Have We Entered an Era of Deglobalisation?
By Ian McDonough

Abstract
Globalization has dominated the economic landscape for the past half century. Increased economic activity and interdependence have been taken as the inevitable course, but recently concerns have begun to arise among experts and the public at large. This analysis took into account changes in global GDP and trade volume (Imports+Exports) in search of statistically significant shifts post 2008 financial crisis. Statistically significant decreases in both GDP growth rates and trade volume growth rates were observed but the means of both remained positive from 2008 to 2022. No statistically significant change in trade volume as a percentage of GDP growth rate was detected though the mean rate was observed to be slightly lower post 2008. This analysis should be taken as a first pass at the question of deglobalisation which could be returned to with the introduction of new economic data or supplemented with a deep dive into changes into the types of commodities traded across borders or in the patterns of trading partners.

Introduction
The increased economic integration between countries and rise of transnational organizations like the World Trade Organization, the European Union, and World Bank, known as globalization, has been seen as inevitable since at least the end of the Second World War. Despite criticism from some, it is undeniable that the economies of scale generated from pooling the world's land, labor, and capital have produced enormous wealth. A major devolution of our globalized economy would have impacts far beyond quarterly earnings reports, stock prices, and the size of mega yachts. Deglobalization would have a direct and personal impact on the future of every nation, group, and individual on earth. What is optional, what is manageable, what is ultimately possible is constrained by the resources available to us. Whether or not we have access to a planet’s worth of resources or only a fraction thereof will determine how we rise to meet the challenges of the twenty-first century or fail to.

From the perspective of early 2024 it appears to many that globalization is in retreat. The past four years have seen pandemic driven reshoring of manufacturing, increased tariffs, increased sanctions, and the return of conventional war to the European continent. Even prior to 2020 the normalization of geoeconomic (the use of economic tools to achieve geopolitical ends) tactics by many governments challenged the conventional wisdom of free trade, making calls for protectionist policies increasingly mainstream on both the American left and right. Globalization is, if nothing else, a contentious topic, deglobalisation even more so. There are numerous different aspects to assess when trying to quantify globalization, some of which may have a more direct impact than others. This could include everything from shifts in globalized pop culture to the power of international organizations. While all of these are valid topics, this analysis will begin with trade. Trade is, of course, the life blood of globalization and is relatively straightforward to quantify. If we accept that deglobalisation is measurable through changes in the volume of international trade and global gdp we would expect to see:

1. A decrease in the rate of world GDP growth.
2. A decrease in the rate of trade volume growth.
3. A decrease in the rate of growth of trade volume as a percent of GDP.

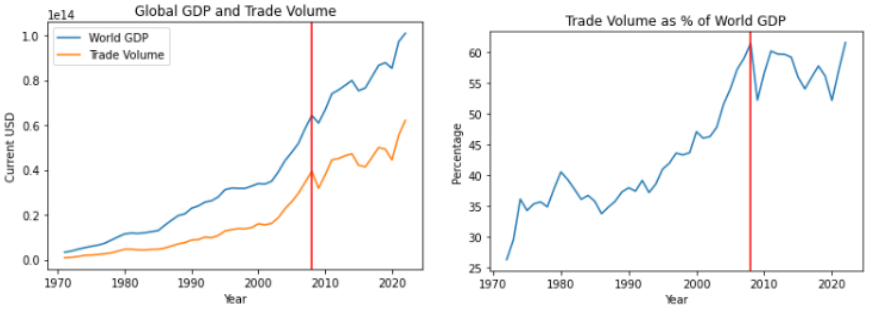
Of the three of these, a significant decrease in the rate of trade volume growth as a percent of GDP (a divergence between gdp and trade volume), would be the most convincing evidence that deglobalization is occurring. A reduction of growth rate of global GDP and trade volume simultaneously could denote a recession/depression without necessarily pointing to a reduction in global interconnectedness. To confidently state that we have entered into an era of deglobalization we would need to see a negative year over year average in some or all of these metrics.

Methods

The primary analytical tool I've chosen to apply to these questions is hypothesis testing. We will be comparing the chosen variables from 1971 to 2007 vs. 2008 to 2022. The range of years chosen, 1971 to 2022, is due to the data availability through the World Bank database and the choice of 2008 as an inflection point is due to the profound impact of the 07-08 financial crisis on the global economy. The underlying alternative hypothesis (H1) is that the 07-08 financial crisis was the beginning of a phase shift in the global economy, that we will look back at as the beginning of deglobalization, while the null hypothesis (H0) is that no such phase shift occurred and that the data pre 2008 is not be statistically different from the data post 2008. The metric we will be looking at for the three variables (rate of world GDP growth, rate of trade volume growth, rate of trade volume growth as a percent of GDP) is the mean growth rate of each pre and post 2008. After initial data analysis it was determined that the data in all of these categories was not normally distributed, by skewness and kurtosis, so the method of analysis employed was permutation testing and a significance threshold of 95%.

Results

Summary Statistics

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Before 2008
Trade Volume % Growth                          11.260638
World GDP % Growth Rate                         8.458792
Trade Volume as % of World GDP                 40.289581
Trade Volume as % of World GDP Growth Rate      2.468322
dtype: float64

After 2008
Trade Volume % Growth                           4.700681
World GDP % Growth Rate                         3.856204
Trade Volume as % of World GDP                 57.262860
Trade Volume as % of World GDP Growth Rate      0.504289
dtype: float64
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Descriptive Stats 1972-2022

	Trade Volume % Growth	World GDP % Growth Rate	Trade Volume as % of World GDP	Trade Volume as % of World GDP Growth Rate
count	51.000000	51.000000	51.000000	51.000000
mean	9.331239	7.105089	45.281722	1.890665
std	11.190144	6.346109	9.958838	5.858497
min	-19.427892	-5.703968	26.322301	-15.005761
25%	1.672158	2.720313	36.960513	-2.278673
50%	10.687089	6.488746	43.297372	2.411624
75%	15.976770	12.173759	55.898593	4.769674
max	40.082193	21.396434	61.534798	22.279638

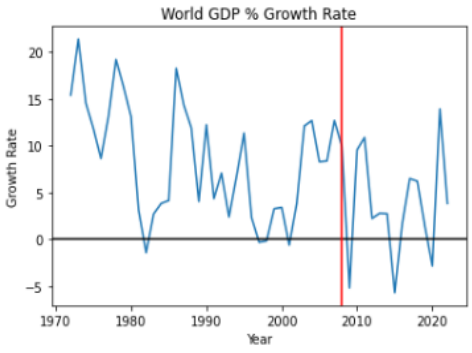
Descriptive Stats 2008-2022

	Trade Volume % Growth	World GDP % Growth Rate	Trade Volume as % of World GDP	Trade Volume as % of World GDP Growth Rate
count	15.000000	15.000000	15.000000	15.000000
mean	4.700681	3.856204	57.262860	0.504289
std	12.272752	5.773447	3.009491	6.673708
min	-19.427892	-5.703968	52.136705	-15.005761
25%	-1.635828	1.534068	55.898593	-3.121695
50%	2.693422	2.780193	57.037350	-0.084424
75%	13.257506	8.024703	59.621288	5.235350
max	24.641565	13.932370	61.534798	9.399607

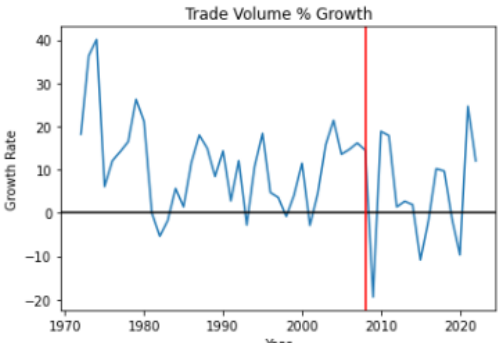
Correlations

	Trade Volume % Growth	World GDP % Growth Rate	Trade Volume as % of World GDP	Trade Volume as % of World GDP Growth Rate
Trade Volume % Growth	1.000000	0.879171	-0.195856	0.881057
World GDP % Growth Rate	0.879171	1.000000	-0.348668	0.551859
Trade Volume as % of World GDP	-0.195856	-0.348668	1.000000	0.005724
Trade Volume as % of World GDP Growth Rate	0.881057	0.551859	0.005724	1.000000

Hypothesis Tests



1) **GDP Growth Rate (95% Threshold)**
   Null hypothesis: The mean GDP Growth Rate from 2008-2022 is not significantly different from 1972-2007
   Alternative hypothesis: The mean GDP Growth Rate from 2008-2022 is significantly different from 1972-2007
   Result: Mean GDP Growth Rate 2008-2022 is significantly less from 1972-2007, with p-value of .0074 we can safely reject the null hypothesis.
   Statistics = -4.602587974901899,
   p-value=0.0074



2) **Trade Volume Growth Rate (95% Threshold)**
   Null hypothesis: The mean trade volume growth rate from 2008-2022 is not significantly different from 1972-2007
   Alternative hypothesis: The mean trade volume growth rate from 2008-2022 is significantly different from 1972-2007

Result: Mean trade volume growth rate 2008-2022 is significantly less than 1972-2007, with p-value of 0.0244 we can safely reject the null hypothesis.
Statistic=-6.559957025968546
p-value=0.0244

3) **Trade Volume as a Percent of GDP Growth Rate (95%) Threshold**

Null hypothesis: The mean trade volume as a percentage of GDP growth rate from 2008-2022 is not significantly different from 1972-2007
Alternative hypothesis: The mean trade volume as a percentage of GDP growth rate from 2008-2022 is significantly different from 1972-2007
Results: Mean trade volume as a percent of GDP growth rate 2008-2022 is less than from 1972-2007 but not significantly so, with p-value of 0.1409 we can't reject the null hypothesis.
Statistic=-1.9640328679103263
p-value=0.1409

Discussion

The mean GDP growth rate and mean trade volume growth rate are both significantly less post 2008 compared to 2007. However the growth rate of trade volume as a percentage of GDP, while less than pre 2007, is not significantly so. The best way to interpret this data is to imagine a global economy which has been growing substantially more slowly post 2008 with trade volume and GDP growth rates highly correlated (0.88). Mean trade volume as a percent of global gdp is significantly greater post 2008 but does seem to have plateaued. It is possible that this percentage, of ~57% of GDP, is a natural optimum for the global economy and is not indicative of a peak and future decline. This trend, termed 'slowbalisation' in a recent article from the International Monetary Fund, could well prove to be the peak before a trough in trade volume as a percent of GDP however we cannot conclusively state that we have entered an era of deglobalisation, as of 2022, from trade data alone.

It is worth noting the potential limitations and implicit assumptions of this model. The implicit assumptions in measuring globalization through trade volume include that deglobalization would take the form of uniform atomization where all or most nations reduce trade with all other nations rather than breaking off into separate regional economic spheres. One could argue that a multi-polar system could have the same or greater trade volumes but siloed into regional or quasi-imperial spheres. While this would certainly meet my definition of deglobalization, more extensive investigation into the relational graph of economic transactions would be required to suss-out such a transition from the data. It is also possible that placing a priority focus on a divergence between trade volume and gdp growth rates is misguided, it is possible that it is simply impossible to have a growing gdp without growing trade volume in the modern economy meaning that the two are necessarily correlated and inevitably rise or fall as one.

Conclusion

While a statistically significant decrease in the rate of global GDP and trade volume growth was observed neither of these metrics have exhibited a negative mean post 2008. There was not a statistically significant decrease in the growth of trade volume as a percentage of GDP observed post 2008 though mean trade volume as a percentage of GDP has decreased. The character of globalization post 2008 is best characterized as ‘slowbalization’ and may or may not represent a peak in global trade as a percentage of GDP. Future analysis should be focused on the particulars of this current epoch, changes in specific commodities and trade patterns. This evaluation should very much be thought of as a once-over looking for telltale signs of change rather than a final world on the matter.