



A FRESH LOOK IN THE RELATIONSHIP AMONG SECTORIAL CONTRIBUTION OF NATIONAL INCOME, TRADE AND YOUTH UNEMPLOYMENT IN THE ERA OF GLOBALIZATION – A STATIC PANEL DATA ANALYSIS FOR SOME SELECTED G-20 NATIONS

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Abstract: Unemployment represents the level of employment in which people have the desire and ability to work but cannot find jobs. Reduction of unemployment and achieving a high rate of economic growth are the most important priorities of developed and developing country economies. The variables used in this study are Agriculture, forestry, and fishing, value added (% of GDP), GDP per capita growth (annual %), General government final consumption expenditure (% of GDP), Gross fixed capital formation (% of GDP), Manufacturing, value added (% of GDP), Services, value added (% of GDP). This study tries to explore the impact of these variables on total youth unemployment of some selected G-20 nations. Using panel data regression model this study finds that the increase of manufacturing value added youth unemployment declines in the selected G 20 nations. Whereas service sector value added is not significantly affecting unemployment at 5% level similarly agriculture sector value addition is not a significant variable for changing the youth unemployment level. Hence the government of the G-20 nations should concentrate on manufacturing value added for reducing their youth unemployment.

Keywords: Sectoral contribution, social justice, panel data analysis, G-20 nations

INTRODUCTION

Unemployment is an important macroeconomic variable for the policy makers of almost all nations of the world . Unemployment represents the level of employment in which people have the desire and ability to work but cannot find jobs. Unemployment arises from the economic structure of a country, and it arises from different reasons depending on whether it is a developed or underdeveloped country. The reason for unemployment in underdeveloped countries is capital inadequacy, while in developed countries technological progress is the reason (Yilmaz, 2005).

Reduction of unemployment and achieving a high rate of economic growth are the most important priorities of developed and developing country economies. In terms of the success of a country's economy, economic growth and employment are two extremely important macroeconomic variables and are indispensable elements of the economic policies of most of nations. Jobless growth is not only undesirable, but also a hindrance for achieving social justice.

A report by the ILO (International Labour Organization, 2012) mentions that in early 2012 the labour market reality is cruel: one in three persons from the working population is either unemployed or is poor. In other words, the data show that from the total labour force of 3.3 billion, 200 million are unemployed and 900 million are living with their families below the poverty line of \$2 per day (Stanila, L. 2013). The most affected segment of the population is the young, 75 million of them being unemployed. Globally, youth are three times more likely to become unemployed (compared to the adults) and this can lead to long-term deterioration of the labour market (ILO, 2011).

In contemporary economic policy the globalization plays an important role on employment. Although workers in developing countries see globalization as a threat (since the traditional jobs disappear or are relocated), employment growth in developing countries that is generated through globalization is thought to lead to poverty reduction (Jenkins, 2006).

There are a variety of ways in which globalization affects labour, foreign direct investment (FDI), increased trade openness and international technology transfer being the most mentioned. Trade is an important factor in economic development. In a report of the European Commission (2010) three major benefits of trade openness were listed: (1) economic growth: (2) consumer benefits: (3) employment: In these circumstances it is easy to conclude that trade openness of an economy is an important lever for developing countries to get out of poverty. In this study we measure the degree of openness.

VARIABLES USED IN THIS STUDY

Agriculture, Forestry, and Fishing, Value Added (% of GDP)

Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3. Note: For VAB countries, gross value added at factor cost is used as the denominator.

GDP per capita growth (annual %)

Annual percentage growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. All resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources

General Government Final Consumption Expenditure (% of GDP)

General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation

Gross Fixed Capital Formation (% of GDP)

Gross fixed capital formation (formerly gross domestic fixed investment) includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.

Manufacturing, Value Added (% of GDP)

Manufacturing refers to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3. Note: For VAB countries, gross value added at factor cost is used as the denominator.

Services, Value Added (% of GDP)

Services correspond to ISIC divisions 50-99 and they include value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services such as education, health care, and real estate services.

Also included are imputed bank service charges, import duties, and any statistical discrepancies noted by national compilers as well as discrepancies arising from rescaling. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The industrial origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3 or 4.

Trade (% of GDP)

Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.

Unemployment, total (% of total labor force) (modeled ILO estimate)

Unemployment refers to the share of the labor force that is without work but available for and seeking employment

Unemployment, youth total (% of total labor force ages 15-24) (modeled ILO estimate)

Youth unemployment refers to the share of the labor force ages 15-24 without work but available for and seeking employment

Inflation, consumer prices (annual %)

Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.

Employment to population ratio, 15+, total (%) (modeled ILO estimate)

Employment is defined as persons of working age who were engaged in any activity to produce goods or provide services for pay or profit, whether at work during the reference period or not at work due to temporary absence from a job, or to working-time arrangement. The services sector consists of wholesale and retail trade and restaurants and hotels; transport, storage, and communications; financing, insurance, real estate, and business services; and community, social, and personal services, in accordance with divisions 6-9 (ISIC 2) or categories G-Q (ISIC 3) or categories G-U (ISIC 4).

METHODOLOGY

Panel data are also known as longitudinal or cross-sectional time series data. Through this data set we can observe the behaviours of entities across time. Entities may be individuals,

firms, industries, states, countries etc. the main objective of using panel data in economic research is controlling for variables that cannot be observed or measured across entities, or variables that change over time but not across entities. Panel Data regression models are used in this study. A panel data regression may be written as follows.

$$y_{it} = \alpha_i + \beta_k x_{k,it} + \mu_{it} \quad (1)$$

where i is the cross section units

The individual effects may be either assumed to be correlated with the right hand side variables (fixed effects model: FEM) or be incorporated into the error term (random effects model: REM) and assumed uncorrelated with the explanatory variables (Baum, 2001). Fixed effect model analyses the impact of variables that vary over time. Generally it is assumed that something within each cross sectional unit may impact or bias the independent variables and we need to control for this. Moreover the time-invariant characteristics are unique to the individual and should not be correlated with other individual characteristics. When working with panel data models the first step is to test whether the data series can be estimated through a panel data model or through a pooled OLS. Therefore, Baltagi (2008) considers that the question is “To pool or not to pool the data?” A simple probability test has the null hypothesis the OLS model and the alternative hypothesis the FE model.

The next step would be to decide whether a FE model or a RE model is more appropriate for the data series. The decision between the two models can be made based on different tests, economic reasons and/or information criteria. Baltagi suggests all of these methods; hence one can estimate both models and choose between them according to the information criteria and/or based on economic arguments. In our study we have used Hausman’s specification test for selecting which model is better Fixed or Random effect model. In this study, Fixed effect model, Random effect model, Hausman specification test etc techniques are applied

GRAPHICAL PRESENTATION OF THE VARIABLES

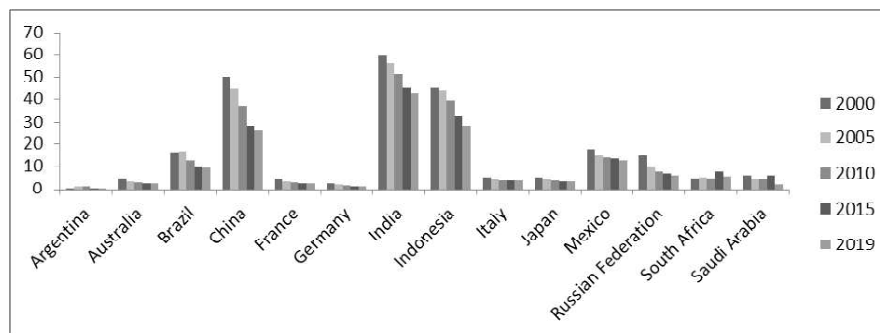


Figure 1: Employment in agriculture (% of total employment)

From the above figure it is clear that employment in agriculture is highest in India out of these selected G 20 nations, next is in China, then Indonesia and Brazil etc. Another important thing is all most all nations this trend is in declining pattern except in South Africa. Though this declining pattern is more in China compared to other nations.

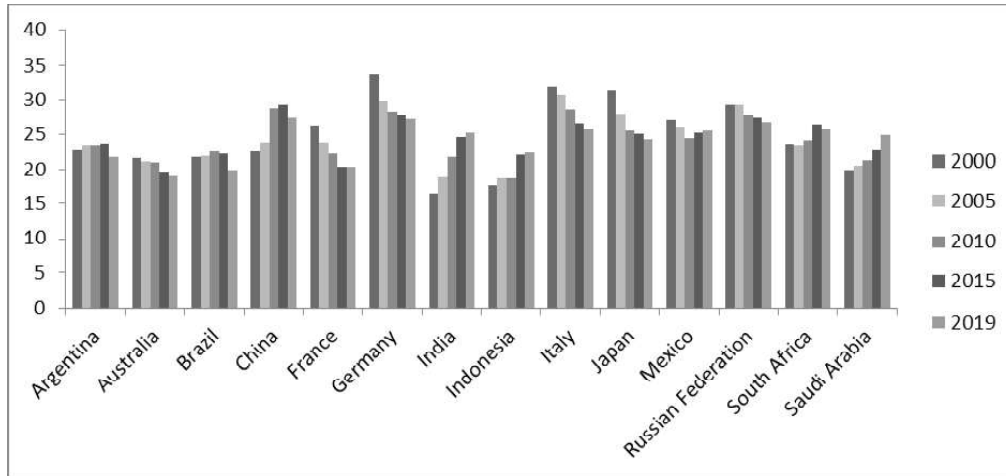


Figure 2: Employment in industry (% of total employment)

The above table shows employment in Industry as % of total employment in five different time periods. There is an increasing trend is observed specially in Soudi Arabia, South Africa, Mexico, Indonesia, and India. Except in one year that is 2019 China, Argentina and Brazil also showing an upward trend of employment in Industrial sector. But other nations namely Australia, France, Germany ,Italy, Japan, Russia the industrial employment is in a declining pattern.

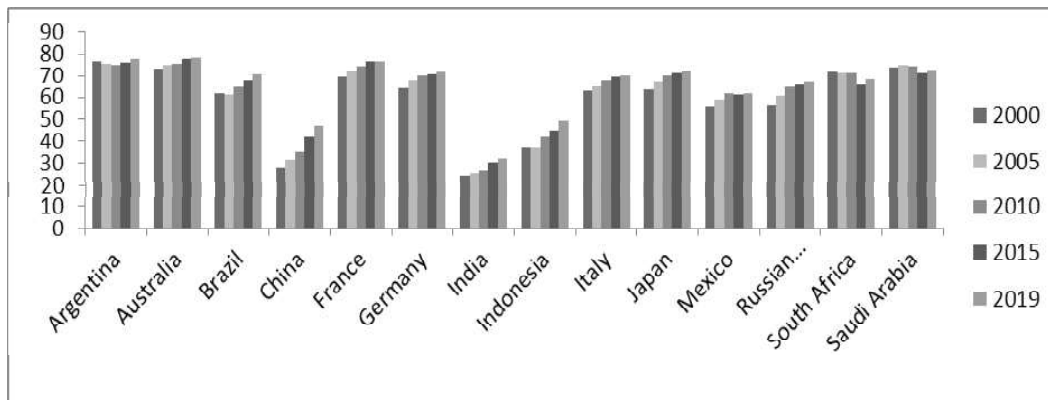


Figure 3: Employment in services (% of total employment)

The above table shows employment in services which reflects an upward pattern for almost all nations in all the 5 time periods.

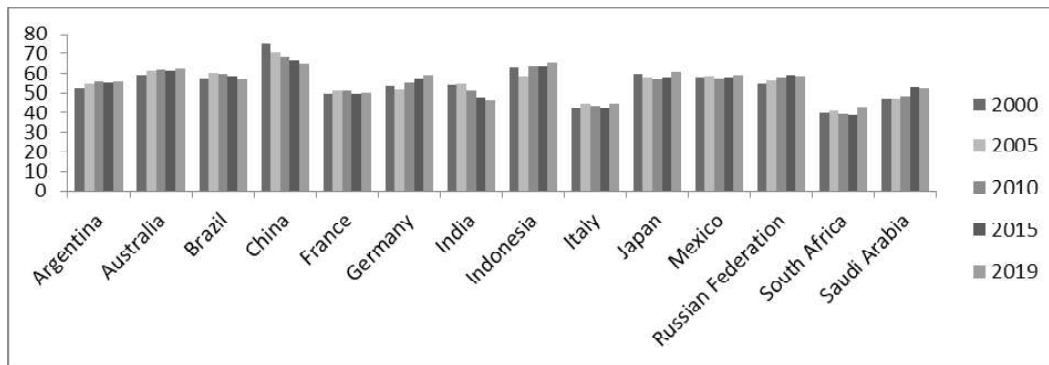


Figure 4: Employment to population ratio, 15+, total (%)

The above table shows employment –population ratio which is the proportion of a country’s population that is employed. From the above figure it is clear that except in India , Brazil and China this ratio is in a declining pattern, which means increase of employment is less than the population. Other nations namely Argentina, Australia, France, Germany , Indonesia, Japan, Russia, South Africa and Soudi Arabia this pattern is not in declining but either stable or increases.

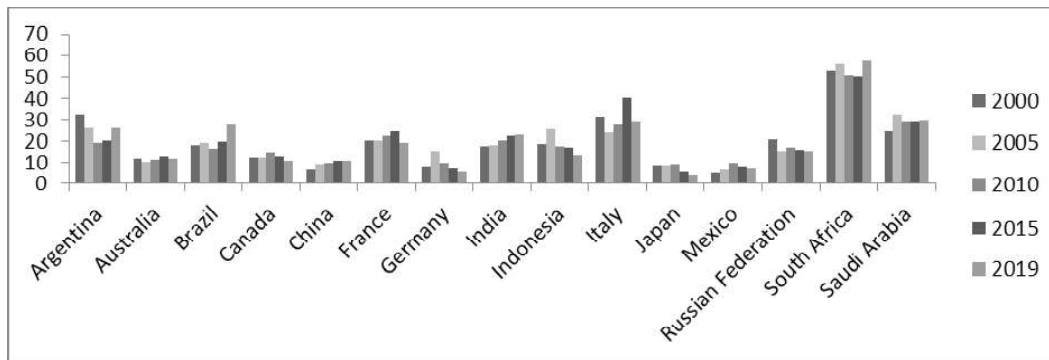


Figure 5: Unemployment, youth total (% of total labor force ages 15-24)

The above table shows low youth unemployment is in Australia, Canada, China, Germany, Japan, and Mexico. Moreover, this pattern is in a declining nature specially in, Japan , Indonesia, and Germany. But youth unemployment is in upward pattern in India, Brazil, Argentina, Italy, South Africa, and Saudi Arabia. On the other hand, Australia, Canada, China, Russia and Mexico are showing a more or less stable level of youth unemployment.

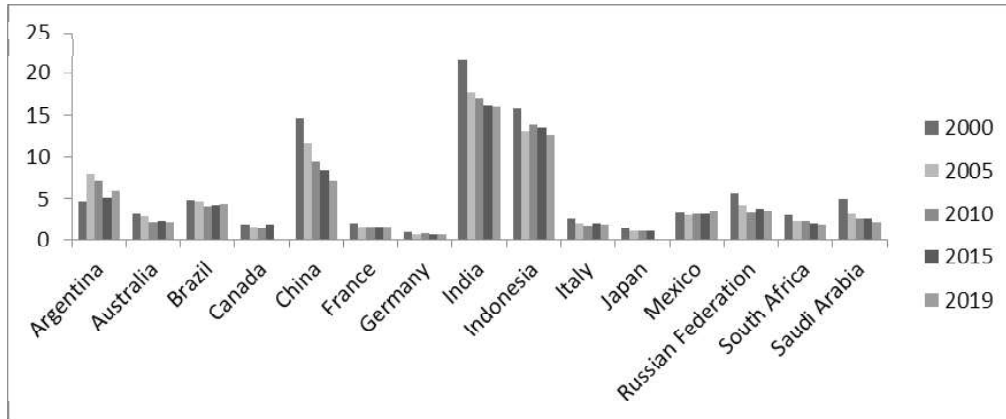


Figure 6: Agriculture, forestry, and fishing, value added (% of GDP)

From the above table it is clear that value addition through agriculture is highest in India, next is Indonesia and then China. But Germany, Japan, France, Italy, Canada and Australia shows low value addition through agriculture sector. These countries show a stable pattern of agriculture value addition. Only in Argentina, agriculture value addition has increased in 2019 compared to year 2015. In China, India and Indonesia and Saudi Arabia agriculture value addition is showing a declining pattern. This implies the importance of agriculture is declining in these nations.

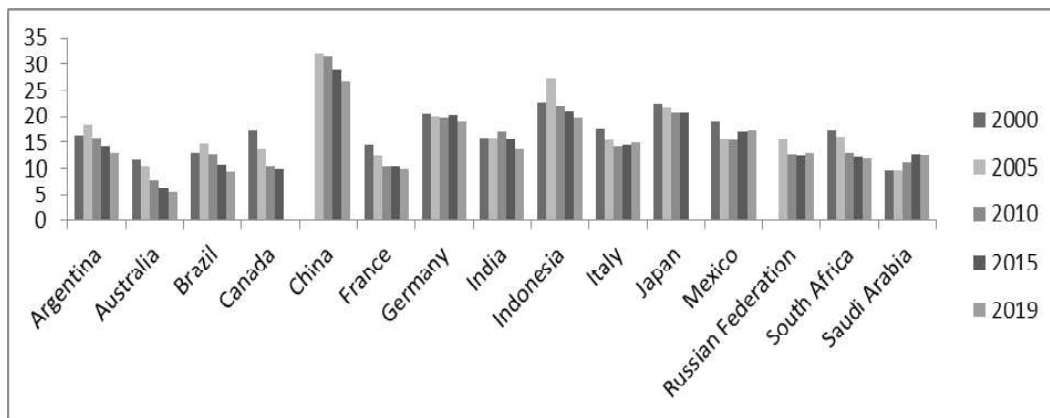


Figure 7: Manufacturing, value added (% of GDP)

The above table shows manufacturing value added is in a declining pattern in most of the nations of this study. only Saudi Arabia, Russia, Mexico, and Italy showing a rise in 2019 compared to 2015. Japan and France show a stable position. Moreover in Manufacturing value addition China takes the highest position.

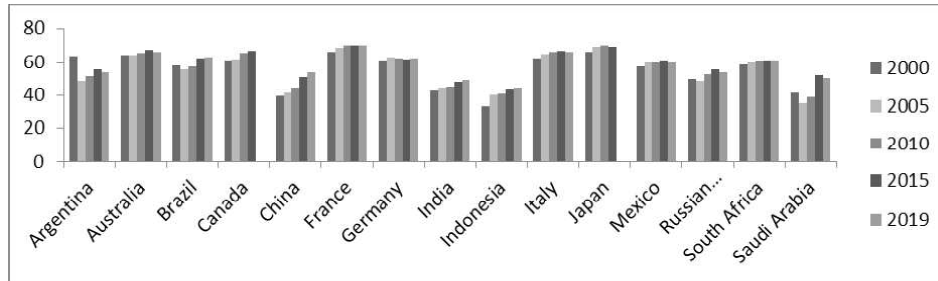


Figure 8: Services, value added (% of GDP)

The above table shows Service value addition is showing the opposite of manufacturing value addition. In this sector almost all the nations have an upward trend with respect to the given year shown in the chart.

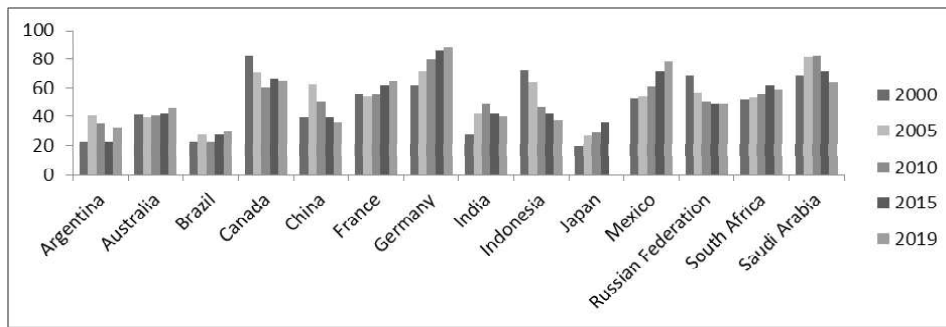


Figure 9: Trade as % of GDP

The above table shows the situation of trade which is the sum of exports and imports of goods and services measured as a share of gross domestic product. In many literatures this variable is used as a measure of openness. Trade pattern shows an increasing trend mainly Argentina, Australia, Japan, Brazil, France, Germany, Mexico and South Africa. Surprisingly China is showing a declining pattern. Other nations showing a falling pattern of trade are India, Indonesia, Russia and Saudi Arabia. Possibly less reform or less openness is the reason for such declining pattern.

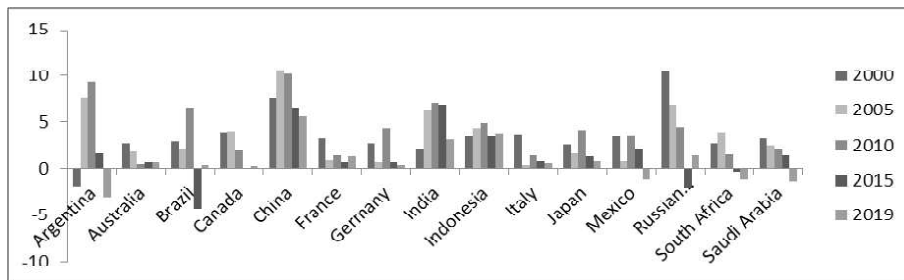


Figure 10: GDP per capita growth (annual %)

The above table shows GDP per capita growth of the nations in this study. From the above chart it is clear that many nations observed negative GDP per capita growth mainly Saudi Arabia, South Africa, Mexico, and Argentina in 2019, Russia and Brazil in 2015 etc. Regarding this variable the highest position takes China, next Russia. India shows a sharp decline of per capita GDP growth from 2015 to 2019. In Argentina after a negative growth in 2000 there was a sharp increase of GDP per capita growth in 2005 and 2010. But again it declines sharply. In the above chart it is clear that only in Indonesia Per capita GDP growth increases in 2019 from 2015.

Finally the above chart showing Gross Fixed Capital Formation of the selected nations of the study. This chart clearly showing a declining trend of fixed capital formation in Argentina Brazil, and India. On the other hand China, Germany, Indonesia, Russia, South Africa and Saudi Arabia(except 2019) showing an upward tendency in Fixed Capital formation. Australia, Japan, and Mexico showing a stable position in fixed capital formation.

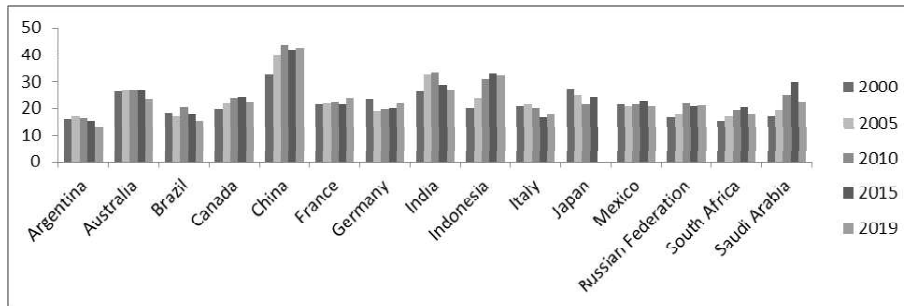


Figure 11: Gross fixed capital formation (% of GDP)

QUANTITATIVE FINDINGS AND DISCUSSIONS

Table 1: Correlation Matrix

	<i>lgfcex</i>	<i>lgfcfor</i>	<i>inf</i>	<i>lmanuvad</i>	<i>lservad</i>	<i>ltrade</i>	<i>luntotal</i>	<i>lunytot</i>
<i>lgfcex</i>	1.0000							
<i>lgfcfor</i>	-0.4273	1.0000						
<i>inf</i>	-0.3672	0.0277	1.0000					
<i>lmanuvad</i>	-0.2638	0.3512	-0.0838	1.0000				
<i>lservad</i>	0.3371	-0.4332	-0.3399	-0.2102	1.0000			
<i>ltrade</i>	0.1272	-0.1179	-0.1284	0.1524	-0.0931	1.0000		
<i>luntotal</i>	0.3475	-0.5020	0.1902	-0.1708	0.1654	0.0139	1.0000	
<i>lunytot</i>	0.2080	-0.3147	0.2321	-0.2888	-0.2208	-0.0135	0.8200	1.0000

Table 2: Results of Fixed Effect Regression Model

<i>lunytot</i>	<i>Coef.</i>	<i>St.Err.</i>	<i>t-value</i>	<i>p-value</i>	<i>[95% Conf</i>	<i>Interval]</i>	<i>Sig</i>
lagrivad	.027	.091	0.30	.766	-.152	.207	
lgdppcg	.006	.011	0.58	.563	-.015	.028	
lgfcex	-.491	.256	-1.92	.057	-.996	.014	*
lgfcfor	-.712	.137	-5.18	0	-.983	-.441	***
linf	-.027	.018	-1.53	.129	-.061	.008	
lmanuvad	-.223	.091	-2.46	.015	-.402	-.044	**
lservad	1.153	.289	3.99	0	.583	1.724	***
ltrade	.132	.083	1.59	.113	-.031	.295	
Constant	1.793	1.176	1.52	.129	-.529	4.116	
Mean dependent var		2.757	SD dependent var		0.563		
R-squared		0.286	Number of obs		189.000		
F-test		8.426	Prob > F		0.000		
Akaike crit. (AIC)		-224.790	Bayesian crit. (BIC)		-195.614		

*** p<.01, ** p<.05, * p<.1

Table 3: Results of Random Effect Regression Model

<i>lunytot</i>	<i>Coef.</i>	<i>St.Err.</i>	<i>t-value</i>	<i>p-value</i>	<i>[95% Conf</i>	<i>In.l]</i>	<i>Sig</i>
lagrivad	.093	.081	1.14	.253	-.066	.253	
lgdppcg	.008	.011	0.71	.478	-.014	.03	
lgfcex	-.272	.239	-1.14	.255	-.74	.196	
lgfcfor	-.68	.133	-5.13	0	-.94	-.42	***
linf	-.025	.018	-1.39	.165	-.06	.01	
lmanuvad	-.274	.089	-3.08	.002	-.448	-.1	***
lservad	.895	.279	3.21	.001	.349	1.44	***
ltrade	.129	.084	1.54	.124	-.036	.294	
Constant	2.185	1.199	1.82	.068	-.164	4.53	*
Mean dependent var		2.757	SD dependent var		0.563		
Overall r-squared		0.049	Number of obs		189.000		
Chi-square		61.354	Prob > chi2		0.000		
R-squared within		0.278	R-squared between		0.040		

*** p<.01, ** p<.05, * p<.1

Table 4: Hausman 's Specification Test

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(8) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 23.73$$

$$\text{Prob}>\text{chi2} = 0.0025$$

Table 5: Breusch and Pagan Lagrangian multiplier test for investigating the presence of random effects

Estimated results:

	Var	sd = sqrt(Var)
lunytot	.3173772	.5633624
e	.0182298	.1350178
u	.2035244	.4511368

Test: $\text{Var}(u) = 0$

$$\text{chibar2}(01) = 434.39$$

$$\text{Prob} > \text{chibar2} = 0.0000$$

Table 6: Modified Wald test for groupwise Heteroskedasticity

in fixed effect regression model

H0: $\sigma(i)^2 = \sigma^2$ for all i

$$\text{chi2}(13) = 882.84$$

$$\text{Prob}>\text{chi2} = 0.0000$$

Table 7: Results of Fixed Effect Model with Robust S.E

<i>lunytot</i>	<i>Coef.</i>	<i>St.Err.</i>	<i>t-value</i>	<i>p-value</i>	<i>[95% Conf</i>	<i>Interval]</i>	<i>Sig</i>
lagrivad	.027	.115	0.24	.817	-.223	.277	
lgdppcg	.006	.01	0.60	.56	-.017	.029	
lgfcex	-.491	.726	-0.68	.512	-2.073	1.092	
lgfcfor	-.712	.197	-3.61	.004	-1.142	-.282	***
linf	-.027	.025	-1.06	.309	-.082	.028	
lmanuvad	-.223	.1	-2.23	.046	-.44	-.005	**
lservad	1.153	.597	1.93	.077	-.147	2.454	*
ltrade	.132	.139	0.95	.362	-.171	.435	
Constant	1.793	1.359	1.32	.212	-1.169	4.755	
Mean dependent var		2.757	SD dependent var		0.563		
R-squared		0.286	Number of obs		189.000		
F-test		4.335	Prob > F		0.013		
Akaike crit. (AIC)		-226.790	Bayesian crit. (BIC)		-200.856		

*** $p < .01$, ** $p < .05$, * $p < .1$

SUMMARY AND CONCLUSION

The results of correlation matrix among the variables show that there exist association among the variables but they are not multicollinear. Except unemployment total and total youth unemployment variable. Though in our study we have formulated the model for estimation separately for total unemployment and total youth unemployment as a dependent variable.

Hausman test results show that fixed effect model is better than Random Effect model. In this context the test for the presence of Random effect model in comparison to pooled regression is important. This implies the presence of Random Effect Model and rejects the presence of Pooled Regression model. Since according to Hausman test Fixed effect model is better compared to Random effect Model, we need to apply some diagnostic test say presence of Heteroscedasticity in the error variance is important. This shows the presence of heteroscedasticity in the error variance of the estimated fixed effect model. Hence we have to estimate Fixed Effect model with Robust standard error. These results are shown in the table These results show that manufacturing value added negatively and significantly affecting unemployment. That is with the increase of manufacturing value added youth unemployment declines in the selected G 20 nations . Whereas service sector value added positively and significantly affecting unemployment. This implies with the increase of service sector value addition youth unemployment increases and the estimated value is statistically significant at 10% level. Although agriculture sector value addition is not a significant variable for changing the youth unemployment level.

Unemployment is an important macroeconomic variable for the policy makers of almost all nations of the world . Unemployment represents the level of employment in which people have the desire and ability to work but cannot find jobs. Unemployment arises from the economic structure of a country, and it arises from different reasons depending on whether it is a developed or underdeveloped country. The reason for unemployment in underdeveloped countries is capital inadequacy, while in developed countries technological progress is the reason (Yilmaz, 2005).

Reduction of unemployment and achieving a high rate of economic growth are the most important priorities of developed and developing country economies. In terms of the success of a country's economy, economic growth and employment are two extremely important macroeconomic variables and are indispensable elements of the economic policies of most of nations. Jobless growth is not only undesirable, but also a hindrance for achieving social justice.

A report by the ILO (International Labour Organization, 2012) mentions that in early 2012 the labour market reality is cruel: one in three persons from the working population is either unemployed or is poor. In other words, the data show that from the

total labour force of 3.3 billion, 200 million are unemployed and 900 million are living with their families below the poverty line of \$2 per day(Stanila,L. 2013). The most affected segment of the population is the young, 75 million of them being unemployed. Globally, youth are three times more likely to become unemployed (compared to the adults) and this can lead to long-term deterioration of the labour market (ILO, 2011).

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In this paper an attempt has been taken to investigate the role of sectoral contribution that is role of primary sector, industrial sector and service sector for reducing youth unemployment in some selected G- 20 nations in the era of globalization. As far as methodology is concerned this study applies panel data regression techniques. Panel data are also known as longitudinal or cross-sectional time series data. Through this data set we can observe the behaviours of entities across time. Entities may be individuals, firms, industries, states, countries etc. the main objective of using panel data in economic research is controlling for variables that cannot be observed or measured across entities, or variables that change over time but not across entities. Panel Data regression models are used in this study. This results show that manufacturing value added negatively and significantly affecting unemployment. That is with the increase of manufacturing value added youth unemployment declines in the selected G 20 nations . Whereas service sector value added positively and significantly affecting unemployment. This implies with the increase of service sector value addition youth unemployment increases and the estimated value is not statistically significant at 5% level. Although agriculture sector value addition is not a significant variable for changing the youth unemployment level. Hence the government of the G-20 nations should concentrate on manufacturing value added for reducing their youth unemployment

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