Research Article

Economic Performance of the G20 countries after the 2008 Global Crisis

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Abstract: This paper examines the performance G20 countries and world economy since the global financial crisis of 2008. We compare performance before the crisis to the post-crisis period. By dividing the G20 countries into developed, developing and oil producers, we examine the effect on four major variables, growth of per capita GDP, gross fixed capital formation, exports of goods and services and the external balance. The exercise aims to see whether the G20 has achieved its stated goal at the Pittsburgh summit of 2009 of creating strong, sustainable and balanced growth. We also examine whether it has fulfilled its goal stated at the Brisbane summit of 2014 to raise growth rates by 2 per cent by 2018. We find that performance in developing countries has generally worsened with lower and more variable growth, regionally imbalanced growth rates, falling share of exports in GDP and a worsening external balance. The maintenance of high levels of investment is a positive development.

Introduction

As an informal international institution, the Group of Twenty (G20) systemically significant countries was established in 1999 by finance ministers and governors of central banks (Kirton 2013). It was formed in response to the Asian-turned-global financial crisis of 1997–1999, which the established multilateral institutions from the 1940s were unable to deal with (Kirton, 2021). G20 was elevated to the leaders' level after the 2008 global financial crisis (GFC).[1] The purpose was to coordinate policy responses by the governments of the major economies in order to prevent the GFC slipping into a worldwide depression. The first summit focused primarily on strengthening financial regulation, with agreement on a 47-point action plan to improve financial regulation over the medium term. At the second summit held in London in April, 2009, former UK Prime Minister Gordon Brown orchestrated a deal in which world leaders agreed on a US$1.1 trillion injection of financial aid into the global economy and in 2012, at Los Cabos, the G20 created the $500 billion "firewall fund" for the IMF.[2] On economics and finance, it responded quickly and

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successfully to the 2008-2009 American-turned-global financial crisis and averted the 2010-2012 European financial crisis from going global (Kirton 2013; Drezner 2015; Triggs 2018).

At the third summit in Pittsburgh the leaders declared the G20 to be the premier organisation for managing the world economy in order to provide Strong, Sustainable and Balanced Growth (SSBG) of the world economy. Strong and sustained growth meant limiting fluctuations in the rate of growth. Balanced growth implies that different countries and regions including both developed and developing countries participate in this growth. Since the third summit leaders have sought to tackle the structural problems facing the world economy and constrain higher world growth. Some of the problems that the leaders have sought to tackle have included financing provision of better infrastructure, measures to improve the functioning of the international agricultural marketing and trading system. To achieve this, they agreed on a coordinated expansionary monetary and fiscal policy. Later, at the Brisbane, Australia summit in 2014 the leaders pledged to lift the G20's GDP growth by at least an additional two per cent by 2018. In this paper, we concentrate on the success of the G20 in managing growth of the world economy, namely whether the goal of achieving a high and stable rate of growth for all including developed and developing countries has been achieved.

A major achievement of the G20 has been to strengthen the international financial system. Steps taken for this included making the financial stability forum (FSF) established after the Asian crisis more inclusive.[3] The FSF had consisted mainly of major central banks, almost all from developed countries, and international organisations such as the Bank for International Settlements (BIS), the International Monetary Fund (IMF), and the World Bank (WB). The IMF and the WB were to represent the interests of developing countries. The membership of the FSF was expanded to include all the member countries of G20 and it was renamed the Financial Stability Board (FSB).[4] The financial system was strengthened also by implementation of the Basel-III accords on bank capital, regular evaluation of the strength of the financial systems of countries including their ability to manage shocks.[5] But here we do not discuss further the measures for strengthening the financial system and concentrate on its attempts at macro stability and to foster growth.

First, we examine whether the leaders have been able to deliver on their promises of either providing SSBG or to increase their growth rate by 2 per cent. We analyse the economic performance of the world economy in terms of regional development to examine whether there has been SSBG. Further, whether disparities in regional economic performance have decreased or not analysed. In subsequent section, we undertake the same analysis for the G20 countries because although they may not be able to control policy in other countries, they should be able to manage their own economies to achieve the promised goals.

Macro Economic Performance of the World Economy

This section discusses the global and regional economic performance in terms of per capita income, investment, and external balance from 2001 to 2019. The growth of per capita income has declined after the financial crash of 2008. The average growth rate during the period 2011–2019 is lower for all income groups and regions.

Growth of the World Economy

It is observed that the world economy has not achieved SSBG as the growth of per capita GDP has decreased since the GFC (Table 1). Furthermore, GFC resulted in a deterioration of the economic condition in developing countries with lower growth of per capita GDP, a decline in the share of exports of goods and services in GDP, and a worsening of the external balance (Agarwal et al, 2022).

This is also mostly true for the high income, middle income and LDCs. The average growth rate of high-income countries has declined from 1.8 per cent during 2001–2007 to 1.1 percent during 2011–2014. The average growth rate of middle-income countries has declined from 5.0 percent during 2001-2007 to 4.0 per cent during 2011-14. The average growth rate for the less developed countries has similarly declined from 4 percent during 2001–2007 to 2.7 percent during 2011–2014. The declining trend in continue for the middle and LDCs (Table 1).

Further, what is most disquieting is that growth in two of the regions, LAC and SSA has resulted in a decline in their per capita income. This is disquieting as in the decades of the 1980s and 1990s per capita GDP had fallen in SSA while it had increased at merely about one per cent a year in LAC. The two worst performing regions at the end of the last century have been the worst hit by the GFC.[6]

It is important to note that neither the major regions and economies have fully recovered from the 2008 crisis nor have the growth rates been balanced among the different regions and countries (Agarwal, 2020). A recent IMF (2019) study on global economic recovery ten years after the 2008 financial crisis found that output losses after the crisis appear to be persistent, regardless of whether a country experienced a banking crisis in 2007-08. Slow investment was a major

Table 1: Rise in Per Capita Income (Average Annual Growth Rate) (%)

	Average				Standard Deviation	
Region/Category	**2001-07**	**2008-10**	**2011-2014**	**2015-19**	**2001-07**	**2011-19**
EAP	9.2	7.9	6.7	5.7	1.4	0.7
ECA	6.5	0.8	3.4	1.9	1.9	1.6
LAC	2.0	1.8	1.7	-0.3	2.2	1.5
MNA	2.6	2.0	-0.4	0.4	2.3	2.6
SA	4.7	4.5	4.5	5.2	1.8	1.2
SSA	3.0	1.9	1.8	-0.4	1.0	1.3
WLD	2.2	0.3	1.6	1.7	1.1	0.3
High income	1.8	-0.7	1.1	1.5	0.7	0.4
Middle income	5.0	4.0	4.0	3.1	1.9	0.7
LDCs	4.0	3.6	2.7	1.9	1.3	0.8

Source: WDI and Authors' calculations. Note: EAP is East Asia and Pacific, EAP is East Asia and Pacific, LAC is Latin America and the Caribbean, MNA is Middle East and North Africa, SA is South Asia and SSA is Sub-Saharan Africa. The regions and the income categories are as defined in the World Bank, World Development Indicators, World Bank. Washington D.C. LDCs are the least developed countries as defined by the UN.

source of these losses, which were accompanied by long-term capital and total factor productivity deficiencies in comparison to pre-crisis trends.

Furthermore, the standard deviation (SD) of the growth rates for 2001-07 and 2011-19 were calculated. It is found that the only developing region for which the SD decreased was EAP. There were large increases in the SD for SSA from 0.1 to 1.3. The poorest regions show the largest increase in SD variability. While the SD remained the same for the high-income countries, it did decrease for the middle-income countries. However, the variability increased in the least developed countries (LDCs). In addition, the coefficient of variation (CV) of per capita growth in the different regions for the two periods had increased from 0.55 to 1.02. This increase is significant at the one percent level of significance.[7] So growth among the regions has become significantly more unbalanced (see table 1).

Investment in the World Economy

Gross fixed capital formation (GFCF) is important for evaluating potential growth of the economy. The share of GFCF in GDP of middle income countries and LDCs increased steadily from 26.8 to 30.3 per cent and 22.8 to 26.5 per cent respectively over the time period 2001 to 2014 (Table 2). It declined in subsequent years mainly in the middle income countries.

The SD of GFCF, by and large, declined in the second period. The decline was particularly sharp in the middle income and least developed countries. The maintenance of such a high rate of investment raises the hope that at some future time, perhaps with the revival of demand in the world economy, growth in the developing world would also recover. We also calculated the regional CV and found that it had decreased from 0.29 to 0.24. This decrease is insignificant.

Export Performance

The export-to-GDP ratio in high income countries increased from 26.7 per cent in 2001-07 to 31.1 per cent in 2015-2019, while it declined for the middle income countries and LDCs (Table 3). Currently, the ratio is higher for high income countries than the developing countries. It was 22.2 percent for LDCs during 2005-19. During this same period the

Table 2: Gross Fixed Capital Formation (% of GDP)

Region/Category	Average				Standard Deviation	
	2001-07	2008-10	2011-2014	2015-19	2001-07	2011-19
EAP	34.3	38.7	40.5	39.1	2.0	0.8
ECA	21.5	23.8	23.6	23.3	2.0	0.3
LAC	18.3	20.4	20.6	18.2	0.8	1.4
MNA	23.5	27.0	24.5	22.4	0.5	1.5
SA	29.2	31.4	30.0	27.4	2.5	1.7
SSA	21.1	22.1	21.3	21.1	0.3	0.7
WLD	23.7	23.7	23.5	23.5	0.6	0.2
High income	22.5	21.3	20.8	21.4	0.5	0.4
Middle income	26.8	29.9	30.3	28.7	1.4	0.8
LDCs	22.8	24.8	26.5	26.4	0.7	0.3

Source: WDI and Authors' calculations ratio declined even more sharply for the middle income countries (MICs), from 29.2 per cent to 24.6 per cent.

Further the standard deviation (SD) of the export ratio decreased for EAP, LAC and SA. SD also decreased for the high Income countries (HICs), MICs and LDCs. The decrease in the SD in 2008 for MICs and LDCs together with the fall in the share implied that the lower share may have become ingrained into the economies and it may be difficult for the countries to raise the share in the future (Table 3). Likewise, regional CV has decreased from 0.28 to 0.18. This decrease was significant at the 1 per cent level.

External Balance

The South Asia region has consistently run larger deficits on the external balance of goods and services as a per cent of GDP larger than have the other developing regions (Table 4).

External balance has worsened for all the regions and for developing countries while the balance has improved for high income countries**.** Furthermore the SD has decreased suggesting that the worsened extreme balance may persist. Regional CV has increased from 1.08 to 2.36. This difference is significant at the one percent level.

In brief, the performance of developing countries has deteriorated. Growth rates have fallen; its variability among the regions has increased, and future prospects are mixed. The maintenance of a high GFCF suggests that growth may increase in the future. However, the worsening export performance and external balance suggest that low growth will persist. The variability of GFCF, XGS and EB has fallen suggesting that high investment but worse external performance are likely to persist.

Performance of the G20 Countries

The GFC led to an almost unprecedented disruptions in financial markets and systems, as well as significant negative effects on the real economy, including a significant drop in output and falls in international trade.[8] In this context this section examines the economic performance of G20 countries from 2001

Table 3: Exports of Goods and Services (% of GDP)

Region/Category	Average				Standard Deviation	
	2001-07	2008-10	2011-214	2015-19	2001-07	2011-19
EAP	34.6	32.3	29.5	24.8	5.0	2.7
ECA	33.3	30.7	30.8	32.0	1.2	1.7
LAC	20.0	19.4	19.8	21.0	1.6	1.1
MNA	35.3	33.9	31.2	27.7	3.6	3.7
SA	17.2	21.0	22.8	18.1	2.8	2.5
SSA	30.4	31.5	30.1	24.0	1.5	3.7
WLD	27.4	28.7	30.4	29.3	2.1	0.7
High income	26.7	29.0	31.8	31.3	1.9	0.5
Middle income	29.2	28.1	27.1	24.6	2.7	1.5
LDC	23.8	27.4	25.7	22.2	2.5	2.1

Source: WDI and Authors' calculations.

to 2019 in terms of per capita income growth, Gross Fixed Capital Formation (GFCF), and exports of goods and services. G20 can recommend policies for other countries but cannot ensure that appropriate policies for SSBG are adopted by them. They have greater control of the policies that may be adopted. Also, one of the features of the G20 meetings is an examination of whether countries have fulfilled the promises they had made. So it would be important to analyse whether the members of the G20 have been able to fulfil their commitments, particularly the commitment to generate SSBG and the commitment made at Brisbane in 2014 to increase growth by 2 per cent by 2018. As G20 accounts for 80 per cent of global output and trade, its performance and policies would have substantial effects on the global economy (RIS, 2021).

As Table 5 demonstrates that the G20 countries have not seen growth rates of 2 per cent. The average yearly growth rate of per capita income for the G20-DC, G20-Dev, and oil exporting countries between 2015 and 2019 was 1.3 per cent, 2 per cent, and 0.2 per cent, respectively. This is significantly less than the commitment the G20 countries made in 2014. IMF also estimates that since 2014, committed actions have raised the G20's collective GDP by 1.23 per cent (by 2018), rather than the expected 2 per cent over the baseline (Bery et al 2019).

Volatility as measured by SD has fallen in both the developed and developing country members of the G20 (Table 5). But the volatility of both these groups in the G20 is greater than the volatility of high income countries and of MICs and LDCs in general, as seen in Table 1. So the members of the G20 have not adopted policies that could have helped them to reduce volatility or reduce the gap between the developed and developing countries.

CV for the G20 countries for two periods, 2001-07 and 2011-19 show mixed results. It is found that CV for Italy is very high in the second period (see Table A1 in appendix). The average for the G20 Developed Countries (G20-DC) without Italy is constant between the two periods though for five developed countries the CV has increased and decreased

Table 4: External Balance on Goods and Services (% of GDP)

Region/Category	Average				Standard Deviation	
	2001-07	2008-10	2011-2014	2015-19	2001-07	2011-19
EAP	4.5	4.8	2.2	1.8	2.2	0.7
ECA	4.0	2.4	1.7	2.6	1.3	1.2
LAC	0.5	-1.0	-1.6	-1.3	1.3	0.6
MNA	3.1	1.6	-0.7	-4.9	3.0	3.6
SA	-2.5	-5.7	-5.4	-3.8	1.5	1.5
SSA	1.2	0.0	-0.6	-3.1	1.4	2.1
WLD	1.0	0.7	0.7	0.8	0.2	0.1
High income	0.3	0.3	0.9	1.2	0.1	0.2
Middle income	2.7	1.7	0.3	0.0	0.9	0.3
LDC	-4.2	-4.3	-6.3	-7.2	2.1	1.7

Source: WDI and Authors' calculations.

for only three. Despite more countries experiencing an increased CV the overall CV was constant because the CV for US decreased considerably. Among the G20 Developing Countries (G20-Dev) the CV increased for only two and decreased for four. It, however, increased very substantially for Argentina and particularly Brazil, and for both it was negative as per capita income decreased in the second period. The fall in CV was however statistically significant only for the oil producers, which suffered a fall in per capita GDP, falling from 1.15 to 0.45. For the G20-Dev CV increased from 0.72 to 1.1 while for the G20-DC it fell from 0.61 to 0.54. It suggests that difference in variability has increased but the changes

Table 5: Rise in Per Capita Income (Average Annual Growth Rate) of G20 Countries (%)

Country	Average				Standard Deviation	
	2001-07	2008-10	2011-2014	2015-19	2001-07	2011-19
Developed Countries						
Australia	2.0	0.7	1.3	0.9	0.9	0.5
Canada	3.1	-0.7	1.5	0.6	1.7	0.8
France	1.2	-0.7	0.5	1.3	0.7	0.7
Germany	1.3	0.0	2.0	1.1	1.7	1.8
Italy	0.7	-2.0	-1.6	1.3	0.8	1.9
Japan	1.2	-0.8	1.1	1.1	0.8	0.8
Korea, Rep.	4.7	2.9	2.5	2.4	1.4	0.4
United Kingdom	2.1	-1.5	1.2	1.0	0.4	0.5
United States	1.6	-0.9	1.3	1.8	1.0	0.6
Average G20-DC	2.0	-0.3	1.1	1.3	1.1	0.9
Developing Countries						
Brazil	2.3	3.2	1.4	-1.3	2.0	2.5
China	10.2	9.3	7.6	6.2	2.1	1.0
Argentina	3.0	1.8	0.1	-1.3	8.2	3.1
India	5.2	5.0	4.8	5.6	1.8	1.4
Indonesia	3.7	4.2	4.3	3.8	0.9	0.4
Mexico	0.6	-1.1	1.5	0.9	1.8	1.1
South Africa	3.0	0.2	0.9	-0.6	1.2	0.9
Turkey	3.9	0.2	5.6	2.6	5.1	3.0
Average G20-Dev	4.0	2.8	3.3	2.0	2.9	1.7
Oil Exporting Countries						
Saudi Arabia	0.7	0.2	2.3	-0.5	4.7	2.7
Russian Federation	7.2	0.6	2.1	0.9	1.4	2.2
Average oil exporting countries	4.0	0.4	2.2	0.2	3.1	2.3

Source: Authors' calculations from data in the World Development Indicators.

in CV for G20-DC and G2--Dev were statistically insignificant.

Gross Fixed Capital Formation

Developing countries in the G20-Dev have done better in maintaining their levels of investment. While GFCF, or investment, declined slightly as a per cent of GDP in the developed members of G20 (G20-DC), it increased in the G20-Dev (Table 6). Maintaining GFCF while growth of GDP is declining implies either that the structure of the economy is changing in the sense that more funds are invested in sectors with a higher capital output ratio or there is considerable excess capacity waiting to come into production when conditions improve (Agarwal et al, 2022).

Table 6: Gross Fixed Capital Formation of G20 Countries (% of GDP) (Average)

Country	Average				Standard Deviation	
	2001-07	2008-10	2011-214	2015-19	2001-07	2011-19
Developed Countries						
Australia	26.1	27.7	27.1	24.6	1.7	1.6
Canada	21.3	23.1	24.1	22.8	1.4	0.9
France	21.8	22.6	22.2	22.5	0.8	0.6
Germany	19.9	19.7	20.2	20.7	0.9	0.6
Italy	21.2	20.5	18.0	17.5	0.4	0.9
Japan	24.8	22.6	22.9	23.9	0.8	0.8
Korea, Rep.	30.7	30.7	29.4	30.1	0.4	0.8
United Kingdom	17.6	16.5	16.0	17.8	0.3	1.0
United States	22.3	19.5	19.6	20.5	0.6	0.6
Average GDC	22.8	22.5	22.2	22.3	0.8	0.9
Developing Countries						
Brazil	17.5	19.7	20.5	15.7	0.6	2.7
China	37.5	42.3	44.1	42.2	2.3	1.1
Argentina	16.1	17.1	16.3	14.6	2.6	1.1
India	31.4	34.0	32.3	28.6	2.8	2.3
Indonesia	22.0	29.9	32.1	32.4	2.4	0.5
Mexico	20.5	22.3	21.8	22.0	1.0	0.8
South Africa	17.1	21.4	19.8	18.9	2.0	0.9
Turkey	23.7	24.5	28.0	28.8	4.3	1.3
Average GLDC	23.2	26.4	26.9	25.4	2.25	1.4
Oil Exporting Countries						
Saudi Arabia	19.6	24.3	23.4	24.7	2.0	2.7
Russian Federation	18.7	22.0	21.6	21.3	1.1	0.5
Average oil exporting countries	19.1	23.2	21.3	23.0	1.53	2.4

Source: Authors' calculations on data from World Bank World Development Indicators.

It is important to note that the investment share was higher during post-crisis period compared to the pre-crisis period for G20-Dev.

Another issue is fiscal strain, which is exacerbated by non-reforms (SDRs). $375 billion of the $675 billion additional SDR allocation goes to OECD countries and $21 billion to low-income countries. G20 has a huge responsibility to bridge this gap, address the growing inequity, and ensure access and equity to global financial markets (Chaturvedi, 2021).[9]

Furthermore, volatility of investment decreased in the G20-Dev whereas it increased slightly in the G20-DC as the SD decreased for the G20-Dev even though it increased for the G20-DC. While the decrease in investment volatility in the G20-Dev was in line with the decreased

Table 7: Exports of Goods and Services of G20 Countries (% of GDP)

Country	Average				Standard Deviation	
	2001-07	2008-10	2011-214	2015-19	2001-07	2011-19
Developed Countries						
Australia	19.7	21.0	21.0	21.3	1.7	1.4
Canada	37.5	30.7	30.8	31.8	2.7	0.7
France	27.3	26.6	29.2	31.1	0.8	1.2
Germany	36.5	41.5	45.6	46.9	4.6	0.8
Italy	25.1	24.8	28.2	30.6	1.4	1.5
Japan	13.3	15.0	15.7	17.5	2.7	1.4
Korea, Rep.	34.0	46.6	51.6	41.1	3.0	5.9
United Kingdom	25.0	27.2	29.7	29.5	1.2	1.4
United States	10.0	11.9	13.5	12.1	0.9	0.8
Average, GDC	25.4	27.3	29.5	29.1	2.1	1.7
Developing Countries						
Brazil	14.5	11.8	11.6	13.3	1.4	1.2
China	29.5	28.2	25.0	19.6	6.3	3.0
Argentina	22.7	20.2	15.9	13.3	5.3	2.6
India	17.3	22.3	24.4	19.2	3.4	2.8
Indonesia	32.7	26.1	24.6	20.0	3.2	2.7
Mexico	25.2	28.2	31.6	37.5	2.1	3.4
South Africa	28.6	30.7	30.7	30.0	2.4	0.6
Turkey	23.6	22.7	24.1	27.5	1.9	3.5
Average GLDC	25.4	46.1	46.7	38.9	3.3	3.6
Oil Exporting Countries						
Saudi Arabia	50.6	52.9	52.3	35.1	8.7	9.7
Russian Federation	34.4	29.5	27.0	28.0	2.1	1.6
Average, Oil exporting countries	42.5	41.2	52.3	31.5	5.4	5.6

Source: Authors' calculations on data from World Development Indicators.

volatility for developing countries in general (Table 6), the increased volatility among the G20-DC contrasts with the decreased volatility among developed countries generally.

The CV for GFCF has usually decreased for most of the G20 (see Table A2). Major exceptions are the UK among the G20-DC and Turkey among the G20-Dev. This relative constancy implied that the change in CV between the two periods was statistically insignificant for the G20-DC and the G20-Dev.

Table 8: External Balance on Goods and Services of G20 Countries (% of GDP)

	Average				Standard deviation	
	2001-07	**2008-10**	**2011-214**	**2015-19**	**2001-07**	**2011-19**
Developed Countries						
Australia	-1.6	-1.1	-0.3	-0.1	1.2	1.5
Canada	3.9	-0.5	-1.4	-2.1	1.2	0.5
France	0.7	-1.1	-1.4	-0.9	1.0	0.4
Germany	4.6	5.4	5.8	6.8	1.6	0.9
Italy	0.3	-1.1	1.2	3.0	0.7	1.5
Japan	1.5	0.8	-1.7	0.4	0.4	1.3
Korea, Rep.	1.6	2.3	3.4	5.1	1.0	1.9
United Kingdom	-2.3	-1.9	-1.3	-1.4	0.2	0.2
United States	-4.7	-3.7	-3.3	-2.9	0.8	0.3
Average GDC	0.4	-0.1		0.9	0.9	0.9
Developing Countries						
Brazil	1.7	-0.5	-1.8	0.0	2.0	1.2
China	4.4	5.2	2.4	1.8	2.8	0.8
Argentina	7.2	3.9	1.0	-0.9	4.5	1.8
India	-2.1	-5.0	-4.8	-2.7	1.3	1.8
Indonesia	5.7	1.9	0.1	0.1	1.6	1.1
Mexico	-1.6	-1.8	-1.2	-1.6	0.2	0.6
South Africa	0.9	0.0	-1.1	0.3	2.4	1.3
Turkey	-0.8	-2.6	-4.9	-1.0	3.2	2.9
Average GLDC	1.9	0.1	-1.3	-0.5	2.3	1.4
Oil Exporting Countries						
Saudi Arabia	24.1	18.0	21.5	4.7	6.1	10.8
Russian Federation	11.7	8.3	6.6	7.2	1.7	1.6
Average oil exporting countries	17.9	13.1	14.0	5.9	3.9	6.2

Source: Authors' calculations from data in the World Bank World Development Indicators, World Bank, Washington D.C.

Exports of Goods and Services

Trade has been a G20 priority since 2008's first summit. Recent data from the World Trade Organization shows that 77.5 per cent of all goods and services exported around the world came from a G20 member, and 76.5 per cent of all goods and services imported were destined for the G20.

Volatility of export earnings decreased in both the G20-DC and the G20-Dev (Table 7). However, exports as a percentage of GDP increased in the G20-DC whereas decreased for the G20-Dev. This decrease could be because of slower growth in developing countries as more of the exports of developing countries are destined for developing countries (Agarwal, 2013). But the decrease in volatility in both the G20-DC and the G20-Dev was less for developed and developing countries in general (Table 7). The increase in exports by the G20-DC was less than for developed countries in general (Table 7). It is an important to note that the share of exports of goods and services to GDP in all G20 developing countries, with the exception of Brazil, Mexico, and Turkey, has declined since the 2008 financial crisis. The share of G20-Dev in the G20 has declined from 46.1 per cent in 2008-2010 to 38.9 per cent in 2015-2019 and during the same time period, G20-DC's share rose from 27.3 per cent to 29.1 per cent. (see table 9). Share of exports of goods and services in GDP increased for the developed countries and for the developing countries as a whole it decreased (Agarwal, 2020). As Blanchard et al. (2010) pointed out that external shocks predominantly hit developing markets through two channels: a decrease in exports and terms of trade, and a decline in capital flows.

The CV for export ratio decreased for the G20-DC and so did the average for the group (Table A3). CV for five of the developing countries increased and so did the CV for the group. It also increased for the oil exporters, particularly Russia.

External balance improved in the G20-DC while they worsened in the G20-Dev (Table 8). This reflected the performance of developed and developing countries in general (Table 4). Developing countries were particularly hard hit by the recession following the 2008 crisis, as the external balance (EB) of all developing regions and income groups deteriorated (Agarwal, 2020). Volatility of the EB decreased in the G20-Dev in contrast to that in the G20-DC.

In brief, the G20-DC has done better than the G20-Dev. The decline in their growth rate has been less, and export performance and external balance were better. The only area where G20-Dev has done better was in maintaining investment. The other significant feature was that the G20-DC and the G20-Dev performed worse than the developed and developing countries in general. CV for external balance for the G20-DC has increased despite five of them having lower CV because of very substantial increase in the CV for Australia and Japan (Table A4). The CV for the developing countries has increased barring three of them, China, India and Turkey, experiencing a lower CV. The CV for the oil producers was larger.

In brief, the G20-DC has done better than the G20-Dev. The decline in their growth rate has been less but with relatively good performance in exports and external balance. The only area where G20-Dev has done better was in maintaining investment. The other significant feature is that the G20-DC and the G20-Dev performed worse than the developed and developing countries in general.

Conclusion

The paper finds that economic performance of G20 countries has suffered since the financial crisis 2008 and the G20 countries did not achieve one of the goals set at the Brisbane Summit in 2014, which was to add an additional 2 per cent to the growth of the global GDP by 2018. Growth has decreased for all the developing regions, mostly in LAC and SSA which had performed very poorly in the last two decades of the last century. Differences in the growth rates between the regions have increased so that regional growth has become significantly unbalanced. The share of investment in GDP has increased for developing countries and the share has become more stable. The share of exports in GDP increased in LAC and SA, the two regions with relatively low shares, while they decreased in the other regions. The export-to-GDP ratio increased in high income countries while it declined for developing countries so that currently, the ratio is higher in high income countries. External balance has worsened for all the regions and for developing countries while it has improved for the high income countries. Performance in developing countries has generally worsened with lower and more variable and regionally imbalanced growth rates and worsening external performance. However, the maintenance of high levels of investment was a positive development.

Growth has not recovered in the member countries of G20. Volatility has declined in both the developed and developing country members of the G20. But the volatility of both these groups in the G20 is greater than the volatility of countries not part of the G20, high income countries and of MICs and LDCs in general. Developing countries in the G20 (G20-Dev) have done better on the investment front whereas it declined slightly in the developed country members of the G20. Furthermore, volatility of investment decreased in the G20-Dev whereas it increased slightly in the G20-DC.

Volatility of export earnings decreased in both the G20-DC and the G20-Dev. However, exports as a per cent of GDP increased in the G20-DC as it decreased for G20-Dev. This decrease could be attributed to slower growth in developing countries as more of the exports of developing countries are destined for developing countries. The increase in exports by the GDC was less than for developed countries generally. External balance improved in the G20-DC while they worsened in the G20-Dev. This reflected the performance of developed and developing countries in general.

Appendies

Table A1: Coefficient of Variation in Income (Per Capita GDP Growth)

Country	CV	
	2001-07	2011-19
Australia	0.43	0.45
Canada	0.55	0.85
France	0.63	0.79
Germany	1.27	1.18
Italy	1.04	118.12
Japan	0.71	0.76
Korea, Rep.	0.29	0.16
United Kingdom	0.22	0.48
United States	0.66	0.35
Average GDC	0.64	13.68
Brazil	0.87	-48.32
China	0.21	0.14
Argentina	2.74	-4.60
India	0.35	0.26
Indonesia	0.24	0.10
Mexico	3.14	0.97
South Africa	0.40	31.10
Turkey	1.32	0.78
Average GLDC	1.16	-2.45
Saudi Arabia	6.47	3.58
Russian Federation	0.19	1.50
Average oil exporting countries	3.33	2.54

Source: Authors' calculations on data from World Development Indicators.

Table A2: Coefficient of Variation for GFCF

Country	2001-07	2011-19
Australia	0.07	0.06
Canada	0.07	0.04
France	0.04	0.03
Germany	0.05	0.03
Italy	0.02	0.05
Japan	0.03	0.03
Korea, Rep.	0.01	0.03
United Kingdom	0.02	0.11
United States	0.03	0.03
Average GDC	0.04	0.05
Brazil	0.04	0.15
China	0.06	0.03
Argentina	0.16	0.07
India	0.09	0.08
Indonesia	0.11	0.01
Mexico	0.05	0.04
South Africa	0.12	0.06
Turkey	0.18	0.05
Average GLDC	0.10	0.06
Saudi Arabia	0.10	0.17
Russian Federation	0.06	0.04
Average oil exporting countries	0.08	0.11

Source: Authors' calculations on data from World Development Indicators.

Table A3: Coefficient of Variation for Exports Ratio

	2001-07	2011-19
Australia	0.08	0.07
Canada	0.07	0.02
France	0.03	0.04
Germany	0.12	0.02
Italy	0.06	0.05
Japan	0.20	0.08
Korea, Rep.	0.09	0.13
United Kingdom	0.05	0.05
United States	0.09	0.06
Average GDC	0.09	0.06
Argentina	0.23	0.18

Brazil	0.09	0.50
China	0.21	0.45
India	0.20	0.13
Indonesia	0.10	0.12
Mexico	0.08	0.10
South Africa	0.08	0.02
Turkey	0.08	0.14
Average GLDC	0.14	0.21
Russian Federation	0.06	0.52
Saudi Arabia	0.17	0.23
Average, Oil exporting countries	0.12	0.37

Table A4: CV for External Balance

Country	2001-07	2011-19
Australia	-0.75	-9.92
Canada	0.30	-0.30
France	1.39	-0.38
Germany	0.35	0.14
Italy	2.77	0.68
Japan	0.30	-2.35
Korea, Rep.	0.60	0.43
United Kingdom	-0.10	-0.18
United States	-0.17	-0.11
Average GDC	0.52	-1.33
Brazil	1.17	-1.55
China	0.63	0.37
Argentina	0.63	-31.67
India	-0.64	-0.49
Indonesia	0.28	9.77
Mexico	-0.10	-0.40
South Africa	2.51	-3.74
Turkey	-4.07	-1.05
Average GLDC	0.05	-3.60
Saudi Arabia	0.26	0.89
Russia	0.14	0.23
Average, Oil exporting countries	0.20	0.56

Source: Authors' calculations on data from World Development Indicators.

Endnotes

1. The G20 at the level of finance ministers and central bank governors was set up in 1999 after the Asian crisis of 1997.
2. http://www.g20.utoronto.ca/analysis/201118-kirton-odi.html
3. Since there is no clear definition of stability in the literature it is difficult to judge whether this goal has been achieved. What can be observed is that the sort of crises that were frequent in the 90s and early 2000s are no longer occurring.
4. Other membership of other bodies dealing with financial standards such as of auditing, stock markets etc were expanded to include developing countries.
5. Such measures had been initiated earlier, the Financial stability assessment program of the IMFG and the World Bank. But countries such as the United States had stayed outside its ambit contending the problem of financial stability was a problem of developing countries. The 2008 crisis had blown apart this view.
6. This suggests that LAC countries are caught in a middle income trap. At the same time the SSA countries are caught in a low income trap.
7. The test statistic in our case since the sample size is the same is (V(1)-V(2)}/{V^2(V^2+.5)/n-1)}^ .5} where V is the average of the CV for the two periods. This statistic is distributed as the standard normal distribution with mean 0 and SD of 1.
8. https://www.rba.gov.au/publications/bulletin/2019/jun/a-decade-of-post-crisis-g20-financial-sector-reforms.html
9. https://www.ris.org.in/sites/default/files/Publication/g20%20report%20final%20%282%29.pdf

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