

Economic Diversification

Six Case Studies



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Background

- Economic diversification as catalyst to mitigation measures to stem climate change as stipulated by the Paris Climate Accord of 2015
 - As a rule, natural resource wealth and climate are common-property resources, and need to be viewed and managed as such
 - Policy measures needed to mitigate climate change – e.g., regulation of emissions by price rather than by quantity, i.e., by levying fees on emissions rather than imposing quotas – are intimately related to those measures that can be most effective as instruments of economic diversification

Outline

- Paper: Six case studies of economic diversification
- Presentation: Bypasses case studies to focus on
 1. Key indices of economic diversification
 - Limitations
 - Potential usefulness in macroeconomic cross-country context
 2. From economic diversification to growth: The data
 3. From double diversification, economic and political, to growth: More data

Six case studies

- Small but diverse group of countries in Africa, Asia, Europe, Middle East, and Western Hemisphere, all eager to diversify their economies to avert risk
 - Grenada
 - Iceland
 - Kuwait
 - Malaysia
 - Mauritius
 - Uganda

Economic diversification I

1

- Key indicators

- [Finger-Kreinin index](#) of export diversification
 - Index from 1 (no diversification) to 0 (full diversification)
 - Relative to average structure of exports elsewhere
- [Herfindahl-Hirschman index](#) of market concentration
 - Index from 0 (no concentration) to 1 (extreme concentration)
 - Sum of squares of the shares of each sector in total output
- Merchandise exports only, not services
- Short coverage, from 1995 to date

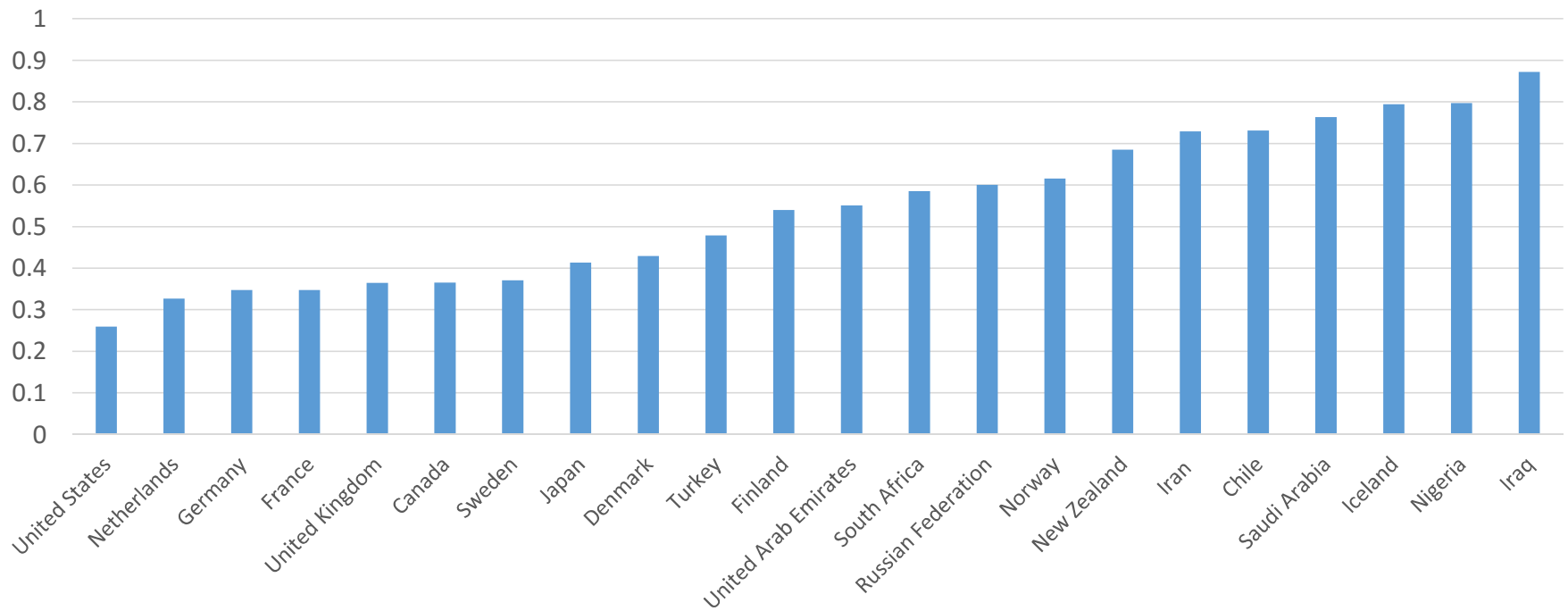
Economic diversification II

- Key indicators – more
 - [IMF](#) index of export diversification – what you export
 - Theil index: Sum of measures of diversity across sectors (vertical diversity or extensive margin, meaning new export products or new export destinations) and diversity within sectors (horizontal diversity or intensive margin, meaning a larger volume of exports of old products)
 - [IMF](#) index of product quality – to whom you export
 - Measures average quality demanded in exporters' markets
 - Model-based index from 0 (low quality) to 1.2 (high quality)
 - Goods only, not services; will be updated to include services

Economic diversification III

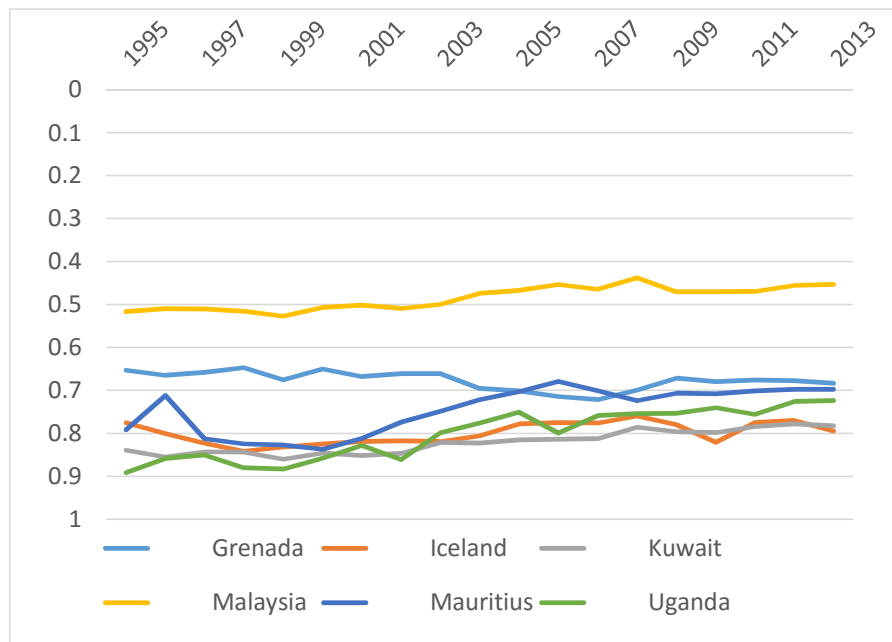
- Key variables – more still
 - World Bank measure of share of manufactures in exports
 - World Bank measure of share of manufactures and services in total output – to include services
 - [Economic Complexity Index](#) by Hidalgo and Hausmann (2009)
 - Ranks countries by the diversity and complexity of their export structure
 - Limited coverage: Goods only, not services
 - Short coverage, from 1995 to date

Herfindahl index of merchandise-export diversification 2013

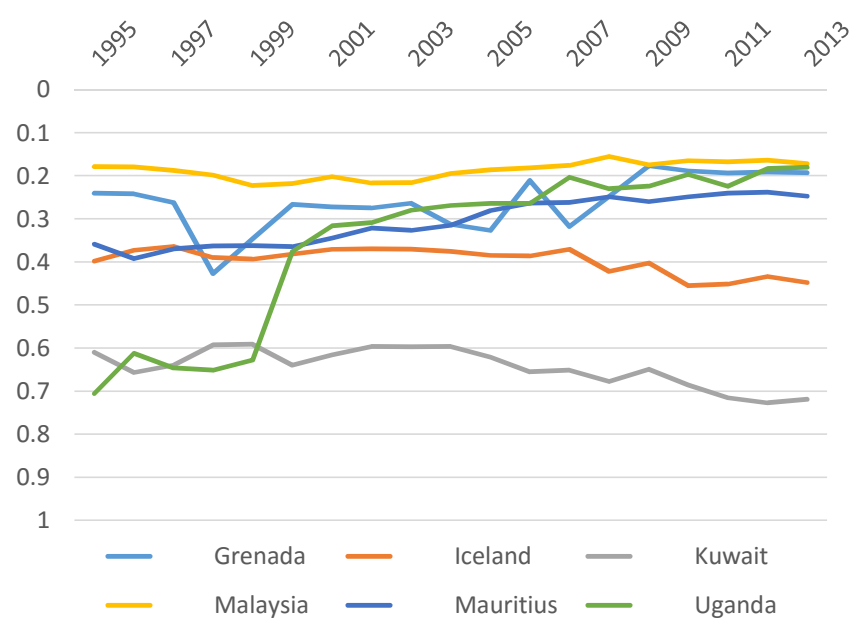


UNCTAD measures of diversification and concentration 1995-2013

Export diversification index (FKI)

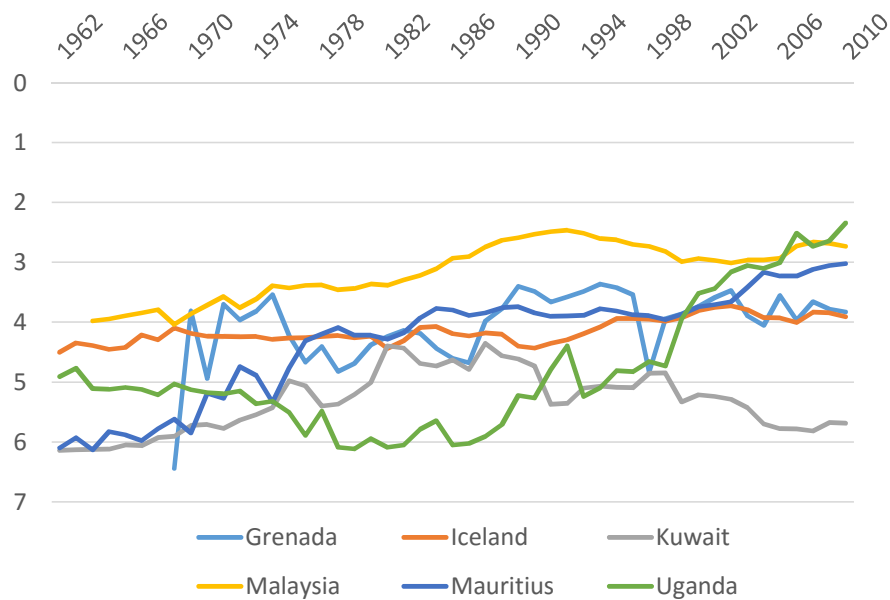


Market concentration index (HHI)

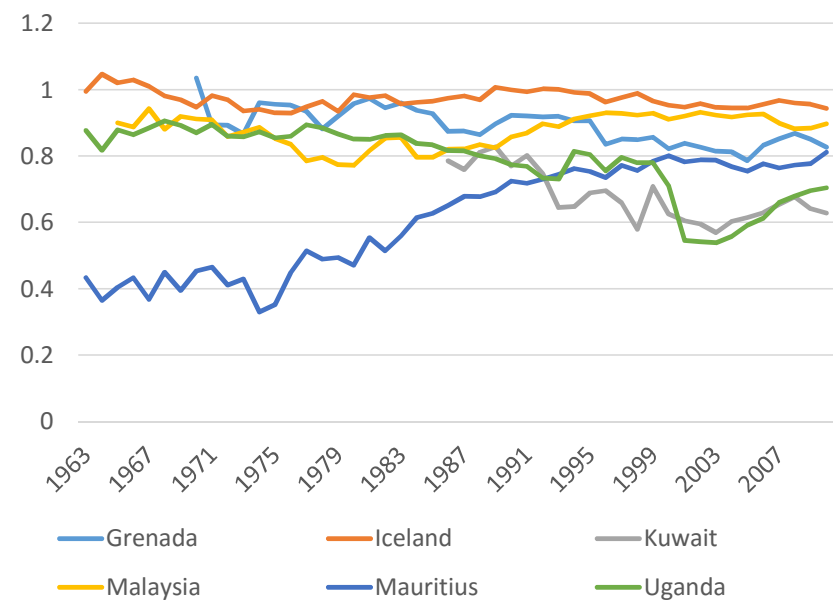


IMF measures of diversification and quality 1962-2010

Export diversification index (EDI, Theil)

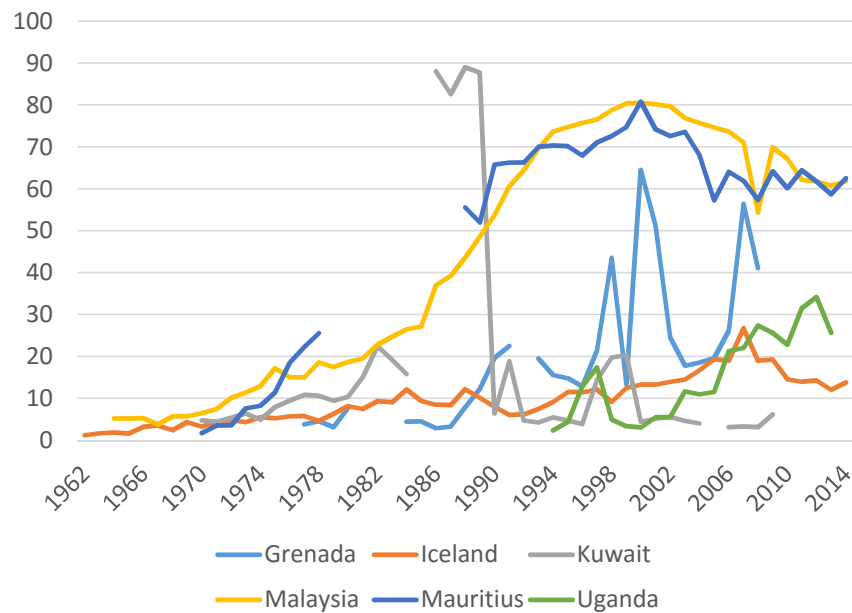


Product quality index (PQI)

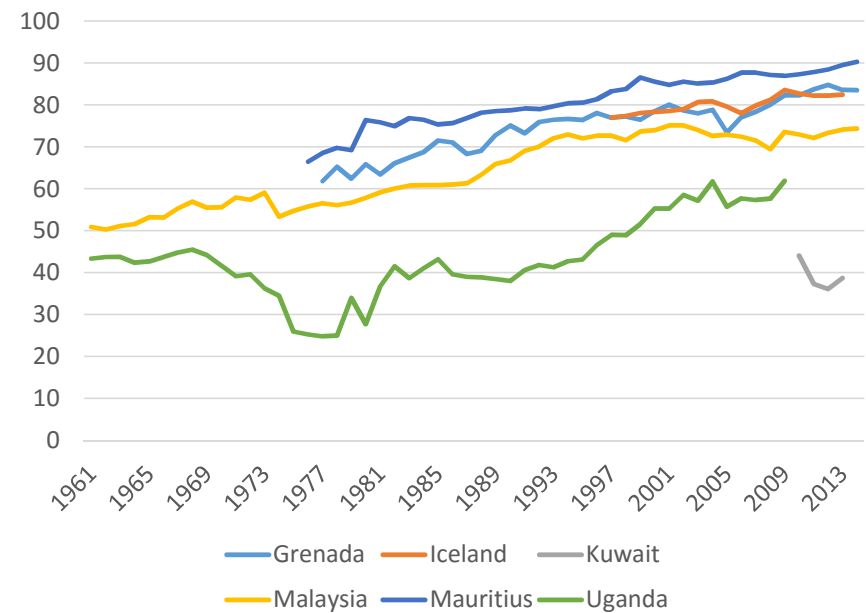


World Bank measures of diversification and complexity 1961-2014

Manufactures (% of total exports)

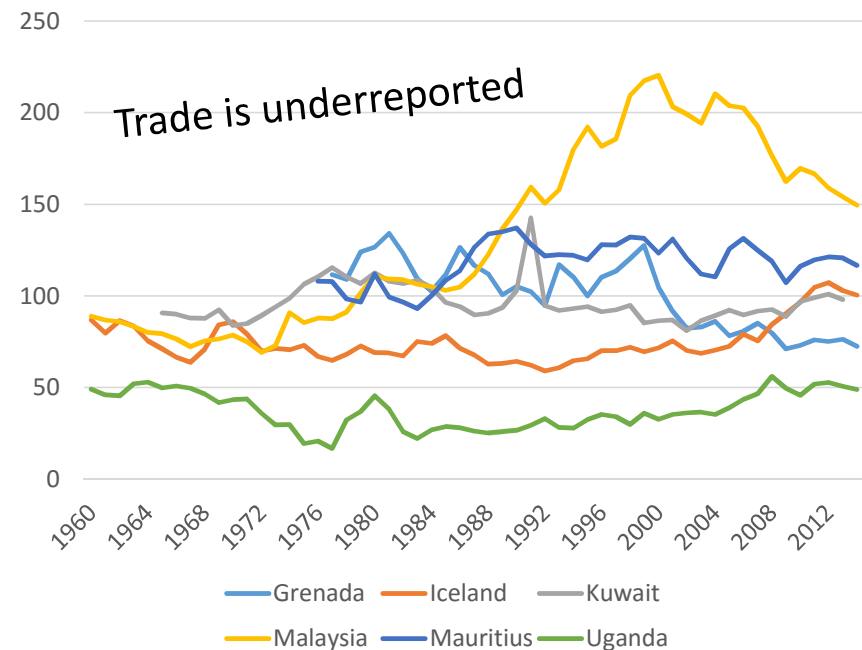
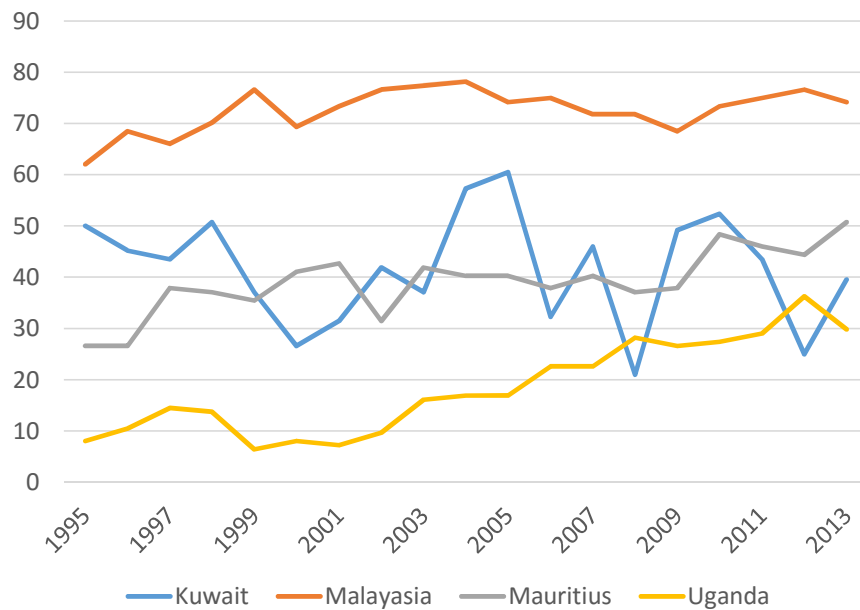


Manufactures & services (% of value added)



Other measures of complexity 1960-2014

Economic complexity index (ECI, Hausmann) Trade in goods and services (% of GDP)



Overview of indices of economic diversification

	Chart 1: UNCTAD		Chart 2: IMF		Chart 3: World Bank		Chart 4: Others	
	(1) Diversi- fication (FKI, goods only)	(2) Dispersion (HHI, goods only)	(3) Diversi- fication (Theil, goods only)	(4) Quality (goods only)	(5) Manu- factures (% of exports)	(6) Manufactures and services (% of value added)	(7) Complexity (Hausmann, goods only)	(8) Trade (% of GDP, goods and services)
Grenada	0	+	+	-	+	+	...	-
Iceland	0	-	+	-	+	+	...	+
Kuwait	+	-	+	-	0	...	-	+
Malaysia	+	0	+	0	+	+	+	+
Mauritius	+	+	+	+	+	+	+	+
Uganda	+	+	+	-	+	+	+	0

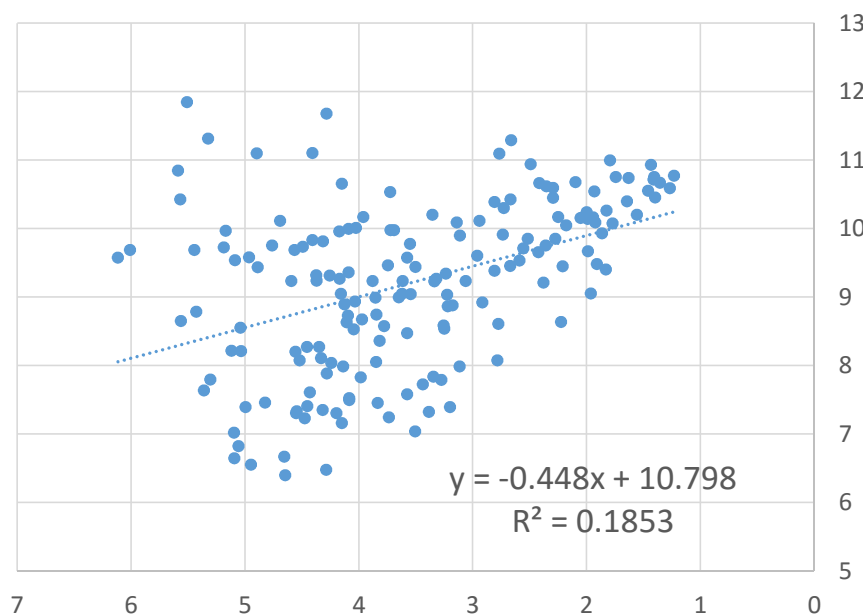
Economic diversification strategies

- Successful, deliberate diversification
 - Malaysia 6/8: Manufactures, incl. cars and electronics
 - Mauritius 8/8: Tourism displaced sugar plantation owners
- Imperfect, accidental diversification
 - Grenada 4/8: Tourism, incl. medical tourism, but hurricanes
 - Iceland 4/8: Crash ended overvaluation, encouraging tourism
 - Uganda 6/8: Services, oil, but still mainly agricultural
- Insignificant diversification
 - Kuwait: 3/8: Little but oil, still

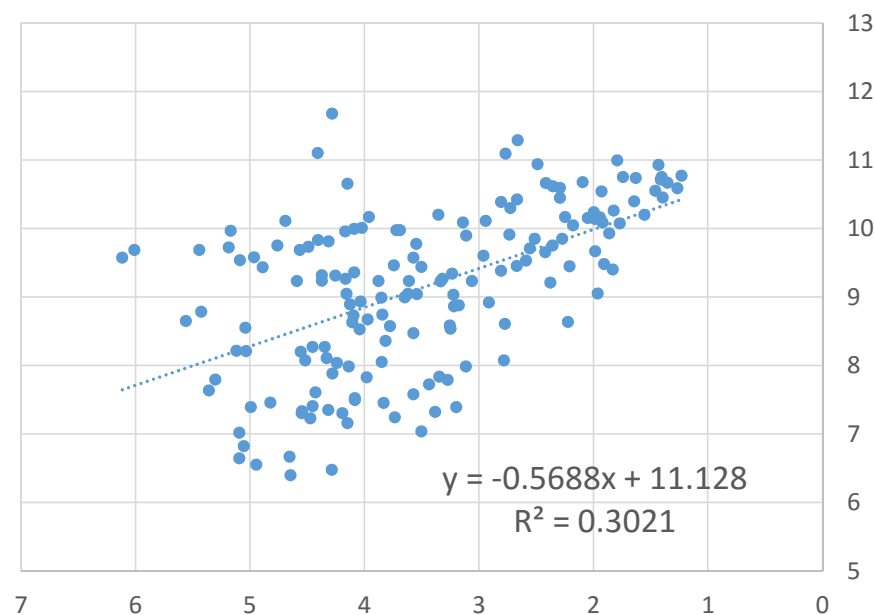
Economic diversification (Theil index) and growth

2

170 countries for which data are available



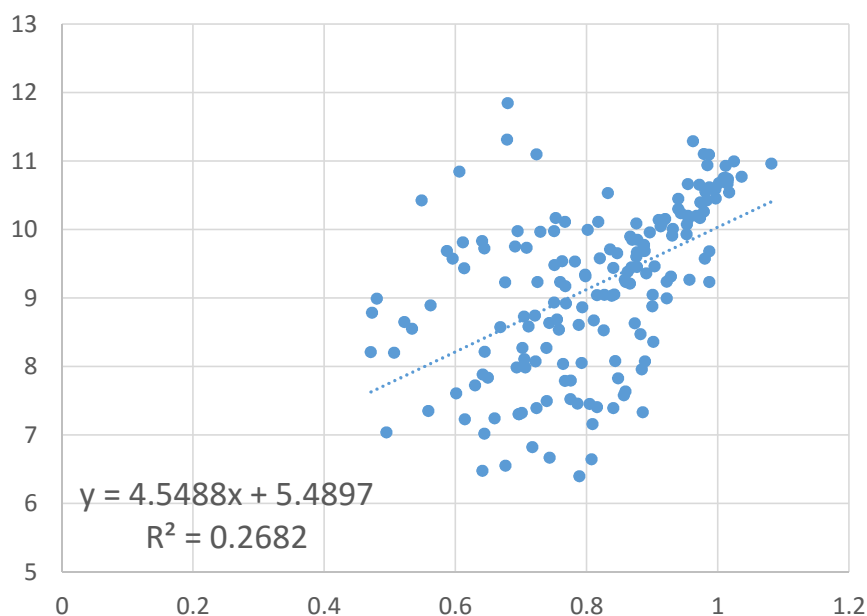
164 countries, all except six GCC countries



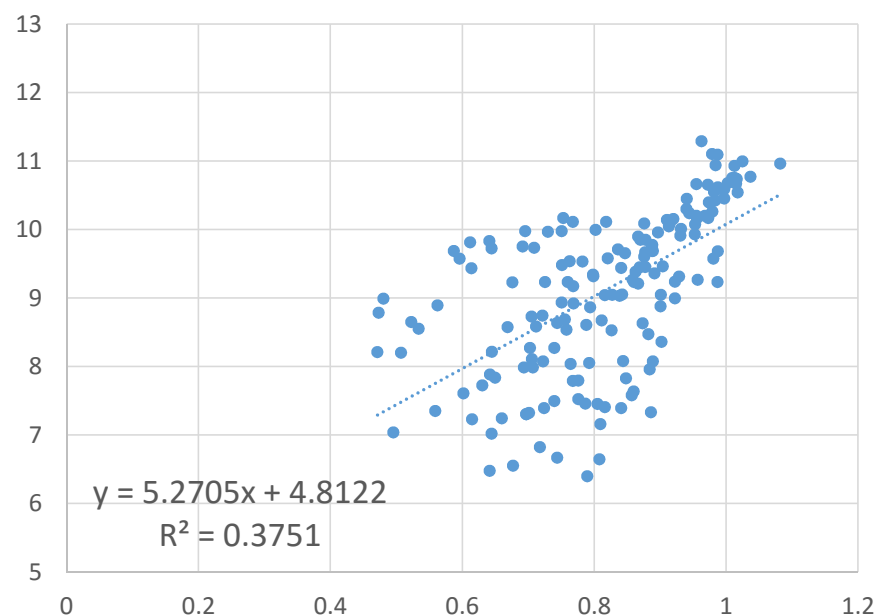
Note: Log of per capita GNI on vertical axes; Theil index of diversification on horizontal axes.

Product quality (IMF index) and economic growth

174 countries for which data are available



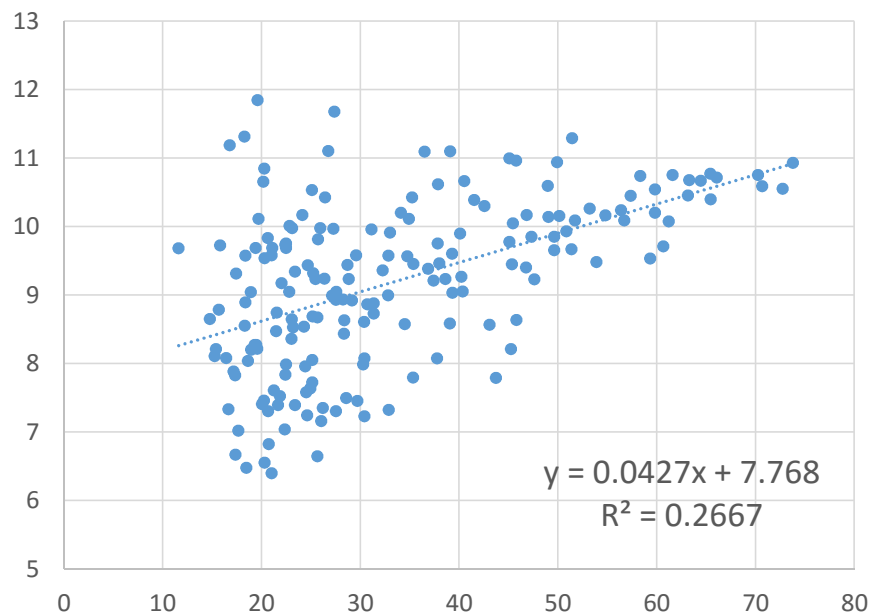
168 countries, all except six GCC countries



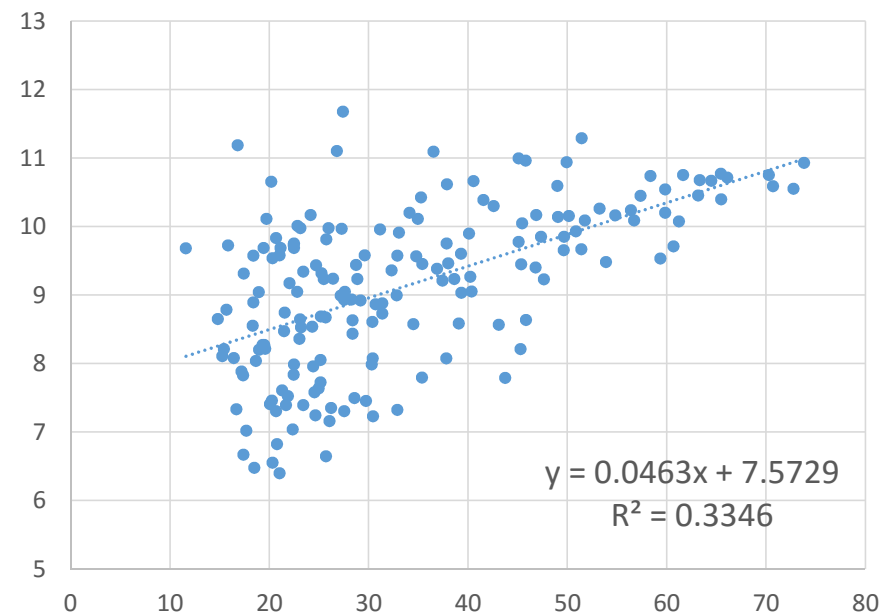
Note: Log of per capita GNI on vertical axes; Product Quality Index on horizontal axes.

Export diversification (Finger-Kreinin index) and economic growth

181 countries for which data are available



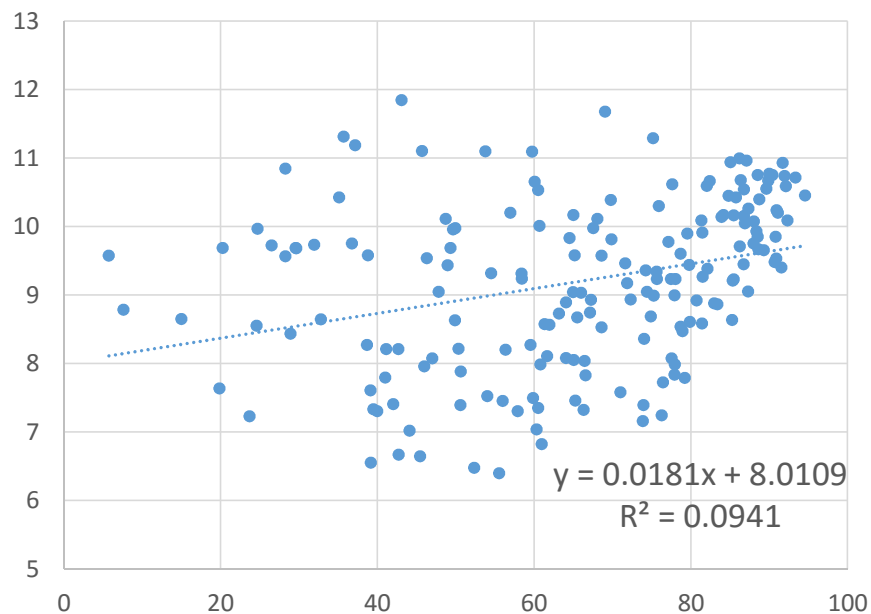
175 countries, all except six GCC countries



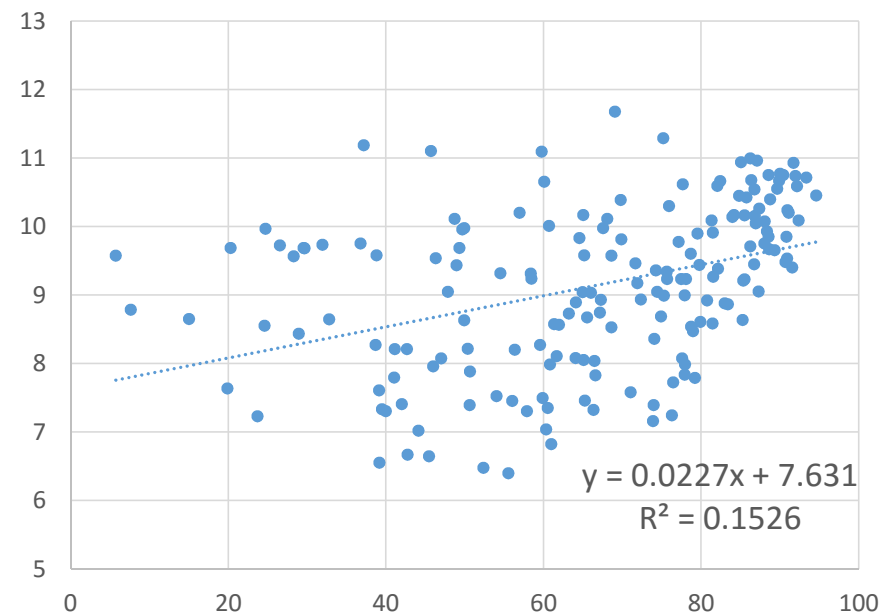
Note: Log of per capita GNI on vertical axes; export diversification index on horizontal axes.

Export dispersion (Herfindahl index) and economic growth

180 countries for which data are
available



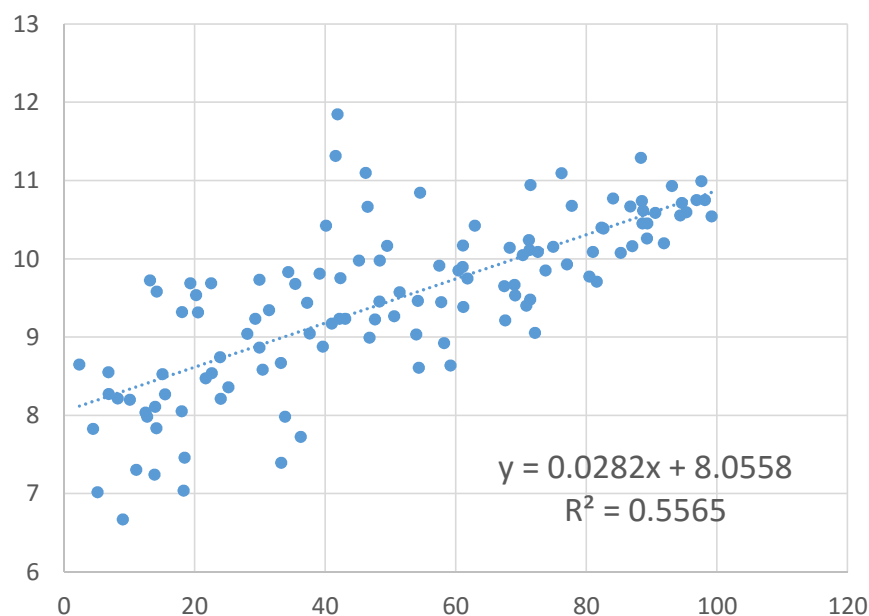
174 countries, all except six GCC
countries



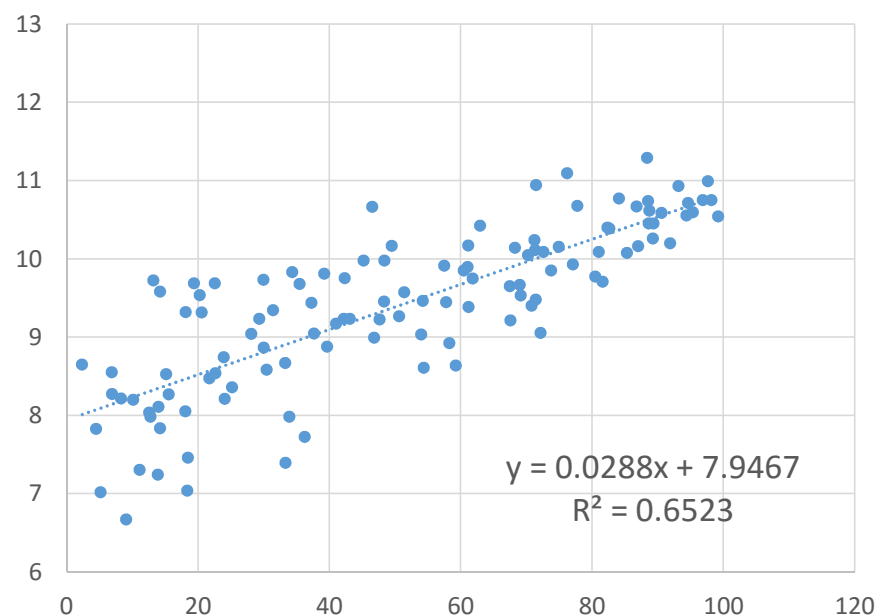
Note: Log of per capita GNI on vertical axes; export dispersion index on horizontal axes.

Economic complexity (Hausmann index) and economic growth

121 countries for which data are
available



116 countries, all except five GCC
countries



Note: Log of per capita GNI on vertical axes; economic complexity on horizontal axes,
computed as $100 \cdot (1 - \text{rank}/124)$ where 124 is the number of countries included.

Double diversification

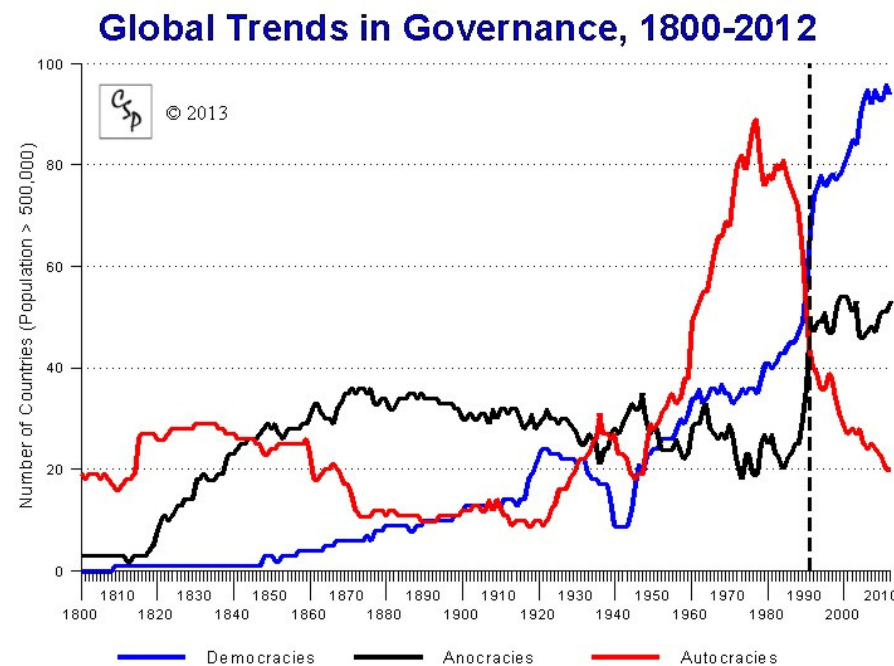
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- Economic diversification and political diversification as two sides of the same coin
 - Economic diversification means diversification of exports and output away from excessive dependence on a single dominant sector or a few typically natural-resource-based commodities as well as change toward increased complexity and quality of output
 - Political diversification means increased democracy, i.e., diversification away from excessive dependence on a narrow political base toward political pluralism
 - Both aim to avert national risk

Political diversification

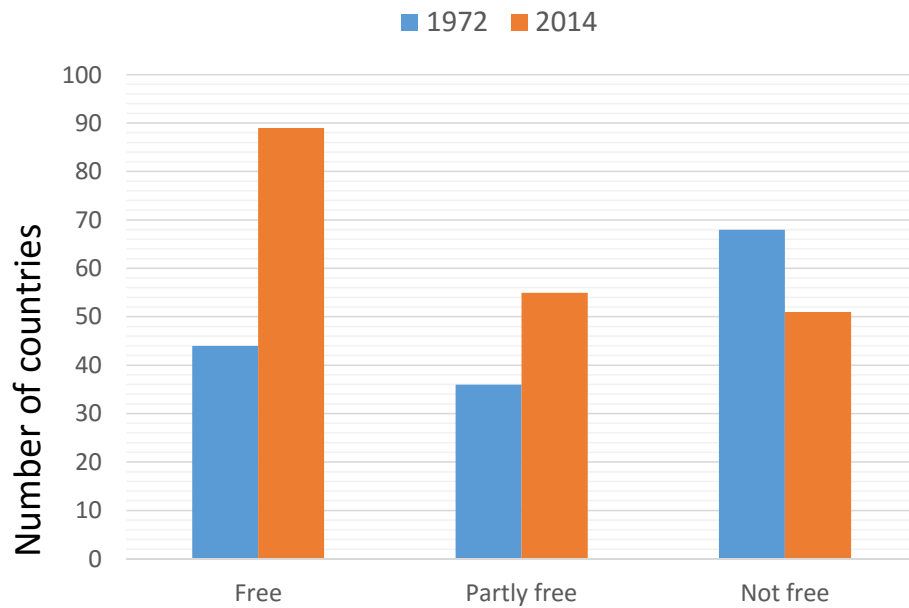
- Key variables
 - Polity2 index of democracy from University of Maryland
 - Freedom House index of democracy

Governance: Number of democracies, anocracies, and autocracies

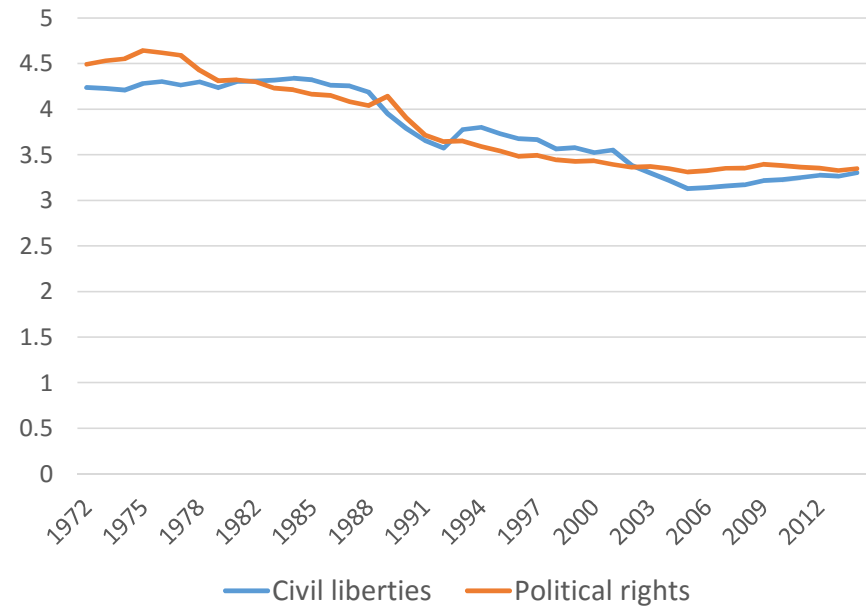


Civil liberties and political rights

Civil liberties and political rights
1972 and 2014

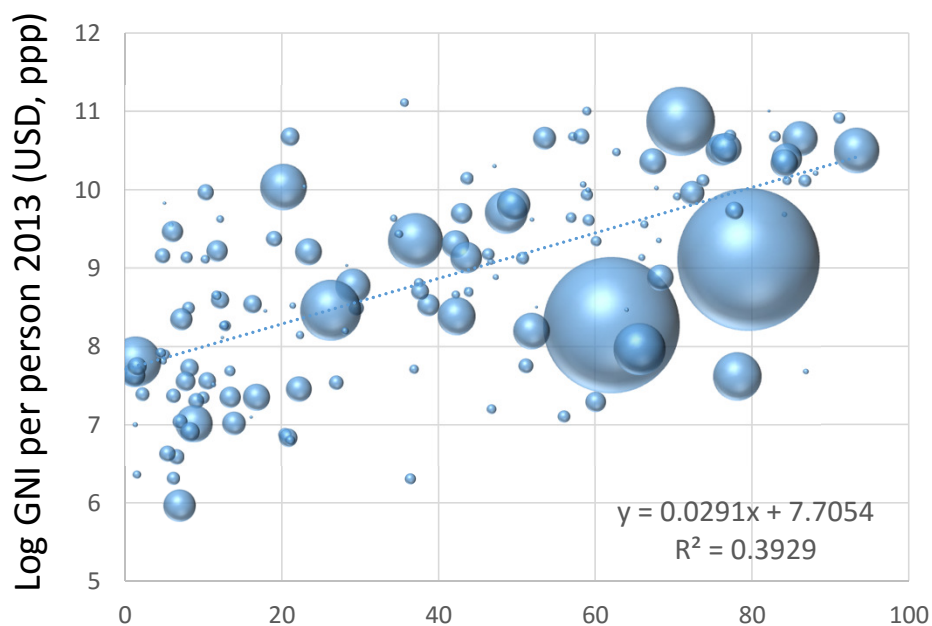


Civil liberties and political rights again
1972-2014



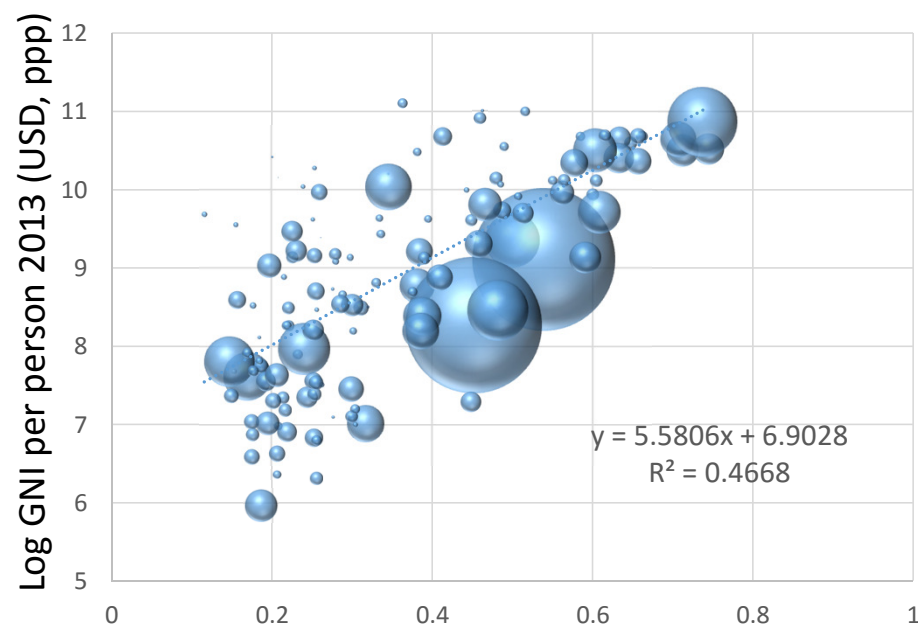
From economic diversification to growth

Manufactures exports and per capita GNI



Manufactures exports 1963-2012 (% of total exports)

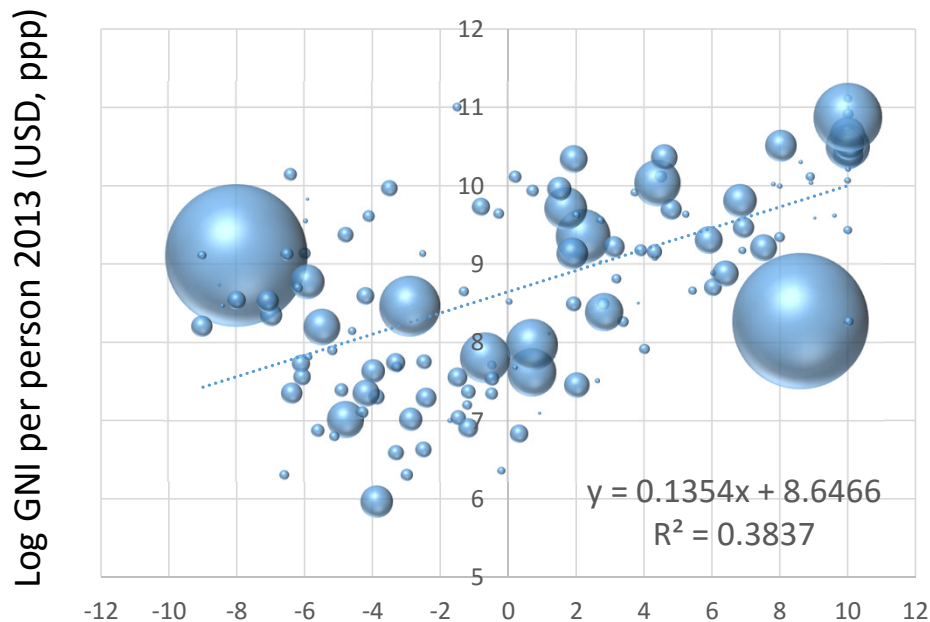
Export diversification and per capita GNI



Export diversification index 1996-2012

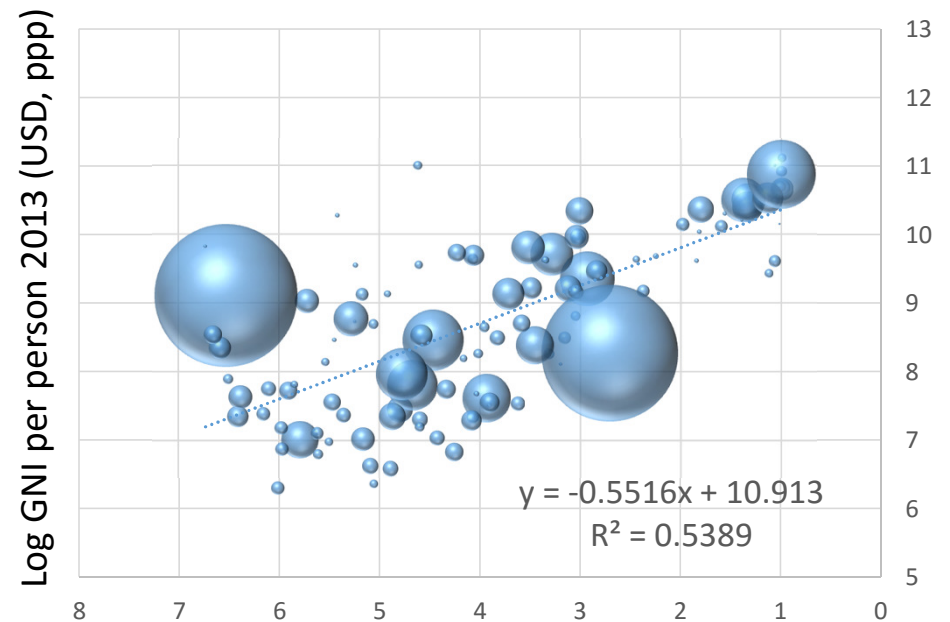
From democracy to growth

Polity2 index of democracy and per capita GNI



Democracy (Polity2) 1960-2012

Freedom House index of democracy and per capita GNI

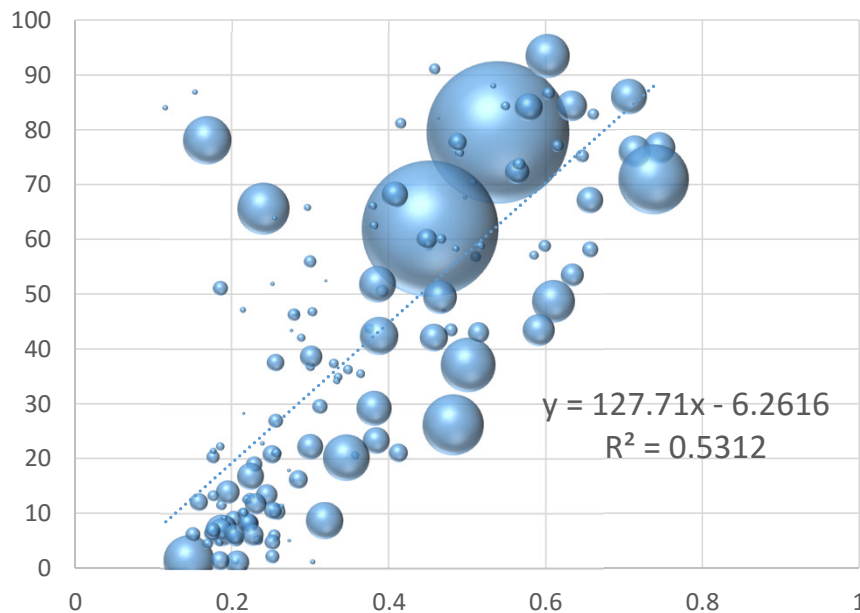


Democracy (Freedom House) 1972-2014

Side by side: Economic and political diversification

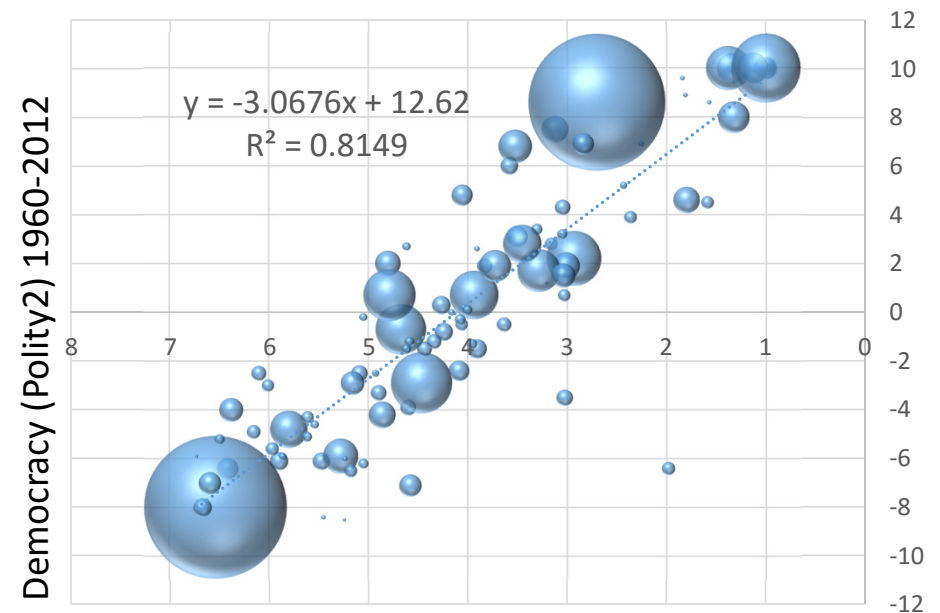
Manufactures exports 1963-2012 (% of total exports)

Two aspects of economic diversification



Export diversification index 1996-2012

Two aspects of political diversification

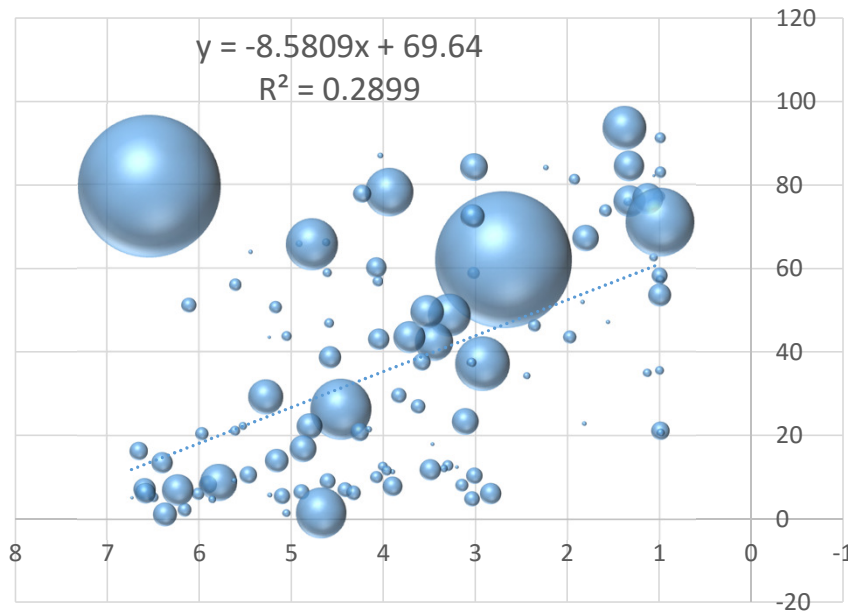


Democracy (Freedom House) 1972-2014

From democracy to diversification I

Manufactures exports 1963-2012 (% of total exports)

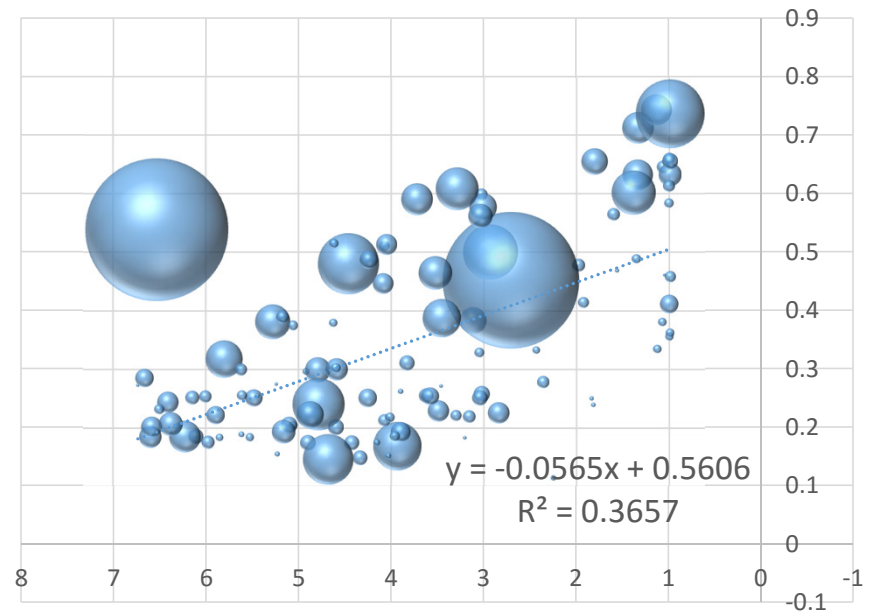
Freedom House index of democracy and manufactures exports



Democracy (Freedom House) 1972-2014

Export diversification index 1996-2012

Freedom House index of democracy and export diversification

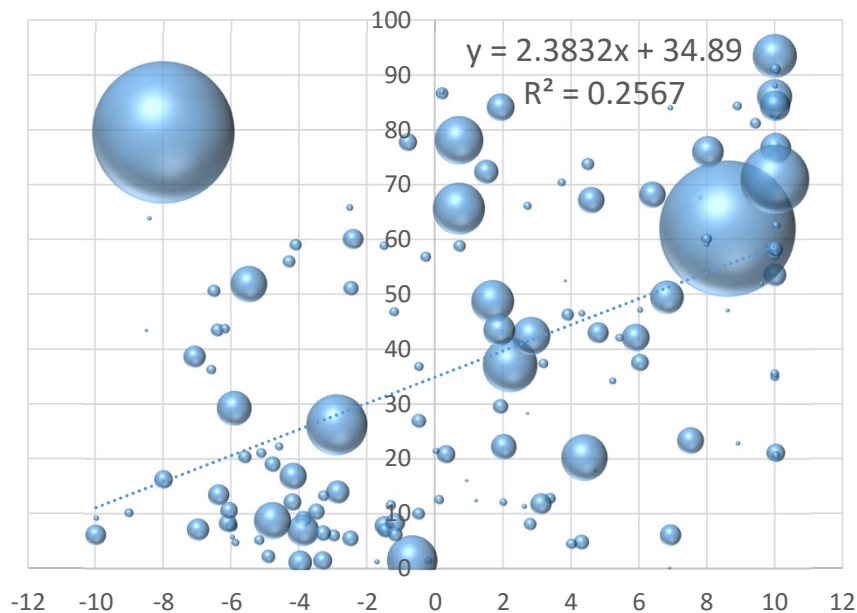


Democracy (Freedom House) 1972-2014

From democracy to diversification II

Manufactures exports 1962-2012 (% of total)

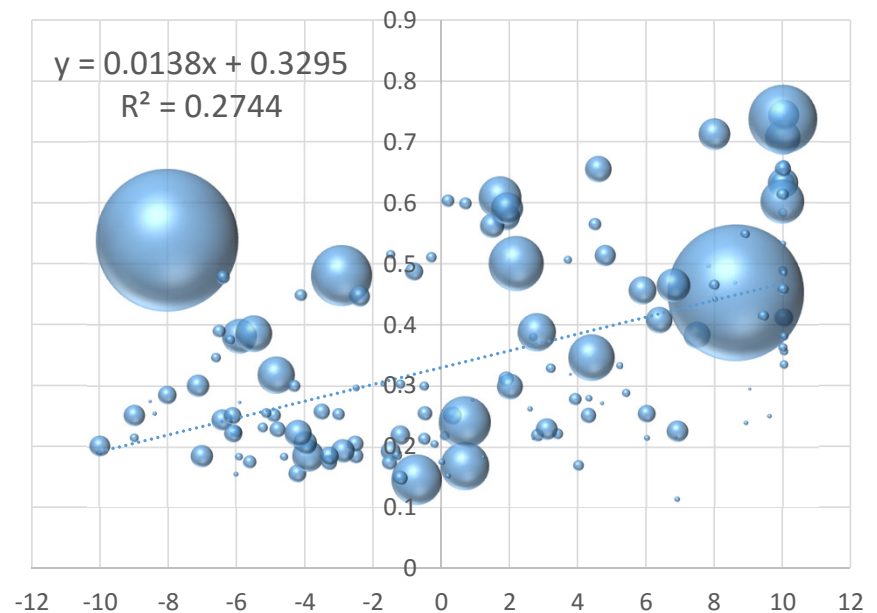
Polity2 index of democracy and manufactures exports



Democracy 1960-2012 (from -10 to 10)

Export diversification index 1996-2012

Polity2 index of democracy and export diversification



Democracy 1960-2012 (from -10 to 10)

Conclusion

- Diversification appears good for long-run growth
 - Data on economic diversification need to be
 - Extended from goods alone to include goods and services
 - Introduced into growth econometrics literature
- Main policy measures needed to mitigate climate change are intimately related to those measures that can be most effective as instruments of economic diversification
 - Natural capital and climate are common-property resources
 - Need efficient and reasonably egalitarian conservation by price
 - Application of the 'polluter pays principle' first recommended by OECD in 1972 and, since 1987, enshrined in Treaty of the European Communities