

Measures of Inequality

Updated Estimates for the World Economy
from the University of Texas Inequality
Project

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Economic Thinking

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The UTIP-UNIDO Data Set is an attempt to develop systematic and comparable measures of inequality in the structures of industrial pay, on a panel basis for the world, using the UNIDO Industrial Statistics as raw material.

The calculation is of the between-groups component of Theil's T statistic across industrial groups, using a standardized grouping structure across countries and years.

Why is this needed?

Initial efforts to compile internationally-comparable measures of economic inequality (by Deininger and Squire) were plagued by gaps in the data record and differing inequality concepts, leading to sparse, erratic and implausible measures.

A consequence was that economic relationships were hard to find and obscured by statistical noise.

UTIP-UNIDO provided an alternative that was dense and conceptually consistent, with about 3,400 country-year observations from 1963 to 1999 initially. The tradeoff was a focus on structures of industrial pay, rather than personal or household incomes. However, Galbraith & Kum (2005) showed that there was a stable relationship between UTIP-UNIDO and the DS measures, which permitted the creation of...

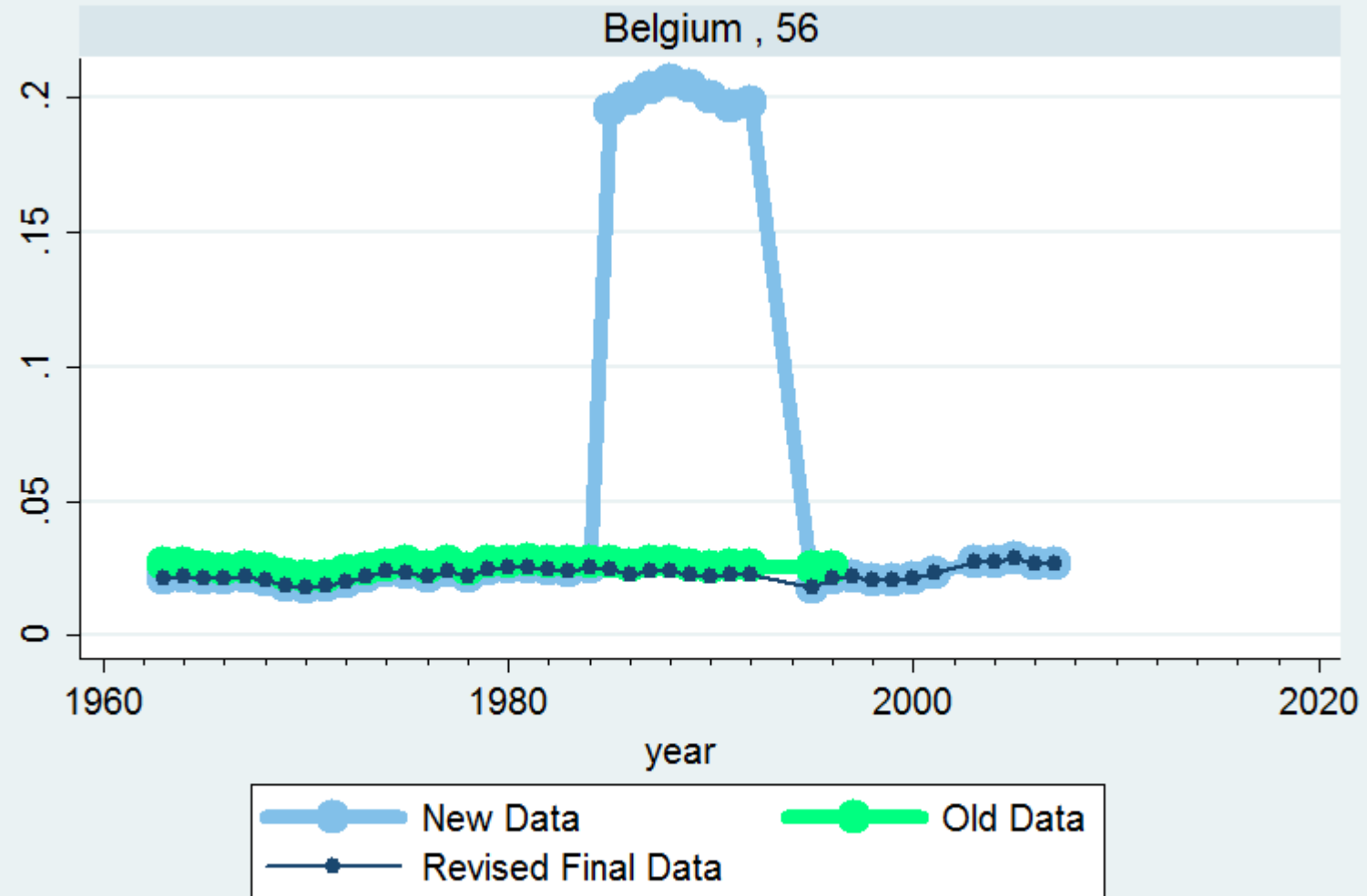
EHII

...the Estimated Household Income Inequality data set (EHII), which translated UTIP-UNIDO into Gini coefficients standardized to a concept of gross household income inequality. The exact meaning of the concept comes from DS, and means income before taxes without household size adjustments. We believe the concept is best understood as including transfers, but these are not a big issue in many countries.

Extending UTIP-UNIDO

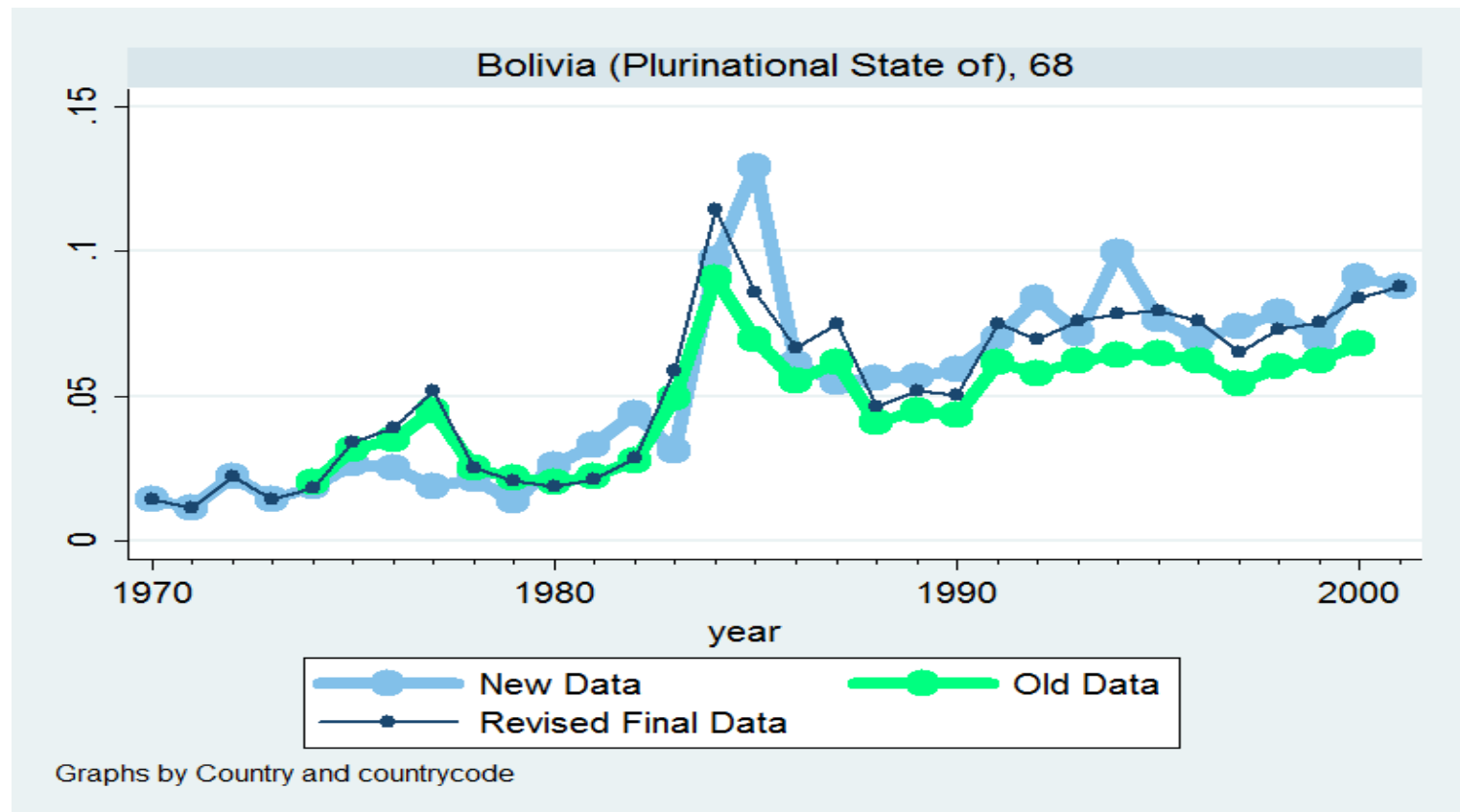
Extending UTIP-UNIDO past the early 2000s was a challenge. The UNIDO Industrial Statistics data set is not well-maintained as a consistent structure, likely due to erratic reporting by member states. And the Theil statistic is extremely sensitive to minor irregularities. Hence every data point had to be checked, and updating required many judgments. Amin Shams did the work and documented all judgments

An example...

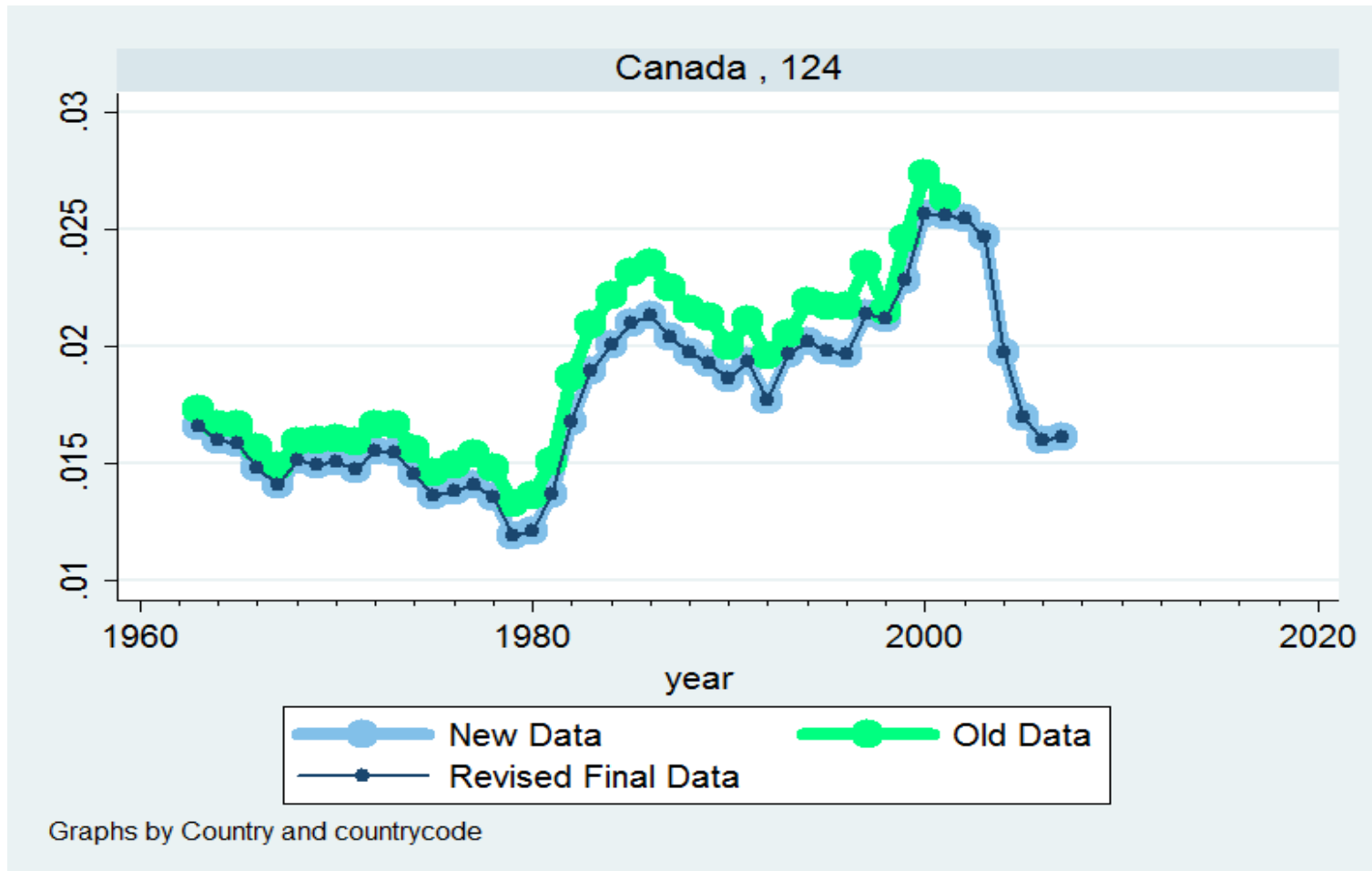


Graphs by Country and countrycode

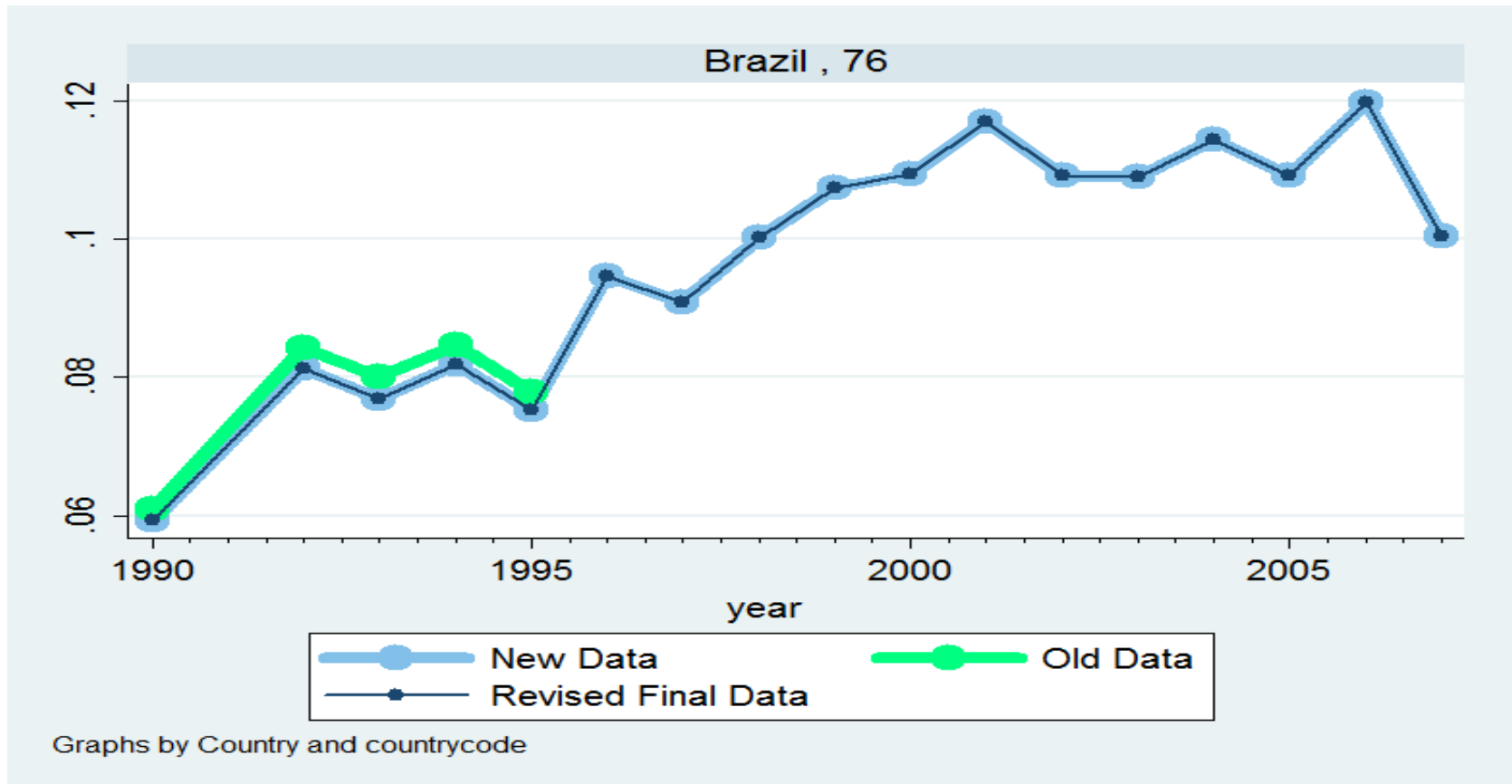
In some instances, we interpolated across missing sectors or other irregularities



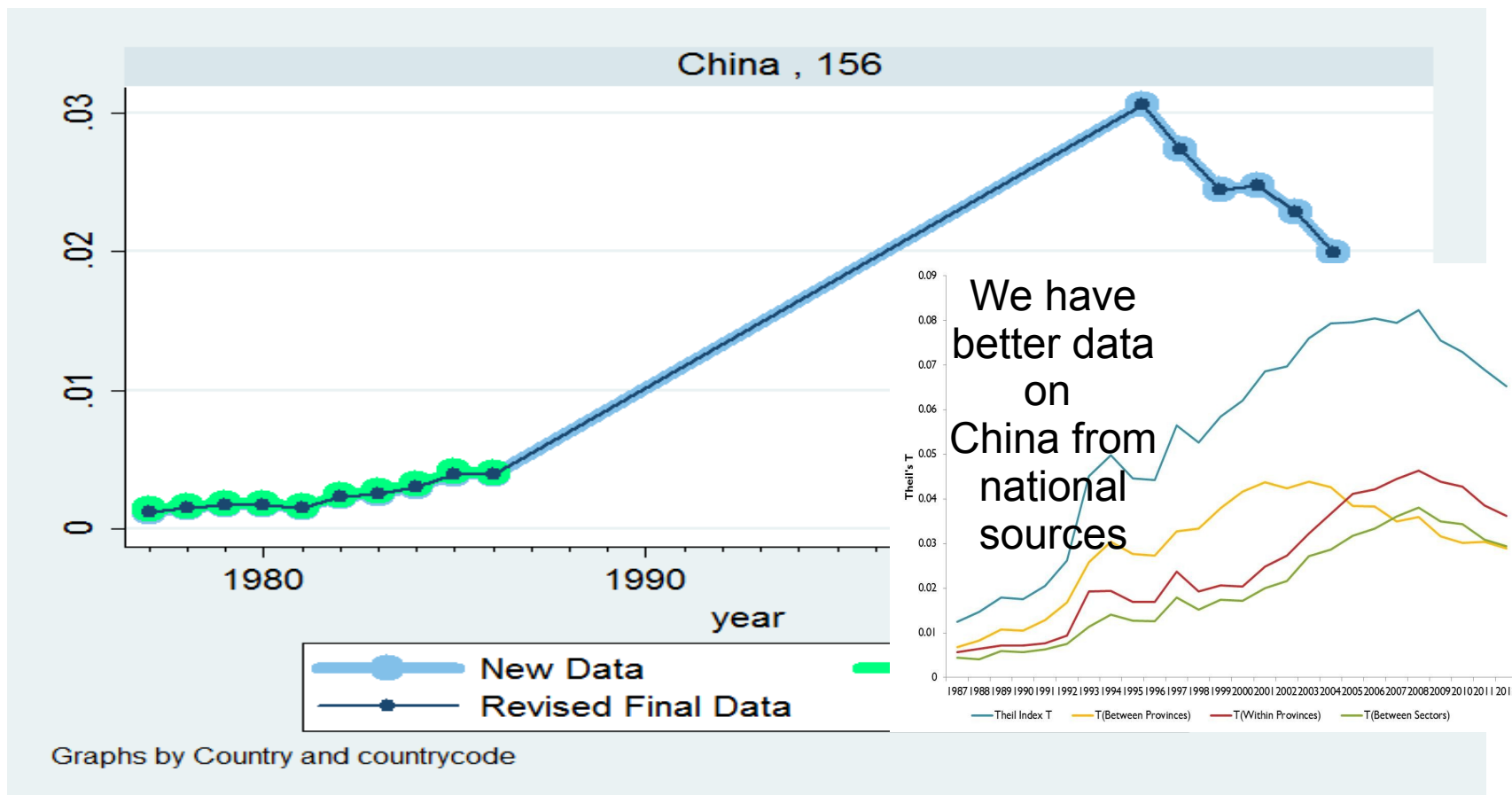
However, in many cases the old and new data track well..



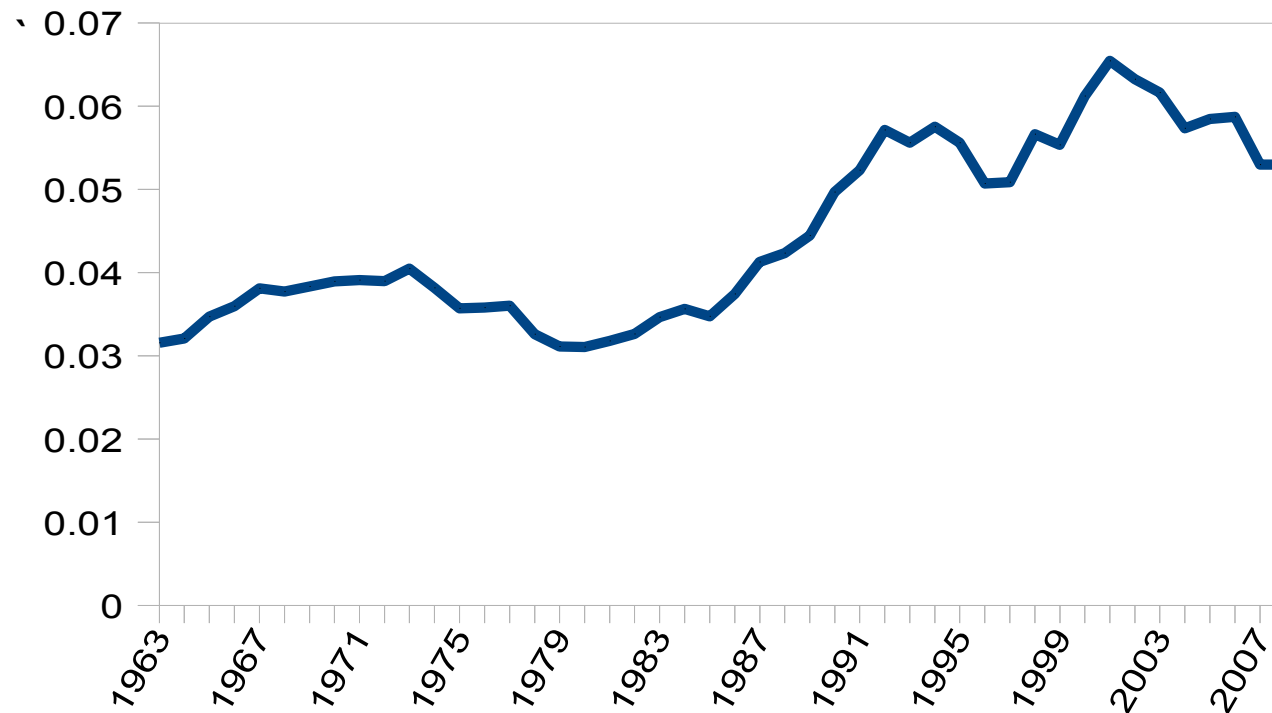
In important cases, major gaps are filled in



Though not always completely!



Global Trend is Similar to Previous Version, with Peak at 2001



**There are now 4054 data points for 167 countries, 1963-2008
The next version will bring this up to 2010.**

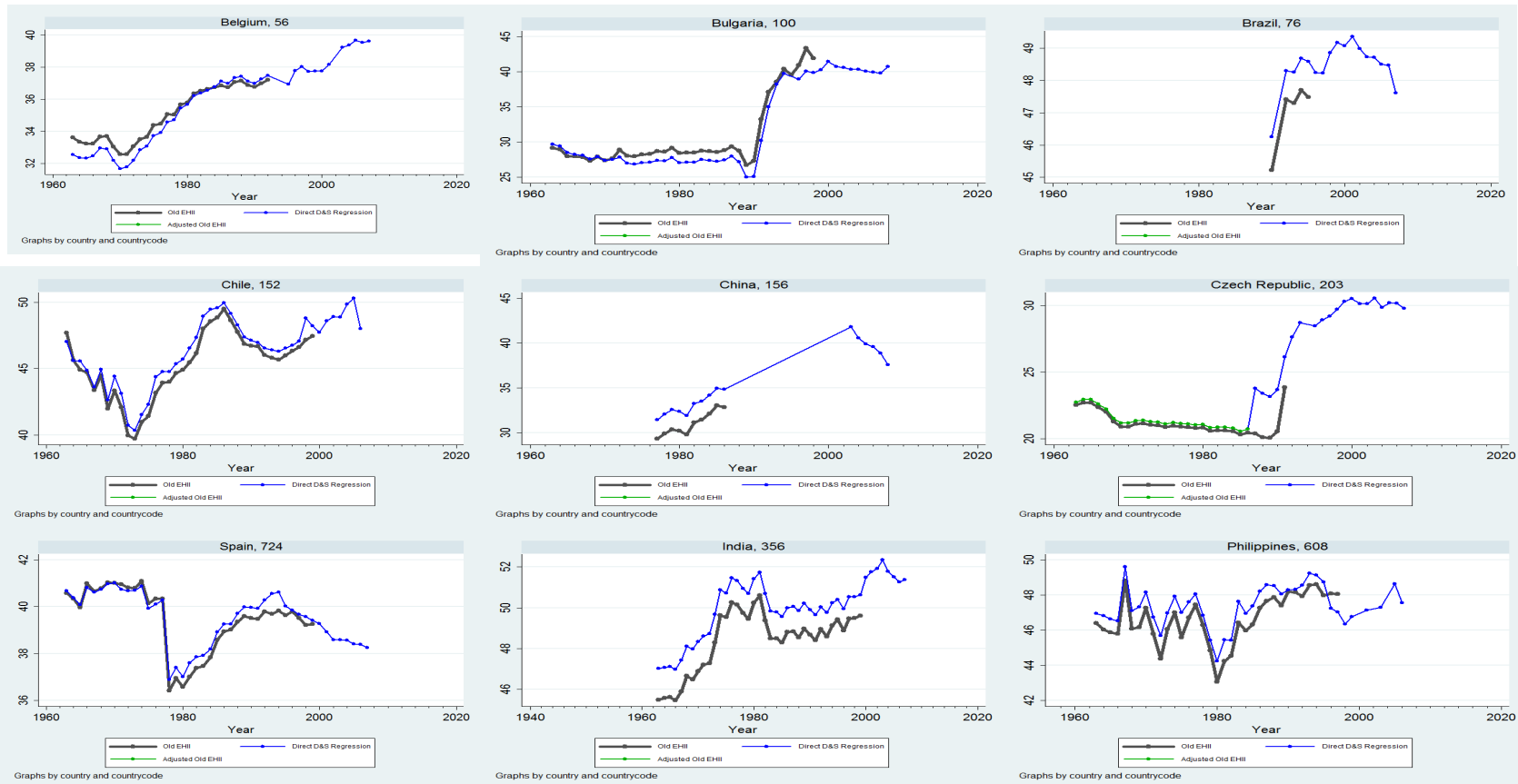
Extending EHII

EHII is calculated by regressing the original Deininger Squire “High Quality” data set against UTIP-UNIDO, with controls for the share of manufacturing in total employment and dummies for the various income/expenditure concepts present in the DS data set. The coefficient estimates are then used to generate the EHII values. Here is the new regression underlying EHII 2013.

Source	SS	df	MS			
Model	13.765956	5	2.75319121	Number of obs =	430	
Residual	10.682956	424	.025195651	F(5, 424) =	109.27	
Total	24.448912	429	.056990471	Prob > F =	0.0000	
				R-squared =	0.5630	
				Adj R-squared =	0.5579	
				Root MSE =	.15873	

lnyini	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
income	-.1505793	.0328891	-4.58	0.000	-.2152253	-.0859333
household	-.0787191	.016985	-4.63	0.000	-.1121043	-.0453338
gross	-.0613036	.0197218	-3.11	0.002	-.1000683	-.0225388
lnfinal	.1035329	.011978	8.64	0.000	.0799894	.1270765
mfgpop	-2.838951	.2419652	-11.73	0.000	-3.314552	-2.36335
_cons	4.205874	.0449676	93.53	0.000	4.117487	4.294261

New and Old EHII



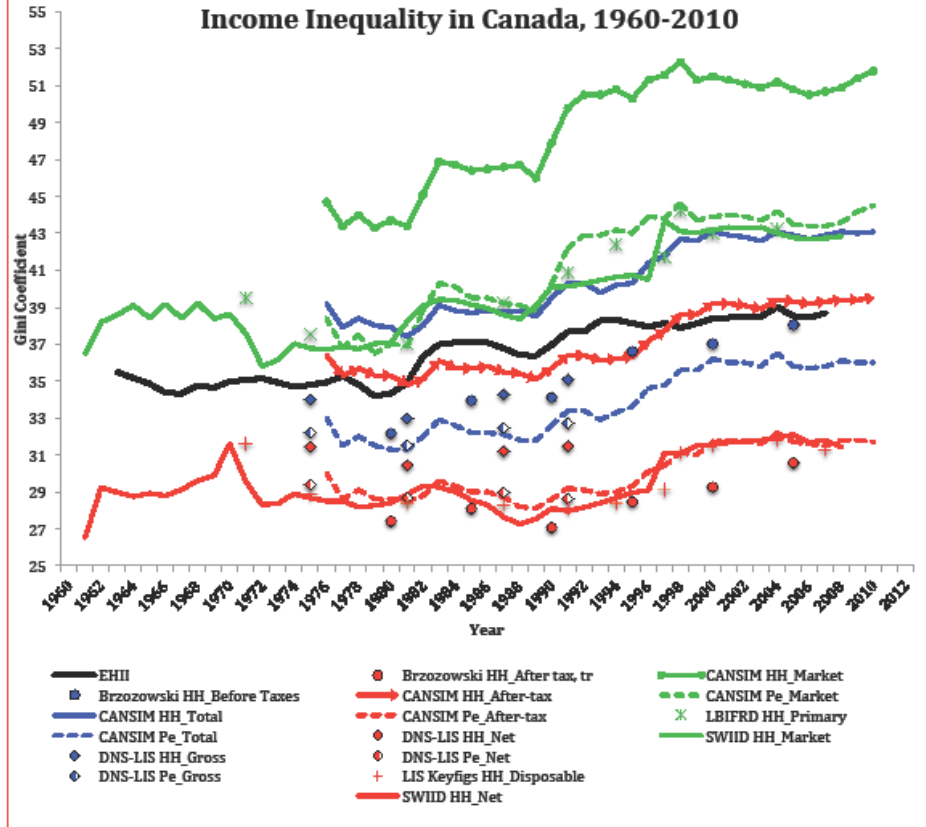
Comparing EHII to Other Measures

In a parallel effort, we set out to compare EHII to other inequality measures for various countries and income concepts, to test the consistency and credibility of our work.

Charts below are based on a new version of EHII, which now has 3872 observations for 149 countries, 1963-2008.

Beatrice Halbach collected and charted all the other inequality measures.

Income Inequality in Canada, 1960-2010



*Lines used where consecutive years available, markers used where consecutive years N/A

Source:

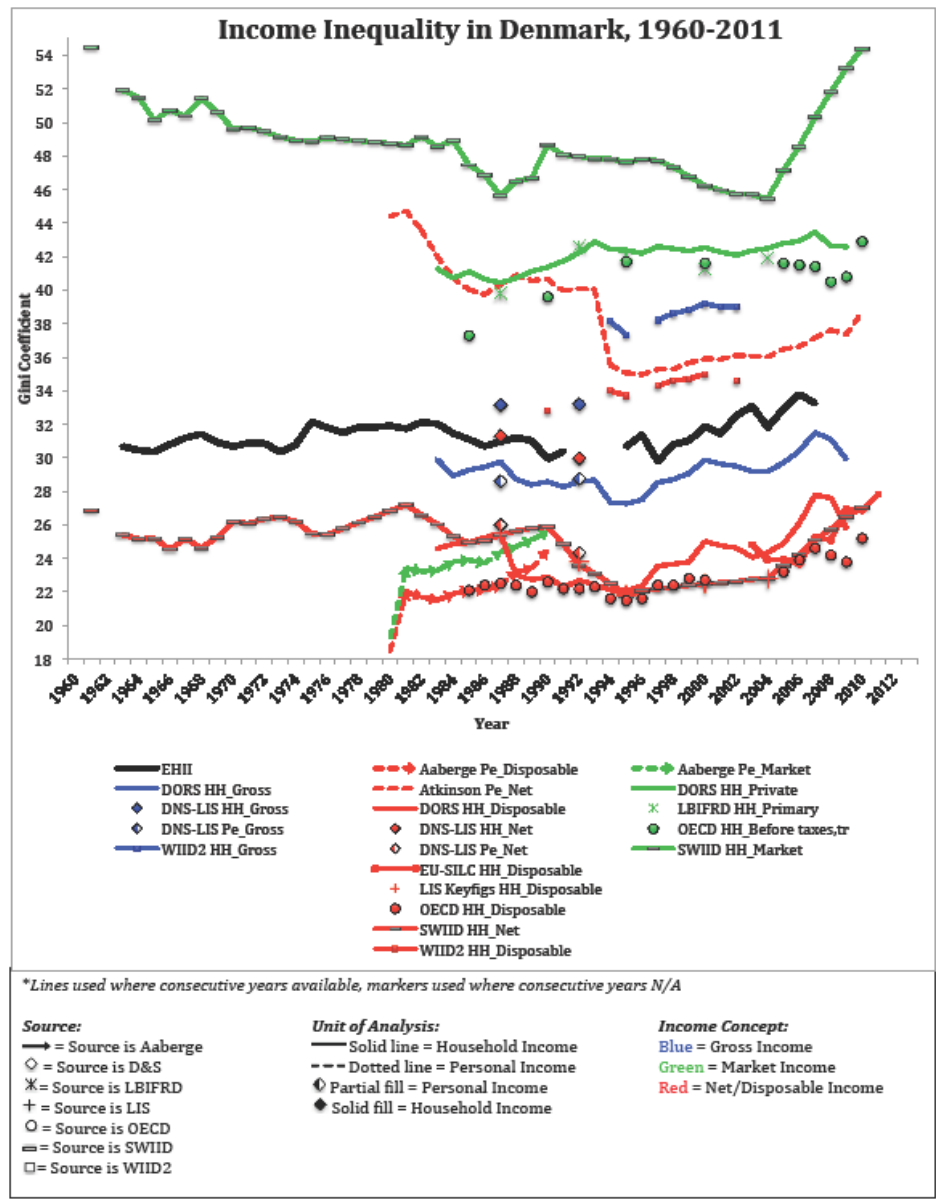
- = Source is Brzozowski
- ◇ = Source is D&S
- * = Source is LBIFRD
- † = Source is LIS

Unit of Analysis:

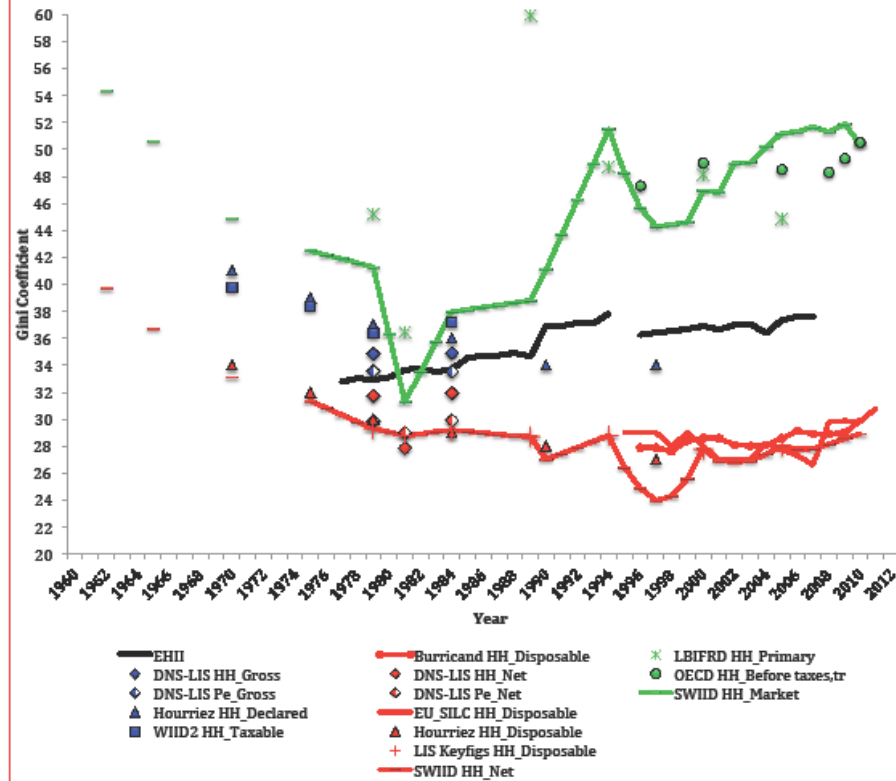
- Solid line = Household Income
- - - Dotted line = Personal Income
- ◊ Partial fill = Personal Income
- ◆ Solid fill = Household Income

Income Concept:

- Blue = Gross Income
- Green = Market Income
- Red = Net/Disposable Income



Income Inequality in France, 1960-2011



*Lines used where consecutive years available, markers used where consecutive years N/A

Source:

- ◇ = Source is D&S
- △ = Source is Hourriez
- * = Source is LBIFRD
- + = Source is LIS
- = Source is OECD
- = Source is WIID2
- ▬ = Source is SWIID

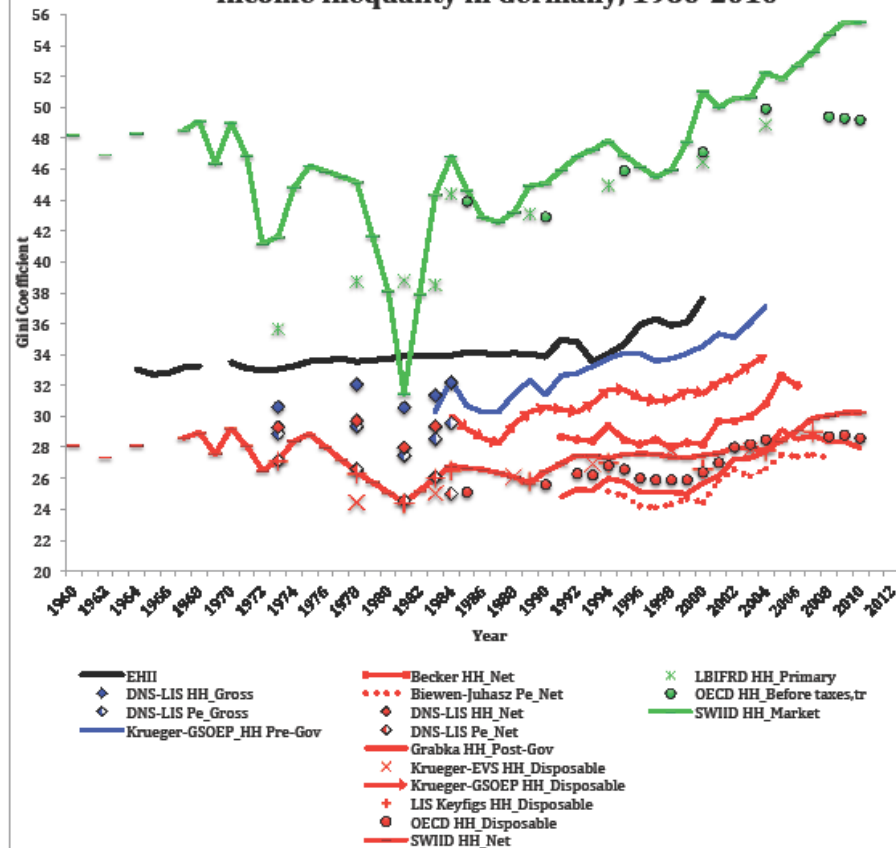
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Income Concept:

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Income Inequality in Germany, 1960-2010



*Lines used where consecutive years available, markers used where consecutive years N/A

Source:

- = Source is D&S
- × = Source is Krueger
- * = Source is LBIFRD
- + = Source is LIS
- = Source is OECD
- ≡ = Source is SWIID

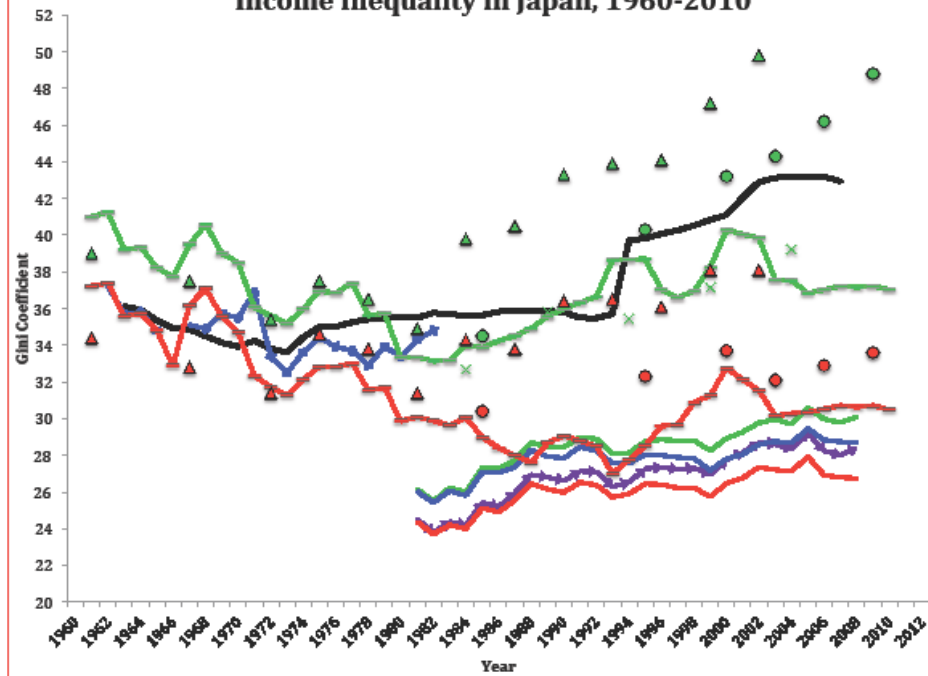
Unit of Analysis:

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- ◇ Partial fill = Personal Income
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Income Concept:

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Income Inequality in Japan, 1960-2010

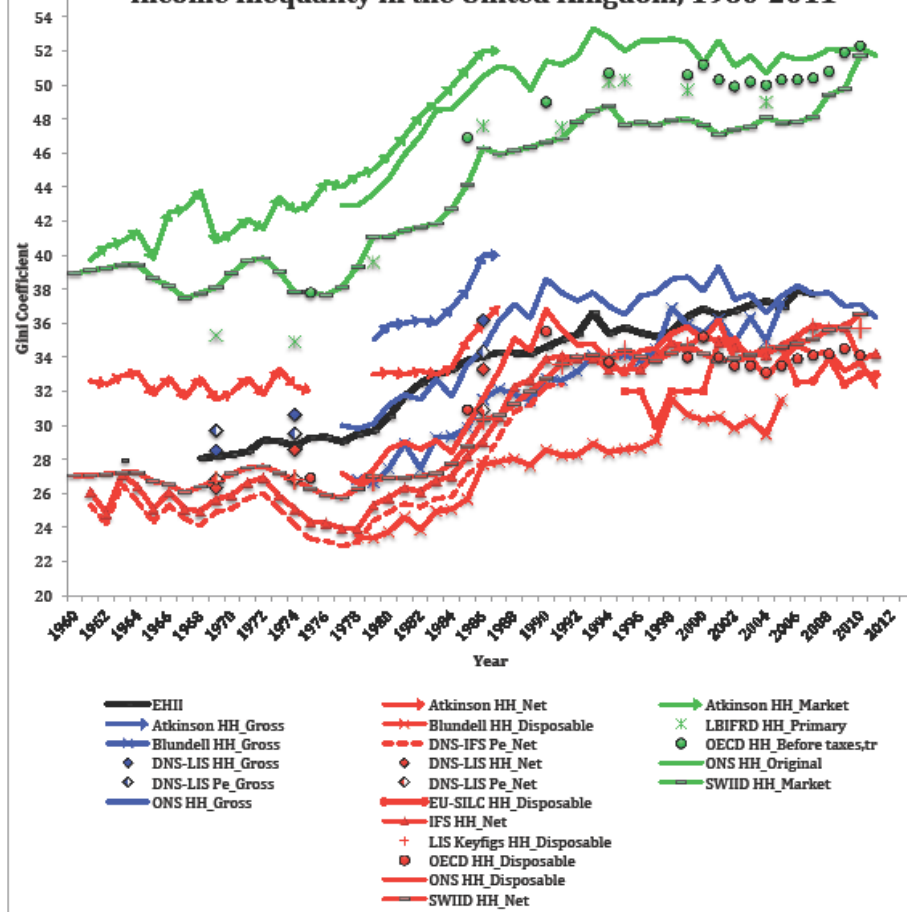


- EHII
- OECD HH_Disposable
- OECD HH_Before Taxes, tr
- Sudo-FIES HH_Pre-gov minus taxes
- DNS-LIS HH_Gross
- Sudo-FIES HH_Disposable
- Sudo-FIES HH_Pre-gov
- Sudo-FIES HH_Pre-gov plus tr
- SWIID HH_Net
- × Sudo-NSFIE HH_Pre-gov
- SWIID HH_Market
- ▲ Tachibanaki HH_After Redist
- ▲ Tachibanaki HH_Before Redist

*Lines used where consecutive years available, markers used where consecutive years N/A

- | | | |
|---------------------------|-------------------------------------|-------------------------------|
| Source: | Unit of Analysis: | Income Concept: |
| ○ = Source is OECD | — Solid line = Household Income | Blue = Gross Income |
| × = Source is Sudo | - - - Dotted line = Personal Income | Green = Market Income |
| △ = Source is Tachibanaki | ◐ Partial fill = Personal Income | Red = Net/Disposable Income |
| ◐ = Source is SWIID | ● Solid fill = Household Income | Purple = Other Income Concept |

Income Inequality in the United Kingdom, 1960-2011



*Lines used where consecutive years available, markers used where consecutive years N/A

Source:

- = Source is Atkinson
- × = Source is Blundell
- ◇ = Source is D&S
- * = Source is LBIFRD
- + = Source is LIS
- = Source is OECD
- ≡ = Source is SWIID

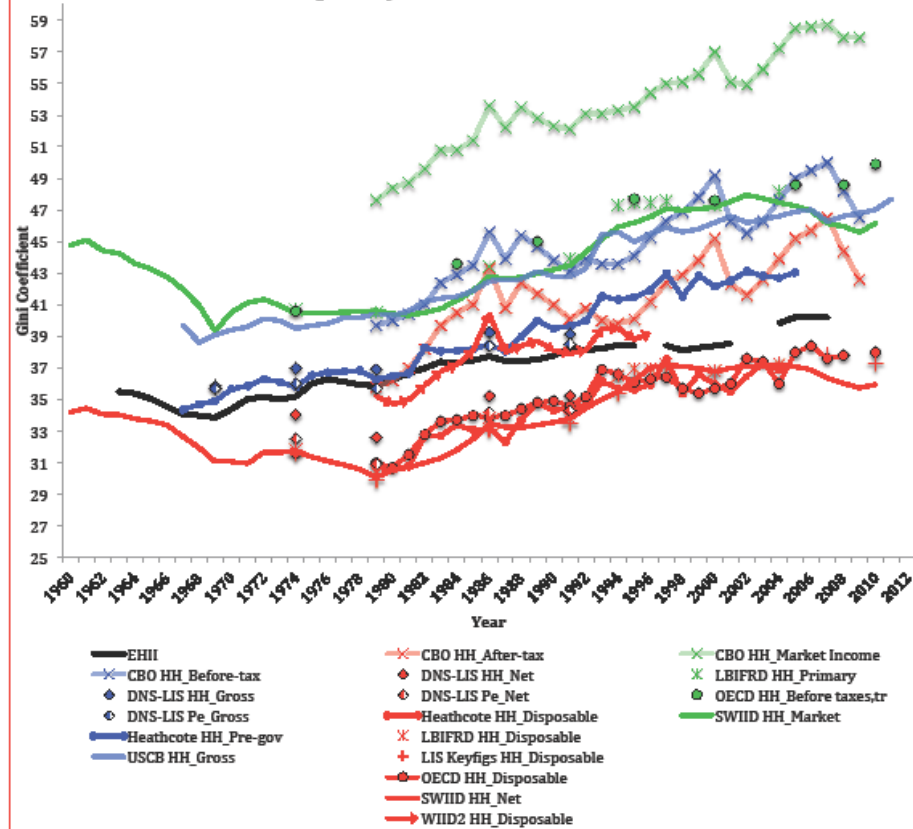
Unit of Analysis:

- Solid line = Household Income
- - - Dotted line = Personal Income
- ◊ Partial fill = Personal Income
- ◆ Solid fill = Household Income

Income Concept:

- Blue = Gross Income
- Green = Market Income
- Red = Net/Disposable Income

Income Inequality in the United States, 1960-2011



*Lines used where consecutive years available, markers used where consecutive years N/A

Source:

- x = Source is CBO
- ◇ = Source is D&S
- * = Source is LBIFRD
- + = Source is LIS
- = Source is OECD

Unit of Analysis:

- Solid line = Household Income
- - - Dotted line = Personal Income
- ◐ Partial fill = Personal Income
- ◑ Solid fill = Household Income

Income Concept:

- Blue = Gross Income
- Green = Market Income
- Red = Net/Disposable Income

*Data from the US Census Bureau (USCB) and the Congressional Budget Office (CBO) are presented in lighter shades to denote the use of monetary income, which yields higher values of the Gini coefficient.

Conclusions

The range of inequality measures is immense, depending largely on the concept measured!

EHII is reasonably consistent in lying below the market measures and above the measures for disposable income.

EHII is not particularly good for the US, because it does not capture capital income. This is less of a problem for other countries.

The logo for the University of Texas Inequality Project. It features the text "UNIVERSITY OF TEXAS" in orange and "INEQUALITY PROJECT" in black, set against a background of a golden scale of justice and a wooden gavel.

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<http://utip.gov.utexas.edu>

All data sets are on-line.
Please use them.