Does economic globalization affect income inequality? A meta-analysis

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Philipp Heimberger

Vienna Institute for International Economic Studies (wiiw)

Institute for Comprehensive Analysis of the Economy (ICAE), Johannes Kepler University Linz



Fundamental trend since the 1980s: rise in within-country income inequality



Background: The globalization-inequality nexus

- One explanation for rising inequality concerns economic globalization
 - How has increased market integration in the areas of international trade and finance affected income inequality around the world?
- Consensus: globalization and inequality may have at least **some type of relationship**.
 - However, despite a wave of research, the direction and magnitude of the relationship between globalization and inequality remain unclear.
- Empirical results are very mixed
 - Several papers find empirical support for an inequality-increasing effect of globalization, others find the **opposite** (e.g. Goldberg and Pavcnik 2007; Jaumotte et al. 2013; Huber et al. 2017)
 - Several scholars have voiced skepticism: domestic politics and institutions as well as other factors (such as technology, education or macroeconomic factors) may be seen to be much more important for explaining changes in inequality





Focus on economic globalization

- The concept of "economic globalization" used in this paper is much narrower than (overall) "globalization"
- **Globalization is a multifaceted concept** that captures several aspects in the economic, political and social dimension that go far beyond indicators that are typically used to capture economic globalization.
- - **Trade globalization** (e.g. trade to GDP)
 - Financial globalization (e.g. FDI flows, capital account liberalisation indices)
 - **Overall economic globalization** (e.g. KOF index)





Contribution of this paper

- Considering the wide range of estimates reported in the literature, it is potentially misleading to undertake generalizations based on traditional literature reviews
- This paper provides the first meta-analysis regarding the impact of economic globalization on income inequality
- Provide meta-analytic evidence on the Stolper-Samuelson theorem
- Answering two research questions
 - What does the **empirical evidence in all peer-reviewed published studies** tell us about the effect of globalization on income inequality?
 - What **factors contribute to explaining the variation** in the reported results on the globalization-inequality relationship?





Meta-analysis and meta-regression

- Meta-analysis
 - A single estimate cannot resolve an empirical question (e.g. Schmidt and Hunter 2014)
 - Each estimate should be considered as **one piece of information**
 - the (precision-weighted) average globalization-inequality estimate derived from a database on all existing estimates is the best estimate

Meta-regression

 Differences in existing estimates may be explained by differences in study design, data set, econometric technique, publication characteristics etc. (e.g. Stanley and Doucouliagos 2012)





Criteria for inclusion in the meta-study database

- 1. Income inequality as the dependent variable and globalization as explanatory variable
- 2. Reported econometric estimates
- 3. Published in peer-reviewed journals
- 4. Offered relevant statistics
- 5. English language and publication date prior to February 2019
- Search databases: Google Scholar, EconLit, Scopus
- Meta-study database
 - 123 papers
 - 1254 estimates





Making the estimates comparable

- Partial correlation coefficient
 - used to standardize the effect size across studies
 - measures the impact of globalization on income inequality while holding other factors constant
- can be directly **calculated from the regression results** reported in the papers
- **unitless measure** bounded between -1 and 1:

$$r = \frac{t}{\sqrt{t^2 + df}}$$





Figure: All globalization-inequality estimates



Meta-analysis: Results

- Interpretation guidelines for partial correlation (Doucouliagos 2011)
 - <0.07: small

All estimates

- 0.17: moderate
- >0.33: large

Statistic		
Observations		
Number of estimates	1254	
	4	
Median	0.089	
Unweighted average	0.083	
Precision-weighted	0.074	
average		Small-t
Weighted Average (RE)	0.086	inequa
Weighted average (FE)	0.079	import
Weighted Average (HS)	0.079	Impact
	· · · · · · · · · · · · · · · · · · ·	
95% Confidence	+0.072	
Interval (RE)	+0.099	
95% Confidence	+0.072	
Interval (HS)	+0.085	

Small-to-moderate inequality-increasing impact of globalization





Meta-regression analysis

- What factors explain the heterogeneity in reported estimates?
 - Conduct hypothesis tests in a **multivariate meta-regression framework**

$$r_{ij} = \beta_0 + \sum \beta_k Z_{ki} + \varepsilon_{ij}$$

- Code 32 moderator variables
 - Different **inequality measures** (Gini, Top income share, income share ratio, Theil, highlow-skilled, other inequality variable)
 - Different **globalization measures** (trade, financial and overall globalization)
 - **Country composition** (advanced countries, emerging-market countries, mix of countries)
 - **Publication characteristics** (e.g. primary, cross-author)
 - Macroeconomic, political and institutional control variables (e.g. technology, education, labor market institutions)





Dependent variable	PartialCorr	PartialCorr	PartialCorr	Fisher's z	
-	(1)	(2)	(3)	(4)	(5)
		Random	Robust		Robust,
Estimator	WLS	Effects	regression	WLS	statistically
					significant
Constant	0.062**	0.038	0.017	0.066**	no
	(0.026)	(0.035)	(0.039)	(0.027)	
Top In comeShare	0.012	0.003	0.029	0.009	no
	(0.036)	(0.044)	(0.051)	(0.038)	
BottomIncomeShare	-0.039	-0.049*	-0.060	-0.045	no
	(0.026)	(0.030)	(0.038)	(0.030)	
Гheil	-0.118***	-0.110***	-0.105***	-0.126***	ves
	(0.020)	(0.031)	(0.040)	(0.022)	,
ncomeShareRatio	-0.021	-0.019	-0.036	-0.023	no
	(0.046)	(0.049)	(0.037)	(0.050)	
HighLowSkilled	-0.035	-0.016	-0.028	-0.045	no
	(0.035)	(0.061)	(0.060)	(0.041)	
OtherInegVar	0.073	0.088	0.103	0.095	no
, men med tar	(0.046)	(0.060)	(0.070)	(0.065)	10
inancialGlobalization	0.095***	0.100***	0.112***	0.102***	ves
	(0.025)	(0.030)	(0.027)	(0.027)	900
verallEconomicClobalization	0.091	0.067	0.022	0.091	no
veraneconomicolobalization	(0.081)	(0.067	(0.053	(0.050)	110
	(0.044)	(0.000)	(0.007)	(0.050)	
DevelopingCountriesOnly	0.017	0.054*	0.081**	0.019	no
	(0.028)	(0.032)	(0.032)	(0.030)	
lixofCountries	-0.012	0.016	0.038	-0.016	no
	(0.023)	(0.029)	(0.029)	(0.025)	
rimary	-0.032*	-0.031	-0.031	-0.031	no
-	(0.019)	(0.024)	(0.024)	(0.020)	
Crossauthor	-0.052	-0.064**	-0.071***	-0.060**	Vec
	(0.026)	(0.025)	(0.022)	(0.028)	yes
	(0.020)	(0.023)	(0.022)	(0.020)	
Prior	-0.049*	-0.053	-0.036	-0.060**	no
	(0.027)	(0.032)	(0.035)	(0.030)	
l'echnology	-0.051*	-0.070***	-0.091***	-0.055*	yes
	(0.031)	(0.026)	(0.029)	(0.032)	
Education	0.042**	0.046**	0.053**	0.045**	ves
	(0.020)	(0.023)	(0.023)	(0.022)	/
bservations	1 254	1,254	1,254	1,254	
	1,254	0.126	0.105	0.005	
squared	0.107	0.130	0.105	0.095	

Meta-regression: Estimation strategy and main results

• Weighted Least Squares

- Inverse of the variances as optimal precision weights
- General-to-specific-modeling
- **Robustness checks**: different estimators (random effects, robust regression)
- Five main findings
 - Choice of the **inequality measure** matters (Theil)
 - Dimension of **economic globalization** is important
 - Financial globalization has much more sizeable impact than trade globalization
 - **Publication characteristics** are significant moderator variables (cross-author)
 - **Technology and education** are significant moderator variables
 - Composition of the country group is not significant (Stolper-Samuelson theorem does not hold on average)





Conclusions

- **Previous literature** has been unable to establish conclusively whether globalization has a positive, negative, or zero effect on income inequality
- By using meta-analysis and meta-regression methods, this article provides evidence that (on average)
 - Globalization has a (small-to-moderate) positive effect on income inequality
 - Trade globalization affected income inequality to a smaller extent than financial globalization
 - the inequality-increasing effect in emerging-market countries was similar to the impact found for advanced countries
 - **Technology and education** moderate the impact of globalization on income inequality
- Policy conclusion
 - If policy makers care about inequality, the welfare state has an important redistributing function to counter inequality-increases due to globalization





Backup-slides





Notes: The figure plots the kernel density estimates of the partial correlations.

wiiw Philipp Heimberger



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	Variable name	Variable description	Mean	S.D.
	PartialCorrelation	Partial correlation of the impact of economic globalization on	0.083	0.249
		income inequality (dependent variable in the MRA)		
	Income inequality measures			
	Gini (used as the base)	BD=1: Gini index of income as dependent variable	0.707	0.455
	TopIncomeShare	BD=1: Income share of the top quintile	0.103	0.304
	BottomIncomeShare	BD=1: Income share of the bottom quintile	0.038	0.192
	IncomeShareRatio	BD=1: Income ratio between top and bottom incomes	0.060	0.237
	Theil	BD=1: Theil index	0.023	0.150
	HighLowSkilled	BD=1: Relative wages (based on different skill levels)	0.013	0.112
	OtherIneqVar	BD=1: Other income inequality measure used (e.g. Atkinson	0.056	0.230
		index or income share of quintiles other than top and bottom)		
	Economic globalization measured	ires		
	TradeGlobalization (base)	BD=1: Trade globalization variable as relevant regressor	0.584	0.493
	FinancialGlobalization	BD=1: Financial globalization variable as relevant regressor	0.377	0.485
	OverallEconGlobalization	BD=1: Overall economic globalization variable as relevant	0.039	0.194
		regressor		
	Country composition			
	AdvancedCountries (base)	BD=1: only advanced countries included in the data	0.207	0.406
	DevelopingCountries	BD=1: only developing countries included in the data	0.368	0.483
	MixofCountries	BD=1: mix of advanced and developing countries included in	0.424	0.494
		the data		
	Data characteristics			
	CrossSection	BD=1: Cross sectional data used	0.123	0.328
	DataHyperGlobalization	BD=1: only data from 1990s onwards used	0.207	0.405
	Estimator details			
	CountryFixedEffects	BD=1: Country dummies included	0.552	0.498
	NonOLS	BD=1: Non-OLS estimator used (e.g. GMM, Random Effects)	0.379	0.485
	Publication characteristics			
	StandardError	Standard error of partial correlation	0.106	0.057
	NormalizedImpactFactor	Journal impact factor normalized to range between 0 and 1	0.245	0.215
	DevelopmentJournal	BD=1: Study published in an economics journal	0.164	0.371
	Primary	BD=1: Link globalization-inequality is of primary interest	0.640	0.480
	CrossAuthor	BD=1: Author declares receiving feedback from other authors	0.154	0.361
		who have published relevant peer-reviewed paper		
	Prior	BD=1: Author has published previously in this area	0.081	0.272
	Macroeconomic, political and	institutional control variables		
	Technology	BD=1: Technology proxy included as control	0.108	0.310
	GDPgrowth	BD=1: GDP growth included as control	0.140	0.347
	Unemployment	BD=1: Unemployment included as control	0.049	0.217
	IncomeLevel	BD=1: GDP per capita included as control	0.535	0.499
	Population	BD=1: Population variable (e.g. population growth) included	0.182	0.386
	Education	BD=1: Education variable (e.g. schooling) included	0.465	0.499
	TradeUnion	BD=1: Trade union variable included as control	0.116	0.320
	SocialSpending	BD=1: Government spending on social protection included	0.030	0.169
_	Democracy	BD=1: Democracy variable (e.g. democracy index) included	0.159	0.366
	Partisan politics	BD=1: Partisan politics (e.g. government ideology) included	0.069	0.254

Notes: BD means binary dummy, which takes the value of 1 if the condition is fulfilled and zero otherwise.

Table 4: Results: Testing for publication selection bias

	Dependent variable: PartialCorrelation		
	(1)	(2)	(3)
Constant	0.058***	0.061**	0.055*
	(0.018)	(0.029)	(0.030)
StandardError	0.262 (0.269)	0.023 (0.280)	0.013 (0.285)
NormalizedImpactFactor			0.030 (0.057)
Additional moderators included	no	yes	yes
Observations	1,254	1,254	1,254

Notes: Columns (1)-(3) are estimated by WLS. Standard errors (in parentheses) are clustered at the study level. None of the variables shown in the table is statistically significant. However, columns (2)-(3) include a set of additional moderator variables (the same as in column (2) of table 3). The full results are available upon request.



