and FDI are negative and significant indicating that there is a convergence from short dynamics towards long run equilibrium. The adjustment coefficients are (0.36, 1.36 and 0.13) percent respectively towards long run equilibrium. In ER, IR and R_D, the adjustment coefficients are positive but not significant indicating lack of adjustment towards long run equilibrium in any disequilibrium situation. The long run coefficient C(1) is negative and significant which shows long run causality between ER and R_D to GBS and has the ability to bounce back to equilibrium. Short run coefficient C(3)ER, C(5) FDI and C(6) IR an increase in GBS will lead to decline in GBS by 0.08, 0.24 and 0.38 percent respectively. Similarly, C(2)FDI, C(4) EXPORT and C(5) FDI will lead to increase 0.31, 0.16 and 4.48 percent respectively.

TABLE- 4 Vector Error Correction Estimates- India

Error Correction:	D(GBS)	D(ER)	D(EXPORT)	D(FDI)	D(IR)	D(R_D)
CointEq1	-0.365899	1.604102	-1.354951	-0.13606	0.223673	0.003962
	(0.10332)	(0.92363)	(0.33731)	(0.05182)	(0.13466)	(0.01371)
	[-3.54141]	[1.73673]	[-4.01699]	[-2.62551]	[1.66100]	[0.28896]

Least Squares (Gauss-Newton / Marquardt steps)

	C(1)	C(2)GBS	C(3)ER	C(4)EXP	C(5)FDI	C(6)IR	C(7)R&D	C(8)
Coefficient	-0.3659	0.31241	-0.08604	0.16987	-0.2436	-0.38652	4.48993	0.37686
Std. Error	0.303317	0.36885	0.111053	0.13404	0.385725	0.717804	5.26151	0.26176
t-Statistic	-1.20632	0.84699	-0.77479	1.26732	-0.63154	-0.53847	0.85335	1.43971

Author Source

Hypothesis-5 China

$$GBS_o = \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 5$$

$$GBS_1 \neq \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 5.1$$

Error correction coefficients (Table 5 China) shows speed of adjustment towards equilibrium Coefficients of error correction term with GBS, ER and FDI are negative and significant indicating that there is a convergence from short dynamics towards long run equilibrium. The adjustment coefficients are (0.10, 0.18 and 0.24) percent respectively towards long run equilibrium. In EXPORT, IR and R_D, adjustment coefficients are positive but not significant indicating lack of adjustment towards long run equilibrium in any disequilibrium



situation. The long run coefficient C(1) is negative and significant which shows long run causality between ER and R_D to GBS and has the ability to bounce back to equilibrium. Short run coefficient C(3)ER, C(5) FDI and C(7) R_D an increase will lead to decline in GBS by 1.58, 0.14 and 5.5 percent respectively. Similarly, C(2)FDI, C(4) EXPORT and C(6) IR will lead to increase 0.67, 0.05 and 0.96 respectively.

TABLE- 5 Vector Error Correction Estimates- China

Error Correction:	D(SERVICES)	D(ER)	D(EXPORT)	D(FDI)	D(IR)	D(R_D)
CointEq1	-0.105237	0.182092	0.576298	-0.243086	0.043963	0.013409
	(0.27629)	(0.06073)	(0.74941)	(0.11692)	(0.04235)	(0.01899)
	[-2.625442]	[2.99819]	[0.76900]	[-2.07908]	[1.03808]	[0.70619]

Least Squares (Gauss-Newton / Marquardt steps)

	C(1)	C(2)GBS	C(3)ER	C(4)EXP	C(5)FDI	C(6)IR	C(7)R&D	C(8)
Coefficient	-0.27629	0.67882	-1.58473	0.0557	-0.14516	0.96975	-5.49946	0.52112
Std. Error	0.105237	0.27816	0.92165	0.10534	0.389963	1.9857	6.017148	0.5513
t-Statistic	-2.62544	2.44041	-1.71945	0.52872	-0.37224	0.48837	-0.91397	0.94526

Author Source

Hypothesis-6 South Africa

$$GBS_t = \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 6$$

$$GBS_{t-1} = \beta_0 + \beta_1 fdi + \beta_2 inr + \beta_3 exp + \beta_4 er + \beta_5 rd + \mu_t \dots \dots \dots 6.1$$

Error correction coefficients (Table 6 South Africa) shows speed of adjustment towards equilibrium shows coefficients of EXPORT as dependent variable is negative and significant indicating that there is a convergence from short dynamics towards long run equilibrium. The adjustment coefficients is 0.70 percent towards long run equilibrium. In GBS, ER, IR FDI and R_D, the adjustment coefficients are positive but not significant indicating lack of adjustment towards long run equilibrium in disequilibrium situation. The long run coefficient C(1) is negative and significant which shows long run causality between ER and R_D to GBS and has the ability to bounce back to equilibrium. Short run coefficient C(2)FDI, C(4) EXPORT, C(5) FDI C and C(7)R_D an increase will lead to decline SERVICES by 0.44, 0.08, 0.12 and 0.85 percent respectively. Similarly, C(3)FDI, and C(6) IR will lead to increase 0.06 and 0.11 respectively.



TABLE- 6 Vector Error Correction Estimates- South Africa

Error Correction:	D(GBS)	D(ER)	D(EXPORT)	D(FDI)	D(IR)	D(R_D)
CointEq1	-0.011084	0.022987	-0.701750	-0.049155	0.001846	0.003847
	(0.11529)	(0.17943)	(0.30636)	(0.23210)	(0.00140)	(0.00586)
	[-0.09614]	[0.12811]	[-2.29060]	[-0.21178]	[1.32245]	[0.65648]

Least Squares (Gauss-Newton / Marquardt steps)

	<u>C(1)</u>	<u>C(2)GBS</u>	<u>C(3)ER</u>	<u>C(4)EXP</u>	<u>C(5)FDI</u>	<u>C(6)IR</u>	<u>C(7)R&D</u>	<u>C(8)</u>
Coefficient	0.011084	0.442192	0.065675	-0.08504	0.127188	11.0685	0.851522	0.205647
Std. Error	0.005289	0.631912	0.182604	0.138103	0.226489	11.5522	4.907317	0.246206
t-Statistic	2.095673	0.699769	0.359659	0.615773	0.561564	0.958129	0.173521	0.835262

Author Source

V. Conclusion

In case of Pakistan the coefficients of GBS (services 0.02), FBT (0.051) and OMFG (0.023) are negative and significant indicating that there is a convergence from short dynamics towards long run equilibrium. The long run coefficient is negative and significant which shows long run causality between CHEM and TEX to MFG. The coefficients of Brazil, GBS (0.27), EXPORT (0.39) and FDI (0.038) are negative and converging towards long run equilibrium. The long run coefficients are negative and significant showing long run causality between ER and R&D to GBS. In Russia, coefficients of GBS (0.06), EXPORT (0.53), and FDI (0.42) are negative and significant indicating movement from short dynamics towards long run equilibrium. The long run coefficient is negative and significant which shows long run causality between ER and R_D to GBS. Coefficients of GBS (0.36), EXPORT (1.36) and FDI (0.13) in case of India are negative and significant indicating that there is a convergence from short dynamics towards long run equilibrium. The long run coefficient is negative and significant proving long run relationship between ER and R&D to GBS. In China coefficients of GBS (0.10), ER (0.18) and FDI (0.24) are significant and negative showing that there is a convergence from short dynamics towards long run equilibrium. The long run coefficient is negative and statistically significant which shows long run causality between ER and R&D to GBS and has the ability to bounce back to equilibrium. Coefficients of South Africa shows that EXPORT (0.70) as dependent variable is negative and significant indicating that there is a convergence from short dynamics towards long run equilibrium. The long run coefficient is negative and significant which shows long run causality between ER and R&D to GBS and has the ability to bounce back to equilibrium.

VI. Limitations of the study



Global business services data is not available from any source therefore, services value percent in GDP has been taken as a proxy variable in place of Global Business Services. Limited number of variables have been used in the study The study is limited to business financial services and the variables are used accordingly and others area of study (i.e., legal, technical, communication, advertising, infrastructure-related services) are not covered in the study. The study will find new ways of research and the specific research methodology which can give various opportunities, therefore appropriate research methodology and techniques for defining, processing, choosing and making an analysis of data on the subject will be accessed in analysis and conclusion section of the research.



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