Why has the difference in output growth volatility between developed and developing countries widened?

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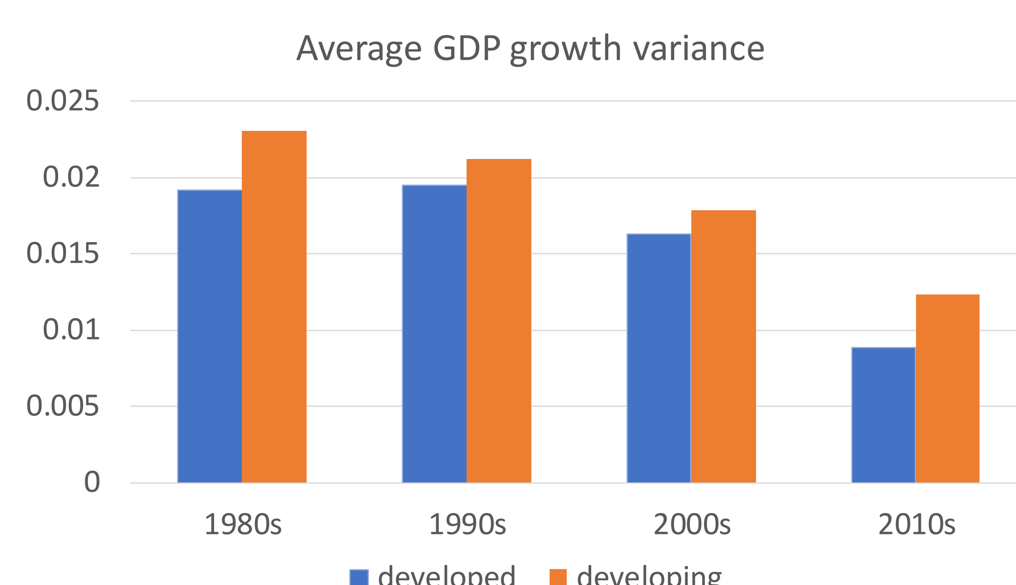
Context



Global decline in growth volatility

It is well known that during the Great Moderation (mid-1980s-2007), the US economy saw a period of greater stability in GDP growth. This experience was not unique: during the past 4 decades, growth volatility declined around the world, brought about by decreased of large shocks, policy improvements, and structural changes in many countries (Del Negro and Otrok, 2008).

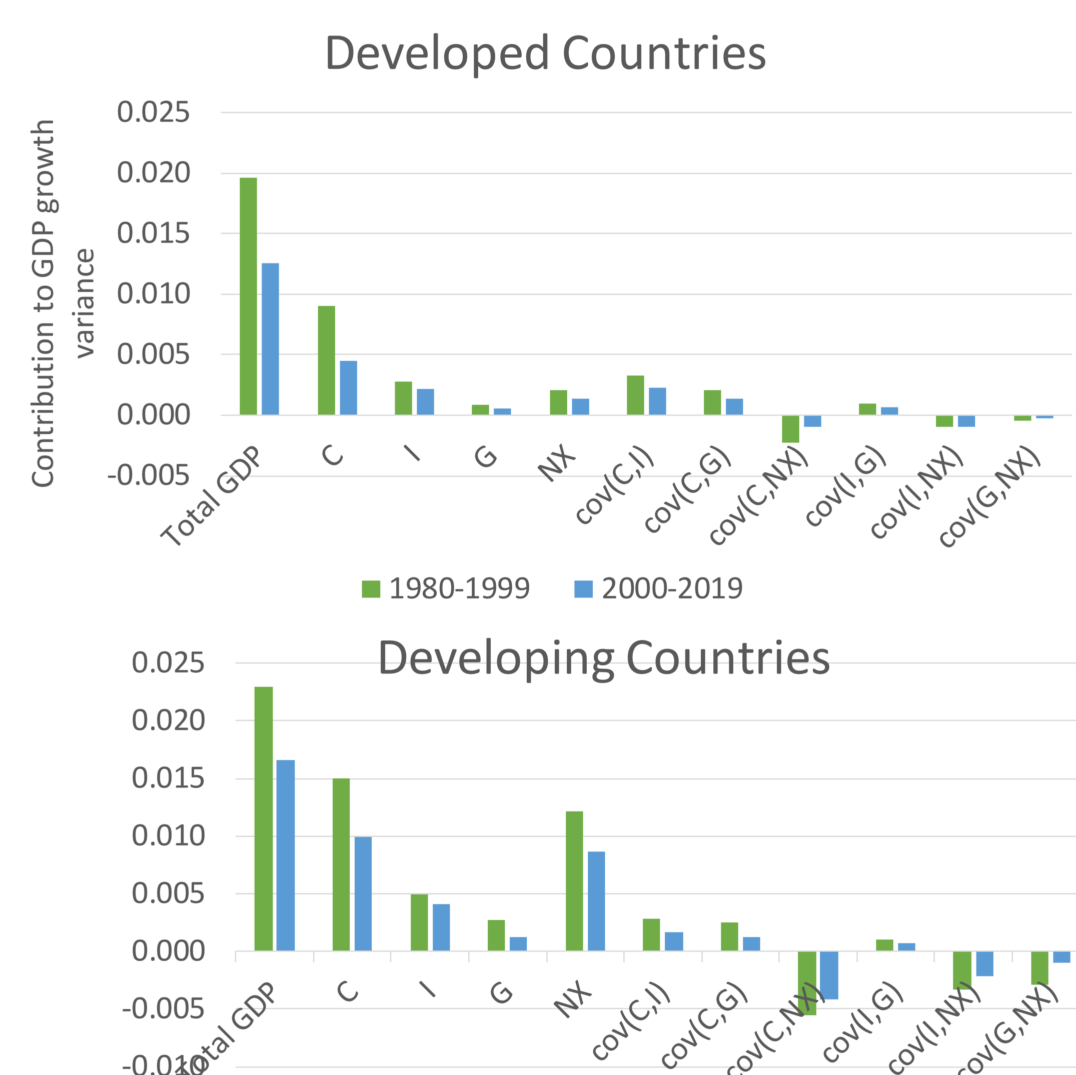
Unevenness of the decline

Output growth volatility seems to be falling at a greater pace for developed countries than developing countries. In the period 1980-1999, the variance of GDP growth in developing countries was 10% higher than in developed countries. Yet in 2000-2019, that gap rose to 30%. What are possible explanations for this phenomenon?

Breaking down GDP growth variance: 1980-1999 vs 2000-2019

1. by component of AD

Mathematically, the variance of GDP growth rate is equal to the sum of the variance of growth contributions of each component and the covariance between each pair of them



GDP growth variance by component	Developed			Developing		
	1980-1999	2000-2019	% reduction	1980-1999	2000-2019	% reduction
Total GDP variance	0.020	0.013	36%	0.023	0.017	28%
C	0.009	0.005	50%	0.015	0.010	33%
I	0.003	0.002	23%	0.005	0.004	16%
G	0.001	0.001	44%	0.003	0.001	54%
NX	0.002	0.001	33%	0.012	0.009	28%
cov(C,I)	0.003	0.002	30%	0.003	0.002	43%
cov(C,G)	0.002	0.001	37%	0.002	0.001	49%
cov(C,NX)	-0.002	-0.001	59%	-0.006	-0.004	26%
cov(I,G)	0.001	0.001	26%	0.001	0.001	37%
cov(I,NX)	-0.001	-0.001	-7%	-0.003	-0.002	36%
cov(G,NX)	-0.0004	-0.0002	48%	-0.003	-0.001	67%

Compared to developing countries, developed countries experienced greater volatility reductions in all 3 of the biggest contributors of GDP growth variance, namely consumption, investment, and net export.

Observations

- **Net export has negative covariances** with other components, consistent with an automatic stabilizer effect on GDP.
- **Government spending played a much more important role in GDP fluctuations in developing countries**
- **Consumption-side elements-C and net export-are significantly more volatile in developing countries.** This is perhaps thanks to the fact that the lack of trust from financial sectors brings a great level of credit-constraint.
- The biggest sources of volatility reduction in developed countries were consumption and consumption's covariances with other components. This points to both **increased stability of consumption demand and the resilience consumption in response to fluctuations in other factors.**

2. by sector

Sector	Developed			Developing		
	1980-1999	2000-2019	% reduction	1980-1999	2000-2019	% reduction
Total GDP	0.0197	0.0126	36%	0.0229	0.0166	28%
Agriculture, hunting, forestry, fishing	0.0004	0.0001	84%	0.0025	0.0008	66%
Mining, Manufacturing, Utilities	0.0014	0.0007	49%	0.0043	0.0043	0%
Construction	0.0001	0.0001	13%	0.0002	0.0002	26%
Wholesale, retail trade, restaurants and hotels	0.0006	0.0003	52%	0.0008	0.0005	33%
Transport, storage and communication	0.0002	0.0001	48%	0.0002	0.0002	10%
Other Activities	0.0031	0.0017	45%	0.0026	0.0012	52%

Much of the reduction of growth variance in developed countries occurred in primary and secondary sectors, consistent with the expectation that moving towards tertiary sectors like service is accompanied by greater stability.
Developing countries also experienced reduced variance from primary sectors like agriculture, but not from manufacturing, mining, and utilities.

Possible causes of greater stability and how their effects may differ in developed vs developing countries

3 channels of reducing GDP fluctuations

1. Reduce exposure to shocks

- Supply shocks
- Demand shocks

Institutional change

\+ Greater central bank independence, transparency, and commitment to low inflation reduces GDP volatility since mid-1980s.

\- **Yet many low-income countries still prone to mismanagement and political instability—account for the bulk of fluctuations in GDP per capita** (Naddatz, 2007)**.**

2. Reduce impact of shocks

- Consumption smoothing
- Automatic stabilizers
- Better supply chain management

Financial market liberalization

\+ Offers more consumption smoothing and risk-sharing

\- Effects vary across countries: **those with more mature banking sector and legal system experience decrease in consumption growth volatility after financial liberalization, while others experience increase** (likely relates to the extent of credit constraints and the perception of foreign investors) (Bekaert et. al., 2006).

Increase in trade

\+ openness to trade has lowered output volatility for countries which are well diversified, by protecting them from shortage of domestic demand

- developing countries tend specialize in fewer and more volatile sectors (e.g. manufacturing rather than services); GDP can be greatly affected by external shocks to specific sectors.

(Haddad et. al., 2013, Koren and Tenreyro, 2007)

3. Quicken recovery from (negative) shocks

Demand shocks are temporary in theory, and the speed of adjustment depends on:

- Policy response
- Adjustment of wage and prices
- Responsiveness of demand & output to price adjustment

Policy response to 2008 financial crisis

Developing countries on average recovered quicker after 2008 because their financial markets were less exposed and smaller, thus did not absorb as much government spending. The response between them was varied, **larger emerging markets benefitted from greater countercyclical stimulus and domestic demand** (Neyyar, 2011)**.** This is consistent with the big effect of government spending on variance.

Labor market bargaining

Inclusive unions and social safety nets can facilitate wage adjustment. Labor institutions vary greatly between countries; the average effect is unclear.

Conclusion

While stability increased worldwide, developing countries may find it more difficult to benefit from trends that improved stability for developed ones, especially relating to globalization and movement to more sophisticated industries. Developing countries face bigger hurdles of credit constraint, unfavorable specialization patterns, and institutional challenges.

Other considerations:

- We did not discuss COVID as it is still an ongoing shock.
- Results on volatility may be affected by the time period in which it is measured.
- Despite our categorization of factors, each factor may affect growth volatility through other channels as well.